

INITIAL ASSEMBLY

te: Reference to the illustrations in the Brochure will help to make these instructions quite clear. Note: LEFT HAND THREAD at 10.

- Unpack the Machine. Remove the stiffeners bolted across it. Take care that no parts are missed.
- Assemble the Stand first if one is supplied. The bolts for this are 4 off  $\frac{1}{2}$ " UNC x  $1\frac{1}{4}$ ".
- If the Machine is to be mounted on a bench or solid stand, this should be prepared first and be about 24" (610 mm) high. The bench must be firm and rigid.
- Mount the Machine, partly assembled as it comes from the case on to the Stand or bench, and bolt down securely. Bolts provided for mounting on the Stand are  $\frac{3}{8}$ " UNC x  $1\frac{1}{4}$ " at the back and  $\frac{1}{2}$ " UNC x  $1\frac{1}{2}$ " at the front, where the triangular plate for the Hook (see 12) goes on last.
- Fix the two angles which form the table. The front one is secured with the two  $1\frac{1}{2}$ " x  $\frac{1}{4}$ " socket head countersunk screws with nuts and packing already in place, and the rear with 2 off  $\frac{1}{2}$ " UNC x  $1\frac{1}{4}$ " bolts provided.
- Assemble the slats with the joggled ends at the front and the rear ends supported on the short spacer tubes. The countersunk screws are  $\frac{1}{4}$ " UNF x  $\frac{5}{8}$ " (or  $\frac{3}{4}$ ") and  $1\frac{1}{2}$ ".
- Fit the Handle, take up side-play and fit the lock nut. Fit the Handle Return-springs, lift the Blade an inch (25 mm), support it on a piece of material and connect the Link. N.B. The Springs are most easily fitted before the Link is connected.
- Loosen the Fence Clamp Tommy-nut and fit the Fence. It may be fitted either side of the Blade but on the right is its usual position.
- Set the Fence by loosening the two countersunk screws and nuts, aligning it to the Blade and re-tightening.
- Fit the LINE-GUIDE (in hole used for Stiffeners). Set in position by reference to SHEET VIII under "LINE-GUIDE".
- Mount the Angle-guide/Back-stop at the rear of the machine and note that it is arranged to pivot on the  $2\frac{1}{2}$ " diameter (64 mm) mounting block against a fibre washer. This provides a friction bearing which can be adjusted for tightness so that the Guide remains in position when lifted to allow sheets to pass beneath it. Make this adjustment before finally tightening the nut, and whenever necessary. The Guide Bar is clamped by a LEFT HAND THREAD.

Adjust the graduated scale by loosening its clamping screw and turning it to line up with the zero reading when the Guide Bar is at  $90^{\circ}$  to the blade.

Stand-mounted machines only. Fit the long  $5/16$ " diameter Hook through the triangular plate (see 2), hook it into the lug on the underside of the Handle with the Handle in the down position and lock the two nuts. When the Handle is hooked down it can be used to wheel the machine about.

IMPORTANT - OIL THE MAIN BLADE BEARING, THE LINK AND HANDLE PIVOTS, THE HANDLE RETURN SPRINGS AT THEIR LOOPS AND THE SPRING ANCHOR PIN WHERE IT TURNS IN THE HANDLE. ALSO KEEP THE CLAMPING AND ADJUSTING SCREWS OILED.

Drop the Die opening tool into its place in the bracket welded to the rear table angle.

CUTTING PROCEDURES AND TECHNIQUES.

WARNING. When cutting with one side only of the Blade on heavy material, e.g., 10G or 12G, it is important to prevent the material tipping and wedging the Blade. This may occur if narrow strips are being trimmed and there is a large clearance between Blade and Die. For such work keep about half or more of the Blade in the Die.

REMEMBER the Machine produces a small strip of scrap which can be likened to the dust from a saw-kerf. It must be on the waste side. It is 6 mm (.236") wide when a Standard Blade is fitted.

THE STRIPPERS are the hinged plates fitted one each side of the Blade. They strip the work piece from the Blade on the up-stroke, and can be turned up out of the way when necessary, but should be down for normal cutting. For adjustment see Instruction Sheet VII.

STRAIGHT CUTTING OF SHEET MATERIAL is done by using either (a) the FENCE or (b) the LINE-GUIDE. In either case it is good practice to cut a short notch of from  $\frac{1}{4}$ " to  $\frac{3}{8}$ " deep at first and then feed the sheet forward until this notch engages the Lug at the back of the Blade. The operator need then give his attention only to that part of the sheet near the front end of the Blade. The Lug must inevitably ensure that farther back the sheet is in place. This procedure is particularly useful when a large sheet is being cut.

(a) THE FENCE has four guiding edges and can be used either side of the Blade.  
METHOD OF USE - Set the FENCE for cutting the required width by measuring from the Die to the bottom guiding edge for narrow strips, and to the top guiding edge for wider work. The latter should be used whenever possible, but the bottom edge must be used for narrow strips, otherwise the sheet will not lie flat on the die. Use the Handwheel on the Fence Bar for fine adjustment.

(b) THE LINE-GUIDE is the spring blade device on the right of the machine and is used when cutting to a line. When not in use it can be swung away from the cutting area by pulling the head to the right. It is pivoted in its mounting and located by a ball plunger. The notch in the head is the same width as the Blade and indicates the sides and end of the Die. When it is in position on the work piece it is a simple matter to register a line against whichever side of the notch is to be used.  
METHOD OF USE - Start cutting to a line by making a short notch by direct application of the Blade to the line, this is easily done with one stripper raised. The work-piece is then fed forward, the notch engages the lug at the back of the Blade and the line brought into register with the notch in the Line Guide. The Line Guide can be adjusted - See Instruction Sheet VIII.

CUTTING ON THE ANGLE. Set the ANGLE GUIDE/BACK STOP to the required angle and make the cut. FOR CUTS LONGER THAN ONE STROKE lift the guide after the first cut and feed the sheet beneath it. For very long cuts use the LINE GUIDE as explained above.

Continued on Instruction Sheet III/

CUTTING PROCEDURES AND TECHNIQUES (Cont)

TAKING OUT CORNERS AND V NOTCHES. The two principal ways of doing this are (a) by marking out, and (b) by using the Fence and Angle Guide/Back Stop.

The Table Extensions are very useful for supporting large work-pieces.

- (a) BY MARKING OUT. This is best for non-repetition work, and the suggested procedure is as follows:- Mark out the corners or notches; cut along one side using the Line Guide method described above under STRAIGHT CUTTING: turn the sheet and cut along the other side using the Line Guide if the cut is long, or using the first slot for sighting if the cut is short.
- (b) BY USING THE FENCE AND ANGLE GUIDE/BACK STOP. Set the Fence to the width of the notch, making sure that the kerf is in the waste, and set the ANGLE GUIDE/BACK STOP to the depth. If the two settings are the same, simply present the work to the two stops, cut along one side, turn it over and cut along the other. If the settings are different they must be reversed for the second cut, hence for repetition work make all the short or long cuts first, reverse the settings and make the others. To make V notches, set the ANGLE GUIDE/BACK STOP to the required angle, make one cut, turn the work over and make the other. Extra stops can be clamped to the table for repetition work. N.B. Material that cannot be turned over for cutting, e.g., metal faced plywood, is best notched by marking out.

FOLDED CORNERS FOR SPOT WELDING, ETC. Cut only a slot using the ANGLE GUIDE/BACK STOP and FENCE or a marked line. The strip of metal removed enables a very neatly folded corner to be made. [ASK ABOUT THE GABRO BF 620 BOX FOLDER].

GAPPING. To cut a gap in the side of a blank make a series of side by side cuts to the required depth and width. These cuts are best carried out by moving the material from LEFT TO RIGHT with the ANGLE GUIDE/BACK STOP set as a depth stop and the left Stripper raised. The edge will then be clearly visible and the steps for each cut easily made. SOMETIMES THE WORK CAN BE BEST HELD BEHIND THE ANGLE GUIDE/BACK STOP. If the width is required to close limits use the Fence and its micro-adjustment to control the final shaving cuts. Even in 10G. mild steel, cutting gaps require little effort, as after the first cut, only one side of the strip is being severed, but note WARNING on SHEET II.

NIBBLING. The end-cropping action of the GABRO GUILLOTINE/NOTCHER lends itself admirably to hand nibbling. The Machine should always be tried for jobs not obviously suitable for it. For example, an internal radius can be formed by taking out one or two V-shaped pieces to remove most of the material and then using the end of the Blade to clip away the remainder, working to a line. The Nibbling Steady available as a low cost accessory makes this quite easy and is very useful on art work as well as engineering. It takes a lot less time than may be expected and leaves an edge requiring very little finishing.

CUTTING ANGLE INCLUDING SLOTTED ANGLE. Cut square root material by making one cut for each leg. If the first cut fails to reach tight into the corner, make an additional short cut. To cut SLOTTED and other round-root angle, cut one leg up to the bend, turn the material slightly, cut out the bend, and cut the other leg. Lift the Strippers when cutting the bend. This technique is less tedious than appears and produces a fully acceptable cut.

CUTTING PROCEDURES AND TECHNIQUES (Cont).NOTCHING ANGLE INCLUDING SLOTTED ANGLE.

- (a) END NOTCHES. For legs up to  $1\frac{1}{4}$ ". Set the Fence to the required depth and make the cross cut; turn the work and make the cut along the root with the Stripper lifted and the vertical leg tight against the Blade. If the notch is not the full width of the leg, use the Back-stop for the cross cut and the Fence for the lengthways cut. When making the lengthways cut in SLOTTED or other round root angle, use the Fence to hold the vertical leg close to the Blade, or, if the angle is of a heavy gauge, clamp on a piece of steel about  $\frac{3}{8}$ " thick instead of the Fence. For legs over  $1\frac{1}{4}$ ". For full width notches, make side-by-side cuts after setting the Fence to control the depth. If the notch is not full width, it may be possible to make the lengthways cut as for legs up to  $1\frac{1}{4}$ " provided the vertical leg clears the Blade carriers.
- (b) V NOTCHES. When cutting V Notches prior to bending angle material, it is often an advantage to be able to take out the sharp point of the V in order to make the bend easier. For this type of notch, make a cut straight in to the centre point of the V, and then, by using the Angle Guide, cut the sides to the required angle.
- (c) SIDE NOTCHES (GAPS). Cut these as already explained in GAPPING on SHEET III, but wide leg angle may need a second row of cuts if the notch has to reach tight into the corner. Likewise, SLOTTED and other round root angle may need a second row with the angle slightly turned if the notch has to reach the plane of the uncut leg.

CUTTING EXPANDED METAL. When cutting the wider meshes of this material, at certain parts of the diamond it may happen that the open ends make feeding forward difficult. This can be readily overcome by reducing the upward stroke so that the Lug does not come above the Die level. As there is no grip on the Blade as occurs with the thicker plain sheets, the freeing purpose of the Lug does not apply.

LIST OF MATERIALS, WITH NOTES, THAT THE GABRO WILL CUT

NOTE. Where a single machine is used for many gauges, e.g., from 28G to 10G or over, some adjustment of Blade/Die clearance will be necessary. This is very easy to do and takes only a minute or two. See Sheet VIII.

Material SHEETS & ANGLES	Remarks
Mild Steel	All grades of Mild Steel can be cut on the Gabro with a clean burr-free edge. The NOTE above applies.
Stainless Steel	The Gabro can be used with absolute confidence on this material. It cuts with a clean crisp action and has only slight effect on Blade life. The NOTE above applies
Aluminium and Aluminium Alloys	These materials can be readily cut up to 3/16" (4.8 mm). The use of a little paraffin or proprietary lubricant is recommended to stop "picking-up". The NOTE above applies
Other Non-Ferrous metals.	Generally these can be cut to 3/16" (4.8 mm), but the limit may be lower on very high tensile alloys. The NOTE above applies.
Formica, Waverite and similar Laminates.	The GABRO cuts these materials with an edge of un-parallelled quality, completely free from chipping and almost effortlessly.
Copper-Faced Laminates	Many grades of this material can be cleanly cut with a standard GABRO. Special thinner than standard blades can be supplied to reduce the waste; also SPECIAL CONCAVE EDGE BLADES for the more difficult grades. The makers should be consulted about these materials.
Expanded Metal & Perforated Metal	A GABRO can be a "Godsend" to users of this material who have no "Long-blade" guillotine, and also to those who have, for notching, etc. The machine cuts all grades of Expanded and Perforated Metal up to its full capacity in the corresponding sheets and makes a perfect job. See Expanded Metals on Sheet IV.
Aluminium-Faced Plywood	With the metal side down, the GABRO cuts this material with ease, and leaves a clean square edge generally needing no further attention.
Hardened Steel and Spring Steel	GABROS are being used to cut and slot carbon steels in various states of hardness. Consult the makers for detailed information.
Hardboard	The standard GABRO cuts hardboard with ease and leaves a perfect edge. No special Blades or technique required.
Plywood	Thin grades of plywood cut as hardboard.
Plastics, Perspex, etc.	The GABRO cuts nearly all plastic materials quite easily and cleanly. The exceptions are the very hard and brittle materials which may shatter.
Other materials, e.g., Plastic coated Steel	Almost all sheet material of an unusual nature can be cut with the Standard GABRO. Usually without alteration or special Blades. Makers will always advise.

POSSIBLE DIFFICULTIES.

THE GABRO GUILLOTINE/NOTCHER is unlikely to give much trouble to a user who has acquired some small amount of experience with it. However, below are listed, with appropriate remedies, difficulties which might arise.

FAILURE TO CROP AT THE END OF THE STROKE. This, the only likely difficulty, can occur soon after the Machine has been put into service and is due to the Blade settling down against its various thrust members. To provide simple and reliable adjustment for this and to accommodate movement due to wear and regrinds, the Blade pivot is in the form of an Eccentric Bush. To adjust, loosen the nut on the bolt through the Pivot and turn the bolt slightly to move the Blade forward.

Avoid moving it too much or it will strike the Die Front Piece and damage it. After re-tightening the nut, check the action again. The end of the Blade should just clear the Die.

DIFFICULT FEED-THROUGH (DUE TO SHEET JAMMING AT THE BACK OF THE BLADE)

This is very unlikely to happen and will occur only if the Stop which limits the upward travel of the Blade has become badly misplaced. This Stop is drilled off centre. Loosen the nut and turn the Stop so that the upward movement of the Blade is arrested when the thinner portion of the Lug is in the slot cut by the Machine. This adjustment is not critical and is easily made. Securely tighten the nut.

UNDUE DIFFICULTY IN CUTTING NEAR MACHINE'S UPPER LIMIT. This may be due to the Blade and/or Die being blunt, or to insufficient clearance between Blade and Die. STUDY NOTES ON CLEARANCE ON SHEET VIII.

MAINTENANCE AND ADJUSTMENTS

SHARPENING BLADE AND DIE. This may not be necessary for many months or even years - it depends entirely on the materials cut and the care taken.

N.B. WHERE GOOD GRINDING FACILITIES ARE NOT AVAILABLE PLEASE RETURN PARTS TO MAKERS. A PROMPT GRINDING SERVICE IS AVAILABLE.

GRINDING PROCEDURE.

BLADE. The Blade will almost certainly need grinding before the Die. It may be ground on an ordinary bench grinder which should be in good condition with a properly dressed wheel; also as the periphery of a grinding wheel leaves a concave surface, the work-rest should be half a Blade's thickness (3 mm) below the centre of the wheel. This ensures the concave being central - not essential but better for really accurate work.

Lay the Blade flat on the work-rest and grind the profile only; carefully preserve the shape. Do not grind the Lug but keep the small radius in the corner as small as possible.

Move the Blade slowly across the wheel and remove no more metal than necessary; do not over-heat. The front end may be ground a little if the corners are chipped.

SEE BELOW FOR REFITTING.

DIE.

N.B. THE RIGHT SIDE PIECE HAS A FIXED ABUTMENT AND THE LEFT IS ADJUSTABLE.

The Die Front Piece has FOUR CUTTING EDGES already ground and can be turned round and over to bring them into successive use.

The Die Side Pieces have TWO CUTTING EDGES already ground and can be turned round to bring them into successive use.

The parts of the Die should be ground on a tool or surface grinder.

The Front Piece can be reground, but it is preferably replaced.

Grind square across the cutting edges. The surface should not be ground.

The Side Pieces are ground with 1° rake. The surfaces should not be ground.

SEE BELOW FOR REFITTING.

FITTING BLADE AND DIE.

BLADE. Make sure the blade and inner faces of the Blade carriers are quite clean, fit the Blade and bolt up. Tighten the centre bolt first. DO NOT FORGET PACKING SUPPLIED WITH SPECIAL BLADES. Carefully lower the Blade and check front clearance (See "FAILURE TO CROP AT END OF STROKE" on SHEET VI). If the Die is being disturbed this latter adjustment must be done later.

DIE. Secure the Front Piece first tight against its abutment. Secure the right Side Piece next, tight against its fixed side abutment and tight against the Front Piece.

Fit the left Side Piece with the two hex-head bolts at the side of its abutment slightly turned back, and its three countersunk screws and nuts lightly tightened.

Carefully lower the Blade and check the front clearance as indicated under "BLADE" above.

Turn the two hex-head bolts a little at a time until the required clearance between Blade and Die is achieved. (See CLEARANCE BETWEEN BLADE AND DIE on SHEET VIII).

Finally tighten the three countersunk screws and nuts.

MAINTENANCE AND ADJUSTMENTS. (Cont)CLEARANCE BETWEEN BLADE AND DIE.

Clearance between Blade and Die has a considerable effect on cleanness of cut and effort required. For example, if thick material is cut with too little clearance much more effort is needed than is required with correct clearance. Correct clearance is usually about  $7\frac{1}{2}\%$  of the stock thickness. For easy cutting of 10G ( $\frac{1}{8}$ " or 3.2 mm) 10% can be used, i.e., .012" or .3 mm each side. Provision for adjustment on the "GABRO" is based on a fixed Die Side Piece on the right and an adjustable one on the left - the Blade can float sufficiently to take up its central position. The 4M2 is normally delivered with a total of .006" (.15 mm) clearance, i.e., .003" (.075 mm) each side. This is satisfactory for most work from about 28G to 14G, i.e., .015" (.4 mm) to .080" (2 mm).

**TO REDUCE THE CLEARANCE.** Lift the Strippers. Very slightly slacken the nuts on the three countersunk screws holding the left Die Side Piece. Lower the Blade into the Die. Select a feeler gauge equal to double the correct clearance and using the gauge between the Blade and the left Die Side Piece, move the latter towards the Blade by tightening the two hex-head bolts at the side. Move them equally and make sure the Side Piece remains tight against the Front Piece. Retighten the three nuts. In practice it is usually found unnecessary to slacken the nuts on the countersunk screws, unless they are very tight.

**TO INCREASE THE CLEARANCE.** Lift the Strippers. Very slightly slacken the nuts on the three countersunk screws holding the left Die Side Piece. Turn back the two hex-head bolts at the side about half a turn. Open the Die by inserting the turned down end of the Die Opening Tool provided and applying a careful wrenching action. Re-adjust to the required clearance as explained above in "TO REDUCE THE CLEARANCE".

**FRONT CLEARANCE.** See SHEET VI "FAILURE TO CROP AT END OF STROKE".

THE ANGLE GUIDE/BACK STOP will probably need attention only where the Clamping unit pivots on the machine. Adjustment is explained at item 10 on SHEET I - Initial Assembly.

**NOTE:** If the tommy bar obstructs the sheet being cut, follow the instructions under CLAMPING BOLTS AND TOMMY NUTS. (Sheet IX). The tommy-nut on the head of the Guide has a left hand thread. The graduated scale can be turned for adjustment to zero by loosening the screw and nut at the back. The guide bar should be lightly oiled where it slides.

THE LINE GUIDE may become misplaced by accident, or in the course of time.

**TO ADJUST FOR ACCURATE REGISTER** with the Die, loosen the  $\frac{1}{4}$ " hex-head screw on the top of the mounting and move the inner block, which carries the ball plunger, in or out as required. The spring blade enables the pressure on the sheet to be controlled. Adjust it by slackening the mounting nut and turning the unit. Only enough pressure to keep the head in contact with the work-piece is necessary. Oil the spring blade where it moves in the mounting.

THE STRIPPERS will need attention only when they will not stay up when lifted. The remedy is simply to tighten the lock nuts on the spindles.

Continued on Instruction Sheet IX/



MAINTENANCE AND ADJUSTMENTS (Cont).

THE FENCE may become out of line with the Die. TO ADJUST, loosen the two countersunk screws and nuts holding it to its clamp, straighten as required and re-tighten the screws and nuts. Oil the thread in the Handwheel and the Fence Bar where it slides in its brackets.

CLAMPING BOLTS AND TOMMY-NUTS. On GABRO machines all clamping bolts are arranged so that they may be turned to a position where the nut tightens with the tommy conveniently placed. This applies especially to the clamp holding the Angle Guide/Back Stop bar. If the tommy drops down and obstructs the forward feed of the work, loosen the tommy-nut sufficiently to push the bolt back and turn it as necessary. The other tommy-nuts may be similarly made to tighten where required.

GENERAL.

The GABRO GUILLOTINE/NOTCHER is made to a well thought out design which lends itself to easy maintenance. All spare parts are available. If any advice on maintenance or special applications is required this will be freely given. If the points raised in these instructions are acted upon, the Machine will continue to operate satisfactorily, even in spite of considerable abuse and neglect. DON'T FORGET LUBRICATION.