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# MONOTYPE

## TECHNICAL BULLETIN

Issued for information to Operatives of 'Monotype' Machines

No. 21

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### EDITORIAL

WE are publishing in this issue a general article on the care of matrices and so it might not be out of place to mention briefly here the new matrix factory which we have had operating at our Works now for over a year. This review is especially for our many overseas readers who have not the opportunity to visit us at Salfords to see things for themselves, but who like to know what is being done to supply them more quickly—whether it be with that odd urgent “special” or the cutting of a whole new fount.

With the opening up of markets in the post-war years, the demand for matrices in the incredible variety called for by printers in all parts of the world was so great as to swamp the productive capacity of our old matrix factory. Plans were quickly put in hand for the erection of a completely new plant with departments laid out for efficient flow-line operation. The result to-day is a fine new factory, part of which can be seen from the illustration on this page of the interior of the main production bay.

The building itself is of interest. Of brick construction, it is fitted with a “Barrel Vault” roof which is specially designed to combat dust, the greatest enemy in matrix making. The floor is of hard wood laid on runners over concrete and under the concrete is a floor heating unit spread over the whole area of the

factory, maintaining a uniform heat and excluding draught pockets. A second heating and ventilator service fitted to the roof unit produces warm or cold air if required. Each bay is laid out to its own particular requirements and makes the best use of daylight with maximum ventilation.



In the new matrix stores, matrices are stored in such a way that it is only a matter of seconds to locate any character in any size. On the manufacturing side, the traditional methods used to produce the quality and finish of ‘Monotype’ matrices have not been varied except to take advantage of what can best be described as a steady progress in precision engineering.

This new factory at our Works in Salfords is one more unit planned to provide maximum efficiency of service to users of ‘Monotype’ machines throughout the world.

*A ‘Monotype’ Keyboard—Explanations and Diagrams* is a book all students of the Keyboard will find useful. Mechanisms of the Keyboard are lucidly explained with the help of accompanying diagrams. It has just been published and sells at 10s. 6d. plus postage. Students ordering copies through approved Printing Schools will be allowed a discount of 2s.

R. C. ELLIOTT.

The Technical Committee would welcome any suggestions.

These should be addressed to the Chairman, Technical Committee, The Monotype Corporation Ltd., Salfords, Surrey

Registered MONOTYPE Trade Mark

# FOR YOUR INFORMATION

## CARE OF COMPOSITION MATRICES

by E. G. COBBOLD (*Chief Inspector and Technical Superintendent—Matrices*)

THE high standard of 'Monotype' matrices can be maintained if, as a matter of strict routine, the following instructions are carried out.

When not in use the matrices should be covered or stored in a dust-proof cabinet.

Cleanliness of the centring pin seating is essential for accurate matrix positioning before casting. Foreign matter in a cone hole will affect the alignment of type cast from such a matrix; it should be removed by washing with a solvent, such as clean benzine or trichlorethylene, followed by brushing and a blast of compressed air.

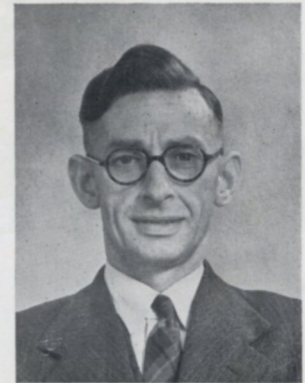
During long runs of casting, the seating face of the matrices and mould surface should be wiped clean at least twice a day. A gauge 8CT4 is obtainable for testing the centring pin, the end of which should be slightly ball-shaped to prevent damage to the wall of the cone holes. If the end of a centring pin becomes worn to a point, it may push the base of the cone hole against the matrix-case wire (c8A3), which will restrict the up and down movements of the matrix as it contacts with and withdraws from the mould. On no account should a matrix-case wire become visible at the base of a cone hole.

Be certain the cone end of the centring pin is not bent. A bent centring pin is liable to wear or score the cone holes of the matrices, or cause burrs to appear on the type between matrix and mould.

It is essential that the sliding frame and cross slide draw rods are adjusted correctly, so that a matrix is brought exactly to position for the centring pin to enter it without pulling it sideways in any direction; check this setting with the matrix-case at opposite ends and sides, making sure that lock nuts c9A5 and b5C12 are securely tightened after any adjustments are made. Be certain that the bridge adjustments are correct otherwise undue wear on both mould and matrices will occur. Excessive pressure or hammering on the mould bruises the faces and apertures of the matrices causing the heads of the type to lengthen or break off as the matrix-case rises after each casting.

The surface of the mould must be kept clean. Should the matrices seat on foreign matter, the character aperture will be partially closed, causing the heads of the type to be lengthened or pulled off. This applies more especially to narrow characters.

Matrices should not be used on a worn mould of the same or larger point or didot size than the body size of the matrix, as the indentation on the mould may damage the seating face of the matrix.



We have occasionally had sets of comparatively new matrices returned with the complaint that bad alignment is being experienced. On examination the trouble has been traced to a worn mould, which has caused the seating face of the matrix to become rounded. In some instances the sides of the matrices have swollen making them tight in the matrix-case thereby restricting the up and down movement.

Should a character break off in its matrix, a hard instrument should not be used for clearing the matrix. The correct method is as follows, and is usually effective: place both justifying wedges in the extreme left-hand position and perforate the paper ribbon so as to locate the matrix which is to be cleared. Bring the space transfer wedge into operation and give the machine a few revolutions with the pump mechanism in action until the character is cast.

If a matrix fails to seat on the mould it is advisable to clean the set of matrices and the matrix-case. Bad seating is usually caused by small particles of type metal falling on the mould. This may also damage the seating face and character aperture of the matrix.

Before inserting a matrix-case, make certain that the matrix-case wires are not bent and that all are inserted, that the wire retaining spring plate is securely in position to prevent the wires from working out, and that the matrix-case enters the sliding frame freely. Care should also be taken to keep the bridge free from foreign matter, as this may fall into the cone holes of the matrices whilst the machine is in motion.

When possible, use the matrices on the same mould and machine previously used.

Before the bridge is replaced it is advisable to carry out the following routine:

1. Check the centring pin in its bearing. It must not be loose or have the slightest side shake, but must move up and down freely.

[Continued at foot of Page 3]

## MACHINE IMPROVEMENTS

### POINT MEASURE GAUGES 8CT7

To facilitate their removal when in use on the galley, the height of the gauges has been increased (from  $\frac{3}{4}$ " to  $\frac{7}{8}$ "). To reduce the risk of damage and oxidation these are now being made in stainless steel.

### UNIT RACK STOPS 31KB

To safeguard against faulty unit registration, wrong characters and bad justification through the stops sticking together, the punch bar levers (which operate the unit rack stops) have been spring loaded. These springs oppose the tendency for adjacent stops to rise together with the required one.



### CENTRING PIN AUXILIARY SPRINGS 36A

To overcome special adjustment of the low-quad mechanism when casting large type composition, a centring pin auxiliary spring assembly (marked "Large Composition") containing spring (b36A1) has been introduced. The existing assembly (now marked "Display"), containing a stronger spring (a36A1), is retained for casting display type.

### TYPE ALIGNMENT GAUGE a8CT2

To facilitate handling smaller type bodies, the abutment at the end of the table has been reduced in height.

### KEYBOARD 20" COPY HOLDER ATTACHMENT d2KU1

With the previous design, difficulty was experienced in holding copy which was clipped together. To obviate this, the improved design has rubber-bonded rollers (instead of aluminium). These rollers now open sufficiently to enable the operator to insert the copy without any difficulty.

The roller release bar has been redesigned and supports the copy, keeping it clear of the keybuttons.

An adjustable support, situated centrally behind the rear roller, eliminates any lack of tension that may have existed previously between the two rollers.

A blank strip, incorporating a sliding pointer, enables the operator to mark any position on the copy.

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### CARE OF COMPOSITION MATRICES—Continued from Page 2

2. Make sure there is no surplus oil on the bridge that may drop on to the matrices or matrix seating face of mould and so cause burrs to be cast on the type between matrix and mould.
3. Check the cone end of centring pin to see that it is absolutely clean.

After matrices have been used, clean and inspect them. Any that require replacing due to wear and

tear should then be ordered and be at hand when required. At the same time make out a card, stating job, mould and machine they were used on, equipment and operative; this will provide a quick check if needed later on.

At every stage of manufacture each matrix is examined, and scrapped if in the slightest degree defective. If in spite of these checks any new matrix is considered defective it should immediately be returned to our Works.

## QUESTIONS AND ANSWERS

*Q.—At what air pressure should the Keyboard be operated ?*

A.—The Keyboard is designed to work on an air pressure of 15 lb. per square inch and to obtain the best results it should be kept at that pressure.

If a higher pressure is used there will be a tendency for some parts to break or wear quickly and the operator may find it fatiguing to operate the machine over long periods.

Some operators do reduce the pressure below the 15 lb. level, but it is unwise to do so, as the machine will then tend to function inaccurately, and fast operators may find that inaccurate unit registration becomes evident, resulting in badly justified lines of type being produced on the Caster.

On machines that are fitted with a reducing valve X43KC, it is advised that the adjustment should not be altered.

The valves are sent from the Works correctly adjusted to ensure that the machines receive the 15 lb. per square inch when being operated. They are intended for use where the main air supply is greater than the keyboard's requirements and where the pressure is subject to fluctuation.

When it is necessary to clean the valve, precautions should be taken to see that the setting is identical after the cleaning operation as before.

*Q.—Is it possible to provide a quickly adjusted alternative em scale for use in catalogue, time-table work, etc., where the markings are frequently recurring, so saving wiping out and remarking ?*

A.—It appears to be not generally known that provision has always been available for a temporary scale to be secured by the clips a9KB5 over the existing keyboard em scale. We do not provide special scales, but any suitable piece of card may be used.

*Q.—In the present type of pump body piston end it appears that no control over the flow of metal is obtainable when the pump body begins to wear, whereas the slotted washer type has perfect control between the closed and fully open positions. Why was the latter superseded ?*

A.—Providing the piston stem end screw is correctly adjusted the flow of molten metal is controlled by the area and depth of the metal inlet slots, and it makes no difference if these slots are in screw or washer. The washer was discarded because the same result could

be obtained with the slots in the screw, thus avoiding an additional part with extra faces to be kept clean.

*Q.—What is the cause of water getting between working parts of a mould, passages of which seem quite clear ?*

A.—There are several possible causes :

1. Lack of cleanliness causing leakage between intermediate plate and side blocks.
2. Side block cover spring screws insecurely tightened.
3. Lack of care when blowing out the water passages prior to placing mould in storage box.
4. Excessive water pressure. The water supply should be obtained from a storage tank and not direct from the main supply.

*Q.—Some time ago we ordered a pair of keybar frames as a duplicate to an existing pair. We quoted the numbers of the present set, but on checking the new equipment we found there were certain alterations. Why is this ?*

A.—Revisions to an existing layout are sometimes advisable, and where they are of a minor nature we retain the numbers of the keybar frames. It is appreciated this can be confusing if a printer is ordering a duplicate set, and if an order is now received for a layout which has been altered, we send a copy of the latest arrangement for the customer's approval. It is generally advisable to adopt the latest layout and to alter the existing keybar frames to suit.

*Q.—Why are chargehands not considered competent to fit silicon rods in gas temperature regulators ?*

A.—The temperature regulator is a delicate instrument, and as complete interchangeability of components cannot be assured we do not advocate changing of worn or damaged parts. Changing of the silicon rod involves selective assembly of various parts which we stock in differing sizes to enable the correct temperature control to be obtained. We agree the expansion tube may need a certain amount of adjustment, but not sufficient to cover the minor dimensional differences which may cause big errors in degrees of temperature. Adequate stocks of replacement regulators are held at our Works, and on receipt of an order stating if two-hole or three-hole fixing is required, a replacement will be sent by return.