

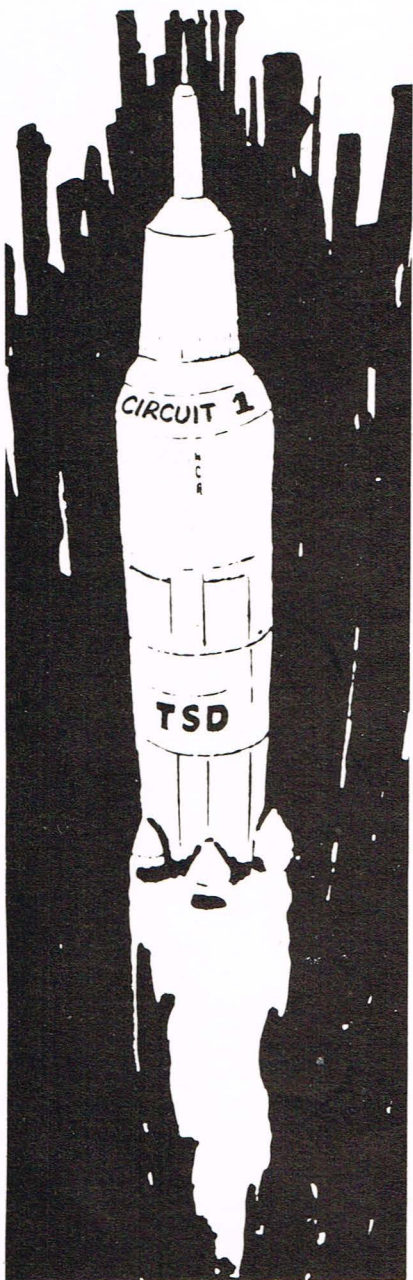
CIRCUIT NEWS

**Field
Engineering
Division**

CONFIDENTIAL MATERIAL FOR THE EXCLUSIVE USE OF NCR

Published by the Technical Service Division of the National Cash Register Company
Edition No. 1, 1974 - Editor Les Ball, Head Office.

TSD LAUNCH INTO 1974 WITH IMPROVED COMMUNICATIONS



We are very pleased to present the first edition of "Circuit News", an informative newsheet exclusively for, and written by Service Division Personnel. Its function is to improve our communications, broaden our knowledge, and present varied topics of interest about the people who provide the vast front line Technical Force of the Company.

Feed Back from the field indicated an additional method of passing information would be a tremendous advantage and this was subsequently confirmed during informal discussions with Technicians, Supervisory, and Administrative employees, throughout the Division.

With the demands of modern day businesses calling for detailed data overnight, NCR recognised the necessity to develop and improve their products to meet these requirements. This resulted in many new Electronic and Terminal models being released onto the market and, understandably, created a great thirst for information about these products by T.S.D. Personnel.

Many queries arose on how the present Technical Force would be adapted to meet these demands, and it is our intention to feature descriptive information about new machines in future issues of the "Newsheet". In this way we will all have the opportunity to benefit from the additional knowledge, and assist us to become more conversant and efficient when dealing with Customers' enquiries, whatever our job environment in T.S.D.

Further items for inclusion will be: An Update of Technical Jargon and their meanings, which frequently change with the new equipment. Latest news from the Training Schools in Dundee.

Contributions of news from the Service Building and Administrative Offices, at 1000.

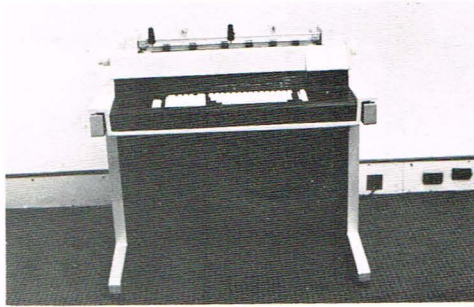
Promotions and details of the persons career path to date with N.C.R.

Unusual or Humorous incidents which occur in our employment. Space set aside for publishing and answering any queries you may have. Also many other snippets of interest.

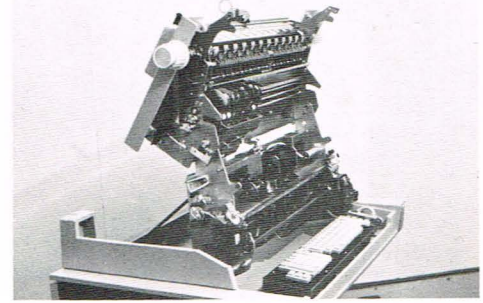
The frequency of "Circuit News" will be dependant on the amount of information available, its success is in your hands, for whilst the basic contents can be gained from this office, the key factors are undoubtedly YOUR interest and YOUR participation.

We suggest you elect a member of your Depot, Department, or Office, to pass on any material we could use, or alternatively write to us direct, as will be the instance of our Site Engineers.

Finally, we would like to set the minds at rest of all our keen NCR Post Readers that "Circuit News" will in no way encroach on items already printed by the Post about the Service Division. We will however, liaise with its Editor, the delightful Ann Winter, to seek her expertise with editing, and exchange information to ensure it will be used in the best interests of everyone.



Class 299



N.C.R.'s new 299 range of Accounting Machines now bring electronic processing within the reach of every business. Its large memory and full range of arithmetic commands enable the low cost system to cope with the specialised needs of the commercial trade, as well as financial and Government Establishments.

The N.C.R. 299 can process such applications as:

PURCHASE ACCOUNTING
BUDGETARY CONTROL
PAYROLL - COSTING
STOCK CONTROL
HIRE PURCHASE ACCOUNTING

and can also extend its application to cover Banking. Its modern design and extremely compact appearance will certainly be acceptable to all Businesses.

SYSTEM DESIGN

During the design and development phase of the NCR 299 a high degree of importance was attached to how maintenance and repair time could be reduced to a minimum, guided by a Technical Services Maintainability design group. Due to the consideration given to this often neglected aspect of design and engineering, the N.C.R. 299 has the following built-in advantages:

The design is such that a Technician can access all major modules within 2 minutes. The modular design ensures that if any major fault does occur the troublesome module can be quickly replaced. All electronic components are held on Printed Circuit Cards, with extensive use of MOS/LSI circuitry.

Within the processor there are certain resident diagnostic routines. These diagnostics enable

a Technician to quickly check each module. An initial check of all modules can be made within 5 minutes.

The Processor/Controller (TCU) is a proven module, and is incorporated in other terminal equipment such as 250/270/280. All micro instructions are held in Read Only Memory, and this is a completely separate module to the Core Memory which holds the User Program and Storage. The Core Memory is Non Volatile and therefore, not as susceptible to power cuts and voltage fluctuations as volatile storage devices.

The memory size ranges from 10-50 Words/Totals of 16 digits either plus or minus, and 46-63 Program Steps of which each Program step controls the machine in a similar manner to a front and rear stop of a conventional Accounting machine.

The Multi-Purpose Form Handler is designed on the successful C.31/32/33 Carriage. Split Platen facilities are available, with the split flexible to order. Removal of this unit can be achieved within a few minutes should a closer inspection be required.

PRINTER

The Serial Ball-Printer operating at 14 characters per second over a print area of 22" provides a repertoire of 88 characters, and is based on the ASCII code. Forward and reverse tabulation is performed at approximately 17" per second. The Print Pitch is 10 characters per inch and vertical spacing is the standard format of 6 lines per inch. A printer ribbon cassette is provided for quick and easy replacement. An original with up to 7 copies can be produced, with black and red print provided under program control.

CONTROL CONSOLE

The N.C.R. 299 incorporates as standard two keyboards - a 10 key numeric keyboard and an Alphabetic Typewriter. The 10 key keyboard and the associated control keys are designed to meet accepted industry standards. Branch keys are provided for the selection of alternative sub-routines and modification of operating sequence. These keys are multi-functional and can be reused for different purposes within the one application program. A 48 key alphabetic typewriter keyboard has 8 control keys and conforms to ASCII standard. Alphabetic information can be stored in memory for automatic output under program control in the ASCII code.

Additional features and peripherals will be available including Paper Tape Punch, Check Digit Verification, Automatic Line Feed, and Continuous Form Feed. At a later date an expanded version with a greater capacity and additional peripherals will be available.

TECHNICAL EDUCATION

The Technical training will be provided at the Dundee Education Centre by Instructors, Johnny Claydon and Bob Loudon. Course duration for the Basic Model will be four weeks. Prerequisites are B.C.C., and a short logic test paper undertaken in your Depot. The paper is then furnished to H.O. for grading.

It is intended to train a nucleus of Assistant Supervisors and Senior Technicians who have had previous knowledge of electronic equipment. These will ultimately provide the support and back up to Technicians who at present have a good mechanical knowledge, but little or no experience in the electronic field.

JARGON

With the Technical Terminology rapidly changing many of us have been confused, or experienced some difficulty in our understanding of various Technical explanations. To keep you fully updated we intend to feature a selection in each issue.

WOT IS?

"MOS" Metal Oxide Semi Conductor. A Manufacturing technique which incorporates many electronic components within one device.

"LSI" Large Scale Integration. Equivalent to at least 100 logic elements in one device.

"TCU" Terminal Control Unit. The processor which controls the operation of the machine together with the User's Programme.

"NON VOLATILE MEMORY". A Memory storage device whose contents are not lost when the machine is switched off.

"CORE MEMORY" is an assembly of Cores (i.e. rings) of magnetised material, and is used for storing totals, constants, etc.

"LED" Light emitting diode. Used as an alternative to a small filament lamp. These devices are a piece of semi conductor material which will glow when a voltage is applied to it.

"ASCII" An American Standard Code of Information Interchange. This is a coding system established to provide a standard for information compatibility when processing data, and now widely used throughout the business machine industry, particularly in the field of "On Line" communications.

LONDON TERRITORY CHANGES

The following territory boundary changes in the London area took place, effective January, 1st. N1-4-5-7-16-19, and NW1-5-8, are now covered by BRENT DEPOT. Technicians Johnny Smith and Neal Batorski are transferred from Bonhill Street to provide coverage. E1-2-3-5-8-9-14, are now covered by ROMFORD DEPOT. Technicians Pete Timlett and Tom Clark are transferred from Bonhill Street to provide the service in the area.

We agree, a phrase not heard of in the best of circles, but one often used as an expression to gain motivation, was certainly the operative wording to an embarrassed Chief Cashier at an Asda Supermarket in Accrington, Lancs.

Misfortune overtook her as she was going about her normal duties, taking the opening readings of their Anchor Cash Registers, when her finger became firmly trapped in one of the machines. Apparently to obtain the reading of the totals, requires depression of a button, accessible through a half inch hole in the side of the cabinet, but unfortunately her finger slipped off, the button restored, trapping her finger against the cabinet.

Frantic efforts to free her finger by her colleagues, and a subsequent call to the local Fire Brigade were to no avail. Our competitors Service Department, whilst sympathetic were unable to provide the promptness the situation required however, Sir Gallahad was not far away.

A call was received at NCR's Burnley Office explaining the maiden's plight, and all stops were pulled out by Depot Manager, Frank Ellison, our knight in shining armour as he mounted his charger and raced to the damsel in distress.

Although not familiar with the competitive equipment, he directed operations and within minutes the young lady was freed who, after Hospital treatment for shock, was able to return to her duties.

The Manager of the Store expressed his appreciation and shook Frank by the hand, but when asked what reward he received from the Cashier there was a strange silence. I wonder why?

Editor's Note: If you know of an interesting or humorous incident drop us a line. A laugh will do us all a power of good, even if it is on you.

BLACKPOOL DEPOT CLOSES

Effective January 1st, the Seaside Depot in Blackpool closed down. Tom Spence and his Merry Men, Les Goodey, Muir Harrington, Bill Rodberd, and Derek Williams, now work out of Preston Depot headed by Stan Harrison. Tom Spence becomes his able Assistant.

Appointments

MR. S.G. OSMER. Appointed Manager, Technical Liaison, Dundee. Stuart Osmer joined NCR as a Technical Officer and was deeply involved with the early 405 computer installations. He was promoted to Technical Field Superintendent C.M.S. in 1961 and has been responsible for the Technical Service to the NCR range of Computers in the London and Southern Areas.

MR. R.W. GREGORY. Appointed Technical Field Superintendent C.M.S. Southern Area. Bob Gregory joined NCR as a Technical Officer and since his promotion to Senior Engineer in March, 1970 has been in charge of the Technical Service to the Computer sites in the London Area.

We offer our congratulations and wish every success in their new appointments.



CONGRATULATIONS IPSWICH

Even in these days of increasing difficulty to provide a prompt, and efficient service for our Customers, it was very pleasing to hear of a recommendation that NCR Service is still number one in its field.

In answer to an advertisement in a local Bury St. Edmunds newspaper for a four total cash register, a prospective Buyer was informed it was a competitive machine, but in all honesty their conscience would not allow them to sell the machine. It appears they had difficulty in obtaining service and repairs. The advertiser suggested the enquirer telephone NCR as their service is far superior. This resulted in the Representative, G. Hallam, District 10, closing a sale for a Class 24-1201-5-4 (CCX)1.

Our congratulations to Depot Manager, Wally Akers, and the Ipswich Technicians who provide the highly recommended service in the area. It proves the point that first class service promotes new business.

"REMEMBER"

WHEN YOU SPEAK TO A CUSTOMER
YOU ARE THE VOICE OF THE COMPANY.

£ SUGGESTION £ £ AWARDS £

REFEATURED

--CLASS 24--

Certainly an area to increase your income, without contravening the Law of the present wage restrictions, as several T.S.D. employees have experienced to their advantage over the past few months. Their names, and the awards, have appeared in previous issues of the N.C.R. Post, but no doubt you will find it interesting to learn the details surrounding the suggestions.

Doug Baker, Technician, Bonhill Street. Awarded £10 for his suggestion to improve the removal and replacement of the Class 450 Sorter lid. By reshaping the elongated raceway of the Fastening Bracket, into a "T" shaped slot, only requires the support screw to be slackened off instead of removal. This saves unnecessary downtime especially if one is unfortunate enough to drop the screw into the mechanism.

Dennis Parsons, Depot Manager, Middlesborough, gained his award of £5 for a suggestion to reduce the Company's expenditure on postage. He felt, as the majority of businesses close on Friday night until Monday morning, a substantial saving could be made with the Friday mail by despatching it at 2nd class rates.

Brian Strathdee, Technician, Edinburgh. Awarded £10 for a suggested improvement to overcome Intermittent Printer Spacing of a Class 446 machine. By grinding a small radius on the lower leading face of the Paper Feed Pawl it prevents the Pawl jamming up. This information has been passed to the field in Circular Letter 2957, dated July, 1973.

Keith Templeman of C.M.S. was awarded £10 for his suggestion concerning the C-655 disc units on the Century Series Computers. The disc packs are protected against dirt contamination when not on the units by a cylindrical cover. When the pack is loaded onto the disc unit and the lid closed, the disc cover is lifted clear automatically. This is accomplished by means of 3 lifting towers actuated by means of cables attached to, and driven by a spring loaded drum. Originally when one of the cables broke and needed replacement, it was necessary to replace all three cables and the drum. His suggestion was the cables be stocked as separate stores items so that only the single broken cable needed to be replaced.

Andy Manzi, Technician, Bonhill Street, awarded £68 for his suggestion to improve the Class 3 Reducer Arm Operating Lever No. 2. As we are aware, a lengthy workshop repair is required when the Arm is found distorted, however, Andy's idea was to create a breakdown point by means of an additional slot in the Reducer Arm Stud, avoiding replacement of the arm, and the repair easily effected on-site. This improvement will shortly be implemented to all new machines.

Additional Note:-

On the subject of the Reducer Arm we draw your attention to the Class 3 Service Aids issued in January, 1973. Our tests proved the severe strain placed on the Arm was caused by a Counter Pinion being left astride the liner from the previous operation preventing counter shift, invariably set up by binds on the Pinion Lines. We recommend the pinions are well lubricated whenever Service or Repairs take place to a machine.

Note:

If you have a suggestion either Technical or Administrative which could be beneficial to you and the Company please direct the details to the Suggestion Officer at Head Office. Where applicable, please remember to enclose a sketch of your improvement.



:: REPAIR

Just mention the words Repair Sheets to the majority of Technicians, and the effect is like waving red rag to a bull, for in their eyes they are both irritating and unnecessary, but have we really stopped to think of the very important function these pieces of paper perform, in the Division's day to day working.

Apart from providing information such as Hours, Fares, Parts, etc., and a means for raising an invoice in excess of £5, all important in themselves, it also avails us with a method of "Feed Back" to the Manufacturing Companies on the performance of their Products. Ron Tarling, who many of us remem-

During the closing months of 1973, a refeatured model of the Class 24 was released, incorporating a number of design improvements. All future production of the Class 24 by the Manufacturing Company at Dundee will include the features.

The updated machines can be identified by the model number, i.e. 24-1151, 24-1251, 24-1351, the figure five being the significant guide line.

To ensure you are familiar with the improvements we list the features as follows:

The Base and Cash Drawer have been replaced with Class 3 Assemblies providing flexibility for the User in layout of the coin compartments. MOTORISED Row two.

The main Department Total is now obtained from the Motor Bar. Depression of the Row one keys of a Multi Total machine are lighter. The Proprietor Control Locks have been improved, and the Control Keys colour coded to provide easy identification when obtaining Readings. Blue=Read, and Red=Reset. The Cabinet is marked accordingly. The Keylock Line trip is assisted by a solenoid, with a manual release provided in the event of a power failure.

Paint finish on the cabinet has been improved. The insignificant Zero's on both Ticket and Detail have been reduced in size. A Note Clip fitted to the Cabinet to provide assistance to the Operator when making a transaction.

Additional features are programmed for Mid Year and will be given to you in a later edition.

SHEETS ::

ber as the "Gay Debonair" Instructor, of the Class 31/32/33 range of Accounting Machines at Brent, now has the task of compiling the information for the Factories.

To ensure his reports are accurate, and give some relief to his fast diminishing eyesight, we request your assistance to make sure your Repair Sheets are written as clearly as possible, keeping details of the Complaint, Cause, and Adjustments made brief, but explicit.

In this way the problem areas can be pinpointed and the product improved wherever possible. This in turn will alleviate some of our own frustrations.