

## Memories of Working for NCR

1966 - 1973

By Tim Churchill

Looking for a new job, I saw an advertisement for mechanics at NCR in the North West of England. I was planning to marry a girl from the North and wanted a job in that area. The application went to Liverpool, but was promptly sent back to London without getting me an interview, as I lived near there. I finally had an interview in London and was offered a job in Watford and was told I could have a transfer as soon as possible.

Untrained I wasn't much use to NCR so I was attached to Ernie at Watford depot. I would drive to Watford's NCR depot for 9am on Monday mornings, where Ernie would collect a week's worth of servicing. We would then drive to Hemel Hempstead car park where I would leave the car, and we would move on to some local business and service some 31 Class machines. The rest of the week I would meet him at the car park at 10am. With Ernie in charge this servicing involved taking a rubbing of the serial number plate of the appropriate machine on the service sheet, and then move on to more machines. Ernie was well liked by the customers and obviously competent at repairs. By 11am we would be in a local pub for an extended lunch which consisted of a 'Ploughman's Lunch' and a few pints of bitter, and after 3pm closing time we would repeat the morning's 'service' work and then I was deposited at the car park at 4pm and went home. I can't have been very sober in the afternoons.

The Class 31 and its cheaper sister the Class 32 although mechanical were true computers in the sense that they could modify their actions according to the results of their calculations. The carriage, rather like a giant typewriter carriage was controlled by pre-programmed 'stops' on a front bar, each of which designated to which register or registers the amount entered was added or subtracted (no multiplication), whether anything was to be printed and to which stop the carriage would go next. The front bar could easily be removed and replaced with another, equivalent to running a different program on a modern computer. A 31 Class had ten registers and a 32 Class could have anything up to ten according to your needs and what you were prepared to pay. As the world started to enter the electronic data period these machines could be fitted with output switches at the rear which would feed data to a card punch or the much smaller paper tape punch for data entry to main frame computers.

While at Watford it was heavily emphasised by the technicians that under no circumstances should I ever attempt to service these machines as over the years all sorts of dust, hair and cigarette ash gathered underneath the covers and would promptly fall into the works if the covers were removed. This, of course, was because they never *had* been serviced, and there used to be all sorts of problems due to wear from lack of lubrication over periods sometimes exceeding ten years.

NCR had a training school at Brent Cross on the North Circular Road, and after a few weeks I was assigned to a 31 Class training course of about 4 weeks, and was then sent back to Watford for a short period to do actual work. Before the days of Satellite Navigation it was a baptism of fire trying to find my way to businesses in an area I was not familiar with and trying to park and find the various offices, never mind getting to know the operators and department supervisors who could be very 'prickly' with a new and unknown technician. Especially one who had higher standards than they were used to! Despite the warnings I had received I had the temerity to remove the machine covers and carefully remove the mats of hair and ash from underneath and oil and check the mechanisms. But what made me really popular was the fact that I cleaned years of grime from all the panels before replacing them, leaving the machines looking new. With the all female population of operators this made me into a super technician, no matter that I hardly knew what I was doing. In the training school you learned how the machines worked; in the field you learned how they malfunctioned and how to repair them which was a completely different ball game.

These machines were incredibly well engineered and seldom malfunctioned especially if well serviced, but they had one or two regular faults that used to crop up from time to time. The most common, was always reported as 'not stoping (*sic*) on the correct stops'. Why stopping was always misspelt I don't know, but the cause of the problem was one square stud riveted onto a frame and the stud would work loose over the years. It required two technicians to rivet a new stud or re-rivet the old one if possible and it was in a horribly inaccessible place.

Before I had been at Watford long, a transfer to the North West of England came through and I was assigned to the Preston depot. It was 1966 and so I lodged in Morecambe and travelled down to Preston every day. The depot manager at Preston, Cliff, was one of the old NCR school brought up on relatively simple cash registers and although trained on accounting machines did not seem very comfortable with them. As he was also lazy – though like most managers expected the minions to work hard – he seldom left the depot and it was his unwritten command that whomsoever was within striking range of the depot at lunchtime would return to play the card game 'Chase The Lady'. This could extend our lunch hour quite a bit if he was losing. If he did leave the depot to answer a repair call it would have to be for a fault that he recognised and knew how to repair. Kathy on the switchboard could see the street outside and once had a phone call from him asking if his toolbox was on the pavement on the other side of the road. It was, and he had to drive back from Chorley to retrieve it. The service vans were kept up Pole Street, and he had been too lazy to carry his bag to the van, so had brought the van round the corner and locked it, walked into the depot to collect his toolbox and then put it down to unlock the van again. There it stayed! Another time he had a call from the Nat West Bank down Fishergate to say one of their 32s was misbehaving. Again it was an instantly recognisable fault, so he reshaped a suitable circlip, attached it to a circlip tool and set off to walk the short distance (no parking) to the bank. It was raining so he held the tool to the stem of his umbrella; on entering the bank he tripped and the circlip flew out of sight and he had to return and prepare another one. If I was silly enough to do things like that I would keep my mouth shut, but no; he would tell us all about it.

The depot was on Church Street and the vehicles we used parked round the corner on Pole Street. At night they had to be garaged in lockups on Blackpool Road on the NW side of Preston, so in the morning I would drive down and pick up a van and leave the car locked away. Very convenient, though it took a bit of time and we had to be at the depot at 9am. We, that is Brian, Donald and nominally Cliff covered Preston, Chorley, Blackburn, Darwen and areas round generally. There were depots at Blackpool, Lancaster, Liverpool, Manchester and Carlisle as well. Don did the cash register work, Brian cash registers and accounting machines. They were both very friendly and welcoming. Preston depot was also the sales office for the North West area so we had the salesmen and the programming and office lasses there as well. There was a big demonstration room upstairs where new machines were set up before going out to the customers.

I hadn't been there long before I was sent back to Brent Cross for three months training on the 395 computer. We would spend the morning on circuitry and theory and then move on to fault finding in the afternoons. It is amazing how much this electronic computer owed in concept to the 31 Class. Same keyboards, carriage and fluid drive. Same 'stops' controlling the carriage transport, but the maths (now including multiplication) controlled by a flat program panel at the rear of the carriage. This panel had rows of slots at every position where there could be a stop at the front, and appropriate plastic inserts would be placed at the correct positions to co-ordinate with the front stops. The system would feel for the inserts and then perform the electronic operation thus dictated. The 395 had a hard drive and power supplies housed in a cabinet on the left. The hard drive was a bronze disc about 30cm diameter and 1cm thick coated on the top with an iron oxide composite. It was belt driven by an electric motor and had up to four read heads set one thousandth of an inch above the disc. Each track thus read could hold 20 memories giving a maximum of 80. The rest of the space held a bank of relays for controlling peripheral equipment such as the card reader shown, for input, or a card punch for output. The section at the rear of the 395 held six panels of electronic circuitry – all individual components – no integrated circuitry then. So you could open out the six hinged panels and see the 'and' gates, 'or' gates and drivers. I suppose that nowadays you could get the whole lot on a few microchips.

Training over again it was back to Morecambe. The first 395 computer sold that I had to maintain was to ICI Plastics in Darwen, where Perspex was manufactured. I installed it early in 1967 and gave it a thorough testing and then handed it over to the programmer. They started by running the accounts on it and all went well. After a few weeks a continuous forms feeder was fitted and they started running the payroll on it. Not so good; about every tenth line it would throw out a negative figure in the millions of pounds. As a raw beginner I was out of my depth, and could find nothing wrong with it. After a couple of days getting nowhere I made a few phone calls and persuaded Sales to bring in their Demo 395 from the sales office to give me more time. I still couldn't find the source of the trouble, but by swapping the two 'halves' of the 395s so that ICI's console ran on the Demo's electronics it narrowed the fault area down to ICI's electronics. I also found that the fault did not occur if the continuous forms feeder was removed. The NCR Service Supervisor for the North West kept in contact, ringing me every day at 4pm, and after three days sent Charley from Chester who had been with me on the 395 course in London to help,

but we didn't get much further. On the Friday afternoon he rang earlier and after discussing the situation with me thanked me for all the work and told me to have a break and go home early and he would arrange more experienced assistance. When I arrived on the Monday I was joined by a trouble shooter from Newcastle depot. By that point we had come to the conclusion that the memory read amplifiers were misbehaving, but couldn't catch them in the act. It became apparent that a control voltage was being lost at any time over about 200 milliseconds, but only for 1 microsecond. After two days of two of us watching two oscilloscope traces each on two oscilloscopes, we had seen it occur three or four times. Swapping the power supplies over on the two 395s confirmed that one was faulty and rather than waste any more time it was despatched to London for a replacement. After that experience I had no more qualms in servicing and repairing 31s and 395s.

Meanwhile my training at NCR did not stay still. I was sent to the NCR training school in Giessen near Frankfurt in Germany to be trained on the new version of the 395, the 400. A very similar machine which instead of the cumbersome programming panel on the rear of the carriage, it used a punched mylar tape loop on an optical reader at the front of the memory cabinet. Much faster and simpler. The course was in English and employees from Germany, England, Eire and South Africa were present. The flight to Frankfurt was not a success. The airport was fogbound so we were diverted to Cologne, 300 miles away. Coaches were arranged to take us to Frankfurt airport, but the coach we got was small, rear-engined and incredibly noisy. We arrived in the early hours of the morning sleep deprived and bad tempered – they were contractually obliged to take us to the airport, not the town. There was no public transport at that hour and nowhere to stay so the group of us from NCR hired a couple of taxis which took us to the main station in Frankfurt. We decided that before looking up train times we would have a meal in the café which was open. We then caught the next train to Giessen arriving about 4 am and rang our contact number. A very disgruntled head of school came out to deal with us, but he didn't dare voice his annoyance.

We settled into the course well. The instructor was good and even took us all out for an evening at a bowling alley. Sigi, the German on the course was fluent in English – his wife was English – and took us round the local pubs and clubs. Our favourite was a small pub down a side street up some steep steps. With Sigi to introduce us they realised we were English rather than American, and all animosity was lost.<sup>1</sup> We played liar dice most nights, and Brian who shared a room with me was fancied by the daughter of the pub, a rather blowsy blonde, so we could and did drink all hours after closing time, on the house. My head was frequently sore in the mornings despite my practise of pouring the beer down the sink almost as fast as it was poured for me. Expenses were enough to buy a decent restaurant meals in the evenings, which were quite long due to the 8am start of school.

Several of the lads on the course had come in their cars so we had transport for weekend expeditions. One trip took us down the Rhine where we enjoyed the pubs, and another into the countryside to visit one of the curious old towns built round castles on natural mounds in the

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1 We were in the post war American sector of Germany.

valleys. A more ambitious expedition was undertaken one bank holiday weekend. We hired a mini-bus and driver to take us to Hamburg and then on to Malmö and Copenhagen. In Hamburg we were taken on a boat round the docks to see the naval ships, and tankers in dry dock. We had a meal in a fish restaurant where you specify the fish you wanted to eat from an aquarium. I couldn't bring myself to take up that offer. Next on the agenda was the Reeperbahn, very sleazy, but amusing slipping round the huge iron barriers at the end of the street to peer at the ugly and scantily clad figures in the shop windows. The Eros Centre, a large and well run multi-storey block not far away had rather younger and more attractive offerings, but I don't think any of us felt tempted. James Boswell would have had a ball.<sup>2</sup>

From Hamburg we travelled on to Lübeck where we caught the ferry for Malmö. I think we must have slept somewhere on this journey, but I can't remember anything about it. There was certainly an evening meal on board and a band with singer. One of our number got quite carried away by the young singer and ended up dancing with her. We arrived in Sweden, but only to catch another boat across to Copenhagen of which I can remember nothing but the gorgeous Danish pastries and seeing the little mermaid statue which is really rather small.

After that it was the long trail back to Giessen. Our instructor was always being regaled by us as to how unreliable the British made 395s were, but wouldn't believe us until one came into the school for testing before going out to its German customer.<sup>3</sup> For every fault the instructor put on it for us to trace, the computer would supply another, much more difficult to find. This problem was eventually traced to the Dundee factory having specified the wrong crimping tools for the panel inter-connectors, and the wires oxidising and going intermittently high resistance. You only had to open an electronic panel and flex the bad connection for the fault to disappear.

The course over I returned to England still working from Preston, though I could find myself anywhere from Carlisle to Shropshire, sometimes in one day. Atkinsons Vehicles in Preston had a large number of 31s and one day I was sent to investigate one of them calculating a result one penny incorrect. After puzzling over it for a couple of hours I realised the operator was making an error on the keyboard which I could reproduce. I explained what was happening but all I got from the disgruntled supervisor was "My operators don't make mistakes". As far as I was concerned the matter was over so I left. A few weeks later they had the grace to send an apology.

A more satisfactory result was from a troublesome 395 at Fleetwood Fish Merchants office. Periodically it produced incorrect numbers, and I spent a few hours trying to work out what the problem was with no result. A week later there was a panic call. The 395 was misbehaving again and they were having to do the wages by hand which meant the fishermen would not get their wages that day and were threatening to strike. It is not easy working under that kind of pressure, but a possible reason for the fault occurred to me, and testing proved the hypothesis. A quick mechanical adjustment produced a cure and I was away with their thanks ringing in my ears. That evening I had a phone call at home from them – I still don't know how they got my phone number

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2 Read Boswell's London diary.

3 It was ordered with Sterling currency logic on it, only made in the UK.

– would I call in, in the morning. I explained I wasn't allowed to do that, but they insisted, and eventually I said I would ring Cliff in the morning and get the morning off, if possible. He was agreeable so I shot over to Fleetwood from home to get their thanks all over again and was presented with a large crate of Cod, straight off the trawler. I have seldom tasted anything so delicious as that fish. What the hell do fishmongers do to make fish taste so stale? We gave half of it away, and a week later it was still as nice as when we got it. We didn't have a freezer then, just a fridge.

There was a steel pressing plant in Blackburn where they made radiators for central heating amongst other things and it was run like the old mills by a traditional Lancashire family. There was Father, who was speakable up to lunch time after which his intake of whisky rendered him too belligerent for sensible conversation or reasoning, and his two sons, both grown men. One was in charge of the factory floor and the other of the office and both terrified of Father. Amazingly some brilliant salesman sold them a 395, and one of the specifications for a new installation was a clean mains feed from the factory distribution board. Bear in mind this factory had arc welders going continuously and the lights in the office dimmed intermittently and frequently but Father wasn't wasting money on a new power line. They were still using the old 15 amp round pin sockets, so presumably the wiring was pretty ancient. Amazingly the 395 never missed a beat, not ever! Another 395 I ministered unto was at Smith & Nephew in Nelson. I had just done a service on it one day and was reconnecting the signal cable plugs on the underside of the rear of the console. This involved lying on the floor and whilst there I received a hefty shock from something and was catapulted across the floor. The cable I was handling didn't carry mains, so I had no idea what had caused it, but my propulsion at high speed had frightened the operator and she refused to continue doing the wages. I tested everything I could think of for mains leakage and found nothing. The lady then suggested that if I was so sure it was alright I could do the wages. Nothing loath – she was rather attractive after all – I set about it. Not being used to operating the machines I was rather slow despite having the figures read out to me. Eventually she realised she would probably be in trouble if the work wasn't finished in time and took over. It never shocked anyone else.

I had the fun of installing a 395 in an office in Douglas on the Isle of Man. It was flown over from Blackpool dismantled, and the handlers managed to dent all the panels; it looked dreadful. After assembling it I set off its test routine and the electronics promptly locked up. Fed up, I kicked the back panels when it promptly carried on. I flew back and never heard any more about it. As a result of these interconnection problems head office decided that all 395s in use were to be recalled to the local depot and all the connections removed and replaced with new. This was a nightmare of shifting heavy and easily damaged machines for maybe up to a week and leaving the customer without anything for billing or wages. After doing one with Brian to help (it needed two of us) I proposed to Cliff that instead we did the work at the customer's premises. This meant we could be contacted by phone if needed and crucially could leave the machine in a working condition within a few minutes as long as we kept a record of where we had got to. Cliff agreed (one of his better decisions) and we proceeded to do it. This was fine until the new area supervisor

found out what we were doing. He was an older man who had been made up from depot manager at Manchester and didn't seem very bright. He was furious – disobeying company orders etc. The result was hilarious. The next 395 to be rewired was from Barrow Paper Mills 75 miles away and in an old industrial area to which the only access was over a badly damaged street with stone setts, and passing under an old low bridge. The van that was sent to collect the 395 wouldn't fit under the bridge, so they had to move it a quarter of a mile on a bogey with iron wheels and no suspension. It took me ages to put right the damage they caused, and then it had to go back the same way and I had another long job on my hands. Still it was a nice place to work with friendly people and I could play table tennis at lunch time.

Eventually NCR supplied me with a Hillman Imp. Absolutely basic, it was very noisy and I quickly learnt to drive it wearing industrial ear muffs to reduce my daily fatigue levels. It had a small rear engine of 875cc which was downgraded from a Coventry Climax racing engine. The 'boot' was in the front and the car stabilised by all the heavy service manuals I had to carry. This, the first example I had, had the most incredible engine which whilst not having much power could run at very high revs which meant that for the slog up the M6 to Shap I had a maximum of 50mph, but on the long drop to Penrith I would reach an indicated 110mph. As I had large distances to cover in a day this foot to the floor driving resulted in either the silencer or the exhaust manifold shattering every 500 miles and the local garage (Dick Sowerby's) became used to me coming in for a replacement of one or the other every few weeks. I eventually spun it on a very muddy sharp bend on the A65 near Kirkby Lonsdale and effectively destroyed it against a stone barn. For a time I was loaned a basic Ford 105E Anglia which with its 997cc engine was worse than the Imp. I managed to mess that up too, though not really my fault. I was overtaking two cars on the three lane A6 heading for Carlisle, when the car I was overtaking pulled out without looking. I reacted fast enough to avoid him, pulling out further into the path of an oncoming heavy wagon who braked violently. By violent braking myself which caused the car to dive first one way then the other, I got back partially into the middle lane but side swiped the wagon with the tail of the car. Another motorist persuaded the offending but oblivious car driver to return to the mayhem that he had caused. The wagon driver said he thought for a few moments I was going to hit the front of his vehicle. NCR managed to get a replacement Imp to me then, but it wasn't a patch on the first one.

K Shoes in Kendal had bought three of the new 400 computers for their offices and then later a fourth. These kept me fairly busy at first. On advice from NCR they had not carpeted the office to avoid static electric charges upsetting the electronics. I was horrified as the resultant leather dust, fag ash and hair that blew up from the factory and around the linoleum floor got into all the relay contacts. Once a month when they started to do the salaries I would get a call "card readers not working" and would spend a day cleaning all the relay contacts on each 400 which would last until the next month. The floor was mopped every evening which just moved all the muck to around the edges and under the 400s where it then dried again and built up into a dusty mass. Eventually I persuaded them to fit carpet and the problem disappeared. The office environment was then much more pleasant, and the vacuum cleaners sucked up all the dirt .

I became very friendly with their office manager, Peter, who was a similar age to me. When I was working there we used to go and have lunch in one of the pubs locally, nipping down in the Imp. One summer when the traffic was heavy we were waiting in the car to come out of a pub yard in town when I noticed a car in the traffic queue on the street had a nearly flat tyre. There was a policeman stood on duty next to it but he didn't seem to notice, so I hopped out the driving seat and tapped on the car window to notify the driver and almost immediately felt my shoulder grabbed. The policeman informed me it was an offence to leave a vehicle unmanned with the engine running, but refused to listen to my explanation, so I told him I would report him to the duty sergeant. We went straight up to the police station and did just that. I was asked if I wanted to make a formal complaint but said "No, just make sure the constable is more sensible of what his duty actually is" and they assured me they would.

After working from Preston for a few years I was given a transfer to Lancaster depot just off Willow Lane. Walter had joined the Preston mob and Brian had trained on 395s so I didn't have to be based in that area any more. Bill was the depot manager here and it was a much smaller concern with Pete on accounting machines, George and Frank no.1 on cash registers and Frank no.2 on 500 class computers. The latter Frank was a bit of an anomaly as he had originally trained on cash registers and then on the old 3000 class accounting machines then somehow migrating to the 500s. I'm sure he had little idea on electronics, but he seemed to get by very well, even being highly regarded by customers, though not so highly by NCR. He was the chap that complained about having to lift and move heavy accounting machines without help, and when the company didn't respond he asked if they were insured against injury in such cases. They still didn't respond, so he 'arranged' for a 3000 type accounting machine to be dropped on the road when being unloaded. It was ruined and the customer most unhappy but he wasn't asked to move heavy stuff again. His repairs to cash registers were legendary, never fitting a new part when a bodge would do. Bill would work on cash registers when necessary. He was a bachelor and would often work late at the depot and like Cliff would seldom go out but unlike Cliff was a good mechanic. Doreen was the secretary and very helpful. She died quite young. It was a generally harmonious team that worked well, apart from Bill's persecution complex. He seemed to think everyone was trying to dodge work, and would never believe anything you said. He would send you off to Barrow 50 miles away and then ring the customer you were going to when he thought you should arrive and then you were told off afterwards if not there regardless of what the traffic was like. I was in the depot one day when a salesman from Preston called in. "Hello Tim, I keep getting complaints about you." Bill looked pleased. "What sort of complaints?" I asked. "That you're not there anymore!" I looked pleased. On the other hand Bill was marvellous if you had personal problems and would move heaven and earth to help or loan you money. For instance whilst still at Preston I took three days off sick. Although not feeling too good I returned on the fourth day to be told by Cliff I would lose a days pay unless I had a certificate for the third day. I pointed out that it was normal to have three days off without a note, but he was adamant, so I said "OK, I'll go home again and see the doctor." which I did. The doctor gave me a note for two weeks, so sensing trouble ahead I rang the area supervisor in Liverpool to explain what had happened and was told not to worry. When I went back after two weeks all was peace, but my days pay had been docked, and Cliff wouldn't



budge over the matter despite the doctors note. When I got to Lancaster Bill spent nine months on it and finally got the pay back for me! There were also a couple of cash register salesmen based there who later set up their own company with Frank the first, called Northern Cash Registers.

February 1971 was decimalisation day for the UK and for months in advance we had been converting cash registers from pounds shillings and pennies to the new pounds and pence. It brought in, even for me, some welcome extra cash from overtime, though if we had nothing urgent on we would work on conversions in the depot during normal hours. Most customers who bought NCR equipment paid an annual fee for maintenance and repairs. £30 a year (roughly) would buy you your annual service and any repairs needed on a basic cash register. Bill, of course, was in his element. No family and in the workshop all hours he raked the money in doing conversions.

I had a particularly difficult mechanical problem with one of the K Shoes 400s which was taking longer than the allowed day or so to fix. It involved one part binding against another and the repair involved a lot of dismantling to get at the offending part, grinding and polishing it and then re-assembling to try it. It would then misbehave again and I would have to go through the whole rigmarole all over. I was under an obligation to report it to a troubleshooter in London if the trouble was not fixed within the allowed time, and when I spoke to trouble-shooter who I knew quite well, he asked how I was looking forward to my new training course in Germany. "Um, not at all, I haven't got one". "Yes you have, next week". "Well nobody has told me about it and I'm on holiday in two weeks". "I think you'd better talk to your area supervisor". Now this supervisor was the same man who had messed up my arrangements for the 395 re-wiring, and I started by trying to find him in Manchester, but eventually found him in North Wales. "London tells me I'm booked for a course in Giessen in a week". "Yes, that's right". "Well perhaps you might like to tell me about it? And I'm booked on holiday then, and I *have* told you about that". "Does that mean that you won't go on the course then?". "What do *you* think?", and I put the phone down. I was boiling mad. When I got home and told my wife – she was actually far more likely to be upset by a change of holiday dates than me – she suggested that NCR might like to pay for the car ferry to Germany and back, and she would fly over and meet up with me when the course ended. So the next day the supervisor agreed to that, much to my surprise. I suppose he was rather in a cleft stick over the matter.

So the following week I drove to Giessen for the 735 course. This was a new piece of equipment produced by the MDS company in the USA and bought in by NCR and repainted in their colours. The traditional method up to then of preparing data for mainframe computers was to enter the data directly onto card via an IBM card punch, or for the data to be fed to the card punch from the output of a machine such as a 31 or 395/400 etc. The punch cards were then read automatically by a card reader of some form, a relatively slow process, though you wouldn't have thought so to see the cards go through the big readers in a blur. Once the data was fed into the mainframe it was stored on half inch magnetic tape which the mainframe could access much faster. This new 735 had a keyboard like the card punch, but the data was written straight to the magnetic tape in a format the mainframe understood. MDS were a breakaway group from IBM

who had rejected their new ideas! We now were into the modern era; printed circuit cards, though still separate components. The idea was superb. The service engineer would carry a spare set of cards and in case of problems would swap cards until the fault was cured. The faulty card would then be sent to a central repair workshop and sent out again into the field. And NCR? Spend the money on spare cards? Not on your life, much too expensive. They seemed to think it was better to upset the customer by having his machine down for perhaps days whilst a technician tried to trace the fault to a component. Anyway, there we were in Giessen again and to my surprise Ernie from Watford was there as well.

The new Imp wasn't a patch on the old one, but I just had to lump it. One day whilst servicing the 400s at K Shoes, Peter, the office manager, and I drove down to the Sizergh Arms for lunch. This was then at the side of the A6 about three miles South of Kendal. The pub was set back a bit from the road and I parked on the front. We collected our beers and sandwiches and sat down to eat in the front room looking out onto the road. After some time there was a terrific bang followed by alloy beer barrels spinning into the view framed by the window, bouncing on the road, squirting beer out and then disappearing from view again. I ran outside to see what had happened and saw a flat bed truck stopped in the ditch a couple of hundred yards up the road, and another one stopped down the road. There were barrels everywhere. The prop shaft on one wagon had snapped and flailed up throwing barrels off onto the road. The other wagon had managed to get astride one of the barrels and had lost all control. After gazing at the carnage for a few minutes, I realised the Imp was nowhere to be seen, and walked round the corner of the pub to find it in the middle of the car park completely smashed on three sides and with all my service manuals spewed out across the ground. I had no option but to ring Bill at the depot and he came out and picked us up, but to hear him grumble you would think it was all my fault. Hey ho, back to a crappy old van for transport! The insurance company, in their infinite wisdom, decided to put a new body on the Imp. The car came back after a few weeks but was worse than ever. It stank of petrol continuously, and periodically would slow down and have to be cooled off before it would carry on. I complained bitterly, but the repairers wouldn't have anything to do with it. Then I was coming back from Garstang up the A6 and had to stop at some road works, but the car would not come out of top gear. I held the clutch down to stop and when the lights changed managed to pull away in top gear. Instead of trying to drive through Lancaster I used the M6 to get to the A683, and pulled into the car's regular service garage – Dick Sowerby's. They were aware of the troubles I had been having, and breaking the insurance company's rules they dismantled the gear box to find that i) an incorrect bearing had been fitted so there was no proper lubrication and ii) the gearbox casing was cracked due to the resultant overheating. They also found that the petrol tank breather pipe had never been fitted so that the fumes came straight into the car interior. I think there was quite a big row over this, but it didn't involve me.

Whilst I was still driving the van, United Biscuits in Liverpool had ten of the new 735s delivered and I spent a month travelling down there in the February snows to help set them up and sort out any faults. John, an area trouble shooter, was there all that time as well, and because we couldn't carry spare circuit cards we had our hands full and had one machine out of

commission continuously so we could use its cards. I can remember one faulty card we had worked on unsuccessfully, coming back from London supposedly repaired. We recognised it from the components we had changed – it was still faulty. With backup like that life could be a bit fraught. On the plus side we had the company of the NCR programmers and trainers and these young ladies were great fun. Another of these 735s I had to install in a telecom business in Blackpool. This was my first experience of sending data down the phone line as their head office computer was in Belgium. This was a hair raising exercise as I had no training on the modem and had no knowledge of the concept at all. I can remember we had to dial the local exchange and explain what we were up to and please would they leave the line connected through until we said otherwise. But it was no use with so many girls on the exchange. Within minutes and in the middle of a test transmission the phone would ring and “Have you finished with the line now deary?”

I had two more training courses, this time in London. The first was for the IBM card punch which NCR was selling in its own colours. We arrived at Brent on the Monday and some half dozen of us sat there expectantly waiting for a tutor to appear. By morning tea break we decided to report we had no tutor, and an angry head tutor went off in his car and dragged the missing person in. He announced he knew nothing of the machine, told us to dismantle the punch heads and then tell him how we had done it. Probably the best way to learn, too. We didn't get any help from him at all; he was a nice enough guy put in an impossible situation. The second course was for the successor to the 735, the 736. This was another total waste of time. I think we had a week or maybe two to learn the very complex circuits, some now using ICs. Sat in a classroom with a tutor, service manuals and a tape player a series of 'lessons' were played to us of about ten minutes each. But we were not allowed the intended break between them. By about 11am I'd had enough. Following the tuition on the circuits was difficult, and with no break between lessons the information being fired at us was far too much. I walked up to the front of the class and pressed the stop button to cheers. The tutor admitted that our short course was supposed by the manufacturer to be spread over several weeks. I can't remember what we did after that, but we certainly didn't learn a lot.

Pete at Lancaster was trained(?) on IBM card punches as I was(?), and an engineering business in Kendal had one attached to a 32. It was a new installation, and they were having troubles. For the first hour or so of the day it wouldn't punch cards, but then it would work until about 3.30pm but fail for the rest of the day. Pete had spent several days trying to find the fault with no luck, so Bill asked me to try. I found that the sales and programming people had fitted a 395 relay coupler between the machines, and I was very puzzled as to how it was supposed to work. After a day or two I set to and analysed the timing of the relays in the coupler and came to the conclusion that it shouldn't be working at all. The fact that it did, was a pure fluke! I handed my conclusions over to the programmer, Margaret from Preston, and didn't hear any more about it.

By 1973 the depression had set in and businesses were not buying expensive office machinery, and the 395s and 400s on my patch had settled down and just required their regular servicing. Also others had been trained on them so I covered a much smaller area. I rather

expected to be promoted to trouble shooter, but the supervisor didn't like me I guess (perhaps understandably) and a very nice lad from Manchester depot was promoted, so I found myself doing more and more cash register servicing. Nasty things were cash registers with wide indelible ink ribbons so you had permanently purple fingers and whilst the owners wanted their money's worth in servicing they were damned if they would find any suitable time for you to do it. They were either closed (bugger off) or busy (bugger off). If you did persuade one to grudgingly let you service a machine, it would be surrounded by goods that had to be moved and absolutely filthy. If you took too long you were a nuisance, and if too short, they hadn't had their money's worth. I once found a five pound note under the cash drawer in a Kendal Pub, and the bar tender just gave me a dirty look when I handed it over. I hated it.

I heard stories of cash register servicing. Marks and Spencer would arrange for servicing to be done when the stores were closed, and a team of service technicians would go in on a Sunday wearing very little clothing but each wearing a mack. When they left, they looked a lot fatter. Another scam I was told of occurred in London and was fitting a sharp pointer over the top of the cash drawer in shops where they were known to be lazy about emptying the drawer. Excess notes would be picked off the pile when the drawer closed. When the till was serviced the mechanic pocketed the collected notes.

NCR asked me to go on an electronic cash register course in the USA for five months, but my wife objected and said she couldn't live by herself for that long, so I declined the course. In retrospect I should have gone. On top of which I still had no firm's car so I resigned. Bill rang up a month later and asked if I would go back, at which point I asked for another £500 a year, a new car and a new tool box.<sup>4</sup> They said I was being frivolous about the tool box and wouldn't do anything about the other conditions, so I refused.

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4 My original toolbox had fallen apart, and I'd bought one myself, and had had to repair that later.