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YOUR REFERENCE.....

PRIORS ROAD,

OUR REFERENCE M/6699/112/1

CHELTENHAM, GLOS.



13th May, 1960

(Please quote in reply.)

The Director
D.S.B.;
Melbourne
Attention QE2 (Mr. R. Bailey)

Dear Robin,

As you know we have been sending to you each month, an extract of the section of our AMC Monthly Report which deals with COLOROB. The machine has now been handed by M (Science and Engineering) Division to W (Operational Services) Division both for operational use (W65) and for maintenance (W64). Consequently, no further reports will be written by M engineers for the AMC report but the W64 engineers will report, in tabular form, on its operational availability and if necessary amplify this with a short report. Their report for April is:

Machine	Power on/ Available time	Non-Available/Total Available Time			Number of Faults		Available for Operation/ Total Available time (b)
		Scheduled Maintenance	Operational faults	Total	M	E	
COLOROB	100% (167.2 hrs)	NIL	3.62% (6.05 hrs)	3.62% (6.05 hrs)	NIL	15	96.38% (161.15 hrs)

where M = Mechanical
E = Electrical

"W64A BRANCH REPORT FOR

APRIL 1960"

1. COLOROB

Work has continued on the drum writing troubles. All write cct chassis have been modified to give heavier write current using 10 K instead of 15 K in part of the cct.

On the interference question, progress has been small. A shielded-winding transformer was tested out, with little or no result.

On the rest of the machine faults have been normal, with one long-duration core-store fault. This was eventually traced to bad connections on an output-transformer plug.

Complaints have been received about the noise of the exhaust fans on the air system. A baffle is to be erected outside the spur to divert the main noise upwards, and away from spur E12, the chief sufferers."

This type of report is designed primarily to indicate the reliability of the equipment and also to indicate the type of faults encountered. If you feel this information would be useful to you I can arrange for it to be sent each month.

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We have never compared the reliabilities of INFUSE and COLOROB and I wonder if you would be prepared to produce, each month, a set of figures similar to those produced by W64. A comparison of the two sets of figures may give an early indication that the operation of one machine is becoming marginal. I think that this would prove to be an extremely valuable exchange of information; do you agree?

The present staffing position on COLOROB is that Barry Clayton moved to other work in M24 Branch on 1st April, I moved to other work in M22 Branch last November, and Ken Zeeman and John Hart have moved from M Division to W64 to take over maintenance of the machine. (Ken Zeeman is also ironing out the remaining troubles on the new magnetic drum.) I will continue to liaison with you regarding COLOROB/INFUSE.

I think also it might be useful to give you a rough guide to the work carried out on COLOROB up until 1st April when Barry left:

- (a) Various modifications to improve the reliability of the core store since the E880C valves did not meet the manufacturer's specification. I will not detail these, since you do not have such a store.
- (b) The installation of the new magnetic drum (similar to the INFUSE drum). Initial troubles were that writing could not be achieved without first erasing the previous data, brake coils kept burning out, and interference was obtained between adjacent circuits on Chassis 24. The drums were returned to Ferranti Ltd., who replaced the brake coils - we still await their explanation of the reason for the fault. Ken Zeeman is attempting to eliminate the writing problem by increasing the write current by 50%. This is achieved by reducing the cathode resistor in the write valve from 15 to 10 kilohms. The chassis have now been modified but not checked out operationally. The interference problem is still with us, a shield between the W.W.G. transformer and the write valve transformer being unsuccessful.
- (c) The plugboard was installed and is now working satisfactorily, An added facility is a neon indicator panel with 100 neons which can be plugged to the output of any register circuit in the machine. This saves the operators walking round the machine to determine the state of the registers. Ten keys are also provided.
- (d) We have changed the circuit associated with the type 106 transformer in the reset circuit of Chassis 06. The CV 4024 has been replaced with a Mullard E880C valve and the transformer can then be a type 105. This has been found to clear completely the faulty reset conditions which arose with the old circuit employing positive feedback. The type 106 transformers in the clock circuits are still used because they are employed here for an entirely different reason, See M/4372/112/1 of 7th January 1958.
- (e) The strobe pulses on the clock circuits were lengthened to ensure that a full 0.5 microsecond pulse reached each chassis in the machine. This, of course, is something you did a long time ago.
- (f) As mentioned in my letter, reference M/6682/112/2 of 5th May 1960 we have modified the grid stopper in all the toggle circuits from 10 to 27 kilohm. This has eliminated completely the unreliability problems associated with counters, accumulators, and shift registers. The circuits are also more tolerant of 'aging' valves.

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EXT.....

Room No.....

YOUR REFERENCE.....

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- (g) On the question of 'aging' power amplifier valves', para 6 of your 8/10/31 of 8th July 1959 we have always found that a new valve will cure a sagging output. We have never suspected the type 82 transformers as being faulty and never had to replace them for this particular reason.
- (h) In para 7 of the same letter you mention the problem of locating the extra components to allow the operation of the address toggles on Chassis 24 at G6.5. I hope that my letter M/5814/112/1 of 6th July 1959 cleared up this problem for you.

Finally COLOROB reports, the four looseleaf copies of the Descriptive Report were dispatched to you on the 2nd February (two copies by air bag and two copies by sea bag). The remaining four bound copies for you, and the one bound copy for Trevor Robinson should be dispatched within the next fortnight. I'm afraid that for reasons of finance it will be necessary to send these by sea bag. The Research Report has unfortunately been delayed but it is now in an advanced stage of typing and should be ready for distribution within the next two or three months.

This brings you up-to-date with the troubles we have had on COLOROB. More and more over the past year the machine has been going towards routine maintenance with no alteration to basic circuitry. The only major problem remaining is the satisfactory operation of the magnetic drum. We would be pleased to receive an up-to-date account of the engineering position on INFUSE.

Yours sincerely,

G. C. Kingsley

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