

| REF. | CONTENT |
|------------|--|
| INF 12/419 | Hellschreiber Working Committee, technical reception arrangements |
| Ref. 23A | Letter entitled "Experiences of Reuters with Hell Printers and Relays provided through Post Office Channels", from E. Davis (Reuters) to Mr. Perkins (Post Office, Chief of Communications), dated 27 th February 1948, 3 pages. Summary: answering London Press Service queries of 24 th February 1948 about Reuter's experience with the Post Office model Hellschreiber . Significant problems with paper feed mechanism due to wear of the knurling of the [soft brass]pinch & drive rollers; the new Marconi model [→above discussion is about current Marconi model] will fix this problem by using rollers made of case [= surface] hardened steel and sharper knurling; wear of motor carbon brushes is normal, if motor's mica commutators do not stick out; replacement of motor brushes is tedious, as components have to be removed, and motor mount may have to be loosened, to get access; fair amount of motor insulation failures in tropical climates; the circular brush and the associated nickel contact plate of the motor's speed governor require regular cleaning; the 30 watt rating of the [green] governor resistance (mounted beneath the chassis) is insufficient; machines cannot be left for long without mechanical attention, monthly inspection by an engineer is insufficient. Post Office comments to above letter: problem with paper feed wear only after long use, but Post Office specification will be adapted (steel or hard brass); problem with motor brush replacement is acknowledged, cannot be fixed with current motor design and position, and no other suitable motor is available; need for very regular cleaning of motor governor brush is not confirmed, though Reuter's transmission run 22 hours per day and much less for London Press Service; cleaning of brushes is simple, but probably cannot be done by totally unskilled staff. |
| Ref. 23B | Extract from a personal letter from Angus Malcom (Head of Chancery, London) to Mr. Alan Dudley (British Legation, Mexico City), dated 30 th January (1948), 1 page. "We are still battling with <u>Hellschreiber</u> but I wish you'd take the bloody thing away." |
| Ref. 23C | Letter entitled "Marconi printer", by C.P. Hayter on behalf of Contracts Manager of Marconi's Wireless telegraph Co. Ltd., to Mr. David St.J. Jones (Director of Contracts, Foreign Office, London), dated 1 st April 1948, 2 pages. Response to queries by Mr. St.J. Jones regarding Marconi printers supplied to the F.O. under General Post Office contract 51504 . The amount of time that printer can run unattended (besides for changing paper tape reels) is limited to about 7 hours of continuous printing when starting with new/fresh ink pad; also limited by radio receiver drift. New model Marconi printer still has brass paper feed rollers, but special care taken to ensure accurate and identical knurling on all rollers, and Marconi's high-speed [Morse] undulators use this without undue wear. In the new Marconi printer model, parts layout has been changed to improve access to motor brushes (but the motor design, to Post Office specification has poor accessibility to brushes). "Oilite" bearings [porous bronze journal/sleeve bearings] are used for the driving roller of the paper tape feed and for the " marking wheel " [printer spindle], whereas the pinch roller of the feed has self-aligning [ball] bearing and the " jockey roller " ["jockey wheel", ink pad wheel] has a plain [ball] bearing; paper tape spool holder of new model printer is still for 4 inch diameter rolls, redesign would be required to accommodate 5½ or 8 inch rolls. Differences between new Marconi printer and original G.P.O. design: "Oilite" bearings instead of plain bearings , to avoid frequently observed seizing-up; start-stop device improved to be robust to noise/interference; motor speed control is being improved (finer adjustment steps); motor wiring simplified; printer magnet assembly improved to avoid shorts experienced with original G.P.O. design; stronger supporting arm for ink roller (this roller now has a double-race ball bearing), clip added to hold arm in up position; screw-in motor governor resistor of the original G.P.O. design replaced with standard clip-in type; all components specified by Marconi are suitable for tropical use, though motor and start-stop supply transformer are to P.O. specifications; all printers are tested for speed control and correct printing of received Hellschreiber signals. To provide satisfactory ventilation, louvers are incorporated in the back of the unit and air inlet holes in the base [bottom]. |
| Ref. 23D | First page of letter from Foreign Office to Mr. McLoughlin (Central Office of Information), dated 20 th July 1948, 1 page. Summary: original proposal to introduce the Hellschreiber system for London Press Service came from the Ministry of Information /Central Office of Information with technical backing from the General Post Office. Poor results from first tests in South America were presumed caused by poor quality of the G.P.O. machines, contracted to Pye Telecommunications Ltd. and Coventry Gauge and Tool Co. Ltd. The Foreign Office will use Marconi printers. The Colonial Office can be equipped with G.P.O. printers, as can the Commonwealth Relations Office. |
| Ref. 23E | " Orders & estimated cost of Hell Equipment ", by McLoughlin (Central Office of Information), dated 20 th November 1948, 1 page. Summary: original order was for 50 sets at £150 per set. Actual cost is about £130 per set (printer from Coventry Gauge & Tool Co. , relay/amplifier from Pye Telecommunications Co.), including transformers and tape guides; for political priority, 3 sets urgently purchased from Marconi at £178 per set, for India and Karachi, Pakistan (shipped March 1948); 20 printers from Coventry Gauge & Tool Co. at £52 each, and 20 relays/amplifiers from Pye Telecommunications Co. at £70 each; 20 complete sets from Marconi at £200 per set. |
| Ref. 23F | "London Press Service: Transfer to Hellschreiber working – Statement by the central Office of Information", dated 23 rd March 1949, 4 pp. Summary: 3 transition phases + conclusions. Early phase: LPS was instituted summer of 1945 with |

Morse via several beams; decided on advice of Post Office and with agreement from Overseas Depts. to gradually change to Hellschreiber, area by area. **Initial order of 50 Hell printers and thermionic relays [amplifiers] was placed by Post Office (on behalf of the then Ministry of Information) with Coventry Gauge and Tool Co. and Pye Telecommunications Co.** PO established specification. Production delays. **Middle phase:** interdepartmental meetings early 1948 to discuss supply of equipment, technical difficulties. Agreed to continue. **Overseas Depts. requested PO to additionally order 20 Marconi printers & relays, as well as 20 printers from Coventry G & T Co. and 20 relays from Pye.** Reception at the American Posts was steadily improved during spring of 1948; Central Office of Information, per instructions from Head of Policy Dept of the Foreign Office, scheduled Hellschreiber transmission of London Press service to the Americas. Expected to annually save **£4000** [ca €185k in 2017] vs. Morse service. LPS Americas service became operational October 1948. Early 1948, Commonwealth Relations Office obtained 3 Marconi Hellschreiber sets for India & Pakistan. Per early 1948 agreement, Foreign Office asked for Hell equipment for Posts in Europe in mid-1948. Original intent of PO and Central Office of Information was to first change to Hell on omnidirectional long-wave transmitter meant for Western Europe. Implemented October 1948. Eastern Europe and Middle East would be covered by subsequent transition to Hell on short wave. **Present phase:** very poor reception conditions during winter of 1948/1949 (as expected), exacerbated by severe sunspot activity and the associated 11-year cycle. In South America, the wireless receivers, antenna siting, and power supply variations needed examination; important interference from other (distant) transmitters. Starting early February, reception perfect in South America, Ottawa/Canada and New York. Efficiency of Hellschreiber system illustrated by Karachi/Pakistan: equipment ran 4 hours and perfectly recorded 10,000 words (only needed change of paper roll). Helsinki: the transcriber [typing staff] can supervise running the system, saving about half the salary of a Morse operator (annual saving of **£150-200**). Concerning long distance transmission: Reuters Hell service has good reception in Japan and Australia. **The War Office has sent Hell equipment there.** **Conclusions:** original reasons for transition from Morse to Hellschreiber were reduction in transmission cost, faster transmission make transmission schedules more flexible, which should reduce staffing in the field, enables more objective check [printed tape] of reception of transmitted material. If the policy of Hellschreiber development is to continue, patience & cooperation of the Overseas Depts. is required, funds to be secured for reasonable antenna siting, installation, and early maintenance. It would be a serious retrograde decision at this stage to revert to slow Morse.