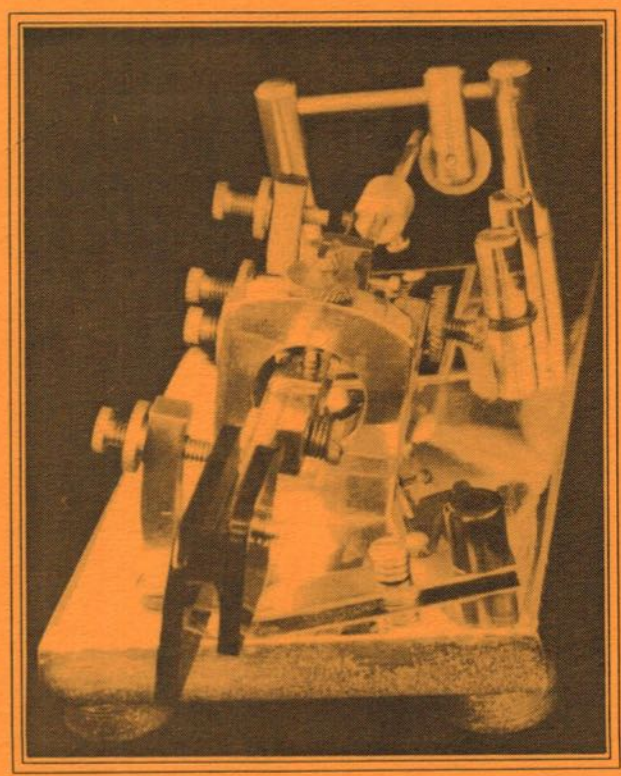
Number 28 – June 1993

Flying the flag for Morse

Morsum Magnificat

The Morse Magazine



Dow-Key tilted yoke semi-automatic key designed by Paul Dow of Winnipeg

ISSN 0953–6426

Morsum Magnificat

the Morse Magazine

MORSUM MAGNIFICAT was first published as a quarterly magazine in Holland, in 1983, by the late Rinus Hellemons PA0BFN. Now published six times a year in Britain, it aims to provide international coverage of all aspects of Morse telegraphy, past present and future. MORSUM MAGNIFICAT is for all Morse enthusiasts, amateur or professional, active or retired. It brings together material which would otherwise be lost to posterity, providing an invaluable source of interest, reference and record relating to the traditions and practice of Morse.

ANNUAL SUBSCRIPTIONS:	1Year	2 Years
United Kingdom:	£12.00	£22.50
Europe, including Eire:	£12.75	£24.00
Elsewhere: *Surface mail*	£12.75	£24.00
Airmail	£15.50	£29.50

Payment by Access, Eurocard, Master-card or Visa is also accepted; quote your card number and expiry date. Please note that, owing to very high bank charges for currency exchange, we are unable to accept overseas cheques, drafts, money orders, etc., unless payable in sterling. Overseas cheques and drafts must be drawn on a London clearing bank.

Make all cheques payable to 'G C Arnold Partners'.

Subscribers in North America can now make payment in US Dollars to our subscription agents there, Wise Owl Worldwide Publications, 4314 West 238th Street, Torrance, CA 90505-4509, USA (see page 27 for further details)

EDITORIAL AND SUBSCRIPTION OFFICES:

Morsum Magnificat, 9 Wetherby Close, Broadstone, Dorset BH18 8JB, England.
Telephone/FAX: Broadstone (0202) 658474; International +44 202 658474

EDITOR Geoff Arnold G3GSR

CONSULTANT EDITOR Tony Smith G4FAI, 1 Tash Place, London N11 1PA, England. Tel: 081-368 4588

 Printed by Hertfordshire Display Company, Ware, Herts

ON OUR FRONT COVER

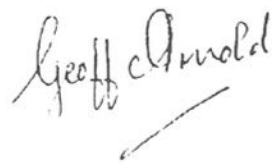
According to Murray Willer VE3FRX, Paul Dow was a good friend of Horace Martin, inventor of the Vibroplex, and it was Dow's demonstration of the Vibroplex bug to the Western Union Telegraph Company that helped convince them to allow their operators to use bugs. He built a number of bugs varying in design but still similar to the Vibroplex. However, he believed that a more natural operating position was for the hand to be inclined to the right so for the key illustrated he inclined the pendulum and contacts at 30° to vertical. This was dubbed 'The Bent Bug'. According to K6ITL the key had a short life with limited production. Shortly after introducing it, Dow-Key moved from Winnipeg, Canada to Minnesota, taken over by an American company (late 1940s?) and no more of these keys were produced. Photo from J.D. 'Knock' Knochenhauer K6ITL, via Dave Barton AF6S, Editor of NCDXC's *The DXer*.

Comment

THIS ISSUE of *MM* is unusual, in that almost the whole of the first half of the magazine is devoted to just one article, the results of our recent worldwide survey of the history and variants of the Key WT 8 Amp. The amount of correspondence which this project has generated has been phenomenal. Tony has been absolutely snowed under, and I think that he is to be congratulated for the great job he has done in sifting and collating all the information which came in, to produce this article. Quite a few readers have been enquiring when it would appear; now your wish is granted.

I hope that any readers who have no great interest in this particular topic will still find plenty to intrigue them in the rest of this issue, where we have a good mix of shorter articles. In any case, with our more frequent publication schedule you will not have too long to wait for the next issue. We have no plans at present for any further mammoth articles – I think that Tony will need a while to recover from this one!

Our new two-year subscriptions are proving very popular, even more so than we expected. This is great news for us, as it reduces the amount of administration work which we have to do – my wife Barbara, who bears the brunt of that side of the operation, is particularly grateful!



Contents

2 News
7 Key WT 8 Amp Worldwide Survey Results
24 Why HI?
25 Info Please!
26 Early Military Airborne Telegraphy
27 US Subscriptions via Wise Owl Worldwide
28 How I Became a Morse Teacher
29 *MM* Binders
MM Back Issues & in our Next Issue
30 Who was at the Key? – 1
34 Two-handed Coding
35 Club Profile – 9: MTC
38 Bookshelf
40 The Alexanderson Alternator
42 Readers' ADs
42 *Radio Bygones*
43 Your Letters

Advertisement Index

39 G4ZPY Keys
48 G-QRP Club
48 FISTS CW Club

News

Morse Lives!

ALTHOUGH SOME MAY TRY to brain-wash us into accepting that Morse is dead, that's obviously not a view shared by the Government Communication Headquarters in Cheltenham.

In the June 1993 issue of the RSGB journal *Radio Communication*, they are seeking to recruit Radio Officers – preferably 'capable of reading Morse at 20 wpm, but if not, full training will be given at our Training School'.

Our appreciation to Richard Q. Marris G2BZQ for bringing this advertisement to our attention.

And you never know when a knowledge of Morse may come in useful, perhaps in a life-or-death situation. In *The Guardian* of 26 May 1993, the following news item appeared:

'Home-made Morse

Peter Mott, 43, used patio lights at his seafront home near Margate, Kent, to flash a Morse message that help was on the way after spotting an SOS signal from a yacht. A lifeboat rescued the Morgan family, of Uckfield, East Sussex, from their 35-foot yacht, which was rudderless and taking in water.'

Alan Williams G3KSU spotted this one and sent in a cutting – thanks Alan.

Dot Dot Dash

UNDER THE ABOVE TITLE, BBC Radio 4 broadcast a 15-minute feature on the Morse code on May 29, the first of a three-part series examining different ways of communicating. Using both archive material and present-day recordings, the programme told the story of Samuel Morse's original invention, how his telegraph spread across America and round the world.

Roger Pickard, curator of the Royal Signals Museum at Blandford, described how the Royal Engineers Telegraph Battalion was established in 1871. He also described some exhibits at the museum, including World War II suitcase sets, plus some simple post-war radio equipment with 300 wpm high-speed sending facility, as used by the SAS.

In a historic archive recording, Marconi himself told the story of his first radio transmission across the Atlantic.

The story of 'Sparks' at sea included the arrest of Dr Crippen in 1910; recollections of the sinking of the *Titanic*; and memories of convoy protection duty in WWII. There were recollections also of the monitoring of enemy stations in WWII; the ability of operators to recognise the 'fists' of their opposite numbers; and the consequent ability to mimic their styles and pass on erroneous messages.

Today, despite the advent of satellite communications, Morse is still in use at sea by Russia, China, Greece and other countries. The programme reported that 200 ships a day still communicate through Portishead Radio using Morse code.

The Commandant of the Royal Signals School of Signals described how modern warfare requires the movement of

large quantities of information. Satellite systems using data at high speeds can do this, but the high-technology systems used are not necessarily robust, and they all require a fair weight of equipment to make them work.

By contrast, in some situations Morse sent over simple radios can pass small quantities of information at low speeds and is almost always guaranteed to get through.

Chris Page G4BUE described how radio amateurs use CW in their communications, and how each morning between 0530 and 0630 hours, thanks to Morse, he is able to work other amateurs in the United States, Australia, or New Zealand.

The programme ended with the comment that, although Morse is now internationally obsolete in a commercial sense, the amateur world will keep it alive for ever. The last words of the broadcast were "It's an obsession and a therapy".

MM *was pleased to be able to assist the BBC by providing some of the material used by researchers for this programme.*

AGCW-DL Hand-Key Party

ALL LICENSED AMATEURS are invited to take part in the AGCW 40m Hand-Key Party on Saturday 4 September 1993, on 7.010–7.040MHz, from 1300–1600 UTC.

Classes: A - Maximum 5 watts output (or 10W input)
B - Maximum 50 watts output (or 100W input)
C - Maximum 150 watts output (or 300W input)
D - Short-wave Listeners

Call: CQ HTP. **Exchange:** RST + QSO number/Class/Name/Age (XYL = XX).

Points for QSOs: A with A = 9, A with B = 7, A with C = 5, B with B = 4, B with C = 3, C with C = 2.

Logs: to include time, band, call, reports, class, station description, calculation of points, declaration that hand key only was used. SWL logs to include details of both calls and reports given for every QSO logged.

Logs to be sent to Friedrich Wilhelm Fabri DF1OY, Wolkerweg 11, D W 8000 Munchen 70, Germany, by 30 September 1993. Send a self-addressed envelope for results.

This event is held every year on the first Saturday in September. There is also an 80m Hand-Key Party on the first Saturday in February, on 3.510–3.560MHz, from 1600–1900 UTC (logs by February 28) under the same rules. For other information about AGCW-DL, see MM20, p18.

Gleanings from France

THE DECEMBER 1992 ISSUE of *Radio-REF*, journal of the French national radio society, REF, mentions a referendum on CW and urges all amateurs to respond to it whatever their opinion. *MM* would be grateful to any French reader who can report to us the outcome of this referendum.

An encouraging item in the same issue reports that Roland, F5ZV, had sent out 238 discs containing his Morse training program throughout France and to eight other countries including Mexico, Salvador and the Ivory Coast; with fifty per cent of the disks going to amateurs who already knew the code but wished to get back to operating standard.

The magazine reports a heavy postbag at REF and UFT (Union Française des

Télégraphistes. See MM22, p.12) with most correspondents in favour of keeping the Morse test while proposing access to 28MHz for no-code licensees.

The views expressed, both for and against the test, are as varied as those in other countries, including 'Let's have American style incentive licensing with access to more bands on reaching greater speeds, e.g., 5, 10, 15, 20 wpm'; 'Keep the exam but halve the speed'; 'CW supporters are a clique. What would you say if you were forced to learn to ride a horse as a qualification for driving a car, with the hidden intention of limiting the amount of traffic on the road?'; 'If the aim is to increase the numbers of amateurs, we should throw out knowledge of technical matters and regulations as well as Morse!'; 'Morse puts me in contact with all nationalities, including beginners with rudimentary equipment which is all that some countries can muster. We are brought together when the fragile dots and dashes come through'; 'Ignoring Morse is like ignoring reading and writing because we've got cassette recorders': 'Let's have a wide range of licences and categories so that the breadth of choice enables everyone to make the best of his own particular taste'.

(Thanks to the Rev. Duncan Leak for translating part of 'CW Infos' and 'Opinions CW' from Radio-REF, *December 1992, enabling the above summary to be made by* MM. *– Ed.)*

Museums of Interest

IT IS DOUBTFUL if such a thing as a 'Morse Museum' exists, and it is sometimes difficult to identify museums having something to offer the Morse enthusiast. *MM* hopes to overcome this difficulty by publishing information about those known to have material of interest, even if the display is small.

If readers visit these museums we would appreciate reports on what they find in terms of presentation of exhibits and their possible interest to other readers, plus other information, e.g., other subjects covered, catering arrangements, car parking facilities, admission fees, etc.

We will also welcome information about other museums having material of telegraphic interest, anywhere in the world, whether visited or not. All reports or information to Tony Smith please.

FRANCE: Musée Européen de la Communication

This museum, located in an 18th century chateau, claims to tell the story of communication 'from Tom-Toms to Satellite', including the discovery of electricity which led to man's ability to communicate instantly over great distances by telegraph. It also claims to provide a good day out for the entire family.

Address: Château Musée de Pignerolle, 49124 Angers St. Barthélémy (Maine et Loire). Tel: 41 93 38 38.

CANADA: Manitoba Amateur Radio Museum Inc.

The curator of Canada's only amateur radio museum, Dave Snydal VE4XN, reports that the Morse exhibit is limited at present but is expanding all the time. There are several hand keys, a few bugs, and a display, with a copy of American Morse characters at each position, where the public can send Morse to each other.

The museum is dedicated to collecting, preserving, researching and exhibiting articles of amateur radio and

communication interest. It operates amateur station VE4MTR, and is located in the grounds of the Manitoba Agriculture Museum, Austin, Manitoba.

Open daily, 9.00am to 5.00pm, May long weekend to October 1, admission fee charged, children under 12 free.

Enquiries: Dave Snydal, Curator MARM, PO Box 10, Austin, Manitoba, R0H 0C0. Tel: (204) 728-2463, or Agric. Museum Office (204) 637-2354.

Golden Section Interest

THE INSTITUTE OF DESIGN, Teesside, is very interested in Dr Jim Lycett's work on the application of the Golden Section to mechanical artefacts.

They have incorporated slides of the Golden Section Key (MM27, p.12) in their lectures as an example of this design methodology.

Nottingham Morse Seminar

SADLY, THE ABOVE EVENT had only 45 paying visitors, resulting in a financial loss. Next time there will be greater emphasis on advance publicity and cup final day will be avoided!

Despite this, the visitors (some from a very long distance) seemed to find the day of interest. All the speakers: Fred Ward G2CVV, on Early Radio; Roy Clayton G4SSH, the Chief Morse Examiner, and his deputy, on the Morse test; and Ron Wilson G4NZU, on the choice and operation of keys, had a good audience and all were questioned on their talks, a sure sign of interest.

The key collection of G0NDI/G0NDJ had a crowd round it all the time as did the Vibroplex keys very kindly loaned by Eastern Communications. It appears there are many ways to set a bug up, with each operator having his own pet method!

The HiMound keys from SMC (Chesterfield) also proved popular. The new Jones straight and iambic keys were examined with great interest, and the designer gave a short talk on these.

Various computer programs were keenly examined. The Dr DX Morse contest simulator proved attractive, as did the BBC computer program which times transmitted Morse. This caused a few raised eyebrows when operators saw the timing of their Morse characters cruelly displayed!

A highlight of the day was seeing our oldest (in terms of callsign of course) visitor, ex-RSGB President Fred Ward, G2CVV, being introduced to our youngest visitor, 12-year old Frances, 2E1BRR, who had received her new call that morning. Another was hearing from George Longden G3ZQS, from FISTS CW Club, about the logo he saw on sweat shirts at Dayton proudly announcing that the wearers supported the 'KNOW code licence'!

Overall, it was a good day in that everyone seemed to find something of interest, but a disappointment in terms of numbers attending. Ideas for talks and demonstrations, etc., at the next event, including suggestions as to who might be willing to give them, will be much appreciated. My thanks to all who helped and to all who visited. BCNU.

Report by Ron Wilson G4NZU, 9 Greythorn Drive, West Bridgford, Nottingham NG2 7GG. Tel (0602) 231900, who welcomes your comments. *(My apologies for not 'appearing' at the Seminar. This was due to a family bereavement occurring on the same day. – Tony G4FAI).*

GMDSS Phasing-In

THE GLOBAL MARITIME DISTRESS and Safety System is an international automated maritime distress alerting program that uses satellite and advanced ground-based communications. Being phased-in between 1992 and 1999, it is making manual telegraphy obsolete for emergency communications for ships at sea.

At the end of May, the Federal Communications Commission (FCC) amended its rules which prohibit the operation of low-power non-licensed devices on the bands authorised for GMDSS by reducing the width of the existing restricted frequency band 490–510kHz to 495–505kHz. Although 500kHz is an international distress frequency, it will no longer be monitored by the US Coast Guard *(effective from 1 August 1993. – Ed).*

The FCC also issued a Notice of Proposed Rule Making, on May 12, which seeks to relax the requirement that all passenger ships and large ocean-going cargo vessels carry a radiotelegraph (manual Morse code) station.

If adopted, ship owners operating on certain voyages will no longer have to apply for an exemption to the radiotelegraph station rules when the vessels remain within the effective communications coverage of US Coast Guard or public coast stations in the USA.

(W5YI Report, 1 June, 1993)

No-code Update

THE RADIO SOCIETY of GREAT BRITAIN's HF Committee received input from 1413 people in the UK (some via clubs), and a further 86 letters from overseas, in response to its recent 'Code-free Licence' consultation exercise. The results of the exercise will be published in an article in the July 1993 (or later) issue of *Radio Communication*, journal of the RSGB.

In a letter addressed to all who submitted their comments, David Evans G3OUF, Chairman of the HF Committee, confirms *(as was exclusively revealed in MM27. – Ed.)* that the consultation exercise was carried out by the RSGB at the direct request of the Radiocommunications Agency, the UK Licensing Authority, because of letters received by the RA from both members and non-members of the RSGB.

He explains that the report of the HF Committee will be sent to the RSGB's Licensing Advisory Committee and the RSGB Council, and that the latter will decide on any future RSGB policy in this area.

MM readers who have not yet contributed to this debate are reminded that, if they wish, they may send their views directly to the RA as explained in MM27, p.3. They should write to **The Radiocommunications Agency, Waterloo Bridge House, Waterloo Road, London SE1 8UA, marked for the attention of Mrs Karen Scott, Room 712.**

Items of news for inclusion in this feature should be sent to Tony Smith G4FAI, 1 Tash Place, London N11 1PA

KEY WT 8 AMP

Worldwide Survey Results

by Tony Smith G4FAI

JIM LYCETT'S ARTICLE (MM22, p.22) describing the evolution of the Key WT 8 Amp aroused widespread interest and even produced some personal reminiscences. It was particularly pleasing for me to discover that a relative of mine, Charles Parker of Dunkirk, Kent, remembers supervising a line of girls making '8 Amp Keys' in the early part of WWII.

This was at the Telephone Manufacturing Company in South East London, and Charles recalls: 'We set them with a gap of about 8 thou (0.008in) and a War Department inspector would come from time to time to make sure the keys were satisfactory. We must have made thousands of them.'

Another memory came from Roy Storey G3LBT who, at the age of 14, worked at the Phoenix Telephone & Electric Works in Hendon, NW London, assembling these keys when his wages were 18s. 6d. (92½p) for a 46-hour week.

Mass of Information

In response to my appeal for information, at the end of Jim's article, many readers/collectors around the world sent me details of the Keys WT 8 Amp which they use or have in their collections. As a result it has been established that over 100 versions were made in a number of countries, and this article brings together all the information received so far.

Some keys have only slight differences, some being identical apart from having different makers' names on them, or no name at all. Some have different numbers of fixing holes, or differences in markings. Some have more noticeable design differences, and all are listed here together with other information likely to be of interest to collectors or users. It is a daunting mass of information which I have tried to condense and present in as clear a manner as possible. It must be understood, however, the result is not a definitive listing; it is simply a list of the keys reported in the survey and set out by me in what appear to be logical groupings.

Other, unreported, keys may well exist and information about them could result in different conclusions being drawn in some cases. However, I feel that the information given here will be of value to collectors in identifying their keys, providing information on their use, and stimulating their efforts to find further versions of the Key WT 8 Amp.

It may be possible to publish further articles later concentrating, and expanding, on particular types of key or applications. In particular I received a great deal of information on Canadian keys from Chris Bisaillion VE3CBK, which could certainly be the basis of a separate article.

All readers with these keys are now asked to check them carefully against the listing. If you have other versions, or further information on those that are listed, particularly where a query is indicated, please send details to me. If reporting further versions, please use the Groups 1 to 16 and Characteristic headings 1 to 8, listed on page 13.

Cautionary Notes

Although some keys are identified as serving some specific purpose, it appears that by having identical corner mounting holes, irrespective of whether a fifth hole is also provided, as described later, virtually all versions are easily interchangeable by the simple expedient of using only three, or even two, fixing screws when necessary.

Note also that while some keys have various forms of lever insulation, depending on the use to which they were put, other identical keys may or may not have such insulation. Lever insulation does not, therefore, appear to be a useful identification characteristic.

This same qualification applies to finger plates or knob skirts. Some keys have been noted as having finger plates of various sizes and materials while other similar keys have been reported without them.

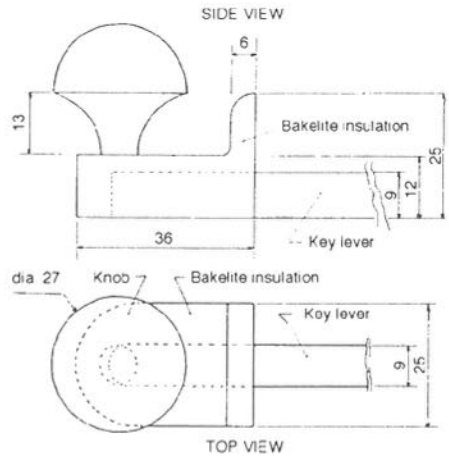
The uses noted against individual keys are as known and reported by correspondents but are clearly not exhaustive. Further information on known uses will be welcomed.

To obtain maximum benefit in identifying particular keys, and understanding their place in the development of the Key WT 8 Amp, this article should be read and used in conjunction with Jim Lycett's article, 'The Ubiquitous Key WT 8 Amp', which appeared in MM22, p.22.

It should be noted however, that the 'S-R Cotel key' described in that article is not a military key in the WT 8 Amp series. It was, in fact, commercially manufactured by Jack Sykes G3SRK as described in MM1 (p.3).

Key & Plug Assemblies

Keys WT 8 Amp are sometimes found in a Key & Plug Assembly, of which there are a number of different types. These are protective cases covering the key for field use, having thigh straps which enable the key to be secured for use on an operator's leg. They sometimes incorporate switches or other features to control the transmitter/receiver associated with the particular Assembly.



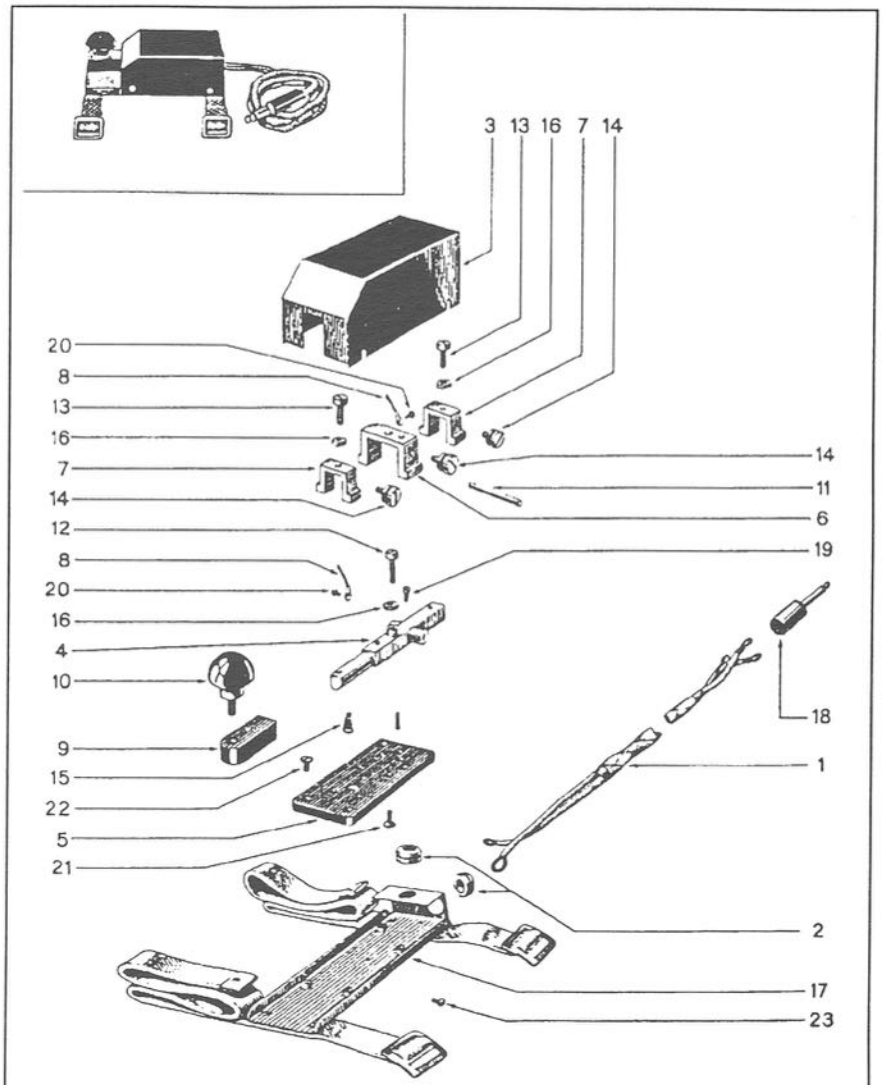
Insulating sleeve and finger guard. See text

Drawing: Bernard Delage F5DE

The insulating sleeves sometimes found on key arms are used when a key is fitted in a Key & Plug Assembly. The most common is a simple sleeve of square section that slides over the arm of the key and is secured by the knob screw. This can be seen in the photos of various Key & Plug Assemblies illustrating this report.

Slightly more complicated is the type of sleeve used with some Canadian keys and the Bunnell (USA) version. Here, the end of the lever has a rounded section and the sleeve fits over this. See drawing (opposite) of Key & Plug Assembly No 9 ZA/CAN/BR 0937 with C2 key (from Group 8 below).

Yet another type, described in the key listing as 'insulating sleeve and finger guard', has a raised finger guard section. See drawing (above). This has been noted on only a few keys and it has not yet proved possible to



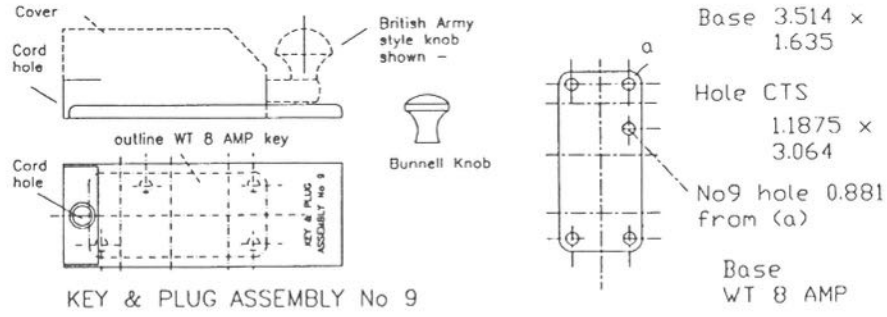
Breakdown of Canadian Key & Plug Assembly No 9, ZA/CAN/BR 0937.
Note rounded section of lever to accommodate insulating sleeve of C2 key (see Group 8)
Contributed by Chris Bisaillion VE3CBK

identify if it has a specific application. Further information on this will be welcomed.

Types of Key & Plug Assembly noted are as follows. Again the list is not exhaustive and further information will be welcomed:

No 2B – No details available. Information welcomed.

No 6 – four-hole fixing.



Positioning of the 'fifth hole', as found in Key & Plug Assemblies Nos 8 & 9. See text

Drawing: Jim Lycett G0MSZ

No 8 – ZA 4354, used with Wireless Sets Nos 18 MkII and MkIII; also WS Nos 68T and 68R. Includes a send/receive switch connected to the filament supplies of the transmitter and receiver. When the switch is in the 'receive' position the key lever is held in the 'on' position by a small pin protruding through a hole positioned centrally at the back of the key base. The No 8 Assembly has five holes in key fixing positions but only four have tapped brass fixing bushes, i.e., three corner holes plus the fifth hole position described under 'No 9' below.

No 9 – ZA 0937, used with Wireless Set No 19. The 'Wireless Set No 19 MkIII' manual, Section 5, indicates that for this set a Key W/T 8 Amp No 2 MK II was intended to be used:

'The key is connected to the set by means of a twin cord terminating in a key plug which, when inserted into the key jack, automatically actuates the Send/Receive relay. The action of half withdrawing the plug restores the relay to normal, i.e., switches the "A" set to "receive".'

The metal bases of the No 9 assembly (ZA29115) have been noted in two versions. One has five holes, but tapped brass fixing bushes are fitted to three of the corner holes and to the fifth 'extra' hole which is brought forward to clear the cord anchorage (see illustration). Another, with the same ZA reference, has the same five holes, but fixing bushes are fitted only to the four corner holes.

No 9 – ZA/CAN/BR 0937. Supplied for Canadian/American WS No 19 MkII instead of Key & Plug Assembly R.11950 (i.e., ZA 0937) 'until stocks exhausted'.

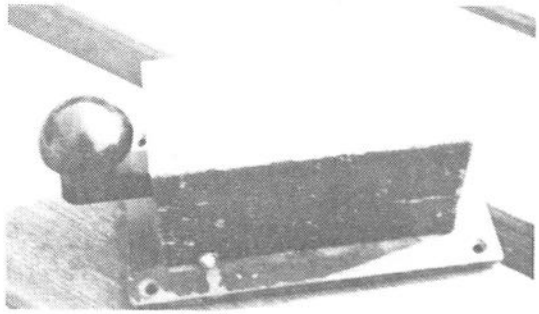
CDN No 9, (CDN = Canadian) – ZA/C 0937 (RCA 110072-1). Used with WS (Canadian) No 52.

CDN No 9, Type 2 – ZA/CAN 0715 (RCA 110072-1). With four (corner) fixing bushes. Cover has rounded top. Used with WS (Canadian) No 19 MkIII.

CDN No 9, Type 2/T – ZA/CAN 2320. Used with WS (Canadian) No 29.

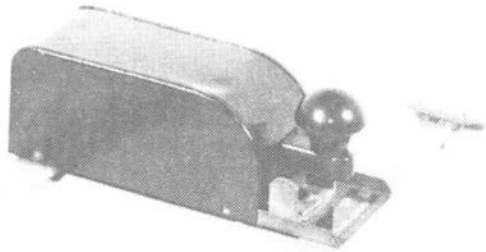
No 19 – ZA 28656. Used with Wireless Set No 62. Provided with a snatch plug for inserting into one of the drop leads on the set. The key itself carries a snatch socket so that a second microphone and receiver assembly may be connected to the set in addition to the Morse key. Break-in working is used on CW so that no separate send-receive control is necessary. (From Wireless Set No 62 Working Instructions. ZA27690, October 1945, reprinted Sept. 1953. W.O. Code no. 1548).

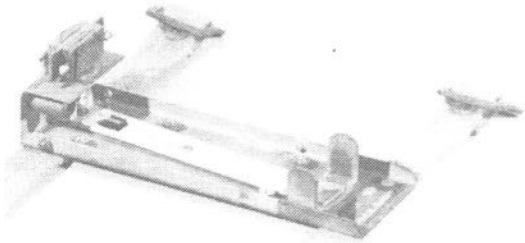
Unit Operator No 1, MkII – YA 8414. It appears that this unit is part of a 'Training Set



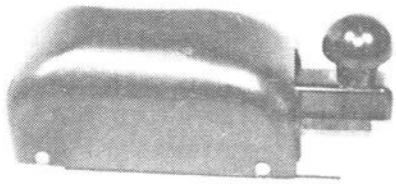
Key & Plug Assembly No 6
Collection/Photo: Derek Sheen G4CCW

Key & Plug Assembly No 8
Collection: George Ford G0MHC.
Photo: Jim Lycett G0MSZ

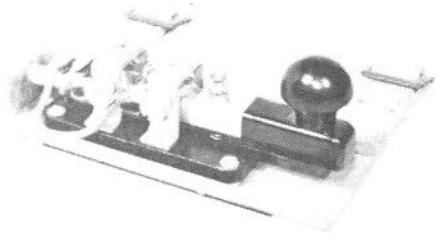




Base of Key & Plug Assembly No 8 showing send/receive switch and spring plate for pushing locking pin through base of key. See text
Collection: George Ford G0MHC.
Photo: Jim Lycett G0MSZ



Westclox Key & Plug Assembly No 9 Cdn. ZA/CAN 0926. Note the rounded cover
Collection: Lee Grant G3XNG.
Photo: Jim Lycett G0MSZ



Interior of Westclox Key & Plug Assembly No 9 Cdn. Note the two bridges and pressed steel construction of the key
Collection: Lee Grant G3XNG. Photo: Jim Lycett G0MSZ

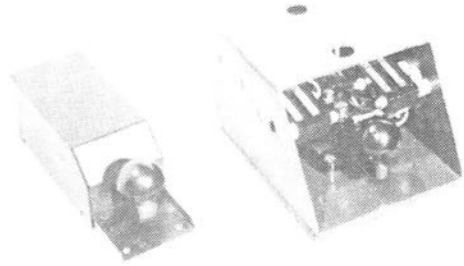
Universal' for voice and operator training. One correspondent suggests that these units also controlled WS Nos 19 or 21, but no other information is available. Another correspondent states that reference YA is used for line equipment whereas ZA refers to radio equipment. Further information welcomed.

Morse Practice Oscillator – The current stores catalogue number of a Morse Practice Oscillator is 5805-99-199-8969 PCA/xxxx

Makers

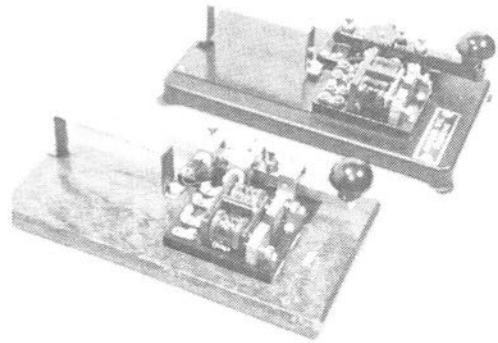
Makers noted and original addresses (where known) are as follows. If anyone can help to fill in the gaps please contact me.

A.M.C.:	England?
AWA:	Amalgamated Wireless Australia
Bunnell:	J.H. Bunnell & Co, 81 Prospect St., Brooklyn 1, NY, USA.
@	The Chad Valley Co?
C.E.L.:	Tring ?
Clipsal:	Australia.
EWT:	Contractors to PMG Australia?
E.T. Ltd:	Ernest Turner Electrical Instruments Ltd, High Wycombe, Bucks (or Ericsson Telephones Ltd?).
H & C:	?
L.A.M.:	?
LMK:	LMK Manufacturing Co. Ltd.
LC:	Contractors to P.M.G. Australia?
N.E. Co:	Northern Electric, Canada.
Northern Electric:	Canada.
N.C. Co:	?
P.M.G.:	Post-Master General, Australia?
PT & EW:	Phoenix Telephone & Electric Works, The Hyde, Hendon, London NW9.
PX:	It is not known for certain if these are a maker's initials. Information welcomed.



On the left: British Key & Plug Assembly No 9. Note the squared corners compared to the Canadian rounded version. On the right: Unit Operator No 1 MkII, YA 8414

Collection/Photo: Jim Lycett G0MSZ



Two BUZZER SIG. TRAINING sets. No 2 MkIII CEL key on metal base and earlier No 3 MkI WER key on wooden base

Collection/Photo: Jim Lycett G0MSZ

Pye:	?
T.B. & S.:	?
TMC:	Telephone Manufacturing Co. Ltd, Hollingsworth Works, Martell Road, West Dulwich, London SE21.
UTD:	South Africa?
WER:	Whiteley Electrical Radio Co., Ltd, 109 Kingsway, London WC2.
Westclox:	Canada.

Key Listing

To help with identification of individual keys, the list has been divided into groups which follow a reasonably logical order in terms of characteristics:

Group 1: No 2. THREE BRIDGES. P.O. TYPE TENSIONER.

Group 2: No 3. THREE BRIDGES. P.O. TYPE TENSIONER.

Group 3: NO NUMBER. THREE BRIDGES. P.O. TYPE TENSIONER.

Group 4: No 2. THREE BRIDGES. SIMPLIFIED TENSIONER.

Group 5: KEY SIGNALLING No 2. THREE BRIDGES. P.O. TYPE TENSIONER.

Group 6: KEY SIGNALLING No 2. THREE BRIDGES. SIMPLIFIED TENSIONER.

Group 7: No 3 MkI. THREE BRIDGES. SIMPLIFIED TENSIONER.

Group 8: NO NUMBER. THREE BRIDGES. SIMPLIFIED TENSIONER.

Group 9: No 2. TWO BRIDGES. SIMPLIFIED TENSIONER.

Group 10: NO NUMBER. TWO BRIDGES. SIMPLIFIED TENSIONER.

Group 11: No 2 MkII. NO BRIDGES. SIMPLIFIED TENSIONER.

Group 12: NO MARKINGS. SIMILAR TO No 2 MkII.

Group 13: No 2 MkIII. NO BRIDGES. SIMPLIFIED TENSIONER. BAKELITE.

Group 14: No 2 MkIII/I. NO BRIDGES. SIMPLIFIED TENSIONER. BAKELITE.

Group 15: No 3 MkII. NO BRIDGES. SIMPLIFIED TENSIONER.

Group 16: ALSO NOTED

Within these groups the listing is in eight columns covering various characteristics to aid identification. Some characteristics have not been included as they would not necessarily help to differentiate between various versions. The omissions include the shape of the ends of lever arms; lever arm material (although this is sometimes included in the footnotes); and the small tapped holes (purpose unknown) found in the sides of some bases.

Characteristics

The characteristics noted are listed under the following numbered headings.

1 – Reference No ZA or other, or not indicated (N).

2 – Base with sharp (S) or rounded (R) corners (includes two types, small radius and larger radius).

3 – Base has extra (5th) mounting hole suitable for Key & Plug Assembly No 8 or No 9 as described under 'Key & Plug Assemblies' above. Indicated as '5'.

4 – Bearing pin, taper (T) or parallel (P).

5 – Finger plate/knob skirt (F). Some noted with, some without (S).

6 – Maker, or not indicated (N).

7 – Year, or not indicated (N).

8 – Country: Australia (A), Canada (C), England (E), New Zealand (NZ), South Africa (SA), USA (US), not indicated (N).

GROUP 1

KEY WT 8 AMP No 2. THREE BRIDGES. P.O. TYPE TENSIONER (TENSION SPRING)

The No 2 key with P.O. type tensioner and tapered pin bearing appears to be the earliest type of Key WT 8 Amp. The earliest reported is dated 1935 but correspondents have suggested that the type goes back earlier, perhaps under the name 'Key Signalling'. Information on keys dated earlier than 1935 will be particularly welcome.

Until 1939, these keys had bases with sharp

corners. The last ones of this type made in the UK seem to be dated 1940, with a slight change in design (i.e., to bases with rounded corners), while keys similar to this were apparently continued in production in Australia until 1944.

Note that there are also No 2 keys with simplified spring tensioners (compression spring) and these are listed later. There have been no reports of a No 1 version.

Types noted are as follows *(see above for key to columns)*:

1	2	3	4	5	6	7	8
N	S		T		Willis	1935	E

Marked 'Willis & Co Ltd'. Base and knob are brown 'ebonite'. Base has two extra holes for fixing to a mounting plate with serrated edge which slides into a rectangular hole in the front of WS No 1. Size of the plate is similar to that of Key & Plug assembly No 2B. Key installed with a Wireless Set No 1 at Royal Signals Museum, Blandford, Dorset.

N	S		T		Creed	N	E

Marked 'Creed & Co'. Year not marked but key reported to be original from a 1935 No 1 Set.

N	S		T	S	PT & EW	1937	E
N	S		T		LMK	1938	E
N	S		T		LMK	1939	E

Noted with Lamp Signalling Daylight, Short Range Projector, MkII LAM.

N	R		T	F	LMK	1940	E
N	R	5	T		LMK	1940	E

Insulating sleeve under knob.

N	S		T		N.E. Co	1940	C

Noted mounted on brass plate, 3 x 1⅞in, engraved KEY & PLUG ASSEMBLIES NO. 2B. Also noted in Wireless Remote Control Unit 'A' (N.E. Co 1941) used with WS No 1 and WS No 11.

N	S		T		N.E. Co	1941	C

(1) Insulating sleeve and guard under knob. Key mounted on steel plate 109 x 70 x 4.5mm, with metal cover. (2) Another, also with sleeve, mounted on brass plate 4 x 2¾ x ⅛in with Canadian Army insignia painted underneath. Key base separated from brass base by spacers, and enclosure with inward facing lips slides between the two bases. Enclosure is 3 x 1 1/16 x 1 1/16in, and has Formica insulation riveted inside.

N	R		P	S	TMC	1940 /1	E
N	R		P	F	TMC/1	N	E

Mounted on brass plate marked KEY & PLUG ASSEMBLY No 2B. This slides into bracket ZA 4381 and KEY & PLUG ASSEMBLY SLIDE No 1.

N	R		P		TMC	1940 /2	E

Insulating sleeve and finger guard under knob noted on some keys.

ZA 4511	R		P	F	TMC	1940 /2	E
N	R		T		TMC	1940 /2	E
ZA 4511	R		P		E.T. Ltd	1940	E

Plated brass arm.

N	S		T		PMG	1940	A

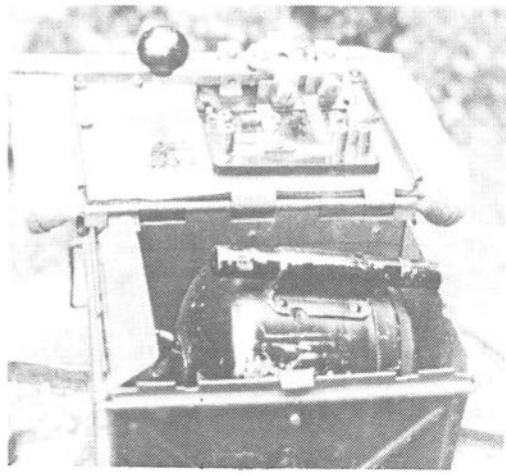
Assembly mounted on slide tray for WS 109 & WS 101.

1	2	3	4	5	6	7	8
N	S		T		PMG	1941	A
N	R		T		P.M.G.	1941	A/NZ?

Country of origin Australia or NZ. Known in NZ as a 'ZC-1' key as it was supplied with the NZ ZC-1 General Service HF Transmitter/Receiver used by many ZLs on the amateur bands after WWII.

N	R		T		PMG EWT	1942	A

Dept of Defence stamp, D↑D, on lever arm. One noted fitted to Lamp Signalling Daylight Short Range, made by Northern Electric Co Ltd.



Key WT 8 Amp No 2, LMK 1939, fitted on Lamp Signalling Daylight Short Range Projector MkII

Collection/Photo: Malcolm Henchley G0CHZ

1	2	3	4	5	6	7	8
N	R		T		PMG LC	1943	A

Arm stamped S. 123-6 C.3423/42.

N	R		T		Clipsal	1942	A
N	R		T		Clipsal	1944	A
N	R		T		T.B.& S.	1944	N
N	R		P	F	L.A.M.	N	N

Part of set, LAMPS, SIGNALLING DAYLIGHT, SHORT RANGE

N	R		T		N	N	NZ

Also marked KEY AND PLUG ASSEMBLIES No 2B N.Z.

N	R	5	?		N	N	NZ

Also marked KEY AND PLUG ASSEMBLIES No 2B N.Z.

N	R		T	S	N	N	N

Arm and bridges in cast aluminium. One noted with Lamp Signalling Daylight Short Range (no finger plate).

N	R		T		D↑D	N	?A

Base has no 5th hole but key is fitted in No 9 Assembly.

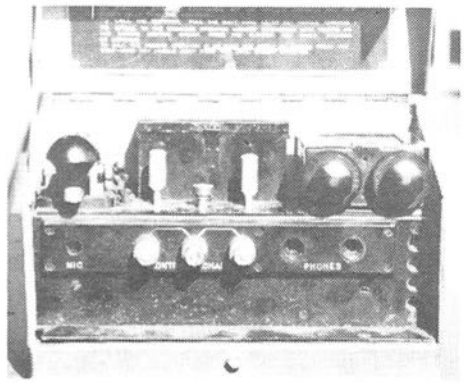
GROUP 2

KEY WT 8 AMP No 3. THREE BRIDGES. P.O. TYPE TENSIONER (TENSION SPRING)

Only four versions of the No 3 key have been reported. On the TMC keys, 1940 /1 and 1940 /2 are assumed to mean two separate production runs in 1940. The figures 1 and 2 are engraved beneath the year:

1	2	3	4	5	6	7	8
ZA 4605	R		P		TMC	1940 /1	E

Insulating sleeve and finger guard under knob noted on some keys. One noted in Wireless Remote Control Units 'A' ZA 7533, TMC 1940 (used with Wireless Sets No 1 and No 11).



Wireless Remote Control Unit 'A', ZA7533, TMC 1940
Collection/Photo: Wyn Davies

N	R		P		TMC	1940 /2	E
N	R		T		LMK	1940	E
ZA 4605	R		P		E.T. Ltd	1941	E

GROUP 3

KEY WT 8 AMP, NO NUMBER. THREE BRIDGES. P.O. TYPE TENSIONER (TENSION SPRING)

1	2	3	4	5	6	7	8
3R 2018	R		T	F	AWA	N	A

Assumed similar to No 2. Ebonite base screwed to cedar base. Dept of Defence stamp, D↑D, on lever arm.

N	R		?		NE	N	C

Marked 'Northern Electric'.

N	S		T		N	N	N

Additional contact assembly at rear, making contact a few milliseconds before main contact.

N	S		T		N	N	NZ

N↑Z marked on side of arm under knob.

GROUP 4

KEY WT 8 AMP No 2. THREE BRIDGES. SIMPLIFIED SPRING TENSIONER (COMPRESSION SPRING)

Overlapping with keys having the more complicated PO type tensioner, this version of the No 2

key seems to have been produced in the UK by one company only, during 1939 and 1940, with one other version made in Canada in 1941.

1	2	3	4	5	6	7	8
N	R	5	P		WER	1939	E
N	S	5	P		WER	1939	E

Some keys with insulating sleeve on arm under knob. Others without.

N	R		P		WER	1939	E
N	R	5	P		WER	1940	E

Noted in Key & Plug Assembly No 8.

N	R		P		WER	1940	E

Noted in Key & Plug Assembly No 8, using three fixing holes only as key does not have 5th hole to locate in the Assembly.

ZA 4510	R	5	P		WER	1940	E

Noted fitted in Key & Plug assembly No 8.

ZA 4510	R		P		WER	1940	E

Noted in Fullerphone.

N	R		P		N.E. Co	1941	C

Insulating sleeve and finger guard under knob noted on some keys. Noted in Key & Plug Assembly No 9 - ZA/CAN/BR 0937.

GROUP 5

KEY SIGNALLING No 2. THREE BRIDGES. P.O. TYPE TENSIONER (TENSION SPRING)
The Key Signalling is the landline version of the Key WT 8 Amp used with Fullerphones and possibly other line equipment.

1	2	3	4	5	6	7	8
N	R		T		N	N	N

Noted in Fullerphone MkIV X

GROUP 6

KEY SIGNALLING No 2. THREE BRIDGES. SIMPLIFIED SPRING TENSIONER (COMPRESSION SPRING)

1	2	3	4	5	6	7	8
N	R		P		E.T. Ltd	N	E

Noted in Fullerphone MkV.

N	R		P		N	N	N

Noted in Fullerphone MkV.

GROUP 7

KEY WT 8 AMP No 3 MkI. THREE BRIDGES. SIMPLIFIED SPRING TENSIONER (COMPRESSION SPRING)

1	2	3	4	5	6	7	8
ZA 4605	R		P		WER	1940	E

Insulating sleeve and finger guard under knob noted on some keys. 'MkI' handwritten on the back edge of the base. Noted in Unit Operator No 1 MkII, YA 8414; also in BUZZER SIG. TRAINING set.

1	2	3	4	5	6	7	8
ZA 4605	R		P		N	N	N

'Upside down' version. Spring and contact adjusters heavily locked with varnish. Non-standard tall knob fitted with 40mm extension. 'MkI' engraved on base.

Key WT 8 Amp No 3 MkI, ZA 4605. 'Upside down' version. Spring and contact adjusters heavily locked with varnish. Non-standard tall knob fitted with 40mm extension
Collection/Photo: Guido Roels ON6RL

GROUP 8

KEY WT 8 AMP, NO NUMBER. THREE BRIDGES. SIMPLIFIED SPRING TENSIONER (COMPRESSION SPRING)

1	2	3	4	5	6	7	8
10F/2533	?		P		PT & EW/ 1	1940	E

Also marked 'AM' (with crown). 10/F coding indicates use by RAF.

10F/2533	R		P	S	WER	1940	E

Also marked 'AM' (with crown). 10/F coding indicates use by RAF.

10F/2533	R		P		WER	N	E

Also marked 'AM' (with crown). 10/F coding indicates use by RAF.

N	S	5	P		N	N	N

Key mounted on tray of No 9 Assembly marked PYE/V 1955.

ZA/CAN 0982	R		P		N	N	C

Listed in EME Regulations FZ 256/3 as Key, WT, 8 Amp, C2. Fitted in No 9 Assembly ZA/CAN/BR 0937 which was supplied for Canadian/American WS No 19 MkII instead of Key & Plug Assembly R.11950 (ZA 0937) until stocks exhausted, per Working Instructions for set, July 1942. Base of key has four fixing holes, three in corners and the fourth brought forward to the '5th' position. (See notes on No 9 Assembly above).

N	R		?		NE	N	C

Marked 'Northern Electric'.

N	S		T		N	N	A

Key marked D↑D.

N	R		P		Bunnell	N	US

Unplated brass construction. Smaller knob than other keys. Insulating sleeve under knob. Base has three corner fixing holes and fourth hole is in the '5th' position as mentioned in section on

Key & Plug Assembly No 9. Underside of base marked L/NOR/C circled and C circled. Fitted in Key & Plug Assembly No 9 for use with American contract Wireless Set No 19 (RCA Victor Division) believed made by Zenith.

1	2	3	4	5	6	7	8
N	S	5	P		U↑D	N	N

'U↑D' indicates probably made in South Africa.

GROUP 9

KEY WT 8 AMP No 2. TWO BRIDGES. SIMPLIFIED SPRING TENSIONER (COMPRESSION SPRING)

The two-bridge versions (Group 9 and Group 10) appear only to have been made in Canada.

1	2	3	4	5	6	7	8
N	R	5	P		N.E. Co	1941	C
N	R		P		N.E. Co	1943	C
N	R	5	P		N.E. Co	1943	C

In Key & Plug Assembly No 9, R11950 (i.e., ZA 0937), as supplied for Canadian/American WS No 19 MkII

N	R	5	P		N	N	N

Country not marked, but probably Canada. In Key & Plug Assembly No 9, ZA 0937 (Pye Ref: R11950). Included as a spare in CASES SPARE PARTS, No 5C. (RCA).

GROUP 10

KEY WT 8 AMP, NO NUMBER. TWO BRIDGES. SIMPLIFIED SPRING TENSIONER (COMPRESSION SPRING)

1	2	3	4	5	6	7	8
ZA/CAN 0926	R		P		Westclox	N	C

Listed in EME Regulations FZ 256/3 as Key, WT, 8-Amp, No C3. Arms and bridges of pressed steel. Insulating sleeve on arm. Fitted in Key & Plug Assembly No 9 (Canadian), Type 2, ZA/CAN 0715 (RCA-110072-1), with four fixing holes in base and Assembly. Cover has rounded top. Also supplied in CASES SPARE PARTS, No 5C. Key may have no markings except KEY AND PLUG ASSEMBLY No 9 CDN WESTCLOX on base tray of the Assembly.

ZA/CAN 0977	R		P		Westclox	N	C

Listed in EME Regulations F 256/3 as Key, WT, 8-Amp, C1. (RCA 111809-1). Identical to ZA/CAN 0926 (above) except that Knob ZA/CAN 0975 replaces Knob ZA/CAN 0968, and Guard ZA/CAN 0967 is omitted. Used on Wireless Remote Control Units, Canadian No 1, ZA/CAN 1332 (PC 82506 C-190) to control WS No 19, MkI, MkII, & MkIII; WS No 9; WS (Canadian) No 9; WS, Canadian, No 9 MkI; WS, Canadian, No 62; Transmitter, Canadian, No 43 and No 43 MkII. Also used on base with buzzer as next entry.

N	R		P		Westclox	N	C

Key mounted on base 3¾ x 7¾in with small buzzer. No insulating sleeve (ZA/CAN 0967) on arm.

GROUP 11

KEY WT 8 AMP No 2 MkII. NO BRIDGES. SIMPLIFIED SPRING TENSIONER (COMPRESSION SPRING)

1	2	3	4	5	6	7	8
ZA3145	R		P		PT & EW	1940	E

Nickel plated brass arm. Circled 3 on underside of base.

ZA 3145	R	5	P		PT & EW	1941	E

Insulating sleeve on arm under knob. Key in No 9 Assembly. Plated brass arm.

ZA 3145	R	5	P		PT & EW	N	E

Unplated brass arm.

ZA 3145	R	5	P		PT & EW	N	E

Unplated brass arm. Moulded ZA 3145 obliterated (apparently by manufacturer) and ZA28?? substituted (white stamp) (? ZA 2869)

ZA 3145	R		P	S	PT & EW	N	E

Plated brass. Circled '7' underneath base. One noted in Wireless Remote Control Unit 'E', ZA 11954, for WS No 19 ground station.

ZA 3145	R		P	F	LMK	1942	E

Finger plate cardboard which appears to be original. Base mounted on turbax plate (textile re-inforced insulating material).

N	R		P		LMK	1942	E

Plated brass arm.

ZA 3145	R	5	P		LMK	N	E
ZA 3145	R		P	F	LMK	N	E
ZA 3145	R	5	P	S	H & C	N	N

Unplated brass. Some with insulating sleeve on arm under knob. Others without. Noted installed in Unit Operator No 1 MkII, YA 8414, also with Buzzer Sig Training.

ZA 3145	R		P	S	H & C	N	N
ZA 3145	R		P		PX?	N	N

All brass finish. Circled '1' under base. 'PX' may be maker but this is not confirmed.

ZA 3145	R	5	P		WER	N	N

Mounted on brass plate marked KEY & PLUG ASSEMBLIES No 2B ZA 4500, four corner holes used for fixing, 5th hole unused.

ZA 3145	R		P	S	WER	N	E

1	2	3	4	5	6	7	8
ZA 2869	R	5	P		WER	1941	E

Insulating sleeve and finger guard under knob noted on some keys. Noted in Key & Plug Assy No 9

ZA 2869	R		P		WER	N	E

Air Ministry stamp (with Crown) under base. Indicates use by RAF.

ZA 2869	R		P		LMK	1942	E
ZA 2869	R	5	P		LMK	N	E

1	2	3	4	5	6	7	8
ZA 2869	R		P	S	LMK	N	E

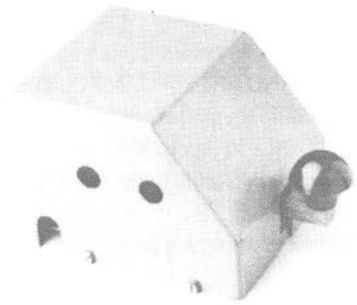
Moulded brass arm (nickel plated), with arm and spacers cast as one piece.

ZA 2869	R	5	P		A.M.C.	N	E?

Bakelite arm and base.

ZA 2869	R	?	P		H & C	N	N

Part of closed assembly (80mm cube) with a 4 and a 2-pin connector. Assembly marked ZA 4390.



Key WT 8 Amp No 2 MkII, ZA 2869, by H & C. Part of closed assembly (80mm cube) with a 4-pin and a 2-pin connector. Assembly marked ZA 4390
Collection/Photo: Guido Roels ON6RL

1	2	3	4	5	6	7	8
ZA 2869	R		P		PX/3	N	N

White metal arm. All other metal parts brass. 'PX' may be maker but this is not confirmed.

ZA 2869	R		P		PX/1	N	N

Painted lever arm with rounded ends. 'PX' may be maker but this is not confirmed.

ZA 2869	R		P		PX/2	N	N

Original ZA number obliterated. New ZA 2869 stamped on and varnished over.
Fitted to Key & Plug Assembly No 8, with 5th hole in key not original but drilled after manufacture. 'PX' may be maker but this is not confirmed.

ZA 2869	R	5	P		N	N	N

Original ZA 3145 number almost obliterated and engraved number ZA 2869 substituted.
Key fitted in base of Westclox Key & Plug Assembly CDN No 9.

ZA 2869	R		P		N	N	N
N	R	5	P		N	N	N
N	R		P		N	N	N

GROUP 12

NO MARKINGS. NO BRIDGES. SIMPLIFIED SPRING TENSIONER (COMPRESSION SPRING).

1	2	3	4	5	6	7	8
N	R		P		N	N	N

No markings. Similar to No 2 MkII, photo 6, MM22, p.4.

GROUP 13

KEY WT 8 AMP No 2 MkIII. NO BRIDGES. SIMPLIFIED SPRING TENSIONER (COMPRESSION SPRING). BAKELITE.

All keys in this group have a Bakelite arm and base.

1	2	3	4	5	6	7	8
ZA 16929	R	5	P		C.E.L.	N	N
ZA 16929	R		P		C.E.L.	N	N

One key reported as part of BUZZER SIG, TRAINING set; one, on hardwood base with label on arm Z1. ZA 6852. TRAINING SETS, WT KEYS SENDING.

ZA 16929	R	P	N	N	N

Marked with circled C above ZA 16929. Noted mounted on oak base (two keys) as part of TRAINING SETS W.T. MKIII, H.E.C.L., Cat No ZA 21137; as part of BUZZER SIG, TRAINING SET; on hardwood base with label on arm Z1. ZA 6852. TRAINING SETS, WT KEYS SENDING; as part of Key & Plug Assembly No 6; also as part of Key & Plug Assembly No 8, using three (corner) fixing holes only as key does not have 5th hole to locate in the Assembly.

ZA 16929	R	P	N	N	E

Painted in white 'Made in England' under base.

1	2	3	4	5	6	7	8
ZA 28685	R	5	P		N	N	N

Marked with circled C above ZA 28685.

ZA 28685	R		P		N	N	N

Marked with circled C above ZA 28685. Some have arm stamped 'N', just in front of knob. Although this key does not have the 5th base fixing hole, one key has been noted installed in a Key & Plug Assembly No 9 by use of two only (diagonal) of the four base fixing holes. Some reported used with BUZZER SIG. TRAINING 6350-99-446-4165 (NATO No).

N	R	5	P		N	N	N

Noted in Key & Plug Assembly No 8.

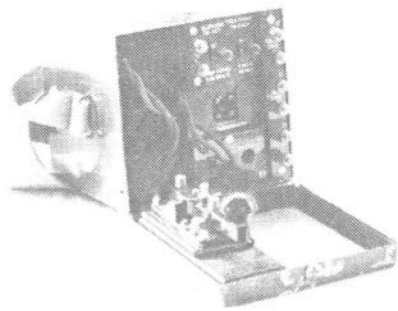
N	R	5	P		N	N	E

Marked under base (white painted) MADE IN ENGLAND

N	R		P		N	N	N

Noted in Key & Plug Assembly No 8 using three fixing holes only as key does not have 5th hole to locate in the Assembly.

Also in IZ ZA 23798 Wireless Remote Control Units No 2.



Wireless Remote Control Units No 2
Collection: Chris Bisaillion VE3CBK
Photo: Deborah Bisaillion

GROUP 14

KEY WT 8 AMP No 2 MkIII/1. NO BRIDGES. SIMPLIFIED SPRING TENSIONER (COMPRESSION SPRING). BAKELITE.

All keys in this group have a Bakelite arm and base.

1	2	3	4	5	6	7	8
ZA 28685	R		P		N	N	N

Marked with circled C above ZA 28685. Some have arm stamped 'N', just in front of knob. Noted used with BUZZER SIG. TRAINING 6350-99-446-4165 (NATO No); in Unit Operator No 1 MkII, YA 8414; in Wireless Remote Control Unit 'H' No 2 Mk1/1, ZA 29540; and in Key & Plug Assembly No 19, ZA 28656 P.C.A. (marked PC.88344 on another Assy reported), as used with WS No 62.

N	R		P		N	N	N

Has NATO number – Y1/5805-99-104-0214. Some have arm stamped 'N', just in front of knob. Some noted with BUZZER SIG. TRAINING 6350-99-446-4165 (also NATO No).

GROUP 15

KEY WT 8 AMP No 3 MkII. NO BRIDGES. SIMPLIFIED SPRING TENSIONER (COMPRESSION SPRING)

1	2	3	4	5	6	7	8
ZA 10051	R		P		PX/2?	N	N

Insulating sleeve and finger guard under knob noted on some keys. PX may be maker but this is not confirmed.

GROUP 16

ALSO NOTED

Modified American J37 key mounted as a low profile Key & Plug assembly No 9 for use with American contract Wireless Set No 19 (RCA Victor Division) believed made by Zenith. Key and Assembly made by Alden Products Co, Brockton, Mass.

Acknowledgements

Special thanks go to Jim Lycett G0MSZ for his help in so many aspects of this survey and to Murray Willer VE3FRX who suggested that *MM* should look more closely at the Key WT 8 Amp in the first place and provided valuable help and encouragement. Thanks also to everyone else who told me about their keys, including David Couch VK6WT, Chris Bisaillion VE3CBK, John Elwood WW7P, Jean le Galudec, Tore Moe LA5CL, Guido Roels ON6RL, and Claude Passet 3A2LF, all of whom sent me detailed information on their fine collections.

These, and many other readers too numerous to mention, willingly and patiently answered all my questions and provided much further information including photos, sketches, and extracts from manuals. They also demonstrated the great value of *MM* in bringing together information from around the world on a given Morse subject.

In addition, I must thank the many members of the Royal Signals Amateur Radio Society who also gladly co-operated in the survey. ***MM***

Beginners Corner

Why HI?

by Tom Mansfield G3ESH

USE OF THE PLURAL '73s' instead of the singular '73' may merely annoy other operators whereas the frequent use of 'HI' or 'HI HI', and particularly the phonetic 'aitch eye' may dangerously inflate the blood pressure of the purist. Presumably those who use HI, or its variants, take refuge in the lists of abbreviations published in the ARRL and RSGB operating manuals which define HI as meaning laughter and, when sent by CW, is meant to conjure up a picture of the sender having a good chuckle to himself. However, the use of HI, etc., in 'phone QSOs is rarely preceded by anything approximating humour and appears to be nothing more than a habit in the same sense that speech emphasisers, such as 'there', are tacked on to the end of a statement.

Or perhaps it is the receiver who is supposed to laugh in response to HI; but this suggests that the receiver is either too thick to recognise a gem of humour when he hears it or is conditioned to respond to Pavlovian stimuli. It is interesting to note that the *Concise Oxford Dictionary* defies HI as an interjection or ejaculation – hardly a definition of laughter – whereas HO, or HO HO, is said to be an expression of surprise or derision which says a lot about the Hollywood stereotype of Father Christmas waving his collecting box in the streets.

Also, in the *Phillips Code For Steno-Telegraphy* (1879, revised 1945) – that definitive list of more than 4000 abbreviations for professional telegraphists – HI is shown as meaning 'high', HO as meaning 'hold' and LAF as meaning 'laughter'. How then did HI come to mean laughter in amateur radio terminology? I have a theory for what it is worth.

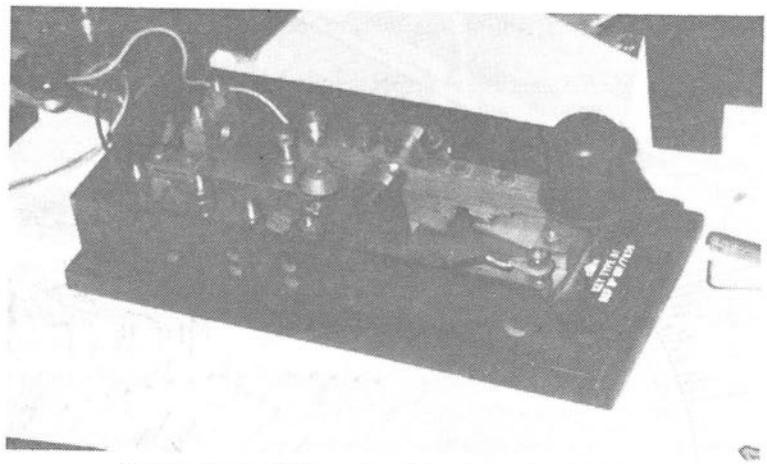
In the original code devised by Samuel Morse, and in the subsequent American Morse Code, the letter 'O' comprised two dots with a slightly lengthened pause between them (· ·) which could be mistaken for 'I' (··) if not sent exactly. Old time telegraphists adopted HO as an abbreviation for laughter in their informal chats with other operators while retaining LAF for their message traffic. The more relaxed atmosphere of the informal exchanges led to the 'O' sounding more like 'I' at high speed and so HI, rather than HO, was carried over into the International Morse Code, subsequently picked up by the early radio amateurs, of whom many were professional telegraphists, and remains to this day.

I shall be pleased to hear from anyone who can confirm or refute this theory with solid evidence – one insubstantial theory is more than enough, aitch eye!

(From Groundwave, *journal of the Wimbledon & District ARS, August 1989.)*

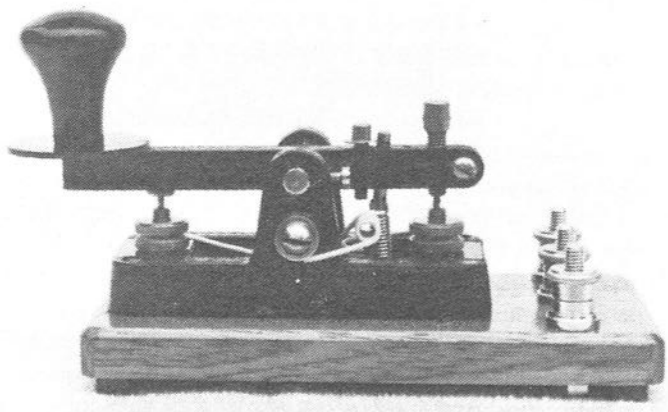
Info Please!

Readers require further information on the following keys, etc.
Please write to Tony Smith, 1 Tash Place, London N11 1PA, England, if you can help.
All useful information received will be published in MM *in a later issue*



Collection/Photo: David A. Johnson NF5B

Air Ministry Type B1 key, 9½ x 4¼ x 2in. Ref No. 10F/7839.
Any information welcome, e.g. manufacturer, date period, use, etc.



Collection/Photo: Dennis Goacher G3LLZ

Key by Signalling Equipment Ltd, marked DC/163/16. Mounted on new base with terminals for ease of use. Information required

Early Military Airborne Telegraphy

by E.F. Jones G3EUE

THE BRITISH ARMY began experiments with balloons in 1878 and by the turn of the century, efforts were being made to produce navigable airships. In 1907 the officer commanding the 1st Wireless Company of the Royal Engineers helped to devise wireless communication between aircraft and ground.

The first such experiment was made by Lieutenant C.J. Aston, RE, in a captive balloon, and in May 1908 a test in a free-flying balloon was carried out with good signals being received from Aldershot, 20 miles away. Experimental transmissions from a balloon were also carried out successfully at about the same period.

Airships and Aircraft

There was a break in development until 1911 when the army airship *Beta 1*, a reconstruction of an earlier, smaller model, was fitted with W/T equipment, thus becoming the first British airship to be so equipped. Tests showed that a transmission range of up to 30 miles was possible and with engines stopped messages could be received.

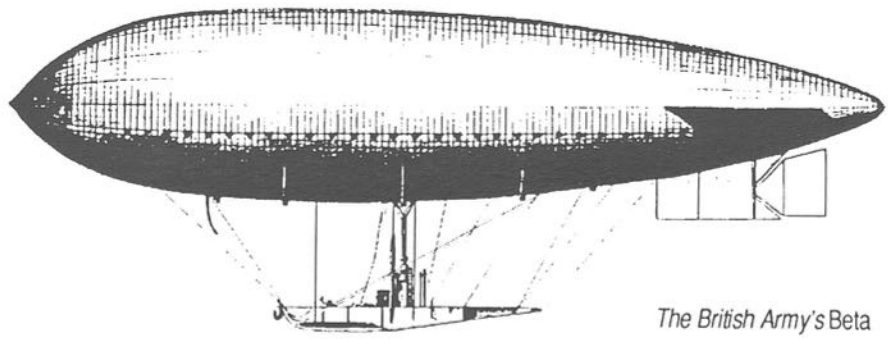
In 1912, de Havilland installed a transmitter in an early model BE aircraft whilst the Naval Wing of the RFC (Royal Flying Corps) began its own experiments and successfully transmitted signals a distance of 10 miles from a set installed in a Short seaplane.

In August of that year, wireless equipment was fitted to two airships, *Gamma* and *Delta*. The sets were said to have been constructed from odds and ends such as an old magneto, belt-driven from one of the ballonet blowers, and Moscicki jars. (For convenience, oil was most frequently used as the dielectric in power condensers – the tubular Moscicki condensers, however, used glass as the dielectric).

The aerial was a double trailer of wire with an insulated earth lead running from bow to stern. As in earlier experiments, reception was only possible when the engines stopped. On army manoeuvres *Delta* broke down over North London, their situation report being received as far away as Portsmouth. Signals from the remaining airship *Gamma* were received on naval sets at Whittlesford, 35 miles away.

French Transmitter

Development continued in the two years prior to the start of the Great War. In 1912 a Frenchman, Lucien Rouzet, produced a light-weight transmitter, a number of which were purchased by the Naval and Military services. Airborne trials in 1913 resulted in reliable communication with shore stations and ships at sea up to a distance of 45 miles, whilst two airships taking part in manoeuvres exchanged messages and received signals from North Foreland, 130 miles away.



The British Army's Beta

Other major developments at that time were the reception of signals while an engine was running – achieved by screening off magneto interference, and signal strength improvement through the use of Brown's relays – and communication between aircraft.

The Great War

When the war started, wireless sets had been installed in a total of 16 seaplanes and two airships. By the Spring of 1914, a Headquarters Unit of the Royal Flying Corps had been set up, shortly to be re-arranged into four squadrons. The Wireless Section was attached for a time to No. 4 Squadron and from that small unit the whole of the wireless telegraphy organisation of the RFC gradually developed.

The airship squadron continued under the control of the RFC until the end of 1913 when it was transferred to the Royal Navy. The two airships made good use of their wireless when patrolling the English Channel during the passage of the British Expeditionary Force and were the fore-runners of the naval 'Blimps' which were heavily involved in submarine spotting throughout the 1914–18 war.

References

1. *The War in the Air*, Volume 1, by Sir Walter Raleigh, published c.1922.
2. *Per Ardua – The Rise of British Air Power 1911–1939*, by Hilary St. George Saunders, published OUP 1944.
3. Museum of Army Flying, Middle Wallop, Hants.

MM

How I Became a Morse Teacher

by Rik Whittaker G4WAU

I WAS FIRST INTERESTED in radio in the late '50s. As a young lad I wondered about a huge radio tower, some 30-40ft high and carrying a 3-element Yagi, near my home. I later found out it belonged to a G3... I never got to know him but discovered years later that my Group Scout Leader maintained the tower for him. It was a tenuous link but it was through Scouting that I found out about amateur radio, and I saw my first station operating at a Scout camp in the late '60s.

However, school, etc., took over and my interest in radio lapsed until the legalisation of CB. I later studied for the Radio Amateur's Examination at Avondale Evening Centre in Stockport, passing it in May 1983. My tutor was Chris Lingard G4GQC, who was always helpful, offering all his students the opportunity to visit his farm where a brew and tour of his shack was assured.

Learned Morse

While waiting for the RAE results I started to learn Morse with the help of two local amateurs. By mid-December I hoped I was somewhere near the test speed and I phoned the British Telecom International Marine Radio Offices at Liverpool to ask about the waiting time for a test.

I spoke to one of the examiners who ignored my enquiry and booked my test for just before Christmas. There were three candidates, and we all passed, despite the prevailing rumour in the locality that one or more had to fail at each examination!

The following year Chris Lingard asked me to take over the RAE course from him. After much worry, but with promises of help, I finally agreed, receiving much support and assistance from Chris. Exam results were good and I was asked to run a Morse course in addition to the RAE class.

Started Course

I had been of the opinion that anyone wanting to pass the Morse test could do so by using one of the several electronic Morse tutors available; by listening to slow Morse broadcasts, or by using one of the ever-increasing number of home computers.

Time has shown me that I was probably wrong. After receiving more and more requests, I gave in and started a course. It appears that people prefer the routine of attending a formal weekly course which ensures they practice to keep up with the group.

There may also be some benefit from the slight degree of competition which spurs you on when someone in the group correctly receives a transmission while you have a few errors in your own copy!

Hold the Key Properly

As plenty of listening practice is available nowadays, perhaps the most important aspect of Morse tuition for the beginner

is learning how to hold and operate a key correctly. Learning a physical skill of this kind from written instructions seems to be at best very difficult, if not impossible, for most people.

The Morse courses have continued every year since I started and about 30 people have now passed the test. A few dropped out, finding that Morse was not for them, or for other reasons. I don't know who enjoys their success more – the successful candidates or me – when they get their tickets!

I must thank John Bell G0CMM for his help over the years on methods of tuition and knowledge of Morse and equipment.

Thanks too must go to the Morse Examiners for Cheshire for their patience and professionalism, and for providing us with closed test sessions at the Avondale Adult Education Centre as it is now known.

MM

(Rik Whittaker is RAE & Morse Course Tutor at Avondale AEC, Edgeley, Stockport).

IN THE NEXT ISSUE:

PA CW Test
Morse Rhythm
Key Design

Morsum Magnificat

BACK ISSUES

Limited stocks of Issues Nos. **19, 20, 21, 24, 26 & 27 ONLY** are now available, at £2.20 each to UK addresses, £2.25 overseas (surface mail)

Who was at the Key?

Part 1

by Louise Ramsey Moreau W3WRE

ANNOUNCEMENTS of great events in the past were often prefaced 'It was reported by telegraph that...', but because the story was so sensational we never think of the men who gave us the first indication that something had happened. If we do give it a thought, we probably assume that a newspaper reporter was on the scene at the time.

In fact, many of those stories became headlines through the unimaginative words of a brief bulletin from a communications man, and the story of the event and the conditions under which he transmitted the news is a story in itself.

Who then, were these unknown men who sat at the key and pounded out in a few hurried sentences that something was happening that would thunder into newspaper headlines?

24 May 1844:
What Hath God Wrought!

The first one is easy. The man who started it all, and who made the instant transmission of news possible is as well known as our own name. And his famous message is practically branded on every schoolkid's brain along with the pledge to the flag.

We have all seen, over and over again, the picture of Morse, surrounded by government dignitaries, using the key invented by Alfred Vail, as he sent that first message.

Later that year a National Convention in Baltimore nominated James K. Polk and Senator Silas Wright as presidential and vice-presidential candidates. Vail sent the news to Washington and, when Morse informed Wright of the choice, the Senator sent a fast telegram declining the nomination.

Nobody believed Vail and the Convention was adjourned until a special committee had been sent to Washington to confirm Wright's message. This was followed by conferences between Wright and the convention on the wire. Thus Morse and Vail started the whole thing before the telegraph was a year old.

1858/1866: Message Under the Sea

It is not known for certain who sent the first message that raced across the floor of the Atlantic from Queen Victoria to President Buchanan. De Sauty and Laws give great praise to all the Atlantic Cable operators, whom they called 'Manipulating Clerks'. These were Smith, Gerhardi, Irvin, Linde, Murray, McFarlane and Morris; and one of these manipulated the dual levers in the cable office in August 1858.

In 1866, when the new cable had been laid, there is a rather delightful story about the first American diplomatic dispatch. It seems the Company persuaded Secretary Seward to use the cable for State Department business and he sent a power politics message to our Paris Embassy, demanding that Napoleon the Third pull his troops

Photo courtesy Capitol Hill Amateur Radio Society

'What Hath God Wrought!'
Samuel F.B. Morse sending the first public telegram on 24 May 1844

out of Mexico, or else... The Company gave the government a special rate of ten dollars a word (to sell the service) but the message was sent in diplomatic cipher.

It worked, both because the Ambassador got tough and also because Sheridan was sitting on the border with a strong army of veterans. Then came the fun.

The Cable Company took one look at the message and billed the United States 23 000 dollars! Seward blew up, reminded them of the agreement to charge ten dollars a word, and asked what kind of rip-off they were trying to pull.

The British directors had felt that cipher wasn't really cricket, because it couldn't be broken down into words, and had charged full rate for each of the 4600 digits. This totalled 92 000 dollars but they had cut it to one quarter because it was the government. Seward accused them of unethical practice and dishonesty and flatly refused to pay. And, as far as is known, the bill never has been paid.

1861–1865: Civil War

There is a common belief that the telegraph was first used for military purposes during the American Civil War, but this is not true. Telegraphy, defined as we use it, meaning communication over a distance by wire, was first used militarily in

Germany, France, Spain, Italy, and especially by Britain, in the Crimean War.

The cumbersome British needle instruments were limited in use. They were not adaptable for field operation and were mainly used between armies and their governments. But for historical purposes we should associate the first military telegraph with the Charge of the Light Brigade rather than Pickett's Charge.

On 12 April 1861, the news of the bombardment at Fort Sumter was telegraphed throughout the United States via private telegraph companies, i.e., the American, Western Union and Southwestern. Major Anderson's surrender message addressed to the Secretary of War was routed via New York to the War Department also on commercial lines.

By November 1861, however, Secretary Stanton had established the Military Telegraph in the second-floor library of the War Department building. The Military Telegraph was used in every phase of the war. On the battlefields operators had a hazardous existence, operating sometimes as observers from high points, sending information by wire back to their commanding officers.

It was here that air-to-ground communications were first established by Professor Lowe with his balloons *Intrepid* and the smaller *Constitution*. While Lowe is given credit in most histories, Mr Parke Spring was actually the first man to report war activities from a balloon, observing the Battle of Seven Oaks.

Although the Civil War occurred almost twenty years after the telegraph came into being, they were still 'learning by doing'. For example, Professor Lowe equipped his balloon with a bucket of mud so that Mr Spring could literally take an earth 'ground' into the air with him!

They started them young in the telegraph, and the war produced a lot of teenage heroes. For instance, 14-year-old John O'Brien, operator at Fortress Monroe, alerted George Cowlam of the *Newport News* of the arrival of the ironclad *Merrimac*, then relayed Cowlam's shot-by-shot description of the Battle of Chesapeake to the War Department. And in the War Department office, 15-year old Billy Kettles was the operator on duty who received the news of the fall of Richmond. That's only two of them – I could go on!

The Confederate Army had a very active Communications department too, and utilised a network of telegraphers at all the battles. Their operators had a habit of sneaking in behind the Union lines, using a lineman's test set to cut in and copy military orders, relaying them back to their own officers.

One example was 'Lightning' George Ellsworth who, after intercepting messages, sent a jaunty 'thank you' to the Union operator before destroying the equipment and clearing out.

Historians have gone into great detail on the importance of communications in the Civil War, and the many systems that were used by both sides. We are told all the details of the surrender at Appomattox, with much emphasis laid on the time, and the social amenities that were followed.

Even the setting, and the names of all those who were present are graphically recorded. Yet although they triumphantly tell us that only half an hour after the signing the news was received in the War

Department at Washington, no-one ever remembers that it was S.H. Beckwith, Grant's Chief Operator who first wrote that tremendous news on the wire.

1876: Little Bighorn

On June 27, General Terry sent a scout to Fort Ellis with a preliminary report of the massacre at the Little Bighorn – to be sent from Bozeman, Montana. On the way the scout met a reporter from the Helena *Herald* and gave him brief details of the news.

The wires were out at both Bozeman and Fort Ellis. The Helena *Herald* printed an extra on July 4, but for some unknown reason did not relay the information to the east until July 6, after the news had been confirmed by the War Department. So who did shock the country with the first dispatch about this terrible massacre?

At the Little Bighorn, the wounded were loaded aboard a riverboat, *The Far West*, with detailed reports from General Terry for Fort Lincoln and Bismarck, North Dakota. After a breathtaking trip down the Bighorn, Yellowstone and Missouri Rivers, the boat arrived in Bismarck on July 5, travelling 759 miles in less than 55 hours, a record never yet matched by another riverboat.

The captain of the boat and Captain Smith, Terry's adjutant, went to the home of John M. Carnahan, Bismarck's only telegrapher, with Terry's dispatches. The story of what happened is best told in Carnahan's own words, published after his death, on 25 October 1938, by the Bismarck *Tribune*.

'The telegraph office at that time was a building 10ft by 16ft located east of the Northern Pacific freight office. On the night of July fifth, 1876, at 11:00 p.m., Captain Smith, Reno's Doctor, H.R. Porter, and Captain Grant of the Riverboat came to my office, knocked on the window, and said "Get up".

'I did so and opened the door and they came in with a large carpet bag filled with messages, newspaper specials, and General Terry's official report (to General Sheridan).

'There was but one telegraph wire out of Bismarck at that time, and at night it was divided at Fargo. Nothing could be done at that time until the next morning except sort the messages giving preference, as per rule, to military dispatches.

'On the morning of the sixth, I called Fargo and told him to cut the wire through to St. Paul. He said "What's up?". I replied "Just cut me through and listen". He insisted and I said "All the Custers killed".

'At seven o'clock the boys in St. Paul said they were being mobbed by newspaper men and asked me to give him something that he could hand out. Captain Smith was in the office and I asked him to make up a short special that I might send to each paper that had special matter filed. He wrote about 250 words describing what had happened and I sent it with special instructions to release to all at the same time.

'I worked on Terry's reports all day and then started in on the private messages. I finished these about five o'clock the next morning. I slept a couple of hours and then started in on the special (newspaper) matter.'

Colonel Lounsberry, the editor of the Bismarck *Tribune*, worked with Carnahan on a special news report for the New York *Herald*, writing out the story

and describing the Little Bighorn Valley in longhand, as it was given to him by the Army Doctor H.R. Porter, the Civilian Scout Fred Gerard and some of the survivors of the Reno and Benteen commands.

Rather than have him wait until the next part was written (and possibly lose the wire), Lounsberry tossed Carnahan a bible and told him to file from it. In those days it was necessary for a telegrapher to send continuously to keep control of the wire without interruption.

Carnahan operated a total of 80 hours on less than six hours sleep and the tale of 'Custer's Last Stand' smashed into headlines from his fist. He worked those 80 hours sending over 50 000 words with a hand key. In those days there were no speed keys. He got a bonus of fifty dollars – at that time a pretty handsome amount!

(Adapted for MM *from a paper presented by Louise Moreau to a meeting of the Antique Wireless Association in 1977. Part 2 will be in the next issue of* MM.*)*

Two-handed Coding

by Donald K. deNeuf WA1SPM (SK)

In his book *My SF Story of the Waterfront and the Wireless*, Dick Johnstone (RJ) relates how he and a buddy were determined to become operators at the old KPH Marconi station shortly after WWI. Operators at KPH were required to use a landline telegraph circuit as well as the wireless facilities. Although RJ and his friend were proficient in the wireless International code, they began to teach each other the American Morse used on the landlines. After six months of practice they not only mastered the additional code at fast operating speeds, but they learned to copy on a mill (typewriter) and to write with a pencil with either hand. They landed the KPH jobs.

RJ does not seem to have recorded it, but I've been told that eventually he was able to send equally well with either hand. He developed ambidexterity to the point that he could send a message in American Morse with one hand and in International Morse with the other simultaneously. At first blush, this would seem almost incredible if it were not for the various stage demonstrations we've all seen where, for example, the entertainer will write on a blackboard, poetry with one hand, while at the same time with the other hand write down and add a long column of figures dictated to him by someone at random in the audience. And, of course, virtually all Morse telegraphers developed some of this kind of skill in sending with one hand while writing on the message blank (number, time sent, etc.) with the other hand at the same time. No doubt a case of diligent and constant practice. ***MM*** *When I was a lad, my father, who had sailed extensively in RN ships whilst he was in the Royal Marines, would often tell me of a Yeoman of Signals who could simultaneously read semaphore flag signals, call them out for someone else to write down on a message pad, and retransmit them further down the line of ships by flashing light. It would be interesting to hear of other similar abilities. – Ed.*

Club Profile – 9

The Morse Telegraph Club Inc. (MTC)

THE MORSE TELEGRAPH CLUB was established in Los Angeles, California, in April 1942 as a means of preserving the knowledge, history and techniques of Morse telegraphy and to encourage fellowship among telegraph operators. Club membership was at first restricted to landline Morse operators, but was soon opened up to professional radio-telegraphers.

In either case, one year's experience was a requisite to joining. This requirement was subsequently dropped and some years later amateur radio operators, as latter-day descendants of the original Morse operators, were invited to join.

In 1963, *Dots and Dashes* (once the name of a Western Union house journal) came into being as the official MTC publication. In 1972, on the death of its then president, MTC foundered but was revived and chartered in Illinois in 1973.

Today, the club has 5 Canadian and 42 US chapters with a total membership of 2500. Almost imperceptibly, it has changed from an informal group of working telegraphers into a living history group.

A great deal of information is being preserved on computer and MTC is frequently called on to answer questions about the age of Morse telegraphy. Movie makers and organisations such as Disneyland have asked for technical advice and have used MTC to find equipment and operators.

Activities

Every year, on the last Saturday in April, MTC chapters hold banquets to commemorate the birthday of Samuel F.B. Morse, who was born on 27 April 1791. Until 1989, Western Union provided a modern-day 'landline' circuit to connect the celebrating chapters together, with the operators using American Morse and original sounder equipment. Since that time communication between chapters has been via the public telephone system and 'Dial-Up Morse', the invention of MTC member John 'Ace' Holman (see later).

Across North America MTC chapters re-create the activities and atmosphere of early telegraph offices by public demonstrations at preservation railway sites, museums, and special events, often linking with other chapters or sites via Dial-Up Morse. During the 1991 Morse bicentennial, chapters across the USA were able to link up with the Sydney Morsecodians Fraternity in Australia, using Dial-Up Morse over international routes, courtesy Telecom Australia.

Dial-Up Morse

Fondly known as the 'mother tongue', the code used in virtually all MTC activities is American Morse which dates back to 1844, and was used on North American landlines until their final demise in the 1980s. An exception was made during the 1991 links with Australia when Interna-

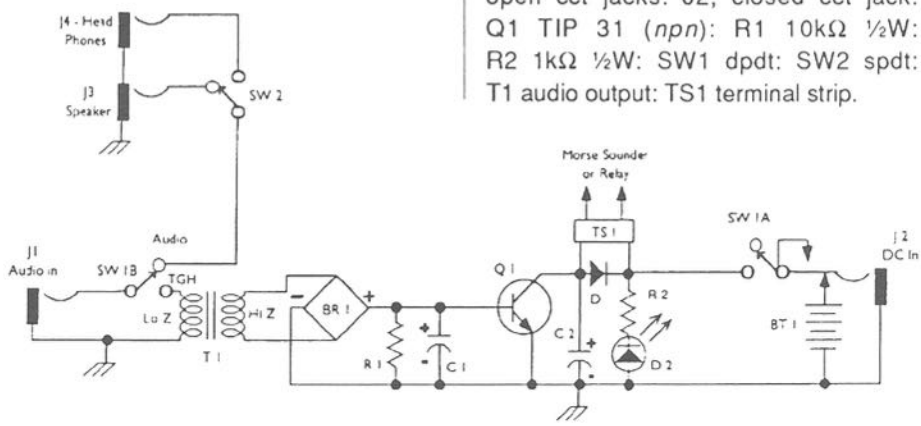
The MTC 'Morse Box' tone converter

Layout is not critical. A simple power supply could be built in. If an 'economy model' is desired, omit SW1B, SW2, J3, J4, R2 and D2. Providing for only one source of power would simplify further.

Suggested voltages: 30Ω main line sounders and 25Ω relays, 3V; 50Ω sounders, 120Ω main line sounders and 100/150Ω relays, 6V; 400Ω sounders, 30mA per coil (6V in parallel or 12V in series). 4Ω sounders are best driven with a relay and separate 'local battery' as 240mA of current is required.

For use in ham radio, good receiver selectivity is a must since any signal appearing at the base of the transistor will key the sounder. Apply just enough audio to obtain snappy operation – a very low level should suffice.

C1/C2 10µF 35V: BR1 bridge rectifier 1A/50PIV: BT1 for desired voltage: D1 1A/600PIV: D2, LED: J1, J3, J4, open cct jacks: J2, closed cct jack: Q1 TIP 31 (*npn*): R1 10kΩ ½W: R2 1kΩ ½W: SW1 dpdt: SW2 spdt: T1 audio output: TS1 terminal strip.



tional Morse was used as the Australian operators were not familiar with the American code.

Dial-Up Morse uses a solid-state or polar relay Morse terminal unit and a 300 baud-telephone modem. Two-way digital signals pass over the public telephone system and, via the terminal unit, activate Morse sounders to reproduce authentic Morse telegraph communications at the receiving station.

To assist members, MTC provides diagrams, free of charge, for the terminal unit and other accessories, including details for wiring a home telegraph office and electrical specifications for original telegraph instruments. A circuit board for the terminal unit is available for a small fee; advice is available on suitable modems; and a Dial-Up operators' roster is published listing those members available on the system.

Tape Club

Many members of MTC exchange tapes in American Morse. They use a hand

key or bug, Morse sounder, and cassette tape recorder to make tapes in one of two ways. The first is the 'sound' method, which simply records the clicking of the sounder on the tape as transmitted.

The second is the 'tone tape' method which requires an oscillator to put a tone signal on the tape, and a converter to enable the tone signal to activate a sounder and/or relay (see previous page). When properly connected, the tones are never heard, just the telegraph instruments. Members believe in the old Western Union slogan, 'DON'T WRITE – TELEGRAPH!' *(see ad below. – Ed.)*

Amateur Radio

Over 700 members of MTC are licensed radio amateurs although MTC president Bill Dunbar, AD9E, stresses that MTC is not an amateur radio club and radio is not required for MTC Morse communication. Many, like Bill, are ex-professional telegraphers as well as hams, with a mastery of both the American and International codes.

Others with only an amateur communication background, seek to widen their knowledge of the history of Morse telegraphy through membership of MTC, often learning American Morse to enable them to take part in chapter public telegraph demonstrations.

There are a number of MTC nets on the amateur bands which use American Morse – with signals converted to sounder operation at the receiving end, as in Morse tapesponding – but the International code is also used on occasions to make sure no-one is excluded.

Dots and Dashes

The journal of MTC is published four times a year with many photographs and other illustrations relating to the earlier days of both telegraph and radio. Reports from chapters describe the many activities that take place throughout the year; and profiles describe the background of each new member.

Apart from researched material, the past is brought vividly to life by articles and memories from ex-telegraphers who worked on the American and Canadian railroads; with Western Union; Postal

Telegraph; or the many other companies and organisations that used Morse for communications over the years.

Of particular interest to collectors, *Dots and Dashes* carries a good number of 'for sale' or 'wanted' advertisements for telegraph instruments, publications, ephemera, and related miscellany.

Membership

Membership is open to any person with knowledge of American or International Morse code. Annual subscription is $7.00 in the US and Canada, and $10.00 (US funds) elsewhere. If First Class mail delivery of *Dots and Dashes* is required in the US, the cost is $10.00.

Membership is usually through the nearest chapter. Overseas members are welcome and are allocated membership of the Grand Chapter, Illinois, USA. Interested non-telegraphers may subscribe to *Dots and Dashes* at the prevailing subscription rates.

Enquiries or applications for membership should be addressed to the local chapter if known. If this is not known, or the correspondence relates to the Grand Chapter, write to Robert A. Isawyk, Secretary-Treasurer, Morse Telegraph Club, Inc., 12350 W. Offner Road, Manhattan, Illinois 60442, USA, enclosing an SASE, or two IRCs from outside USA.

UK and European readers of *MM* interested in joining MTC can obtain a membership application form from Tony Smith, 1 Tash Place, London N11 1PA, England.

(Our thanks to Bill Dunbar, president of MTC, for his assistance in the preparation of this profile.)

Bookshelf

A mail order service for selected telegraphy and radio books. Further details of any title on request.

The prices quoted for each title are inclusive of postage and packing, the first figure being for despatch to UK addresses, the second for despatch to the rest of Europe by airmail or elsewhere in the world by surface mail. Airmail rates for the rest of the world on request, or if you are using your credit card we can ship by air at your instruction, simply adding the difference in postal cost to your bill.

SEND YOUR ORDER TO:

G C Arnold Partners, 9 Wetherby Close, Broadstone, Dorset BH18 8JB, England,

marking the envelope 'MM Bookshelf'.

Payment accepted by Access, Eurocard, Mastercard or Visa (quote your card number and expiry date), or by cheque, draft or postal orders. Overseas cheques and drafts must be payable in Sterling, and drawn on a London Clearing Bank.

MAKE CHEQUES, ETC., PAYABLE TO G C ARNOLD PARTNERS.

Vibroplex Collector's Guide *by Tom French*
£9.65 (UK): £10.15 (Eur/Sur)

Bunnell's Last Catalog (with commentary) *by Tom French* (American Morse Series)
£4.65 (UK): £4.85 (Eur/Sur)

Railroad Telegrapher's Handbook *by Tom French* (American Morse Series)
£6.45 (UK): £6.75 (Eur/Sur)

Mac-Key Blue Book *by Tom French*
£3.15 (UK): £3.40 (Eur/Sur)

Keys, Keys, Keys *by Dave Ingram K4TWJ*
£6.55 (UK): £6.95 (Eur/Sur)

RADIO TITLES

A First Class Job! *by Joan Long*
£8.50 (UK); £9.30 (Eur/Sur)

History of the British Radio Valve to 1940 *by Keith R. Thrower*
£12.25 (UK); £13.00 (Eur/Sur)

Golden Classics of Yesteryear *by Dave Ingram*
£8.70 (UK); £9.30 (Eur/Sur)

The Alexanderson Alternator

by Frank Roddy K3SE

During the mid-30s I was a radio operator for the Radio Corporation of America (RCA) in New Brunswick, NJ, where I operated the Alexanderson Alternator.

The installation (**Fig. 1**) comprised two Alternators back to back, with call-signs WRT on 22.8kc/s and WII on 22.0kc/s. The drive motor, one of which can be seen on the left, was a three-phase, wound-rotor type (for variable speed) which ran at about 900 rpm. A step-up gear box (note cooling fins) drove the Alternator at about 2500 rpm. All windings were on the stator which had 976 poles. The rotor was about 5ft diameter; it was a toothed wheel with slots filled with non-magnetic material to make it smooth. The driving speed had to be adjusted to get the proper frequency out.

In **Fig. 2**, the tanks are water rheostats for speed compensation as the load changed, i.e., when keying was 'on' or 'off'. **Figure 3** shows the contactors which switched the compensating resistance in and out, following the keying up to about 25 wpm. Beyond 25 wpm they closed only on dashes!

The antenna was a series of multiple wires about 1500m long, suspended between towers about 150m high. Antenna tuning was by motor-driven variometer.

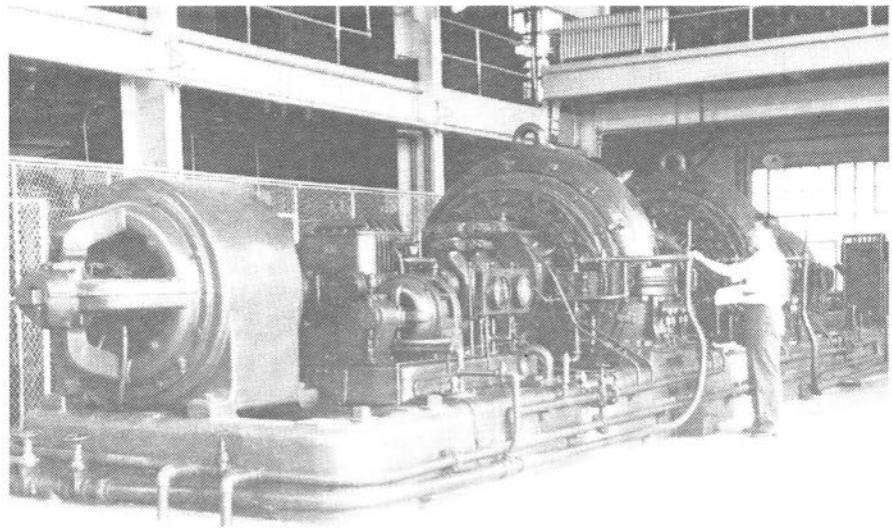


Fig. 1. Alexanderson Alternator, RCA, New Brunswick, 1937

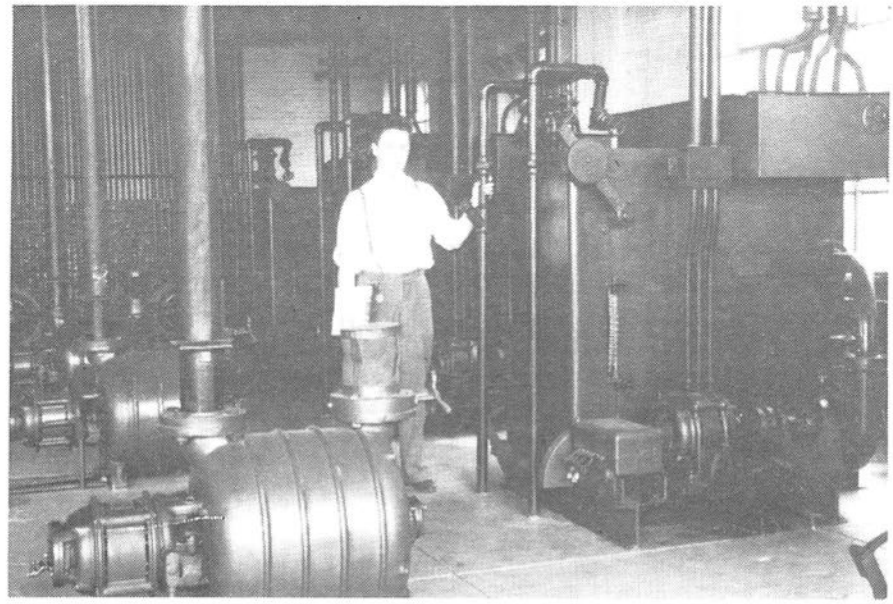


Fig. 2. Water rheostats for speed compensation

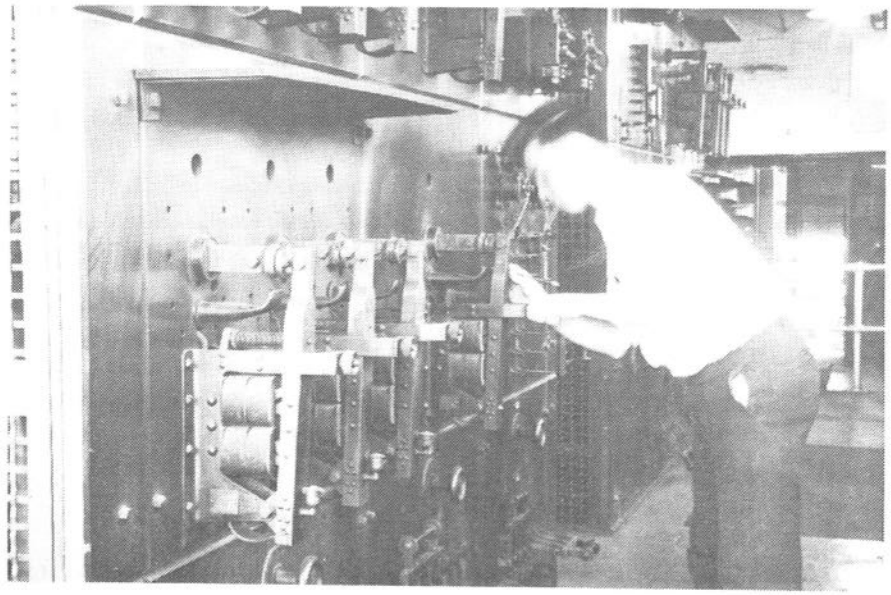


Fig. 3. Speed compensation contactors. The operator in all photos is Frank Roddy K3SE

Keying was by means of an iron core choke coil in the output circuit. DC was applied to an additional winding which saturated the core, cancelled the choke effect and permitted current to flow.

About 25 Alternators were built. They operated from 1920 to 1960. The New Brunswick station was dismantled in 1959. Only one is still operational, at Varburg in Sweden, signing SAQ on 17.2kc/s. It is not in use but can be started up for visiting dignitaries. The Smithsonian Institution in Washington also has one, but in storage.

The day of the Alternator ended with the invention of the glass to metal seal. This permitted high-power vacuum tube equipment to be built with less expense. It also permitted frequency shift keying which was not possible with the Alternator. *MM*

(Frank Roddy K3SE, from Frederick, Maryland, USA, has been a radio amateur since 1926.)

Readers' ADs

WANTED

Double current British Post Office key. Will buy, or offer in exchange a Logan Speedex bug key. Wyn Davies, Pen-y-Maes, Halcog, Brymbo, Wrexham, Clwyd LL11 5DR, Wales, 'phone 0978 756330.

Back issues of *MM* Nos. 6, 7, 8, 9 and 11. Frank Wilson, 15 Byrd Walk, Baldock, Herts SG7 6LN, 'phone 0462 892765.

Issue holdall and users manual for A14 HF set. Also bendy aerial connector. Phone 0366 500867 evenings (King's Lynn).

EXCHANGE

Wireless Remote Control Unit 'A', ZA 7533, TMC 1940, as used with Wireless Set No.1 and No.11, fitted with three bridge Key WT 8 Amp No.3, TMC 1940 /1. Wanted in exchange: Morse key/keys. WHY? Wyn Davies, Pen-y-Maes, Halcog, Brymbo, Wrexham, Clwyd LL11 5DR, Wales, 'phone 0978 756330.

Readers' ADs are free! Why not use *MM* to advertise your Morse items for sale or exchange or to seek your specific requirements. Send your ADs to Tony Smith, address facing page 1.

Your Letters

Readers' letters on any Morse subject are always welcome, but may be edited when space is limited. When more than one subject is covered, they may be divided into single subjects in order to bring comments on various matters together for easy reference.

Christmas Competition

The Morse palindrome was a searching exercise and I wouldn't place too much store on the small response you report (MM27, p.17). I'm sure that many tried, but threw in the towel!

Ray Harvey (G4PKY) and I had many hilarious moments on the telephone when possible words came to mind and were promptly discarded for one reason or another. We researched long on SAILFINS, which seemed reasonable, but could not find an authority for it.

FOOTSTOOL came up quite early but we sat on it while continuing our search. Our thoughts at the time were, 'there must be another lurking somewhere', or 'someone out there is sitting on a real beauty and laughing his head off'. BUT WHAT?

Any bald patches now appearing are the result of our quest for that elusive 'show-stopper', and my copy of *Chambers' Dictionary* is now looking quite tatty.

Congratulations on airing a most stimulating exercise.

D.A. Coe G4PZQ,
Wymeswold, Leicestershire

(Mr Coe was Ray Harvey's nominee for a special first year's subscription offer in the Christmas Competition, and is now a reader of MM. *– Ed.)*

More Media CW

If you select any transponder on a C-Band North American satellite and tune around looking for audio subcarriers, there is almost always one sending continuous Morse code at about 25 wpm.

It is mostly a string of numerals, but includes a few alpha letters to indicate the program using that particular transponder (HBO, for example, for Home Box Office).

Bob Eldridge VE7BS,
Pemberton, BC, Canada

Morse Music

Further to PA3FBF's letter in MM26 (p.38), I have found three examples of Morse in contemporary music. (By the way, these do not necessarily reflect my own taste in music!).

1. Group: The B52's. Album: The B52's. Song: *Planet Claire*. Label: 1978–1979, Warner Brothers Records Inc. At the beginning, the song starts with CW, decoded as 'NAWS DE CFH IIZKRF13'. CFH is a coastal marine two-way station that passes civilian and military traffic at Canadian Forces Halifax, Nova Scotia. It is interesting that this callsign is included.

2. Group/Artist: Chris de Burgh. Album: The Getaway. Song: *Ship to Shore*. Label: A & M Records, 1982. There is erratic

CW at the beginning of the song, decoded as 'SHIPAOSOGOSHOO'.

3. Group/Artist: Roger Waters (formerly of Pink Floyd). Album: Radio KAOS. Song: synthesised CW? Label: CBS Inc., 1987. The album cover (back and front) is covered with dots and dashes setting out the names of the songs in unspaced Morse, decoded as 'ROGER WATERS RADIO KAOS / WHO NEEDS INFORMATION / THE POWERS THAT BE / HOME / THE TIDE IS TURNING / RADIO WAVES'.

Chris Bisaillion VE3CBK, Kanata, Ontario, Canada

Abbreviations and Procedures

I remember, when working for RAF Ferry Command at Gander Airport, we had a Q-code book with every signal from QAA to QZZ, some of which are used by radio amateurs today.

It might be worthwhile if the International Amateur Radio Union adopted a world-wide system of codes applicable to amateur communication only.

It would be considerably smaller of course, but everyone would then know what everyone else meant by any particular code or symbol.

John Hann, Guelph, Ontario, Canada

I noticed the correspondence in MM26 (pp.42–43) debating the use of IMI (barred) for 'I repeat'. I was a commercial operator for years, and have been a ham since 1938, and I know from experience that IMI barred is commonly used when a sending error has been made, or when something important or unusual has been sent and the sending operator wants to make certain that it is correctly received. The string of dots used to 'erase' an error, followed by IMI barred, is used by some to indicate frustration when a mistake is made on a second attempt.

On another subject, a few years ago, *QST* published a letter from me about the present lack of an exclamation point. I received a number of supporting letters from old-timers, but apparently the younger operators didn't seem to require it.

However, after all these years, I and many others still use MIM barred *(i.e., the old exclamation mark, now used for a comma. – Ed.)* for the exclamation point as well as the comma. After all, hams talk about exciting things and we need something other than the HI that many hams use, which to me connotes mirth.

I proposed the American Morse ––––· (MN barred), in memory of the old land-line American Morse operators, but someone replied that this could not be used because it had another meaning in Arabic. (And that statement definitely needs an exclamation point!)

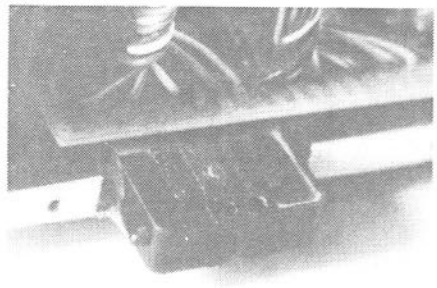
Jim Farrior W4FOK, San Fernandina Beach, Florida, USA

(We would welcome further correspondence on the need, or otherwise for a Morse symbol for the exclamation mark, which was officially dropped in 1938. – Ed)

No paddle!

I devised a very convenient way of taking my Autek auto keyer on trips without having to haul around a heavy paddle as well – I epoxied a pair of microswitches into the keyer.

I bent a flap out from the bottom edge of the enclosure and another out from the cover, so the microswitches project out



Bob Eldridge's microswitch-keyed Autek keyer, with cover removed to show how the microswitches are mounted

from the right-hand side of the keyer.

I found I could send best by keeping finger and thumb a set distance apart and moving my whole hand. Others were able to use it just wiggling the finger and thumb. No-one seems to have had difficulty sending well on it, although one operator at 4U1ITU made a wooden U-piece after getting a cramped hand from an all-night session on this keyer!

Bob Eldridge VE7BS,
Pemberton, BC, Canada

(Other readers are invited to send MM *details of their own unusual adaptations, ideas or inventions for sending Morse. – Ed.)*

Morse at the Movies

I was most interested in Leonard Moss's letter (MM26, p.45) regarding Morse used in the opening of the old RKO pictures. I too have very similar memories and, in fact, wrote to *Monitoring Times* last year about some of the movies in which radio played a part.

My vote for the all time best would be *On the Beach*. The scene at the oil refinery where the mysterious transmissions are tracked to a key being closed by a Coke bottle lying across the cord of a window shade flapping in the breeze, sending a few identifiable characters mixed with gibberish, is very dramatic.

The actor who then communicates this to the submarine does so in Morse with an excellent fist and at better than 20 wpm. It is an authentic transmission in which he describes the source of the signal and announces he will be shutting down the station.

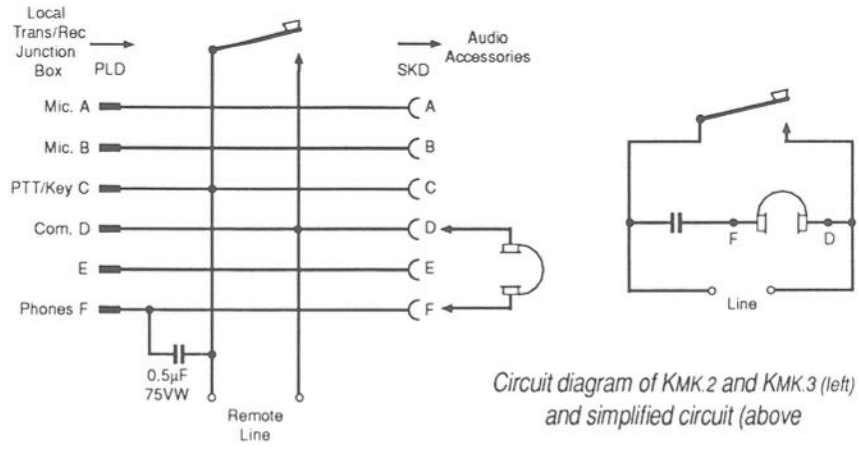
Another film in which authentic CW is transmitted was called, I think, *The Incredible Voyage*. In the scene where the submarine is miniaturised, the command to do so is in relatively slow speed Morse and is acknowledged by the radio operator with 'R' in CW.

Harvey M. Solomon KQ0A,
Atlanta, Georgia, USA

KMK-2 Key and Batch Coding for Signals Equipment

The key KMK-2 (properly KMK.2), full designation – Control Unit K Mark 2, shown on page 25 of MM27, is a unit of LARKSPUR radio control harness type 'B'. This key, commonly known as a 'K Box', was used with the C11/R210, C12 and C13 series of British Army radio sets designed in the 1950s as replacements for the WWII-vintage Wireless Sets Nos 19, 22 and 52.

The letters RAC on the key would appear to indicate manufacture by the Racal Company, and the code QL indicates the date of manufacture as December 1959. This two-letter date coding system for military equipment was used from 1955 to 1968, with letters from the following table giving the month and year of manufacture:



Circuit diagram of KMK.2 and KMK.3 (left) and simplified circuit (above

A – Jan; B – Feb; C – Mar; D – Apr; E – May; F – Jun; G – Jul; H – Aug; I – Sep; J – Oct; K – Nov; L – Dec.
M – 1955; N – 1956; O – 1957; P – 1958; Q – 1959; R – 1960; S – 1961; T – 1962; U – 1963; V – 1964; W – 1965; X – 1966; Y – 1967; Z – 1968.

My own KMK.2 is marked RAC/TG, and was thus made in July 1962, and by way of confirmation this date was printed on the cardboard box in which it was packed.

In 1969, a new coding system giving week and year of manufacture was introduced. In this, the first two digits indicate the year of production and the last two digits the week of the year. Thus 6901 can be found on equipment produced in the first week of 1969.

The filter built into the base of the KMK.2 key is not for spark suppression but is to allow the audio output from the receiver, which is superimposed on the keying line, to be separated from the DC keying voltage. This permits a remote operator to control a LARKSPUR HF radio over a wire line connected from the terminals at the rear of a remote KMK.2 to the 'Remote Control' terminals of the radio equipment junction box.

The headset used by the remote operator is connected to the six-pole socket on the side of the key unit. In practice, this had the drawback that the remote operator could not receive sidetone due to the line, and hence the superimposed audio signal, being shorted out whenever the key was pressed.

Two other Marks of the 'K Box' were produced. The Mark 1 (ZA 46190) had two five-in-line audio sockets (as used on the A510 Manpack) on its left-hand side, and the line terminals on the right. The KMK.3 had a lengthened keying arm but was otherwise identical to the KMK.2. The circuit diagram of the KMK.2 (and 3), and a simplified diagram showing how the audio is superimposed on the keying line, are shown above.

Ian G. Mant G4WWX,
Childwall, Liverpool

The 'KMK-2' key depicted at the bottom of the page 25 of MM27 is British Army

equipment. I doubt very much the allusion to South African origin. The 'ZA' identification is standard Army nomenclature and not a short form of the Afrikaans words 'Zuid Afrika'(!), and the NATO catalogue number supports it as being one of 'ours'.

I obtained my own key of this type at Anchor Supplies, Nottingham, where many strange (and often useful) items can be found.

Incidentally, the Morse Seminar at Nottingham on May 15, which I attended with Ray Harvey G4PKY, had some splendid facilities for the get-together and there was a goodly display of keys ancient, more ancient, and even modern. Ray was lucky to come away with his MacElroy bug as it seems to have been about the earliest version brought along. There were many covetous eyes on this museum piece!

A high spot for us was a joyful gathering round Jim Lycett with his 'Golden Section' key (see MM27, p.12. Ed.) and a truly magnificent photographic record of just about every key known to mankind *(Jim might draw back slightly from that description, but we know what you mean, having seen his super collection of key photos and reproduced some of them in* MM. *– Ed).*

D.A. Coe G4PZQ,
Wymeswold, Leicestershire

Encouraging Response to MEGS

We are delighted with the Club Profile of MEGS which appeared in the April issue (MM27, p.38). Already there has been a most encouraging response from various parts of the country, particularly from England.

MM readers have telephoned and written asking for more information and we also had operators joining us on our MEGS net. What we have achieved has been in large measure because of your invaluable assistance and our Chairman, George GM4HYF, has asked me to express his gratitude for the splendid coverage of our aims and objectives.

We send our best wishes and grateful thanks and look forward to the more frequent issue of *Morsum Magnificat* which is very welcome.

Stewart Spence GM3YCG,
Hon. Sec., Morse Enthusiasts Group Scotland

Coherer Puzzle Answered?

Ron Wilson G4NZU asked about Prof. David Hughes and the coherer (MM26, p.46). In a special souvenir number of *Radio-Craft* published in March 1938, which reprinted many articles and advertisements from earlier times, there is a 'Chronological History of Radio' ending in 1921, so probably written in that year.

This article credits Branly with the invention of the practical coherer in the form of a tube with contact plugs at each end (1892), but says '... nor was it basically conceived by Branly, since Hughes had employed a similar device...' An entry for 1879 says that Hughes 'discovered an arrangement which consisted of a stick of wood covered with powdered copper; when placed in an electrical circuit the copper particles would cohere when a spark was made'.

Popoff is credited with the invention of the first automatic decoherer. Maybe Hughes started it all?

Bob Eldridge VE7BS,
Pemberton, BC, Canada

Boy Scouts of Canada Morse Signalling Cards

Learning Aid

I have a set of Morse 'Flash Cards', officially called 'Morse Signalling Cards', published by Boy Scouts of Canada, Ottawa, Canada.

They have letter and phonetic word on one side, and Morse character with the phonetic version of the character on the other side.

Chris Bisaillion VE3CBK,
Kanata, Ontario, Canada

(We would like to receive details of any other Morse training aids known to our readers. – Ed.)

G-QRP Club

The G-QRP Club promotes and encourages low-power operating on the amateur bands with activity periods, awards and trophies. Facilities include a quarterly magazine, Morse training tapes, kits, traders' discounts and a QSL bureau. Novices and SWLs welcome.

Enquiries to **Rev. George Dobbs G3RJV, St Aidan's Vicarage, 498 Manchester Road, Rochdale, Lancs OL11 3HE**. Send a large s.a.e. or two IRCs

FISTS CW Club – The International Morse Preservation Society

FISTS exists to promote amateur CW activity. It welcomes members with all levels of Morse proficiency, and especially newcomers to the key.

The club has awards, nets (including a beginners' net), dial-a-sked for beginners, straight key activities, QSL bureau, newsletter, and discounts from traders.

Further information can be obtained from **Geo. Longden G3ZQS, 119 Cemetery Road, Darwen, Lancs BB3 2LZ**. Send an s.a.e. or two IRCs.

Morse QSLs

A series of reproductions of QSL cards with a Morse theme

PORTHCURNO TELEGRAPH MUSEUM

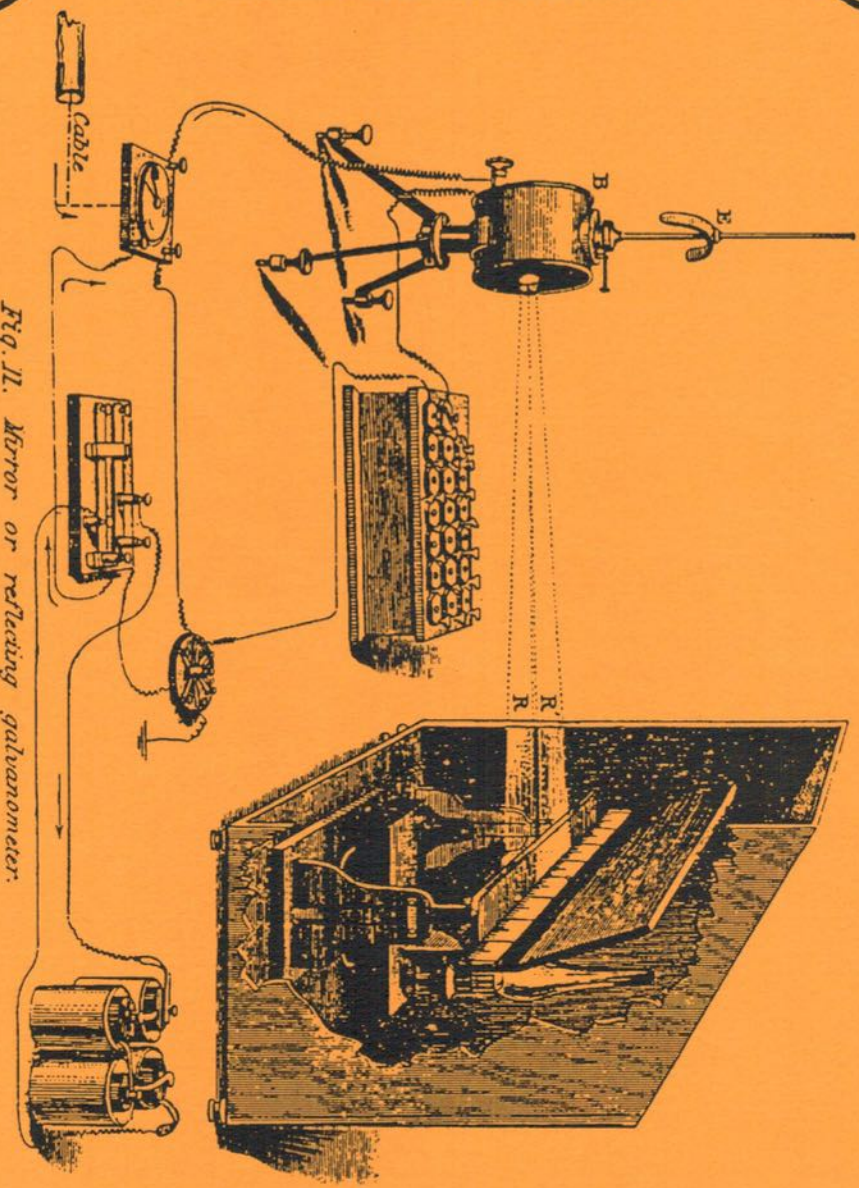


Fig. II. Mirror or reflecting galvanometer.

MIRROR CIRCUIT – 1879