

Singing Wires
Bonus Pages



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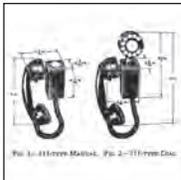
Volume 26, Number 11 ☎ November 15, 2012

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...and thanks for your continued support for TCI.

2012 NORTHERN CALIFORNIA SAN JOSE TELEPHONE SHOW

For more photos visit: <http://www.infc.info/telephony/2012-nc-ts-sj/>

Pictures provided by Remco Enthoven



Katie Hui, the faithful door monitor, visits with Linda Dresser

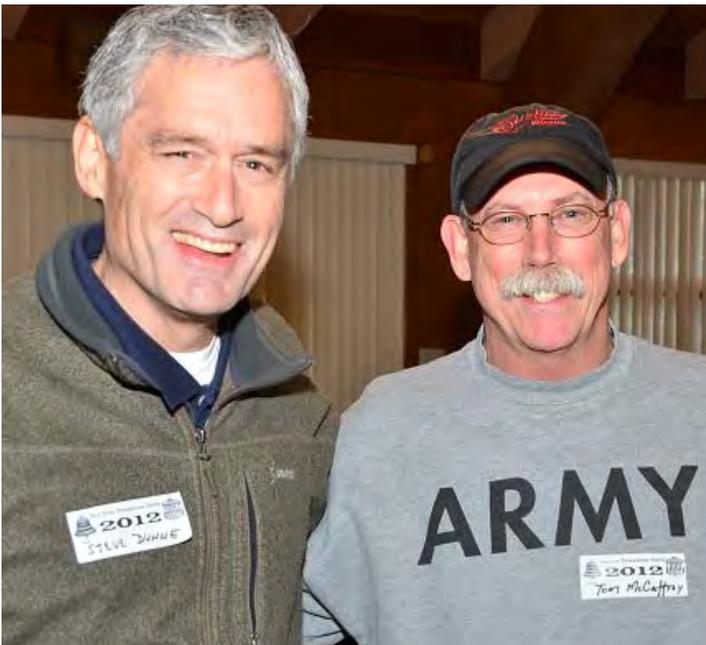
AE, NE and WE sets for sale



The Actons look at items Gary Goff has for sale



Paul Wills, Clint Gilliland, Erik Schull and John LaRue examine an item



Steve Dunne and Tom McCaffrey enjoy the show



Lots of receivers and handsets



Paul Wills talks to Chuck Hensley



Anyone need a Princess set?



Sue Mundy, Wayne Merit, Charlie Brown and Rob Riker

HAND TELEPHONE SETS — 211A, B, C, D

**HANG-UP TYPE — COMMON BATTERY — CONNECTIONS
 WITH INDUCTION COIL TYPE SUBSCRIBER SETS**

1.00 INTRODUCTION

This section covers the combination of apparatus, circuit diagrams, and connections for the 211A, B, C, and D hang-up type hand telephone sets when used with induction coil type subscriber sets for manual or dial common battery service.

2.00 GENERAL

2.01 The 211A, B, C, and D types may be used for all classes of service except in dial central offices where the party-on-tip station of 2-party service requires a message rate or tip party identification feature.

2.02 The 211B and D are the same as the 211C with the exception of the type of dial number plate furnished. The 211C has the standard dial number plate with black letters and red numerals.

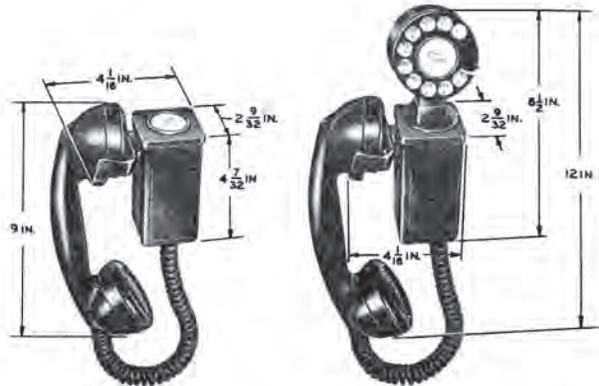


FIG. 1—211-TYPE MANUAL FIG. 2—211-TYPE DIAL

**TABLE A
 COMBINATION OF APPARATUS**

Hand Tel. Set Codes	Components				
	Handset	Handset Mounting	Dial or Apparatus Blank	Dial Mounting	Type Handset Cord
211A-3E (As furnished)	E1E-3	G1-3	Number Card Holder	—	H-3
211A-3F (As furnished)	F1A-3 F1G-3				
211A-3F (Modified)	F4A-3				
211C-3E (As furnished)	E1E-3		5H	43A-3	
211C-3F (As furnished)	F1A-3 F1G-3		5H or 6A		
211C-3F (Modified)	F4A-3		6A		

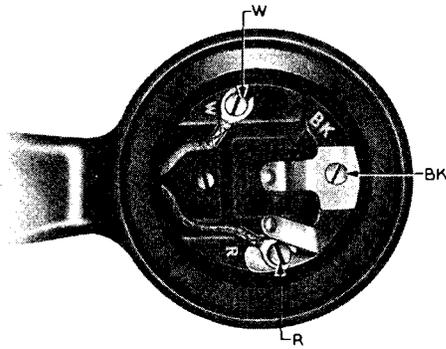


FIG. 3—F1- AND F4-TYPE HANDSET

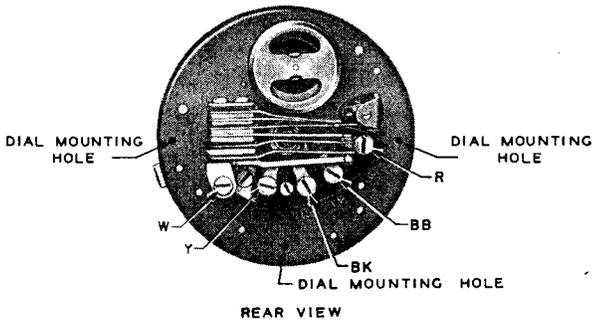


FIG. 4—5H-TYPE DIAL

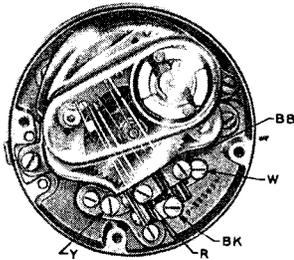


FIG. 5—6A-TYPE DIAL

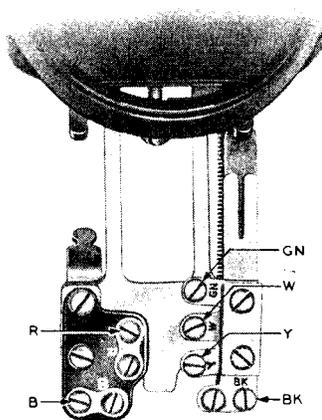


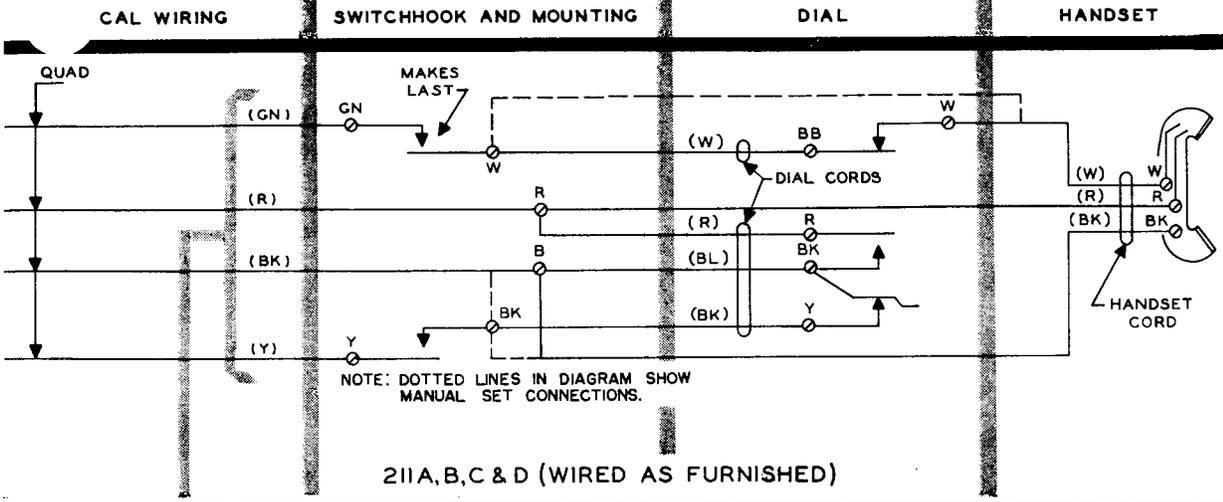
FIG. 6—G1-TYPE HANDSET MOUNTING

ASSOCIATED APPARATUS

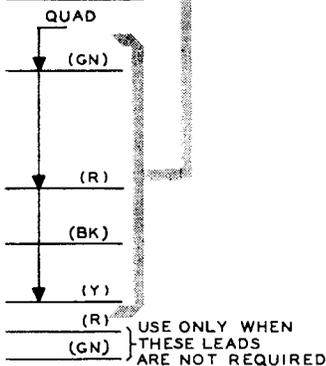
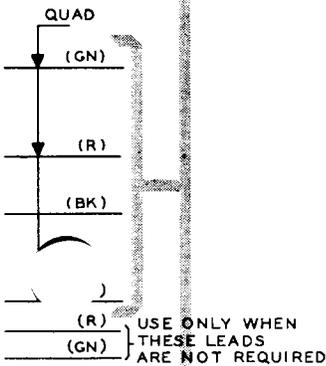
	Class of Service	Sub. Set
TABLE B	Individual Lines 2-Party Flat Rate* 2-Party Message Rate (Manual and Dial Ring Party Only)* 4-Party Semiselective Multiparty Divided Code Regular PBX Stations 750A and 755A Keyless Stations	634A, BA 684A, BA
	4-Party Full Selective 8-Party Semiselective	634AT
*No message rate or tip party identification can be provided for party-on-tip stations.		
	Class of Service	Sub. Set
TABLE C	Individual Lines 2-Party Flat Rate* 2-Party Message Rate (Manual and Dial Ring Party Only)* 4-Party Semiselective Multiparty Divided Code Regular PBX Stations 750A and 755A Keyless Stations	634BC 684BC
	*No message rate or tip party identification can be provided for party-on-tip stations. Use only where the additional pair (R and Y) is not required in the subscriber set.	
	Class of Service	Sub. Set
TABLE D	Individual Lines 2-Party Flat Rate* 2-Party Message Rate (Manual and Dial Ring Party Only)* 4-Party Semiselective Multiparty Divided Code Regular PBX Stations 750A and 755A Keyless Stations	634CE
	*No message rate or tip party identification can be provided for party-on-tip stations. Use only where the additional pair (R and Y) is not required in the subscriber set.	

PORTIONS OF THIS PAPER DOCUMENT PAGE WERE MISSING

3.00 CIRCUIT DIAGRAMS



PORTIONS OF THIS PAPER DOCUMENT PAGE WERE MISSING



3.01 The 211-type set is arranged for, but not equipped with, a 61M filter for radio-frequency suppression; when this filter is required, remove the dial cord between Y of the dial and BK of the switchhook and connect filter as shown in Fig. 7.

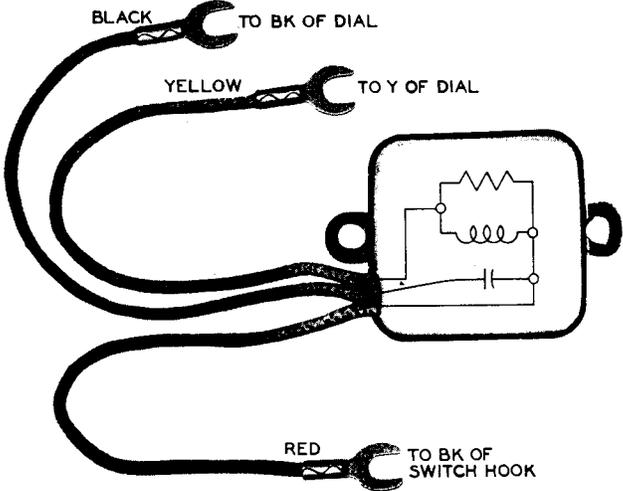


FIG. 7—61M FILTER CONNECTIONS

An old noble family, a castle, the American army, and an ATEA PABX during WW II

What is the correlation between all this? Let's start with some background information.

1. *History of the Wégimont castle*

Wégimont is a place in the southern part of Belgium, East of the city of Liège, near the German border.



Wégimont is a town where the "A" is on the map.

Copyright google maps



The castle on the Wégimont domain

Source: Wikipedia

1.1 The noble d'Oultremont family

Although the castle probably dates of the 13th century, one finds only traces of it in the 1574 archives¹. It would also have been destroyed in 1636. The Oultremont family, an old noble family that lived for centuries in the Liège region, acquired this large estate and castle of Wégimont² in 1756.

This family lived on the estate until about 1920.

We presume maintenance and personnel costs became too expensive to maintain the castle court (as happened with many castles in the 1920s), and it was sold early in the 1920s.

1.2 The province of Liège

Although the province of Liège acquired the complex in the early 1920's, it took until 1937/1938 before it was opened to the public. There was an entire recreational infrastructure required for the working class, (since they acquired "paid vacation" in those days) and therefore had need of leisure. It had *swimming pools, miniature golf, sports fields, playgrounds, camping, etc.*, and in the castle there was also a kind of Congress Center.

We assume a small ATEA PABX (4 local lines, one exchange line) was installed at the end of the 1930s. Delivery and installation was done by the National Operating Company RTT, who had a monopoly for the small systems.

1.3 Occupation by the Germans during World War II

During the occupation, the castle was confiscated by the Germans, and was used between 1942 and 1944 under the "Lebensborn" action of the Germans³. After the First World War Germany had a population decline, and the Nazi's started an action to increase the birth rate.

Ideological background of Lebensborn

Lebensborn (*Spring of Life, in antiquated German*) was a Nazi program set up by SS leader **Heinrich Himmler** that provided maternity homes and financial assistance to the wives of SS members and to unmarried mothers, it also provided orphanages and relocation programs for children.

Initially set up in Germany in 1935, Lebensborn expanded into several occupied European countries **during the Second World War**. In line with the racial and eugenic policies of Nazi Germany, the Lebensborn program was restricted to individuals who were deemed to be "biologically fit" and "racially pure", "Aryans", and to SS members.

In occupied countries, thousands of women facing social ostracism because they were in relationships with German soldiers and had become pregnant, had few alternatives other than applying for help with Lebensborn.

Establishment of "Lebensborn" shelters in occupied countries

Lebensborn shelters were established in all occupied country's. In Belgium, this was the domain of Wégimont, named "Heim **Ardennen**" by the Germans, with logistics for approximately 30 mothers.

¹ http://fr.wikipedia.org/wiki/Ayeneux#Ch.C3.A2teau_de_W.C3.A9gimont

² "Wégimont Castle, with its vast areas, entered this family March 29, 1756"; for more details, see http://fr.wikipedia.org/wiki/Famille_d%27Oultremont#Liens_externes

³ <http://en.wikipedia.org/wiki/Lebensborn>

Another source says that the SS used the domain as "Rest & Recreation" for their troops during the war⁴.

1.4 Arrival of the Allied Forces 1944/45

The Allied forces arrived in 1944/1945 on their way to Germany. The division "4034 Signal Operations Company," of the US 1st Army, who was responsible for **telecommunication on the battlefields**, (with portable exchanges on a truck) took over the domain and castle. This division established his headquarters in the castle of Wégimont.

The Americans had a high tech military telecommunication network. When they encountered a small ATEA PABX in the castle (4 local lines, 1 exchange line) they used it we think to connect their network to the Belgian civil telephone network.

When they left, a 28 year old lieutenant **Frank D Reese** confiscated the ATEA PABX as spoil of war and took it home to the US.

⁴ An American soldier's witnessed about the castle "This was taken over by the SS and a rest home created for resting members of that organization and their spouses or female companions, all with the object of creating an Aryan master race. It was known to us as "the baby factory." See <http://www.3ad.com/history/wwll/dugan.pages/saga.pages/4belgium.htm>

2. Who was Frank D Reese?



Frank D Reese⁵ was born in Cortland, NY in December 1917 to a physician who co-founded the local hospital, Reese's parents died when he was young and he was largely raised by an uncle. When at age 12 he was given some batteries from the railroad, he and two pals wired a telegraph between their three houses, the start of his telephony career⁶.

Frank was hired by *General Telephone Company of Pennsylvania* as an equipment engineer in Erie after graduating from Cornell University in 1939 with a *BS degree in Mechanical Engineering*.

Between 1942-45 he served as a lieutenant in the **Army Signal Corps**⁷, and he followed the Normandy invasion across France to Belgium and

Germany.

After the war he worked for several telephone companies as Supervisor, such as *General Telephone in Pennsylvania* and *Pennsylvania Telephone Corporation*, At 40 - when transferred to GTE Service Corp as Engineering Director - his career took off. Three years later in 1960 Reese was elected President of the newly-formed **GTE Automatic Electric Laboratories** in Northlake, IL. During the next fourteen years he oversaw the development and launch of GTE's electronic product line and mentored a staff of talented engineering managers.

By 1974 he was telling friends he was hankering to get back to his operating company roots and took early GTE retirement to join **North Pittsburgh Tel** in Gibsonia, a telephone operating Company. Finally he retired from that company as President and General Manager.

Even after his retirement he remained active in telephony, we find evidence of an affiliation with a small Telecom company in 2001⁸.

Frank D Reese was active in various professional associations (*such as the U.S. Telephone Association*) and he chaired committees for the "Institute of Electrical and Electronics Engineers" (IEEE), he also contributed articles for their publications⁹.

The telecom business showed him their appreciation. After an IEEE award in 1974, he was recognized mainly in the 1990s for his activities. So he got two prestigious USTA¹⁰ awards:

- the Pacesetter (1991) and
- the Distinguished Service Medallion (1994),

⁵ Source : obituary on <http://bruggerfuneralhomes.com/obituaries/8386>

⁶ See <http://wheaton.patch.com/articles/letter-to-the-editor-phone-industry-pioneer-frank-reese-1917-2011>

⁷ background on Army Signal Corps see:

http://en.wikipedia.org/wiki/Signal_Corps_%28United_States_Army%29#World_War_II

and http://www.lonesentry.com/gi_stories_booklets/signalcorps/index.html , (search for "belgium")

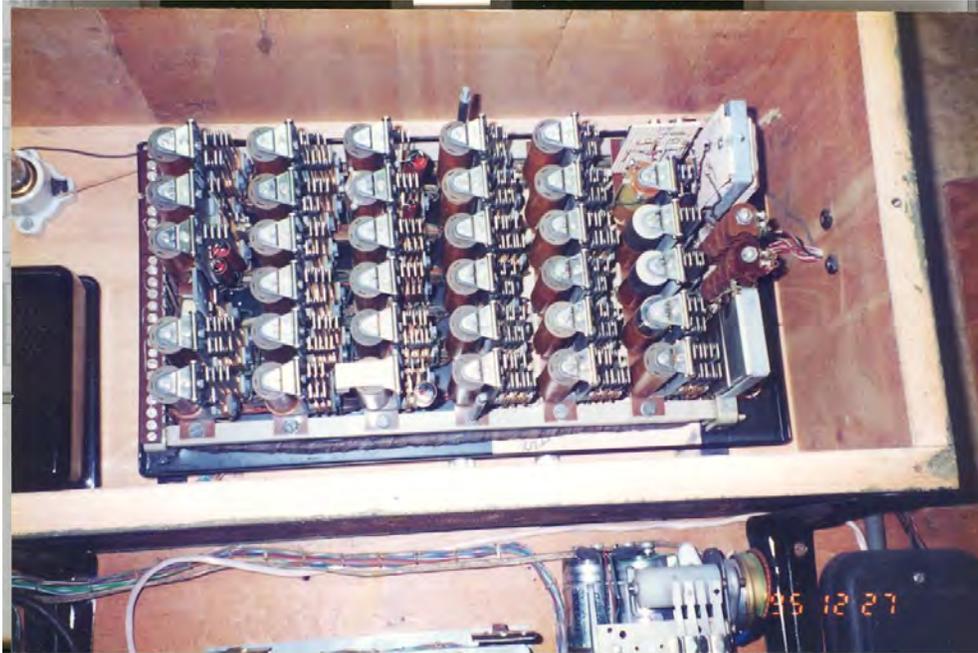
⁸ see <http://www.manta.com/c/mmc189j/frank-d-reese>

⁹ i.e. in 1950 for IEEE "Dial Telephone Central Office Buildings for Small Communities"

¹⁰ USTA: United States Telecom Association

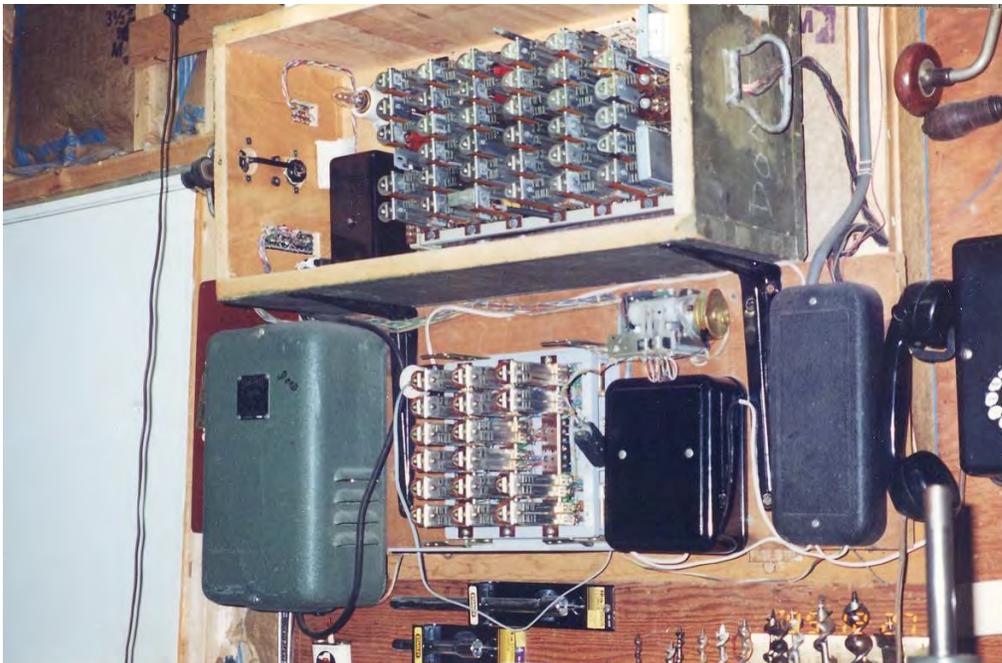
for "leadership in telephone technology".
In 1997 he was inducted into the "Independent Telephone Hall of Fame", which honored important people in the telecom industry.
Frank passed away in 2011, at the age of 93.

2.1 Frank was an engineer at heart



Frank D Reese's ATEA PABX built into a wooden box

Photo: Frank D Reese, 1995



Frank D Reese's ATEA PABX with expansion to 8 lines and DTMF receiver

Photo: Frank D Reese, 1995

Despite his high position as President, Frank remained a technician at heart. He brought the ATEA PABX home, installed and maintained it, and adapted it

to the changing necessities¹¹. When his three sons were growing up, it saw considerable use.

The original ATEA PABX was equipped with 4 local lines and one exchange line. When he became president of GTE Automatic Electric Labs in 1960 he came in contact with ATEA people (ATEA was also part of GTE at that time), who provided him circuit drawings and spare parts, so

- the system was expanded from 4 to 8 local lines
- when DTMF phones became popular, Frank installed an Automatic Electric DTMF receiver on the lines, superimposed upon the dial-pulse counting chain relays.
- The system operates from the output of a 20v DC, 30 Hz AC power supply from Lorain. (*He thought it would operate better on 24v*).
- Some functions with “pre war” technology have been replaced:
 - The **dial tone generation**, originally with some kind of buzzer has been replaced by a electronic dial tone source
 - The low voltage internal “pole changer” ringing source has been replaced by a 30hz ringer of the Lorain power supply.

New contacts with ATEA

- As president of GTE Automatic Electric labs, he came in contact with ATEA managers, who provided spare parts. Spare parts were ordered until 1970.
- In the 1990s a growing interest in Atea’s past did lead to establishment of a museum. During that process somebody remembered the story of Frank D Reese, so ATEA got in touch with him in 1995. The ATEA PABX was still in service at his home, 50 years after World War II.
- Frank D Reese did send some photograph’s, and a copy of the updated circuit drawings to ATEA.
- ATEA offered him a new analogue system, in exchange for the old ATEA PABX, but somehow that did not work out.

Frank D Reese passed away in 2011¹², we don’t know what happened to his PABX. We would have loved to retrieve this system for the “friends of the ATEA museum”.

Search for the PABX in 2012

We got in touch with Charles Reese, his son. Charles wrote

“Unfortunately, I do not know who my father gave the PBX to. In 2008, they sold their home in Erie and moved into an assisted-living facility. They had lot’s of stuff to unload and Dad managed the task; as his sons all lived some distance from Erie. If you know my father, then you know he was passionate about the telephone industry. Neither my brothers or I followed his footsteps into the telephone business. I do know that Dad felt the PBX must go to somebody who fully appreciated what it was. When I asked what he did with it, I did not pursue the details about exactly who got it. It certainly makes sense to bring the PBX back to its original home. But Dad was in a rush and doing what was most expedient.

¹¹ letter of Frank D Reese to ATEA, May 1, 1995

¹² <http://bruggerfuneralhomes.com/obituaries/8386> for his obituary

*I know a few of Dad's living contacts and I can put out some feelers. If I learn of its position, I will let you know. We certainly appreciated the complete report on the origins of the PBX. It was quite the novelty in the Reese household.
Regards,*

Charles Reese

Until now, we did not get an answer. A question was asked at the TCI forum, without result. If somebody should know...

Mortsel, 9 October 2012

Jan Verhelst

Many thanks to the "friends of the ATEAmuseum" for their assistance.

We thank also my good friend Dick Beilke (Sycamore, IL, USA) for his support in rewriting this article in English.

This article has been published in the Autumn 2012 issue of the British THG magazine, but since Frank D. Reese was an American citizen, we wanted to publish it in "Singing Wires" aswell.

Appendix: ATEA documentation on, a pre- WWII small PABX (4 lines 1 exchange line)



LE COMMUTATEUR AUTOMATIQUE

P.A.B.X.

TYPE

4

N° A 2 5 4 8



Dimensions du commutateur comparées à celles d'un poste téléphonique normal



Caractéristiques techniques.

Système. Complètement automatique. Secret absolu des communications. Appel cadencé automatique (voir plus loin). Signalisation par tonalités semblables à celles utilisées dans les grands centraux publics.

Capacité. 4 lignes privées (cette capacité peut être augmentée en mettant 2 ou plusieurs postes en parallèle sur la même ligne) 1 ligne vers le réseau public — 1 circuit de conversation local — 1 circuit de conversation réseau.

Equipement. Ne peut être sous-équipé.

Numérotation. Pour les postes privés ; 1, 2, 3, 4. — Appel par code pour plusieurs postes en parallèle sur la même ligne. — Appel par sonnerie cadencée pour un seul poste par ligne (ou par sonnerie continue). Pour obtenir le réseau, pousser sur le bouton rouge.

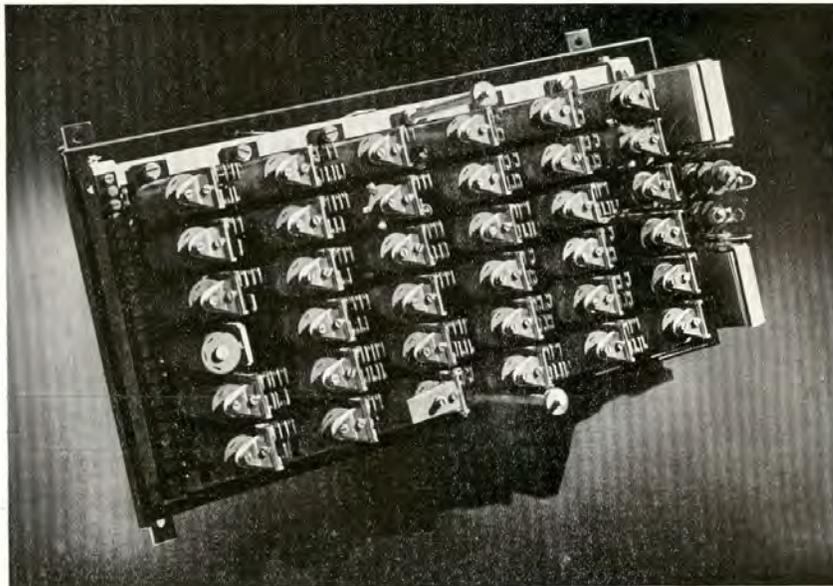
Services spéciaux. Sortie directe vers le réseau public. Répartition à volonté des postes en différentes catégories. Garde de la ligne réseau au moyen du bouton. Transfert de la ligne réseau. Tonalité d'invitation à raccrocher lorsqu'un poste auquel on désire transférer la ligne réseau est occupé.

Canalisations. Lignes métalliques bifilaires aériennes ou en cable. Résistance maximum en boucle 150 ohms. Pour les postes ayant droit au service « ville », mise à la terre au moyen d'un troisième fil ou de la chape de plomb des canalisations.

Postes. Du type standard à B. C. et disque d'appel pour les postes ayant le service local uniquement. Les postes ayant la possibilité de conversation avec le réseau, soit directement, soit par transfert, sont pourvus d'un bouton rouge de mise à la terre.

Liaison au réseau public. Permet la liaison avec un réseau public quelconque à B. C. automatique ou manuel ou à B. L. Limite de la résistance en boucle des lignes de jonction égale à celle d'une ligne d'abonné ou réseau public.

Aspect général. Tous les organes sont montés dans une caisse métallique étanche aux poussières, fini craquelé noir. Le bâti de relais est monté par l'intermédiaire de gonds sur une base en tôle d'acier fixée au mur. Ce montage permet un accès facile tant pour le réglage que pour



l'établissement des connexions. En cas de fonctionnement avec réseau public à B. L., adjonction d'une boîte séparée pour appels sur ce réseau.

MODE OPERATOIRE.

1. Appel local. On décroche le microtéléphone, on attend la tonalité d'invitation à transmettre, puis on forme le numéro de la personne désirée. Si la personne est occupée on reçoit la tonalité d'occupation. Si le circuit de connexion locale est déjà utilisé on ne reçoit pas la tonalité d'invitation à transmettre.

2. Appel vers le réseau public. On décroche le microtéléphone et on pousse sur le bouton rouge du poste. Par cette opération on est mis directement en communication avec le réseau public. Si le circuit de jonction vers le réseau public est occupé au moment où l'abonné pousse sur le bouton de mise à la terre, il obtient la tonalité d'occupation.

3. Maintien d'une ligne réseau pendant un appel d'information local. En communication avec la « ville » un abonné peut en poussant sur le bouton rouge bloquer cette communication à son poste. Il entend à ce moment la tonalité d'invitation à transmettre du P. A. B. X.. forme le numéro de l'abonné désiré, demande le renseignement, pousse à nouveau sur le bouton rouge et se retrouve en communication avec l'abonné « ville ». Le secret des communications reste assuré pendant ces opérations, l'abonné « ville », n'entend pas la conversation d'information.

4. Transfert d'une communication réseau. Le processus est le même de celui d'un appel d'information, mais l'abonné auquel on désire transmettre la communication pousse sur le bouton rouge de son poste et se trouve ainsi en liaison avec l'abonné « ville ». Cette opération peut se répéter autant de fois que l'on désire.

5. Communications entrantes. Lorsqu'un appel parvient du réseau public, une sonnerie spéciale retentit et un poste quelconque autorisé à répondre à un tel appel peut le faire en décrochant et en poussant sur le bouton rouge. Si l'appel n'est pas destiné à l'abonné qui a répondu, le transfert a lieu comme expliqué plus haut. Tout le trafic entrant peut donc être écoulé sans l'intervention d'une opératrice.

ALIMENTATION.

Tension de travail : 24 V.

Limites de fonctionnement : 20 V. à 30 V.

Groupe de charge. Sur courant alternatif : un groupe redresseur avec un filtre branché directement sur le circuit d'éclairage sans batterie tampon. Lorsqu'on désire assurer l'écoulement des communications locales, même en cas de panne du réseau d'éclairage, on fait usage d'une batterie de faible capacité de 3 A. H. en tampon avec le redresseur.

Sur courant continu : 2 batteries de 14 A. H. 24 V. l'une étant en charge pendant que l'autre est en décharge.

Dimensions :

Largeur	:	448 mm.
Profondeur	:	170 mm.
Hauteur	:	286 mm.

Poids :

Brut	:	18 Kos.
Net	:	11 Kos.



Boîte pour marche sur réseau à B. L.

REMARQUES.

1. Lorsque le commutateur est utilisé avec une boîte pour réseau public à B. L., après avoir poussé sur le bouton rouge, l'abonné devra manœuvrer son disque d'appel pour provoquer le signal d'appel vers le réseau ; par contre le signal de fin de communication est transmis automatiquement lorsqu'il raccroche son microtéléphone.

2. En cas de panne du réseau d'éclairage ou d'alimentation du commutateur par la fusion de fusibles, un des postes est automatiquement connecté sur la ligne « ville » permettant encore l'utilisation de ce poste avec le réseau public.

3. Les postes peuvent être classés dans les 3 catégories suivantes :

- a) poste spécial à bouton avec les caractéristiques suivantes : toutes communications intérieures et extérieures entrantes ou sortantes, transfert éventuel du réseau vers l'un ou l'autre poste intérieur.
- b) poste spécial à bouton : toutes communications intérieures et extérieures mais avec cette restriction que les communications extérieures sortantes ne peuvent être obtenues que par l'intermédiaire d'un poste de la catégorie a).
- c) poste ordinaire sans bouton : rien que les communications intérieures.

AUTOMATIQUE ELECTRIQUE DE BELGIQUE

RUE DU VERGER

ANVERS

TEL. 938,00

CAT. T53221
ED. 1. 9-36.

The illustrations above were taken from a 1936 technical leaflet. There was also a more commercial leaflet, with, seen through 2012 eyes, a remarkable illustration.

AUTOMATIQUE ELECTRIQUE DE

vous présente en LOCATION par la Régie des P.T.T. une installation automatique vous donnant les services suivants :

biedt U eene automatische telefoonin P.T.T. in HUUR gesteld. Deze inrichting

- 1 Quand un poste est en communication avec le réseau public, deux autres postes peuvent encore communiquer entre eux.
- 2 Si, une communication ville ne vous est pas destinée, vous pouvez transférer cette communication à un autre poste.
- 3 Si, étant en communication avec la ville, vous désirez obtenir téléphoniquement un renseignement, vous bloquez la ligne ville pour la reprendre ensuite. Cette communication d'information ne peut être entendue par votre correspondant « ville ».
- 4 La possibilité pour un usager de pouvoir émettre et recevoir des communications « ville », soit directement, soit par transfert, dépend d'une connexion à établir au central et peut être facilement modifiée suivant les besoins.
- 1 Wanneer een toestel met het net in verbinding is, kunnen twee andere nog onderling spreken.
- 2 Indien een stadsoproep niet voor U bestemd is, volstaat het de verbinding « door te geven » aan de verlangde persoon zonder U zelf te verplaatsen.
- 3 Bij een stadsverbinding, kunt U bij een binnentoestel een inlichting inwinnen, zonder op de stadslijn gehoord te worden.
- 4 De mogelijkheid voor een toestel, van een stadsoproep te kunnen ontvangen, of door te geven, hangt van eene verbinding af die in de centrale kan gemaakt worden.

- 1 Ligne ville
Stadslijn
- 4 Appareils pouvant s'y raccorder
Toestellen die er zich kunnen op aansluiten
- 1 Commutateur automatique
Automaat
- 4 Appareils pouvant communiquer entre eux
Toestellen die onderling kunnen verbinden
- 1 Appareil
Toestel
- 4 Possibilités
Mogelijkheden

UE DE BELGIQUE

automatische telefooninrichting aan door het Beheer van gesteld. Deze inrichting geeft de volgende mogelijkheden

ccorder
aansluiten

entre eux
verbinden



Plusieurs milliers de commutateurs téléphoniques A.T.E.A. raccordés à des centraux téléphoniques A.T.E.A. sont actuellement en service. Preuve indéniable que les installations A.T.E.A. rencontrent la faveur du public. — Les installations A.T.E.A. augmentent le confort de votre home et améliorent le rendement de vos affaires.

Vele duizenden A. T. E. A. telefoontoestellen zijn reeds aan A. T. E. A. automaten verbonden. — Onbetwistbaar bewijs van succes bij het publiek. — De A. T. E. A. telefooninrichtingen verhoogden het comfort van uw tehuis en verbeteren de opbrengst uwer zaken.

AUTOMATIQUE ELECTRIQUE DE BELGIQUE

RUE DU VERGER
ANVERS

BOOMGAARDSTRAAT
ANTWERPEN

Tel. : 938 00

3. Frank D Reese Internet information

Frank D Reese remembered his hometown, where he lived before WW II.	http://www.cortland-co.org/Historian/Updated%20Site/Bicentennial%20Beat/Remembering%20Downtown.htm
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Frank D Reese obtains IEEE award in 1974	http://www.comsoc.org/about/memberprograms/comsoc-awards/armstrong
Book: Design Background for Telephone Switching (ABC of the Telephone) 1988	http://www.alibris.com/search/books/qwork/1601538/used/Design%20Background%20for%20Telephone%20Switching
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