

W6OTX**W6ARA****PAARA NEWSLETTER**
VOLUME 63, NUMBER 1, January 2013**K6OTA****K6YQT**

PAARAgraphs



The Official Newsletter of the

Palo Alto Amateur Radio Association, Inc.

Annual Home Brew Night

Show Off Your hardware or Software Project**on Jan 4, 2013****at****Cubberley Community Center**

President's Corner

Seasons Greetings from Japan. The board did not meet this month but we are planning the FARS / PAARA Winter Banquet on Jan 18, 2013 when Steve Kushman of the California Historical Radio Society will speak. Among other prizes the first prize will be an Elecraft KX3, a well-respected, full-featured, all-mode HF Transceiver covering 160-6 m. Check the FARS website for more details.



Below is a picture of snow in Japan. (ed)



TWO CLANDESTINE RADIOS OF WWII

Replicating the prison camp radio and the Paraset spy transceiver

Hiroki “Hiro” Kato, AH6CY

hiroki@kato.com

(This article first appeared in the Nov, 2012, issue of Electric Radio.)

Continued from Dec 2012

II. The Paraset spy transceiver in Europe

In the European war theatre, the Nazi's successful invasion and occupation of many countries spawned the resistance movement and the Allied clandestine field operatives were sent into these countries via sea route or dropped from planes to obtain information on Nazi troop and ship movement as well as to report on weather, the important real time information needed as there was no weather satellite then. The Royal Signals Communications Unit developed several kinds of radios and they were constructed by the Secret Intelligence Service (MI6, i.e., Military Intelligence, Section 6) in the workshops at first at Barnes in London, then from 1940 at Whaddon Hall and from 1942 onwards at Little Horwood, both in the north Buckinghamshire. One of the radios, a small three-tube transceiver was first built in 1941 and was officially called the Whaddon Mark VII (other radios were designated as Whaddon Mark I, II, III etc. Mark I and II were also known as B1 and B2) but when these sets were issued to the Special Operations Executive, it was nicknamed “Paraset” as many SOE agents parachuted into Nazi-controlled area with the radio and some sets were dropped by parachute to the Resistance groups in France, Belgium, Netherland and Norway. There were several versions of the Paraset with slight variations; early sets were contained in a wooden box which may or may not be carried inside a leather suitcase, and many sets later in a metal “cash” box.

Only a few original sets survive today as Winston Churchill ordered complete disposal of the radio equipment and related information for fear that they fall into Soviets' hands as Cold War began³.

According to Geoffrey Pidgeon, the author of *The Secret Wireless War: The Story of MI6 Communications 1939-1945*, who worked at Whaddon Hall in his youth and was involved in the production of the Whaddon Mark VII, and who was assigned to Calcutta, India, toward the end of WWII, the order to destroy the communication equipment was far reaching. He writes:

“.....I received about eight large crates from Tom Kennerley who was in charge of our station at Kunming [China]. When I unpacked them, I found twelve Whaddon MkVII sets in leather cases, some B2 wireless sets and a large collection of wireless spares of all kinds.....I asked Mike Vivian what should be done with it all and he told me to 'lose' all the wireless sets – without indicating how that could be achieved.That night, a couple of friends rowed me out into the middle of the lake [Lake Dhakuria] and the wireless sets were dropped quietly over the side into what we guessed was its deepest part.”⁴

David White, G3ZPA, who worked for MI6 in the 1940's, writes, in his communication with the *QRP Quarterly* publication:

“I was one of 4 people sent to the old Poundon (SOE) radio station 36 years ago to close it down, and in one of the rooms there were dozens of B1, B2 and MK7 Paraset radios. When we returned we were given sledgehammers and told to destroy them all. Well, I kept a B1, a B2 and 3 of the MK7 sets and the rest were destroyed.”

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.....
“I display two of them at [the radio museum of] Bletchley Park and keep one at home.”⁵

Besides these sets at Bletchley Park, I am aware that there are at least one original set in the Imperial War Museum, London, and another at the Norway's Resistance Museum (also known as the Norwegian Home Front Museum ((*Norges Hjemmefrontmuseum*))) in Oslo and two more sets in private hands.

The display at the Imperial War Museum states that the production date of the Whaddon MkVII was “1939,” which is at odds with the statements made by Pidgeon and White who place the production date in 1941. Possibly, this discrepancy indicates that the design/proto-type work began in 1939 but the production did not actually commence until 1941. I have not been able to ascertain from any official records exactly how many Parasetts were produced by the end of WWII, except that various sites on the Internet mention a few thousands.

The history note accompanying the IWM display tells how the Paraset was used in one instance in Norway:

“Olaf Reed-Olsen was a famous MI6 agent who operated in his native Norway, 1943-1944, particularly in the Kristiansand area & reporting on German shipping. He communicated with London using his MkVII transceiver. He operated three times in Norway before making his final escape to Sweden in December, 1944. The Mark VII, also known as the 'Paraset', is a self-contained miniature transceiver. This version is mounted within a suitcase, for disguise and portability.”⁶



**Displayed at the
Imperial War Museum in London**

The Paraset is a three-tube transceiver, two tubes used for the receiver and a single tube for the transmitter section. The transmitter is crystal controlled and can transmit CW only. The set was designed to work from 3 to 8 mc and could produce about 5 watts, depending on the power supply voltage. Some sets were used with an AC power supply and others with battery power source. The transceiver was sufficient to maintain reliable contact with the Whaddon site, which, of course, had a powerful transmitter and good antenna (some sources say they used Rhombic, but I have not confirmed if it was really the case). I don't know if the designer of the Paraset took into account the sunspot cycle situation, but one lucky thing, whether it was known or not, for those involved in the design and use of this veritable “QRP” rig, was that WWII coincided with a high sunspot cycle, peaking in 1945.

Three features, other than the simplicity of the

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schematic calling for the minimum use of parts, stand out in the design:

1. The CW key is imbedded in the transceiver's body itself. The operating knob looks like other control knobs and does not protrude any more than they. This obviously increases portability and risk of losing the key would be eliminated.
2. It used two small flashlight bulbs to tune the transmitter and for antenna coupling. There is no panel meter, which would have been the most standard way to tune transmitters in those days. A panel meter would have added to the overall size and weight. Also, the use of easily available bulbs made it easy to replace them if necessary.
3. It used a simple “vernier” dial made of a shaft pressing against the edge of a circular panel, serving as a dial, to turn the receiver tuning capacitor. It requires a delicate touch to operate, but again, this solution, though crude, is a simplest possible approach to do the job. It allows the elimination of an extra small variable capacitor or a standard vernier for fine tuning. It, too, saved space and weight.

One of the practical problems of operating the Paraset in clandestine situations is the power source. As tube radios go, the Paraset was very frugal in power consumption compared with most of the radios of the time, but operating it from battery required frequent charging and the use of AC source presented its own kind of danger. Pidgeon writes:

“Electrical power for clandestine equipment was always a problem. Some depended on AC mains supplies although this imposed extra hazards. Some depended on 6V vehicle batteries in conjunction with electro-mechanical vibrator units or dynamotors for higher powers. A few Onan petrol-electric generators were deployed in the field, despite their bulk and noise. Many batteries were charged using stationary bicycles with generators clamped to the pedal-driven wheel. More exotic devices were also used including steam-driven generators and thermo-generators that could be fired by charcoal braziers.”⁷

One of the methods the Nazis employed to detect the radio being operated from the AC mains is to cut off power supply section by section in a given town, narrowing the search area.

Difficulties of frequent charging of batteries were depicted this way in one account:

“The constant charging of heavy car batteries on a near daily basis meant transporting them to a safe charging place. Being caught with a heavy battery in your back pack meant instant arrest with all the associate danger that went with it. In an effort to reduce this danger several ideas were put into operation resulting in steam, hand and bicycle driven generators being introduced. You had to be fit if the hand generator was your only means of charging as its maximum charging rate was 3 amps, so several hours were needed in a typical charging session.”⁸

Pictures of the two original Parasets are shown on the next page.

Information on the almost forgotten Paraset for over 40 years, due to the paucity of the surviving

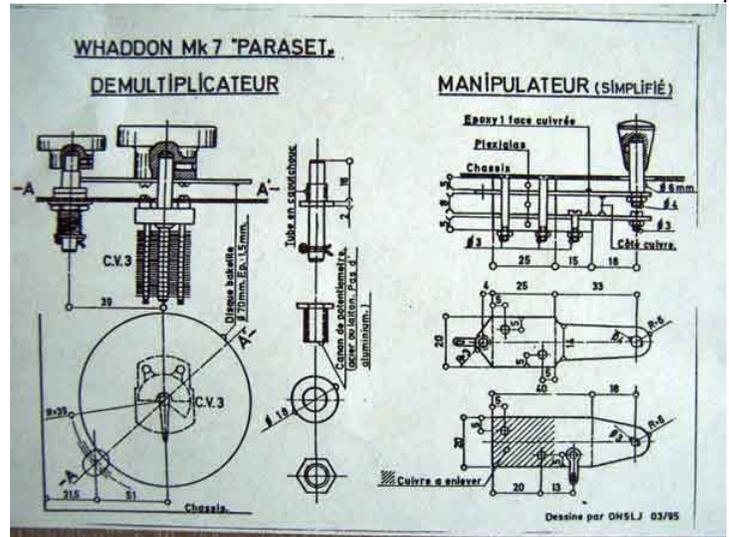
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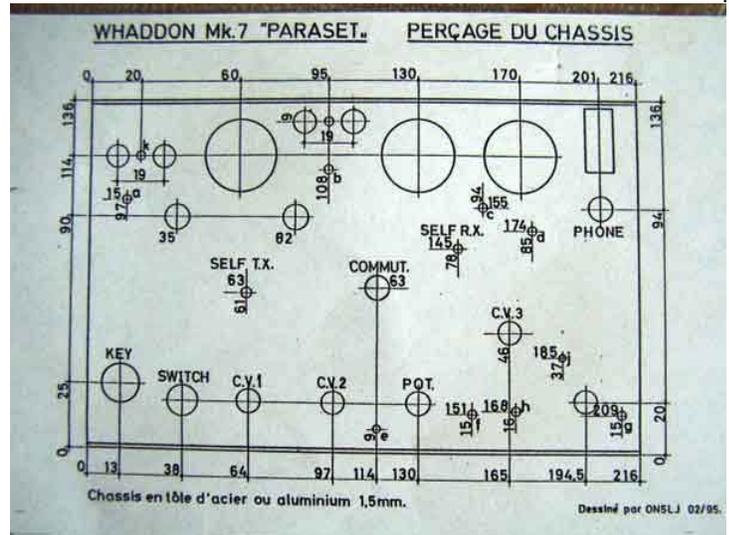


Discovered in a Belgian flea market in 1988.
 Used by the Belgian resistance group.
 (www.paraset.co.uk)

sets and information, was brought to a wide attention of hams by a Belgian ham named Joseph le Suisse, ON5LJ (SK) in 1990 who made the first schematic and mechanical drawing from an original Paraset.



Original owned by a French ham, Patrick Giraud, F4SMX. (www.paraset.nl)

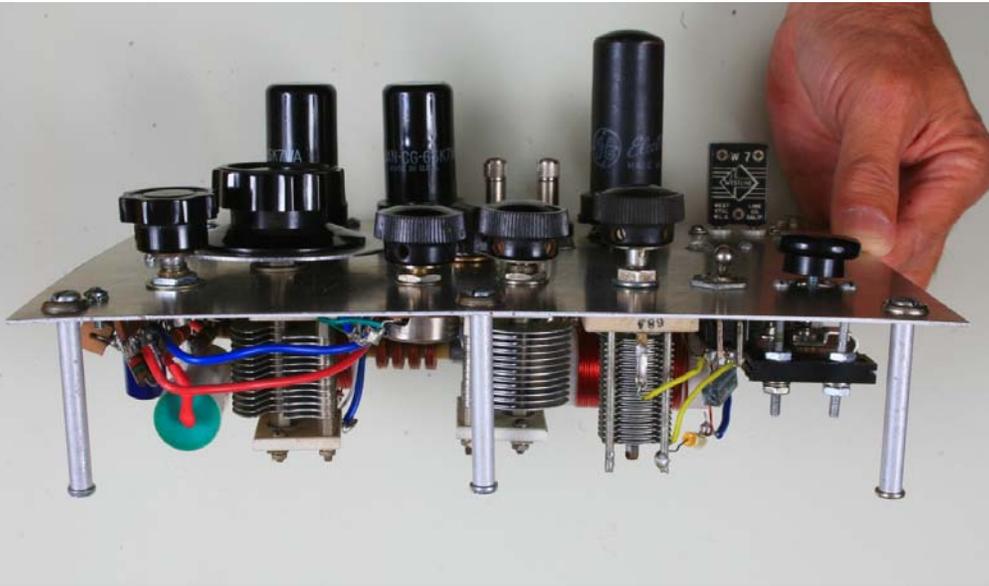


Since then many hams have replicated the set, some adding their own improvement and modifications. There is even a group of hams solely dedicated to building and preserving the Paraset memory based in the United Kingdom with many international members. You can come across many websites about the Paraset by simply Googling it today. See page 8 for pictures of a few replicas.

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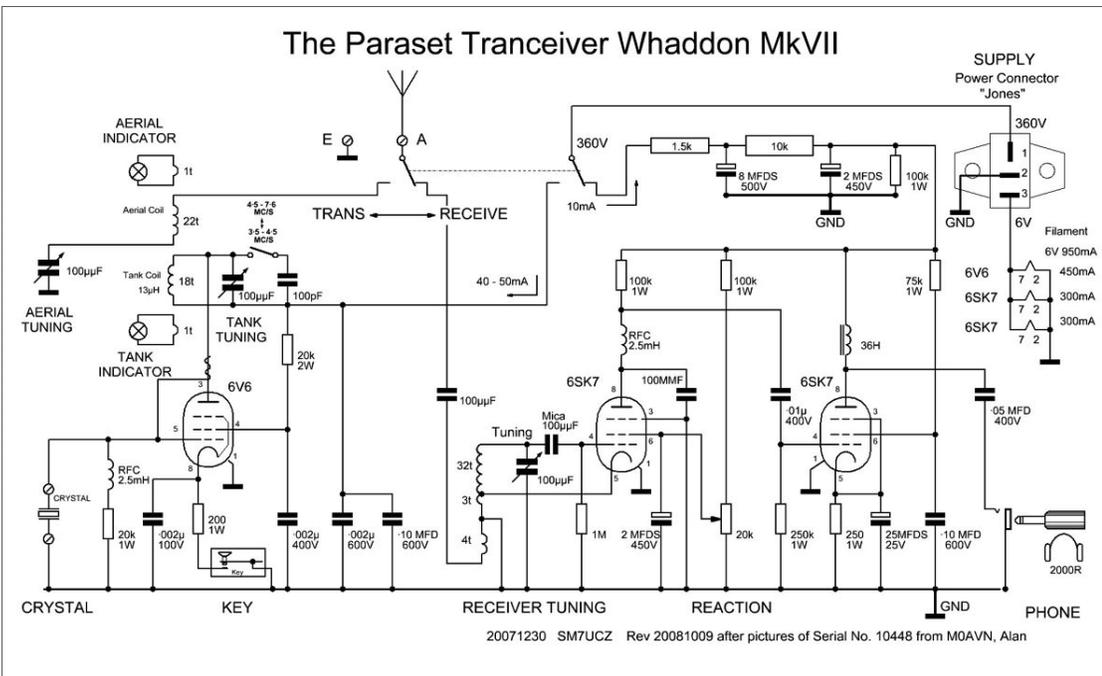
Here is my version of the Paraset replica built in a re-repurposed shoebox. Like many old time hams, I have been accumulating a lot of vintage junk over the years for which I have not had much use. Building the Paraset replica was exhilarating for me as I see my old junk come alive once again. Not only my own junk box, but those of my friends' were also tapped. I shared the building process with them as it progressed and they offered me much good advice. I am especially indebted to Rich Bonkowski, W3HWJ, who provided me with some perfect WWII era parts in addition to his expert advice on the regenerative receiver. He had built many regenerative receivers himself.



I followed the original schematic as reproduced here, except that I adopted VE7SL's excellent suggestion regarding isolating the B+ voltage from the variable capacitor for the transmitter section as you see below. The original schematic calls for connecting the B+ voltage to both the rotor and stator sides of the capacitor which runs the risk of inadvertent electric shock.

Most of the parts were relatively easily available even today thanks to the Internet market if any reader of this article wants to roll his/her own Paraset. Many ham swap meets also are still a good place for finding parts. One item which I have found difficult to obtain is a

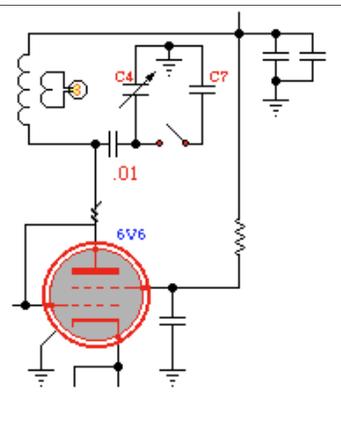
small 36 Henry audio choke. I have substituted a small speaker output transformer for it, using only the primary side of winding.



Original schematic redrawn by SM7UCZ

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III. Final words

Unlike the collection and restoration of vintage radios I have done for many years, building the replicas of the two radios was an unexpectedly emotional experience for me. As I researched historical background of the radios, I could not help but relive, albeit vicariously, the hardships and challenges the builders and users must have faced.

Readers of this article may have more historical and technical information on the two radios than I have uncovered. I would love to hear from anyone who does and also would welcome any comment and questions.

VE7SL's modified circuit for transmitter

Footnotes:

3. General Douglas MacArthur, as the Supreme Commander of the Allied Forces in Japan ordered total destruction of Japanese military equipment when the Allied occupation of Japan began in 1945. This is the reason why it is rare to see Japanese military radios from WWII, unlike American war surplus radios.
4. The Secret Wireless War: The Story of MI6 Communications 1939-1945 p.343
5. http://www.sm7ucz.se/Paraset/Paraset_e.htm
6. <http://www.iwm.org.uk/collections/item/object/30005321>
7. The Secret Wireless War, p. 95
8. Horndean and District Amateur Radio Club Journal, June/July 2009, p. 17



Some photos of replicas built by various hams culled from the Internet are shown below:



Replica by LA5MT



Replica by G3YVF



Replica by IK5FUZ



Replica by VE7SL

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Future PARRA Meeting Dates

Feb 1st, Mar 1st, Apr 5th

VE Exams

3rd Saturday each month, 10:30AM, 145.23- PL=100Hz
 Redwood City Main Library, Community Conference Room
 1044 Middlefield Road, Redwood City, CA
 Contact: <http://amateur-radio.org> or Al, WB6IMX@att.net

Electronics Flea Market

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Second Saturday of month, March-October, 6am-2pm
 Howard M. Krawetz, N6HM 650-856-9761
 Contact: <http://www.electronicfleamarket.com/>

PAARA — Palo Alto Amateur Radio Association

Meets 1st Friday 7:00pm each month at Menlo Park Rec. Center; Net 145.230 - PL 100Hz
 Mondays at 8:30. See our website at <http://www.paara.org> for more information or contact:
 Joel Wilhite KD6W, KD6W@ARRL.NET, 650-325-8239

FARS — Foothills Amateur Radio Society

Meets 4th Friday each month at 7:30pm
 Contact: <http://www.fars.k6ya.org>

NCDXC — Northern California DX Club

Meets 3rd Thursday 7:30pm each month,
 Repeater for member info 147.360, Thursday 8:00PM
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QCWA Chapter 11

Northern California Quarter Century Wireless Association

Meets third Wednesday monthly at Harry's Hofbrau in Redwood City @ 11:30 AM.
 Guests are welcome. Saturday morning net on 146.850 MHz, PL 114.8

NorCalQRP — Northern California QRP Club

Meets 1st Sunday each month
 Contact: <http://www.norcalqrp.org>

SPECS

Southern Peninsula Emergency Communication System

Meets each Monday 8:00pm on Net 145.27, 440.80 MHz
 Contact: <http://specsnet.org> or Tom Cascone, KF6LWZ, 650-688-0441

SCARES

South County Amateur Radio Emergency Service

Meets 3rd Thursday 7:30pm each month, San Carlos City Hall.
 Net is on 146.445 [PL 114.8] & 444.50 (PL-100) 7:30 Monday evenings.
 Contact: President Gary D. Aden, K6GDA 650-743-1265 (D), 650- 595-5590 (N)
 Web: <http://k6mpn.org> E-mail: pres@k6mpn.org

SCCARRA

Santa Clara County Amateur Radio Association

Operates W6UU & W6UU/R, repeater 146.985-pl
 Nets: 2m, 7:30pm Mon; 70cm, 442.425+ (pl 107.2) Thur.
 Meets 2nd Mon each month @ 7:30 PM.
 Contact: <http://www.qsl.net/sccara> or Clark Murphy KE6KXO 408-262-9334
 ARRL/VEC license testing contact 408-507-4698

SVECS — Silicon Valley Emergency Communications

Operates AA6BT repeater (146.115 MHz+)
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TEARS — The Elmer Amateur Radio Society

Dedicated to operational training, knowledge building & FCC exam testing.
 KV6R repeater under construction.
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 Most members are Extra Class or VE's. See QRZ dot com/kv6r for class info

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 147.39 (+600) 151.4 ctcss 223.96 (+1.6) 156.7 ctcss 1286.20 (-12m) 100.0 ctcss

Meetings are 3rd Wednesday of every month.
 Contact: <http://wvara.org>, Bill Ashby N6FFC, 408-267-3118, N6FFC@Juno.com, or N6FFC@ARRL.NET

American Red Cross, Santa Clara Valley Chapter

Contact: <http://santacalaravalle.redcross.org> or Scott Hensley KB6UOO, (408) 967 7924
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(Please send changes to PAARAgaphs editor)



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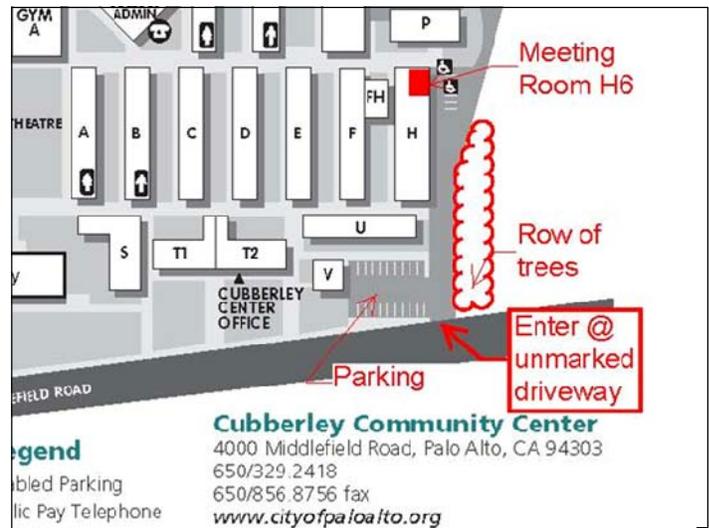
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4 th	Marty - W6NEV
5 th	Up for Grabs!

If you're interested in trying out at Net Control,
 Contact Doug, KG6LWE. It's good practice,
 and lots o' fun! Give it a try.



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 PAARA meeting. Those arriving late will be responsible for their own
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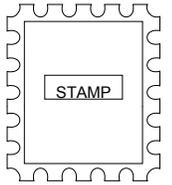
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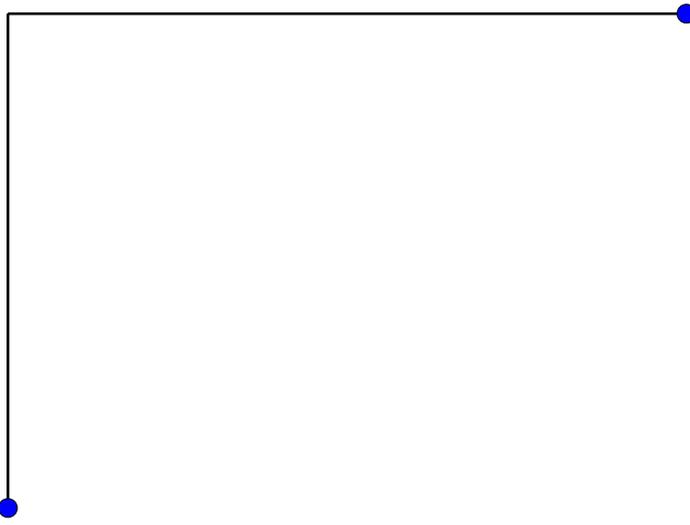
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