Telegraph Office Operating Manual

2013 Edition

Our service

This is a working message service. At each steampunk event, we handle several hundred messages. Once attendees realize that these messages get delivered, they start using the service to send useful messages. It's a real steam-era telegraph office. The messages are real and all the machinery here works.

We do this for fun, and to bring more life to the steampunk world.

Safety

- The big black switch on the front of each of the control boxes will turn off the control box and the attached machine. If anything goes wrong, just turn that switch off.
- Don't open any machine covers while power is on. There's high voltage and moving gears inside. The machines can and do start automatically.
- When power is on, the white lamp is lit. The red lamp lights when the motor is running.
- Keep fingers and other objects away from the typebars and machinery. There's a big motor powering those typebars, and they can cut into a hand or finger.
- Don't wear anything which dangles from your wrists that could get caught in the machinery. Tippets, ribbons, dagging, long ties, charm bracelets, etc. are hazards.

Operating the message machine

Removing messages

Use the wooden ruler with a metal edge to assist in tearing paper off the machine.

Paper

Near the end of each roll of paper, a red band appears along the paper edge. Then it's time to load a new roll.
If you haven't threaded the machine yet, get help. If there is a paper jam, turn the machine off and get help. Paper loading is trickier than it looks. The paper crank can be used to advance the paper (this is rarely necessary), but don't turn it backwards; you'll cause a paper jam. Messages lost in a paper jam can be reprinted if necessary, so just turn things off and don't panic.

Bells

One bell means the machine is starting up. Two bells indicates an incoming message to be delivered. Three bells indicates an error, usually a network failure. Get help for that.

Using the message machine

It's not necessary to use the message machine's keyboard. If you just let it run, it will print any messages or news items that come in. If things get slow and you want to look busy, there are a few things you can do. See the “Keyboard Commands” appendix.

Getting help

If there's a problem, the Telegraph Office manager, John Nagle, can be reached at 650-906-9109.

Message handling

Our bureaucracy for message handing is rather Victorian.

1. Cut messages apart with the long scissors. Cut where the words “-- CUT HERE –“ appear. Cut off excess paper after end of message.
2. Sort out news items from messages. News items go on the bulletin board.
3. For each message, take a yellow envelope.
4. Rubber stamp DELIVER BY HAND on message and envelope. Use the URGENT or PRIORITY stamp if indicated.
5. Serial number stamp the message and envelope. Both should get the same serial number; the serial number stamp only advances every second time it's used. (That Bates number stamper, by the way, is from 1898.)

6. Put the message in the envelope. Make sure the DELIVER TO and DELIVER AT fields are visible through the window, so the messengers can read them.
7. Sort the messages by DELIVER TO, so the messengers know where to deliver them. There's a supply of little brass paper clamps, to help in bundling messages.
8. Put envelope in the outgoing LIVE bin.
9. Ring desk bell for a messenger.

If the DELIVER TO field contains something that clearly isn't a deliverable name, or something that would be embarrassing to shout out in a hotel, stamp it with the UNDELIVERABLE stamp and put it in the DEAD bin. You can also send a suitably critical reply back to the sender's phone from the message machine's keyboard, if you like.

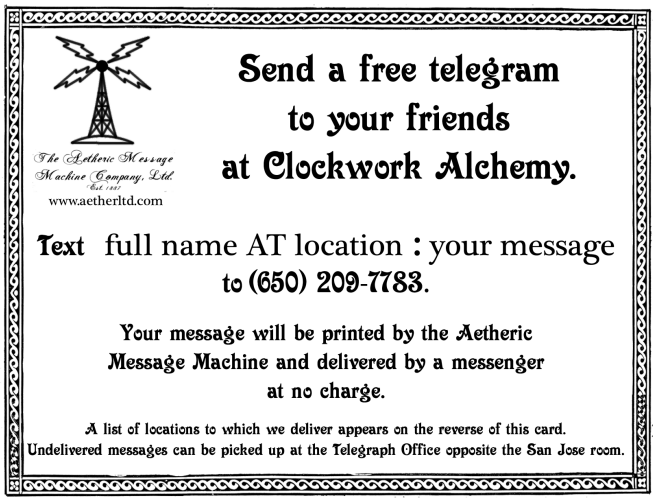
We do not care about message content. That's between sender and recipient. Note that each message contains the phone number of the sender, so this is not an anonymous service. This discourages excessively stupid messages.

Message addresses

Convention attendees send messages by texting to 650-209-7783. We hand out large numbers of cards like the one at the right. The system requires messages of the form

name AT *location* : *message*

(an @ sign will work in place of "AT") and will text back a reply immediately if the format isn't right, or if the message is accepted. "Location" is one of a list of locations around the convention, such as "Lobby", "Dealer Room", etc. There will be a list on the back of the cards. The DELIVER TO location is where the messengers will announce "Telegram for ...".



Messengers

Messengers run around the convention for us, delivering the messages. They report to the operator on duty. Be nice to them, but tell them where to go and what to do. We're getting messengers from the convention's volunteer pool, so some of them will show up with no idea of what they're doing.

Returned messages

The messengers will sometimes return messages as undeliverable. Stamp them with the UNDELIVERABLE stamp, and put them in the DEAD bin. You can, if you like, notify the

sender by sending them an SMS message from the message machine, but we usually don't bother.

Customer service, and being in character

In the Telegraph Office, you represent the Aetheric Message Machine Company, Ltd., established in 1887, headquartered in London, and with offices in all principal cities and on the Continent. (This is an oblique reference to the imperial British-centric view of the world, as in the famous headline “Fog in channel – continent isolated.”)

You're a telegraph clerk. There's a hat that goes with the job, or you can wear a green eyeshade; your choice. We also have brass lapel badges. You're expected to look busy and competent. Looking overworked and harassed is optional.

People will ask how the machines work. “By electricity and aetheric signal” is a good answer. If pressed for details, describe how we handle messages. If somebody insists on technical details, tell them to check out our “www.aetherltd.com”.

You'll be photographed. Feel free to give press interviews in character. Don't let people with large cameras barge into your work area without permission. We put up a red rope at some conventions to stop that and give you some working room.

Mention that this is a free service, and give out the “Send a free telegram” cards. Many attendees think we charge for this. (We're not charging their phone for sending to us, in case anyone asks.)

People will come by asking whether their message has been delivered. Look in the “DEAD” bin for them, but don't let them paw through the messages.

Background information – real world

The machines you are using are antique Teletype machines, manufactured by Teletype Corporation in Chicago. The big machine is a 1930 Model 15, and the little paper tape printer is a 1924 Model 14. They been restored to full operating condition. The cases are newly built to make them look steampunk and to show off the machinery. The machinery inside is almost old enough to qualify for the Victorian era, yet it still works reliably.

The first "printing telegraph" dates from 1852, and by the 1880s, printing telegraph machines were in widespread use on main telegraph lines. There were 19th century machines that looked very much like the little tape printer. The 19th century machines used a different coding scheme, though, and had trouble staying in sync.

If you're technically inclined, here's what's going on. Both machines are serial devices. (5 bits, 45.45 baud.) The control boxes, with the red and green lights, convert from a USB connection to the required voltage (60mA, 120VDC) for the machines. The conversion from bit serial to typebar movement is entirely mechanical. The only electrical parts in each machine are the motor and one electromagnet. Connected to each machine is a subnotebook computer running a Python program. This program is regularly polling our web site ("aetherltd.com") for message traffic, and the Reuters and convention RSS news feeds. SMS messages are received through the Twilio SMS gateway and sent to our web site, where they are stored in a database and queued.

Keyboard commands

If the last thing typed was “WAITING...”, the machine is idle and ready. The motor turns off. The keyboard doesn't work if the motor is stopped. Press the big black button on the control box to wake the machine up. This should turn on the red light, and start the motor. You get the message

N, W, S, O or CR:

- N prints out all the available news from all news feeds, starting over. This takes several minutes.
- W prints a local weather report.
- O turns the machine off. Nothing more will print until the big black button is pressed.
- CR (the CAR RET key) returns the machine to the “WAITING...” state.
- S is for sending SMS messages.

The S command will result in a prompt of “TO:”. Enter a phone number. The next prompt will be “:”, and a message can be typed. A message can have multiple lines, but no more than the usual 140 characters. End with a blank line. You'll get an immediate reply indicating whether the message was sent successfully.

After each command has completed, if nothing further is typed, after about 30 seconds the machine will return to “WAITING...”, and will be ready to receive messages again.

Typing on these machines requires a bit of practice. There are two shifts, FIGS and LTRS. Pressing those keys changes to FIGS (upper characters on keys) or LTRS (lower characters on keys.) You don't hold the shift keys down. The blank key (at the lower right) is used as a “backspace”. It doesn't really backspace; it prints “/” followed by the character just deleted. Traditionally, these machines couldn't backspace at all, but we've put this limited backspacing feature into the computer software hidden behind all this.

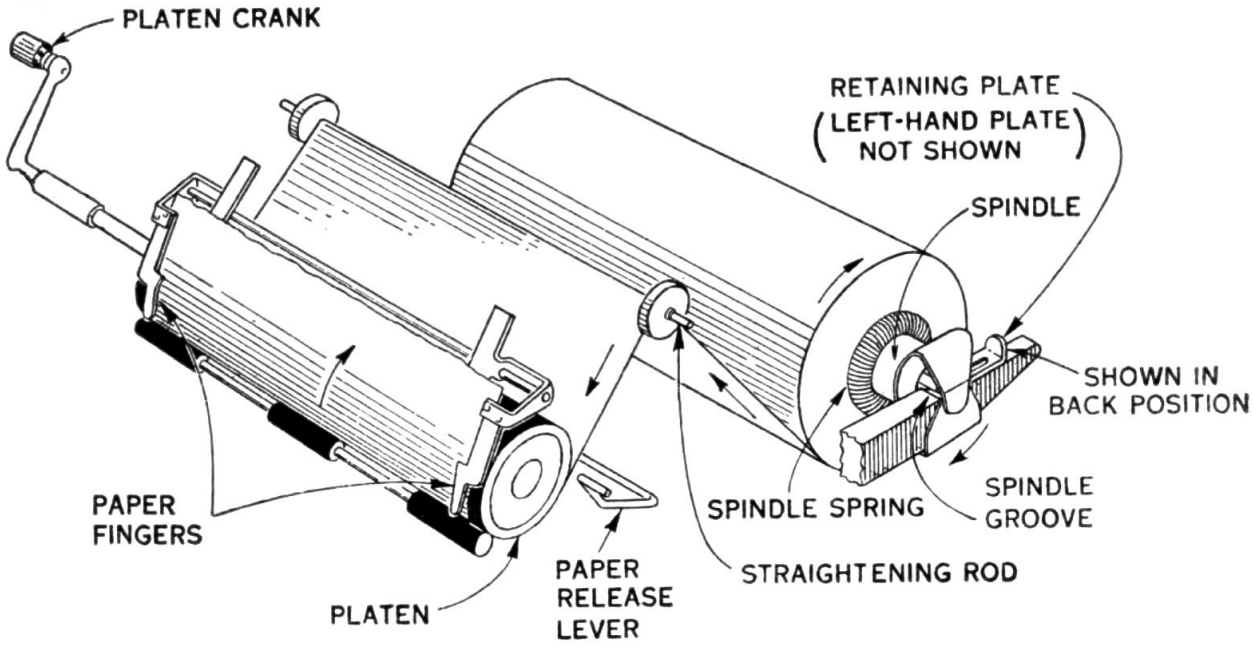
You can't push two keys down at the same time; there's a mechanism to prevent that. So you have to type at the machine's speed, or slower. Experienced operators typed at a constant rate, like playing a piano.

If you want to practice typing, use the S command to send an SMS message. If you don't really want to send it, use a dummy number, like 555-1212. Then you can type as long as you want.

If the motor is running but the keyboard doesn't seem to do anything, check that the little lever on the left above the keyboard is in the up position. The keyboard is locked out when it's down. (This is part of a mechanism to keep two operators on the same circuit from typing at the same time.)

Paper changing

Putting a new roll of paper in the big Teletype can be daunting. The concept of “user-friendly” had not yet been invented when this machine was designed. We'll show operators how to do it, and for reference, here's the procedure. If this looks hard, get help.



1. Press the big black button to get a keyboard prompt, and type O, for “off”. The machine will print “OFF” and shut down. Then turn off the big black switch. The white and red lights should now be off.
   If you have a paper jam, turn off the big black switch, and we'll reprint any lost messages later. Get help for that, and for clearing paper jams.
2. With the white and red lights both off, the machine is safe to open.
3. Remove the platen crank by pulling it out to the left, so the cover can be opened.
4. Unlatch the two latches on either side of the printer and swing the transparent cover towards you. Put the platen crank back on.
5. To get the old paper out of the machine, press down the paper release lever. Now the paper will slide out from under the platen. Pull it out by winding it back onto the paper roll.
6. Slide both retaining plates to the rear position. This allows lifting out the paper roll and its spindle. Lift out the left end first.
7. Slide the spindle out of the paper roll.
8. Take a new paper roll, and tear off the lead edge of the paper, which comes glued to the roll. Cut the end of the paper off squarely with a scissors. Otherwise, threading won't work well.
9. Slide the spindle into the new roll, and load the new roll as shown above. The right end pin on the spindle has to go into its slot first.
10. Slide both retaining plates to the front position to lock the spindle into place.
11. Thread the paper as shown. Use the paper release lever if needed to get the paper under the platen. Crank the paper forward. Make sure the paper goes **under** the paper

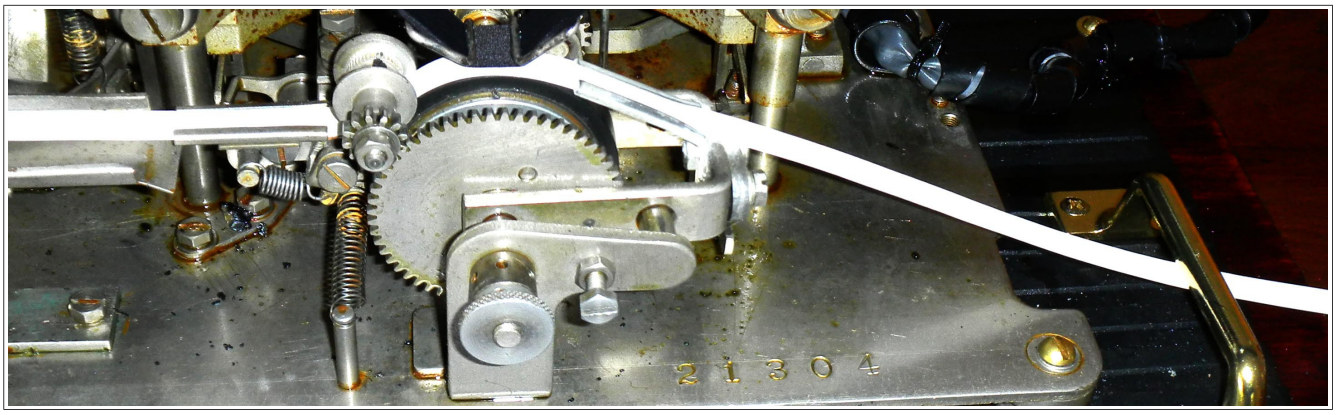
fingers. You can lift the paper fingers a little, but they'll bump into the typing carriage, so they can't be moved too far. (This can be tricky, and it's why you cut the end of the paper square.)
12. Crank the paper up until a few inches of paper are out of the machine.
13. Remove the platen crank again, close and latch the transparent cover, and reattach the platen crank.
14. Turn on the big black switch, and press the big black button to start up the machine. Press CR on the keyboard to get operating back to normal.

Don't worry; before we expect you to do this, we'll take you through the process once or twice, and you probably won't have to do it at all.

The little tape printer

The little tape printer is there mostly for looks. It's connected to a Reuters news feed and the convention's Twitter and Facebook feeds, and will start up and print a real-world news item once in a while. Unless it jams or runs out of paper, it doesn't require much attention. In that case, just turn it off. Visitors are welcome to examine the tape in the output basket for the latest news. Tear off sections of tape and give them to visitors, if you like.

If the little printer is idle, and you want to make things look busier, press the big black button on the printer's control box. This will start it printing from the beginning of all the news feeds, which will keep it busy for 10 minutes or so.



Loading paper tape into the tape printer is not too hard, but there are some tricks to it.

1. Turn off the big black switch. The red and white lamps should go out. The machine is now safe to open
2. Open the lid, and pull out any old paper tape. The knurled knob at the front advances the tape (it will only turn counterclockwise).
3. The brass supply reel for the tape comes apart into two halves when you unscrew the front. Lay the supply reel on its back, unscrew the front of the reel, remove the old tape, put on a new roll, and screw the front back on.
4. Cut off the end of the tape so it has a square end. Thread under the wire guide on the supply reel, under the brass guide into the machine, and as shown above.
5. The tape goes through the right guide and under the ribbon. The small pulley and gear that drive the tape swing up slightly so that you can get the tape under it.
6. The hard part is getting the tape into the left guide just after the pulley. This can take a few tries. You can swing up the pulley and gear to pull the tape backwards if needed. Turn the knurled knob to move it forward.
7. Once the tape is through the left guide, turn the knob at the front to advance the tape all the way out of the machine.
8. Close the lid, turn the big black switch back on, and push the big black button to get things started again.