Repairing Equipment In-House

Daniel Sherwood
Fairfax County Health Department
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Are your traps getting older?

Trap repair person vs. trap repair program?

Who are you accountable to?

What does it cost?
- CDC Mini ~$150
- Replacement motor ~$12
- Repair at <10% of cost
- Economy of scale

Traps are going to break
In-House repair costs & benefits

- When to replace vs. when to repair
  - Replacement costs?
  - Service life of trap?
  - Program limitations?
- Quality assurance
  - Reduce trap fails
  - Extend service life
- In-house expertise
  - Troubleshooting
  - Turnaround time
In-House repair costs & benefits

- **Time**
  - In-house vs. send out
  - Warranties or contracts?
  - Backorders in busy years

- **Transferable skill**
  - Applies to more than traps
  - PM lab equipment

- **Intrinsic value**
  - Learning & problem-solving can be satisfying
  - Just plain cool
Considerations

- Do you want to make any modifications?
  - What suits your program?
  - What didn’t work last season?

- Do you have the necessary supplies?
  - KEEP EVERYTHING!!!
  - Call your sales reps.
Considerations

- Can you build a trap from spare/new components?
  - One thing you shouldn’t reuse
  - Keep stock of motors

- Do you have the necessary tools?
  - In-house repair frees up budget
  - You need the right tool for the right job
Considerations

- Do you have the time?
  - Major repairs/PM/stress tests
  - Do you have the time to reset failed traps?

- Have you practiced?
  - Allot time and resources to practice/experiment
  - Recognize previous repair efforts (good & bad)
  - Don’t forget your PPE!
Repair Process

- Get the easy repairs done first
- Troubleshooting supplies
  - Charged battery
  - Quality multimeter
- Teardown/rebuild one trap type at a time
  - Create an assembly line (great for training)
- Check your work
- Revel in your own magnificent accomplishment

#traprepair #bossmoves
Repair Objectives

Repair whole trap?

Pros
- No need to trouble shoot
- Like new when its finished
- Eliminates Faulty equipment

Cons
- Time consuming
- Requires spare parts and more tools

Repair faulty component?

Pros
- Rapidly deployable
- Often simple fixes = less time consuming

Cons
- Must trouble shoot
- Might fail again (at repair point or somewhere else)
Motor off / weak

Power reaches motor

Fan impacted

Reposition fan

Wires properly attached to motor

Power at all wire-nut attachments

All wire-nuts attached

Yes

New motor

Make sure motor is attached red to red

Fault likely to be in one of the wires in box. Replace wires.

No

Reattach

Yes

Open wire box

New wire

Yes

Power at all wire-nut attachments

All soldering / connection points good

Re-solder

No

All batteries above 1.2V

Change batteries

No

Bottom bracket detached

Attachment point suited for bolt + nut

No

Use #6 machine screw and attach firmly with nut

Yes

Drill small hole in trap body and use galvanized wire to reattach bracket

Yes

All batteries above 1.2V

Wires properly attached to motor

Yes
Motor off

Light off

Trap body detached from bracket

Bracket detached from plate

Trap body cracked

Wingnuts loose

New trap body

New trap body

New motor

Wires properly attached to motor / light

Female connectors well attached

Faults / nicks in wires

Re-solder wires

New wire

New connectors

Re-attach. Tighten wingnuts.

Trapping body cracked

Bracket bolt snapped

New bolt fits

Attach w/ new bolt

New bracket

New bulb

If bulb is still off, go to next step

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

Yes

New motor

Make sure motor is attached red to red
Freebies – Start simple

Crimping pliers
Wire cutter/stripper
Needle nose pliers
Soldering iron
Freebies – Be creative & build gradually
Freebies – Keep a clean workspace
Freebies – Soldering

- Create a hot iron reminder
- Turn off/unplug when not in use
- Correct iron for the job
Freebies – Soldering

PPE
- Safety glasses
- Gloves
- Ventilation

Electrical solder
- Lead free
- Silver bearing
- Size 0.5-5 oz
- Rosin core

DANGER

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DANGER
Freebies – Soldering

- Desoldering pump
- Work plate
- Soldering iron
- Assorted soldering tips
- Soldering iron stand with solder sponge
- Tip cleaner
- Organic flux
- PPE
- Electrical solder
- Scraping tool
- Assorted soldering tips
Resources

Tools
- https://wrenchguru.com/
- https://www.kmstools.com/blog/
- https://www.wonkeedonkeetools.co.uk/
- http://www.technologystudent.com/equip1/equipex1.htm

Soldering
- http://www.paceusa.com/pacenter/videos
- https://www.weller-tools.com/how-to-use-soldering-iron/
- https://www.youtube.com/channel/UCT5e-XjqHPfA3_9wF3CgY1w

Where else can you turn for help?
Final Thoughts

“Any way you slice it, a trap fail is lost data or lost resources. Doing good trap repair can save both in the long run.” – Not a quote by Bob Villa