

Tobugrynbak Tech Logistics

Proposal for updating the legacy & current NAMP Traps

Concept;

1. To develop a new control board that will control the fan & lights as well as manage the rechargeable battery. Utilising Solar, Mains power plug pack, as well as mobile charging.
2. Retrofit both the Legacy NAMP Trap and the new NAMP Traps with rechargeable batteries to improve deployment preparation by the Trap Deployment Operators(TDO).
3. To harmonise the the operation between the Legacy and New NAMP traps. Which will allow for easier servicing & repair as well as commonality of parts.
4. To reduce the recurring deployment cost and disposal of supplying single use batteries. through the use of rechargeable batteries.

Outline;

The new NAMP Control board would replace the existing electronics within the traps. It will perform the function of turning the fan & LEDs on/off at dusk & dawn. It will have the charging circuit which will maintain the charging of the rechargeable battery pack with both Solar power input and from an external power supply.

Bearing in mind the harsh environments the traps are expected to operate in, the circuit board will be conformal coated with components selected to operate within the -20/+60C degree range.

The rechargeable battery will be selected to provide operation for a minimum of 4 days without intervention. The power supply will be selected as a COTS (component off the shelf) item and will have a industry standard specification (Likely 12volts 1Amp) Connection will be via a IP66 Rated connector (Plug & Socket)..

In operation, the NAMP Trap Deployment Operator(TDO), will disconnect the trap from the power supply and fit the collection bag. The trap will then be deployed for the nominated time period. Upon completion of the deployment, the NAMP TDO will remove the collection bag. Tagging it for department retrieval.

The TDO will now plug in the NAMP trap to the power supply to allow charging of the batteries.

Note; The solar cells affixed to the trap will charge the batteries during the day however as it is unknown how much sunlight the deployed trap will receive it cannot be determined how well or full the batteries will be charged in this manner. Though it will improve the overall endurance of the trap.

The charging of the batteries on the premises will be a set & forget situation. So that the trap can be plugged in and left til it needs to be redeployed. The unit will be dormant whilst charging.

A LED will indicate whilst charging on mains/mobile power. The intention is to have the trap charged completely within 6-8 hours of connection.

A mobile deployment charging is possible where a lead connected to a vehicles cigarette lighter can provide the power to charge the trap before deployment.

The use of rechargeable batteries provides the net cost benefit of not replacing the one use batteries each time the trap is to be deployed. It adds the benefit to the TDO of a toolless deployment. Not requiring the opening of the trap control box and replacing the batteries means the integrity of the enclosure to repel water and dust ingress (IP66) is retained.

In Practice;

The NAMP control board will have 2 sections. The Battery management section & the Switching section.

The Battery management section will take care of all aspects of charging and maintaining the charge in the rechargeable battery.

The switching section will look after the NAMP Trap operation of the fan & light.

Scope of works;

I will develop the control board and retrofitting it into the both of the NAMP Traps.
Source the components and manufacturing the circuit boards to IPC 610 Class 3 standard
The retrofitting can be achieved by sending spare traps to me to be retrofitted and then I will send them back to your department for you to exchange for traps in the field until all the traps are upgraded.

Initially retrofitting to units requiring repair to begin with, that will minimise any interruptions to field trap deployment.

Provide for archival purposes all relative documentation of the design and retrofitting work instructions.

Timetable;

Development of the control board should not take longer than 6 months, ideally it should be ready inside 3 months. Development is defined as the effort required to research, design, & proof test. Manufacturing, once the design is tested, it will be the lead time of the various components that will dictate the ability to begin manufacture. Ideally all components will be delivered inside 4 weeks from date of order. The assembly of the boards will be done in batches of 20 which should take 1 week to achieve. Assembly speed will improve as the processes are better defined.

I anticipate that the retrofitting into the Legacy traps will take no more than a day.

Until I have one of the new traps I can't provide a proper time budget for them though I suspect it will take a day to do initially.

The speed of retrofitting will increase once I have process sorted.

Concerns;

Due to the "Great Global Chip Shortage", supply of some components will be an issue. I will endeavour to use only "current/for new designs" devices which are stocked by first tier suppliers. So as to be in compliance with ISO9001 requirements.

With some of my other products I produce, the lead times of some parts can extend to over 12 months.

Tobugrynbak Tech Logistics
30 Third Ave
Rutherford NSW 2320
Perry Larsson
0422211885
tobugrynbak@gmail.com

Ingress Protection chart.

SOLID OBJECT

1	Protected against a solid object greater than 50mm such as a hand.
2	Protected against a solid object greater than 12.5mm such as a finger.
3	Protected against a solid object greater than 2.5mm such as a screwdriver.
4	Protected against a solid object greater than 1mm such as a wire.
5	Dust protected. Limited ingress of dust permitted. Will not interfere with operation of the equipment.
6	Dust tight. No ingress of dust.

MOISTURE

1	Protected against vertical falling drops of water. Limited ingress permitted.
2	Protected against vertical falling drops of water with enclosure tilted up to 15 degrees from the vertical. Limited ingress permitted.
3	Protected against sprays of water up to 60 degrees from the vertical. Limited ingress permitted.
4	Protected against water splashes from all directions. Limited ingress permitted.
5	Protected against jets of water. Limited ingress permitted.
6	Protected against powerful jets of water. Limited ingress permitted.
7	Watertight against the effects of immersion in water between 15cm and 1m for 30 minutes.
8	Watertight against the effects of immersion in water under pressure for long periods.

IP65
Ingress protection