

OWNER'S MANUAL

P/N 100055

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SAFETY First!

PatchBox was designed with the maintenance worker's wellbeing foremost in our minds. Efforts have been taken to significantly improve the ergonomics associated with patching and to minimize required climbing into the truck bed.

We believe that every worker has the right – and the responsibility – to ensure that they and their co-workers return home at the end of the day as healthy as when they arrived.

- THE USER IS RESPONSIBLE FOR SAFELY TYING DOWN THE PATCHBOX UNIT, securing shovels, tamper and other patching tools as well as aggregate removed from potholes.
- A fully loaded PatchBox unit may weigh almost two tons. Tie-down devices should be sized accordingly. It is recommended that tie downs utilize a downward force as this will increase the friction holding force between the PatchBox and the truck bed (see Figure 1).



Figure 1 – Ratchet binders with downward force are recommended for securing PatchBox
Note removable metal plate used as redundant stop (see arrow)

The ideal situation is to have tie down points located on the truck bed. If tie down points are located outside of the bed, run tie downs UNDER the side boards.

- Ensure that tie downs are tight at the beginning and end of each shift.
- Exhaust components can get very HOT! Avoid contact with exhaust-carrying components.
- The PatchCatch Tray is not intended to be a step. DO NOT ride on the PatchCatch Tray!
- DO NOT use any additional heat sources with PatchBox.

PatchBox Overview

PatchBox was developed to help budget-conscious municipalities and counties dramatically improve the ergonomics and productivity involved with patching potholes. Roughly 50 percent of the energy contained in a gallon of gasoline or diesel fuel is lost to inefficiencies during the combustion process, much of it leaving as heat via the exhaust system. PatchBox makes use of that free energy, providing just enough heat to warm cold patch material to make it pliable without burning it.

Vehicle Installation

- THE USER IS RESPONSIBLE FOR ENSURING SAFE AND RELIABLE PLUMBING (I.E., WITHOUT KINKS) BETWEEN THE VEHICLE'S EXHAUST PIPE AND PATCHBOX'S INLET PORT.
- The flex pipe diameter should match the vehicle's exhaust pipe diameter. Exhaust clamps should firmly secure the flex pipe to the exhaust pipe and to the PatchBox inlet port.
- PatchBox is shipped with 10 feet of insulated flex pipe. This may be shortened by the user to optimize routing. (Google "Instructions for cutting Walker flex pipe" for details.) A 90-degree elbow at the exhaust pipe may be used to provide optimal flex pipe routing (see Figure 2).



Figure 2 – Optimized routing using a 90-degree elbow (see arrow) at the tailpipe

- Upon initial set-up, cycle the bed slowly through the entire range of motion, ensuring that no one is standing behind the truck.
 - Ensure that PatchBox is secured tightly with NO relative movement to the truck bed.
 - Ensure that the flex pipe accommodates the entire range of motion with no torque transmitted to the vehicle's exhaust system.
- See our "Mounting Considerations" document for various ideas on tying down the unit and routing exhaust.
- If a stand pipe is used to elevate the exit point for exhaust, it should match the vehicle's exhaust diameter and should not add any additional restriction.

Loading PatchBox

- Remove the tarp by pulling the shock cord tie down knots out of the tie down rail. Depending on the width of the loader bucket, it may not be necessary to enter the truck bed to remove the tie downs at the front of the unit.
- Load PatchBox with a skid steer loader. Less material will heat quicker but requires more trips to refill. Two loader buckets at struck capacity appears to be a good compromise for most users.
- Replace the tarp with the pleated edge at the front of the unit and pulling the LONG END of the shock cord tie down knots again into position in the notched tie down rails (See Figures 3 & 4).

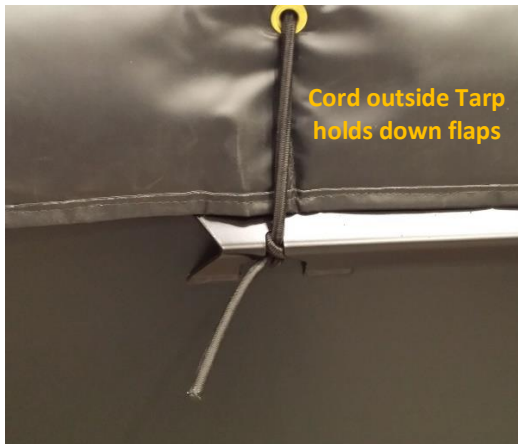


Figure 3 – Correct Cord Placement



Figure 4 – Incorrect Cord Placement

Operating PatchBox

- Open the PatchBox door and slowly raise the truck bed until the desired amount of material flows into the PatchCatch Tray. Close the door or slightly lower the box to stop the flow. Utilize the PatchCatch Tray for ergonomic shoveling (see Figure 5).



Figure 5 – Using the PatchCatch Tray for ergonomic shoveling

Unloading PatchBox

- DO NOT ATTEMPT TO LIFT PATCHBOX FROM A TRUCK BED WHEN IT IS LOADED WITH MATERIAL; empty first by dumping warmed material.
- If your unit is equipped with the Fork Guide Kit option, a loaded unit can be safely removed with an appropriately sized vehicle and forks.

Cleaning PatchBox

- End of shift cleaning with an eco-friendly degreaser and a putty knife is recommended for the back of the door, the surface immediately above the door and the door rails (see Figures 6 & 7).
- The door rails can be removed if needed to periodically clean the gap between the rails and the door. Remove the six ¼-20 bolts. Replace the door and rails by reinstalling the six ¼-20 bolts and nylon lock nuts. The clearance of the rails is maintained by internal posts.



Figures 6 & 7 – Cleaning back of the door and surface above the door

- If your unit is equipped with the Door Linkage Kit, the door can be removed by removing the bottom two 5/16-18 nylon insert lock nuts of the linkage (see Figure 8). When reassembling, retighten until the nuts contact the shoulder of the bolts.



Figure 8 – Removing door if equipped with the Door Linkage Kit Option

Offseason Storage

- It is recommended that the hopper and PatchCatch Tray be cleaned with an eco-friendly degreaser to remove as much material as possible prior to storing for the offseason. A sidewalk ice scraper works well for removing old material.
- Storing PatchBox in a covered location protected from the weather is recommended. If this is not feasible, the PatchBox unit can either be stored upside down or on an incline with the door ajar at the bottom so that precipitation easily drains.
- It is recommended that the Insulated Tarp be removed for offseason storage to protect it.
- DO NOT store PatchBox directly on the ground (see Figure 9).
- Cover the inlet and outlet ports to ensure rodents do not use PatchBox for a home.
- ALWAYS ENSURE THAT AN OPEN PASSAGE EXISTS BETWEEN THE INLET AND OUTLET PORTS BEFORE REINSTALLING PATCHBOX FOR THE FOLLOWING SEASON; THIS IS ACCOMPLISHED BY SHOOTING COMPRESSED AIR INTO THE INLET PORT AND ENSURING A FLOW CAN BE SENSED AT THE OUTLET PORT.



Figure 9 – Storing PatchBox off the ground and protected from the elements

Best Practices

- Use high quality material (we recommend fresh WINTER GRADE from Unique Paving Materials for patching below 40°F).
- Store cold mix asphalt inside for warmer, drier material. If not possible:
 - Load PatchBox with material at the end of the shift and store overnight in the garage to provide a head start for warmer material on the following day.
 - After loading PatchBox, store the loader inside with a full bucket load to get a head start on the next load.
- On cold mornings patch holes furthest away from the garage and work back towards it to provide maximum heating potential. A short drive at highway speeds produces much more heat than idling or stop-and-go driving.
- Charge City employees from other departments (e.g., Public Safety employees and inspectors) to be additional eyes for spotting potholes. Make it easy for them to report potholes.
- Consider web-based forms so that citizens can easily report potholes; close the feedback loop with an automated email reporting when the pothole is patched.
- Keep score and share with workers the reported pothole backlog and average time from report received to patched.
- Take the time to organize reported potholes to optimize a route to minimize travel.
- A leaf blower works well for removing water from potholes prior to patching.
- Rolling or tamping is vital to a robust patch as it ensures the patch is free of voids which take in destructive moisture. Warm, pliable material from PatchBox is more conducive to tamping.
- During warm weather patching, consider using the Warm Weather Tarp to prolong the life of the Insulated Tarp.

Specifications

- Length = 7 feet
- Width = 4 feet
- Height = 2 feet
- Empty Unit Weight = Approx. 900 pounds (with PatchCatch Tray)
- Hopper Volume = 1.4 cubic yards calculated maximum (0.6-0.9 cubic yards working volume)
- Full Unit Weight = 4000 pounds max.

Accessories

Description	Part Number
PatchCatch Tray	100053
Insulated Tarp Assembly (includes mounting hardware)	100034
Warm Weather Tarp Assembly (includes mounting hardware)	100027
Tailpipe 90-Degree Elbow Kit (3.0" dia.)	100103
Tailpipe 90-Degree Elbow Kit (3.5" dia.)	100104
Tailpipe 90-Degree Elbow Kit (4.0" dia.)	100105
Door Linkage Kit	100167
Aggregate Trap Bracket	100138

Contact Information

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