

SERVICE AND REASSEMBLY GUIDE

T5

Rebuilding a rear stack, taking a bell off and putting it back, replacing a mount seal. Step by step, with the real parts.

THE REAR STACK, FROM THE BELL OUT

1. Bell flange
2. Nozzle seal T5-12
3. Gasket T5-11
4. Diaphragm T5-10
5. Gasket T5-11
6. Rear cap T5-09
7. 6 cap screws T5-21 and nylocks T5-22



BEFORE YOU START

What you need

Parts, per bell

PART NO.	PART	QTY
T5-15	Chamber rebuild kit: two gaskets and a nozzle seal	1
T5-10	Diaphragm, Ø 85 × 0.2 mm	1
T5-13	Mount seal, if the bell's joint leaks	1
T5-14	Cap hardware set (screws, washers, nylocks), only if one is damaged	1

Tools

 4 mm hex key
cap screws

 8 mm wrench
holds the nylocks

 Wrench for the mount bolts

 Pencil

 Soapy water

 Hand tools only

Time

About 20 minutes per bell, plus testing. Work on one bell at a time, so its parts never get mixed with another's.

When to service

YOU HEAR OR SEE	DO THIS
A bell rasps or buzzes	Clean and rebuild its rear stack
Hiss from a cap's vent holes	Rebuild that stack: the diaphragm is torn or off-centre
One bell silent	Rebuild that stack; check the mount seal
Hiss or bubbles at a joint	Replace that mount seal
Every 6 months	Open one stack and look; if it is worn, do all five

 **WARNING**

Release the air first.
Close the shut-off valve, empty the line by sounding the horn, and disconnect the valve's power before you undo anything. Wear hearing protection when you test.

 **CAUTION**

Hand tools only, never past snug.
A drill-driver or impact wrench will crack the cap's lugs or the bell flange. The nylock nuts hold wherever you leave them.

STEP A

Take the bell off the horn

Rebuild a rear stack with the bell on the bench, standing on its mouth. On the horn, the nylock nuts facing the next bell can't be reached with a wrench (checked on the design files), and the stack is much easier to keep centred standing up.

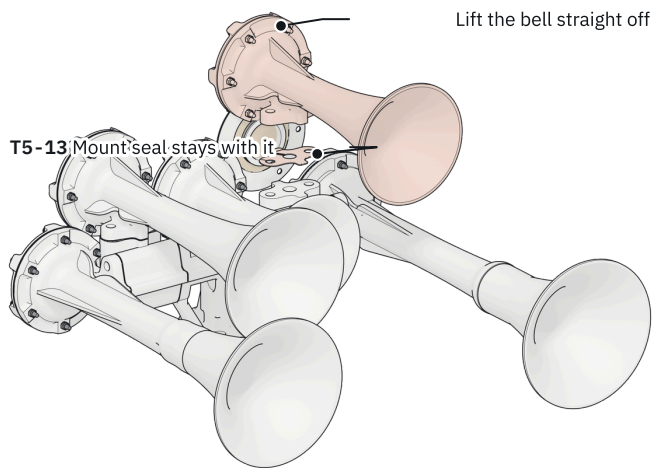
A
BELL
OFF

Fig. 1 Bell 3 coming off the right wing.

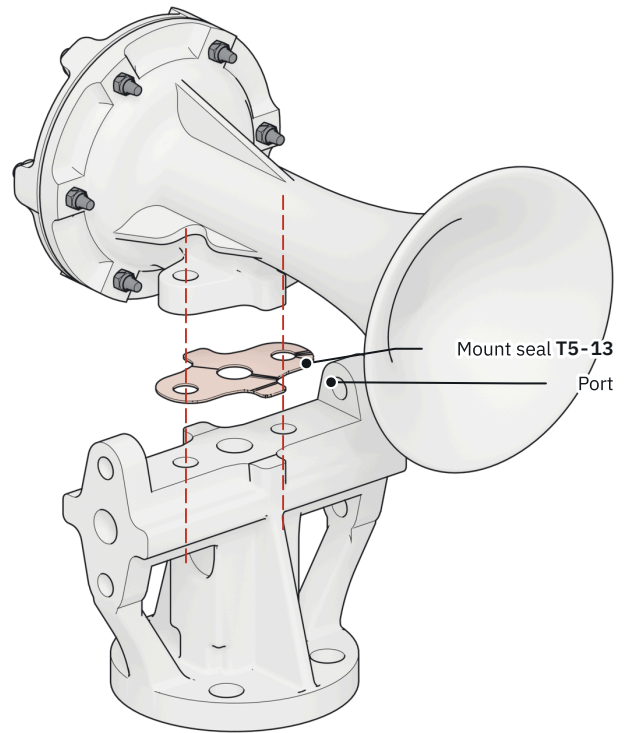


Fig. 2 Two bolts through the pad; the mount seal sits between pad and port.

- 1** Release the air and disconnect the valve's power.
- 2** Support the bell. The long bells 1 and 2 are heavy at the flare end.
- 3** Undo the two pad bolts and lift the bell straight off its port. Keep the mount seal with the bell.
- 4** Stand the bell on its mouth on a clean towel, rear cap up. Bells 1 and 2 can lie on their side, propped so they can't roll.

STEP B

Take the stack apart

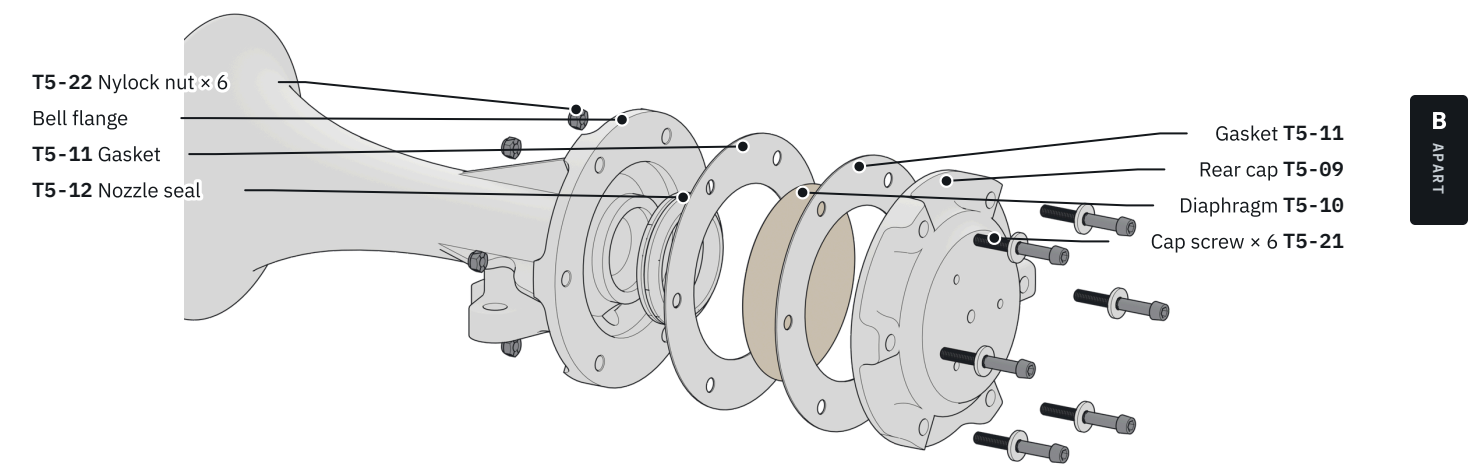


Fig. 3 The rear stack in order, from the bell outward. All five bells are the same.

- 1

Mark it. Draw a pencil line across the cap and the bell flange, so the cap goes back the same way.
- 2

Undo the six screws a little at a time, in the star order (Fig. 9). Hold each nylock with the 8 mm wrench while you turn the screw with the 4 mm hex key.
- 3

Lift off the cap, then the top gasket, the diaphragm and the bottom gasket. Lay them out in order on the towel.
- 4

Leave the nozzle seal on unless it is damaged. If it is, pull it straight off the nozzle.

Inspect every part

PART	GOOD	REPLACE IF
Diaphragm	Flat, clean, no creases, cracks or dents where the nozzle seal touches it	Creased, torn, wavy, or a ring worn into it
Gaskets	Flat, soft, holes round	Torn, split at a hole, pressed flat and shiny
Nozzle seal	Pushed all the way down, round, edge sharp	Torn, chewed, loose, or sitting high on one side
Cap and flange	Clean faces, no cracks at the lugs or holes	White stress marks or cracks: replace the part

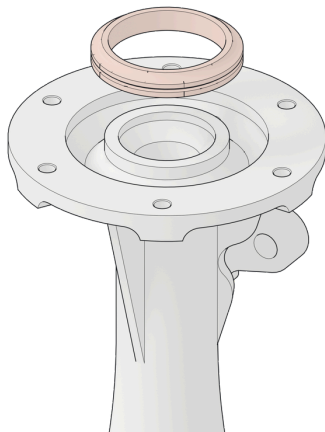
Clean with warm soapy water and dry completely. No solvents, brake cleaner or acetone: they attack the plastic and the TPU.

STEP C

Rebuild the stack

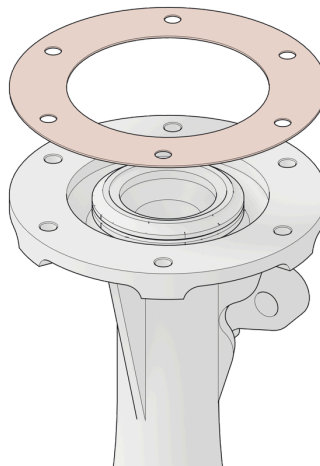
The bell stands on its mouth. Each part goes straight down onto the one before it. Drawings are on the left of each step; Jacob's photo of the same step is on the right.

1 Nozzle seal



Push the TPU nozzle seal **T5-12** down onto the nozzle, all the way and square. It stands a hair proud of the bell face: that is what makes the bark.

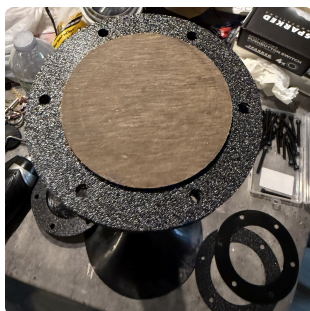
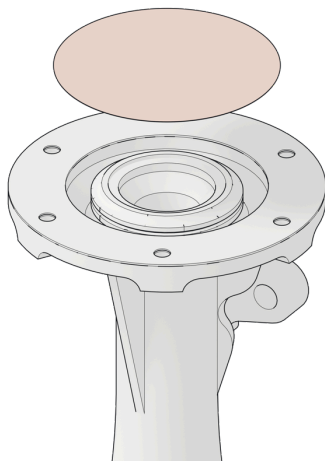
2 Bottom gasket



Use a new gasket if the old one is flattened shiny or split at a hole. Both gaskets are the same part.

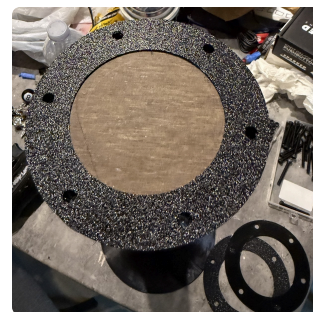
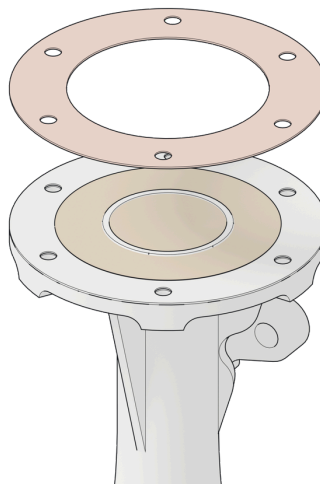
Lay one gasket **T5-11** on the bell face, its six holes over the bell's holes.

3 Diaphragm



Centre the diaphragm **T5-10** on the gasket. Hold it by the edge: no fingerprints, no creases.

4 Top gasket

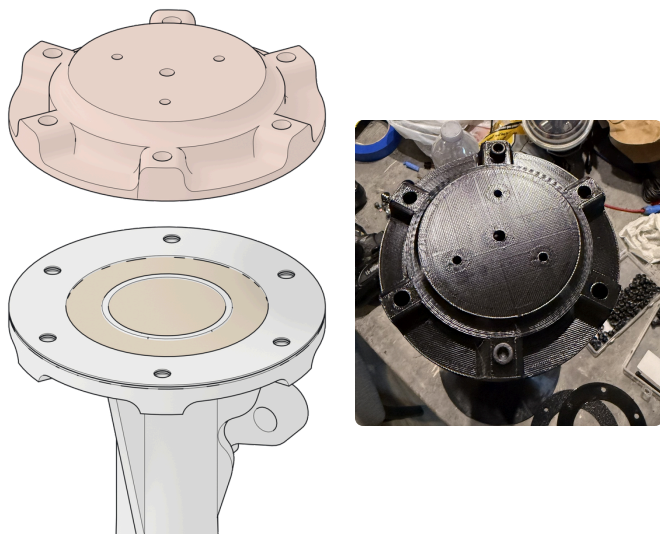


Lay the second gasket on top, holes lined up with the first.

STEP C, CONTINUED

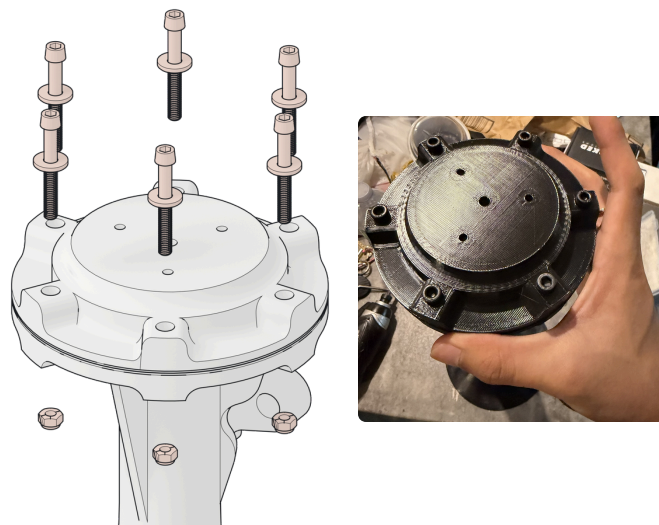
Cap, screws and the star order

5 Rear cap



Fit the cap with its vents facing out and your pencil marks lined up. From now on, hold the whole stack centred with one hand.

6 Screws and nylocks



Put a washer **T5-23** on each lug, then push the six screws **T5-21** through from the cap side. Start a nylock **T5-22** on each by hand under the flange, nylon ring facing away, until it just touches. Bells 1 and 2: the screw next to the wing goes in from the back, head under the flange, washer and nylock on the cap. Build those two stacks before the bell goes on the wing (high mount: bells 3 and 4 too).

7 • Snug it in the star order

- 1 Turn screw 1 a little, then 2 (opposite), 3, 4, 5, 6, still holding the stack centred.
- 2 Go round again in the same order until every screw is snug: the gaskets squeeze evenly and don't bulge out at the edge.
- 3 Stop at snug. Never crank it: the nylocks hold the setting, and too much squeeze chokes the diaphragm.

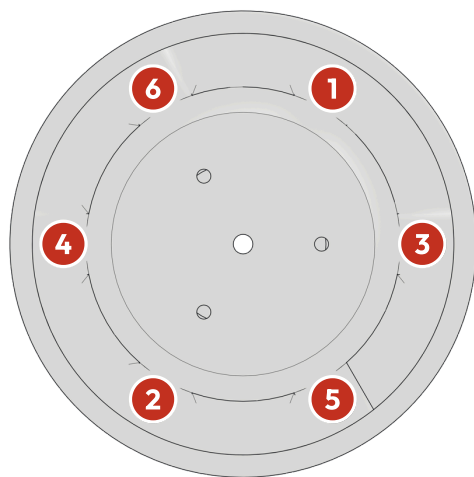


Fig. 9 Star order, seen from behind the cap.

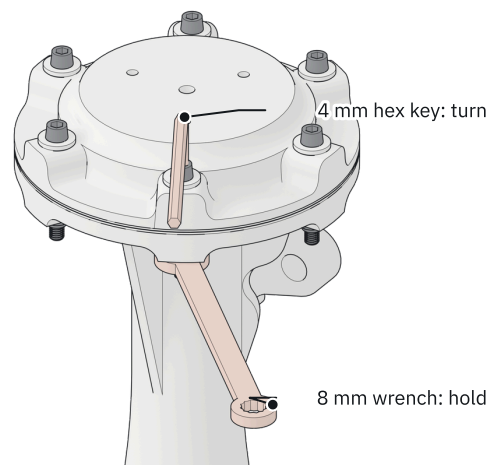


Fig. 10 Turn the screw from the cap side, hold the nut.

STEP D

Refit, test and tune

Put the bell back

- 1 Lay the mount seal **T5-13** on the port, its holes over the port's holes, the middle air hole clear.
- 2 Set the bell on the seal pointing straight forward, in line with the others.
- 3 Fit the two pad bolts finger tight, then a quarter turn more, alternating side to side. Hand tools only.

Test

- 4 Fill the tank to a low pressure only, about 50 psi (watch the gauge).
- 5 Soap-test the bell's joint and its cap. Bubbles: release the air and fix it.
- 6 Sound one short blast with hearing protection on. Listen to that bell up close.
- 7 Step the pressure up to your normal setting, checking again at each step.

Tune

A bell is tuned by how far its six screws are run in. If it sounds weak, rasps or won't bark, turn all six screws **1/8 turn** in the star order (in to tighten the squeeze, out to ease it), test, and repeat. Change one bell at a time. If it still won't seal at snug, a part is worn: rebuild it.

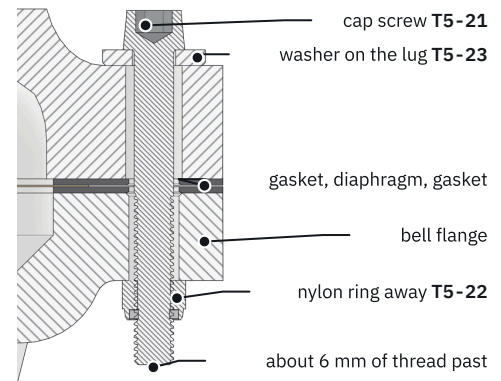


Fig. 11 What right looks like, cut through.

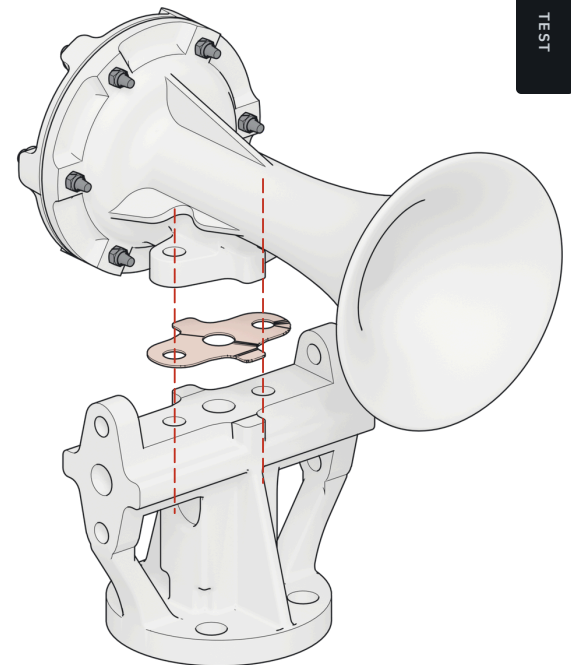


Fig. 12 Bell back on its port.

D
TEST

OTHER JOBS

Mount seals and the long bells

Replace a mount seal

Each bell and each wing sits on a 2 mm TPU mount seal

T5-13: three per wing, one under bell 5, seven in all.

Replace one if its joint hisses or bubbles, or if it is torn, flattened or no longer springs back.

- 1 Release the air. Take the bell off (Step A).
- 2 Peel off the old seal. Clean the pad and the port.
- 3 Lay the new seal on the port, holes lined up, the middle air hole clear.
- 4 Refit the bell: two bolts, finger tight plus a quarter turn, alternating. Soap-test the joint at low pressure.

The wings' seals are between each wing and the manifold. A wing only needs to come off if its seal leaks: support the bells on it first.

The long bells

Bells 1 and 2 are printed in two sections: the flare section screws onto the rear section on a hidden thread, by hand. It should close with no gap all the way round.

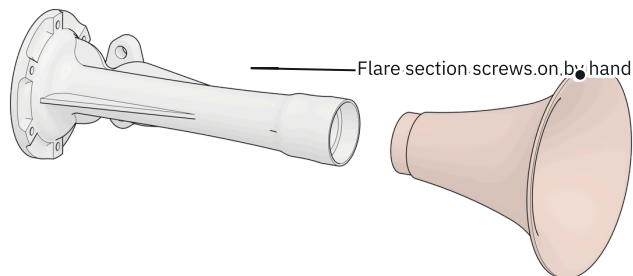
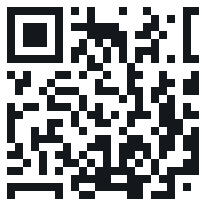


Fig. 13 Bell 1: rear section and flare section.

- If it won't close, unscrew it, clean both threads and try again. Never force it or use tools.
- If it works loose: a strip of thin plastic or PTFE tape on the thread, or a little E6000 for good. Never metal threadlocker (blue or red): it won't cure on PETG and can crack it.
- A gap at the joint leaks air and dulls that bell's note.

Videos



Short videos of the rear stack going together and the horn being built are on the manual page: unordinarydepot.com/manual

Questions: sales@unordinarydepot.com. Send a short video of the sound.