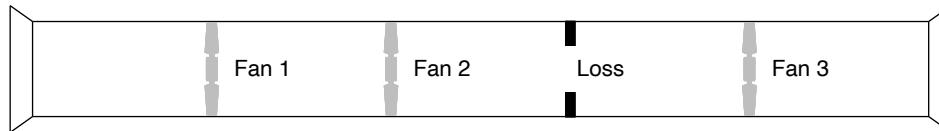


# How fans in series interact

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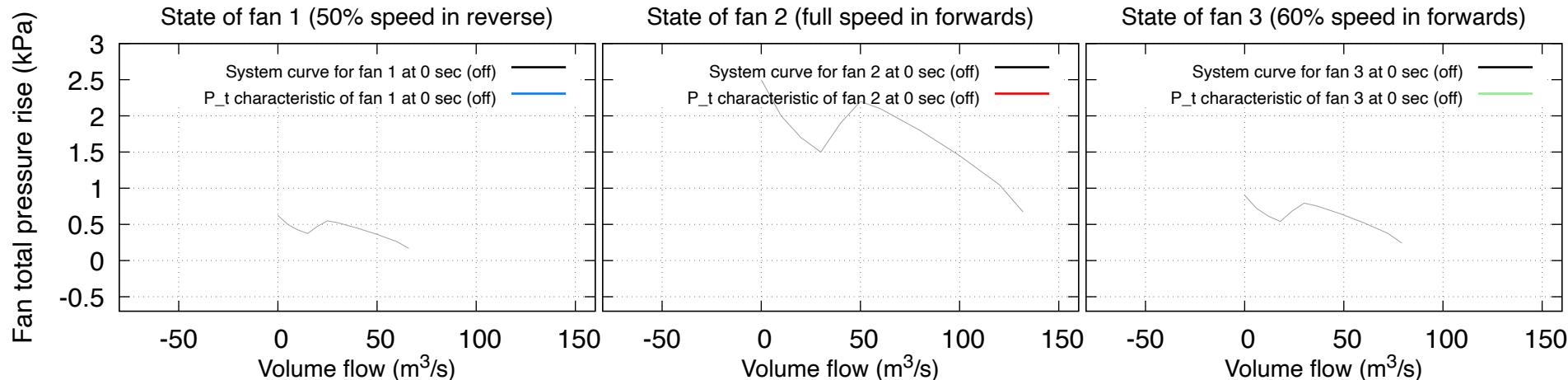
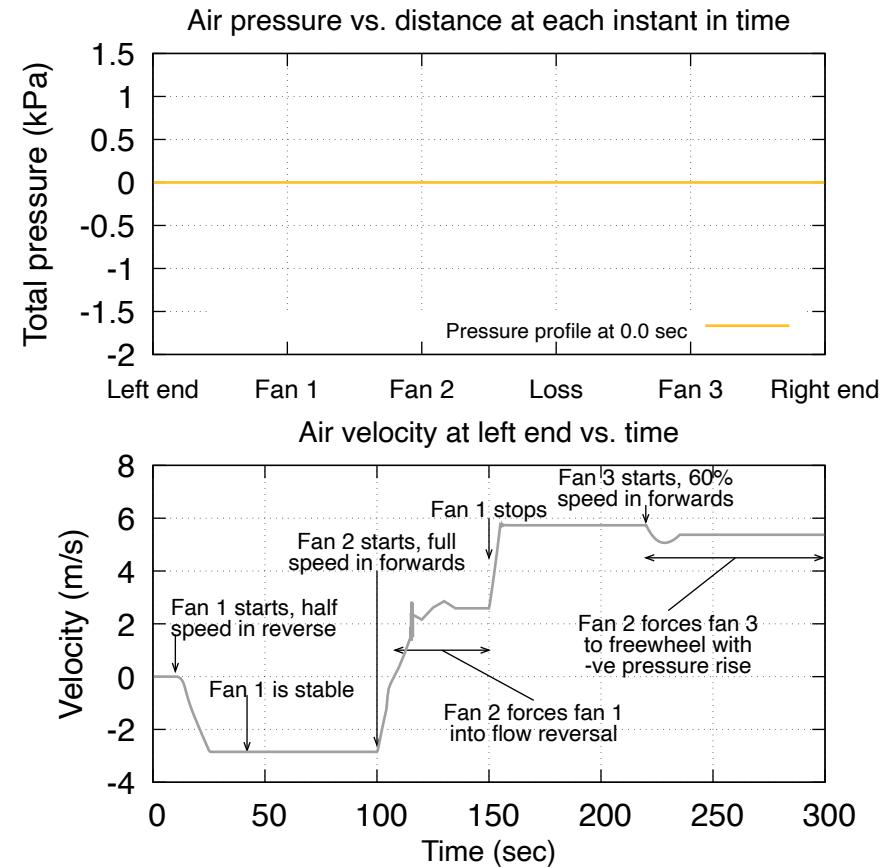
Fan 1 starts in reverse at half speed and ends up at a suitable duty point.

Then Fan 2 starts in forwards mode at full speed. It forces fan 1 into the reverse flow quadrant of its fan characteristic. The fan characteristic is not defined there, so the calculation extrapolates from the first two points on the fan curve.

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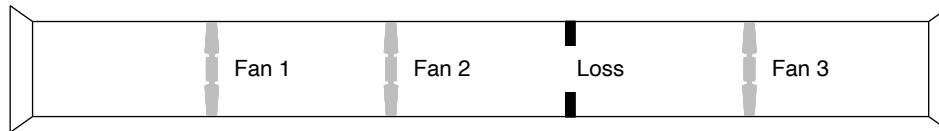
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



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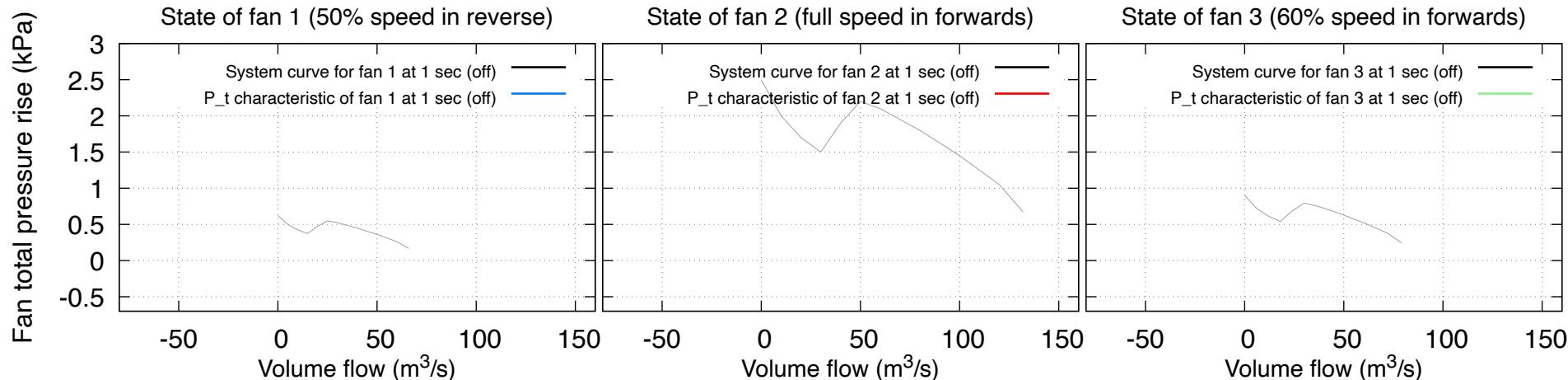
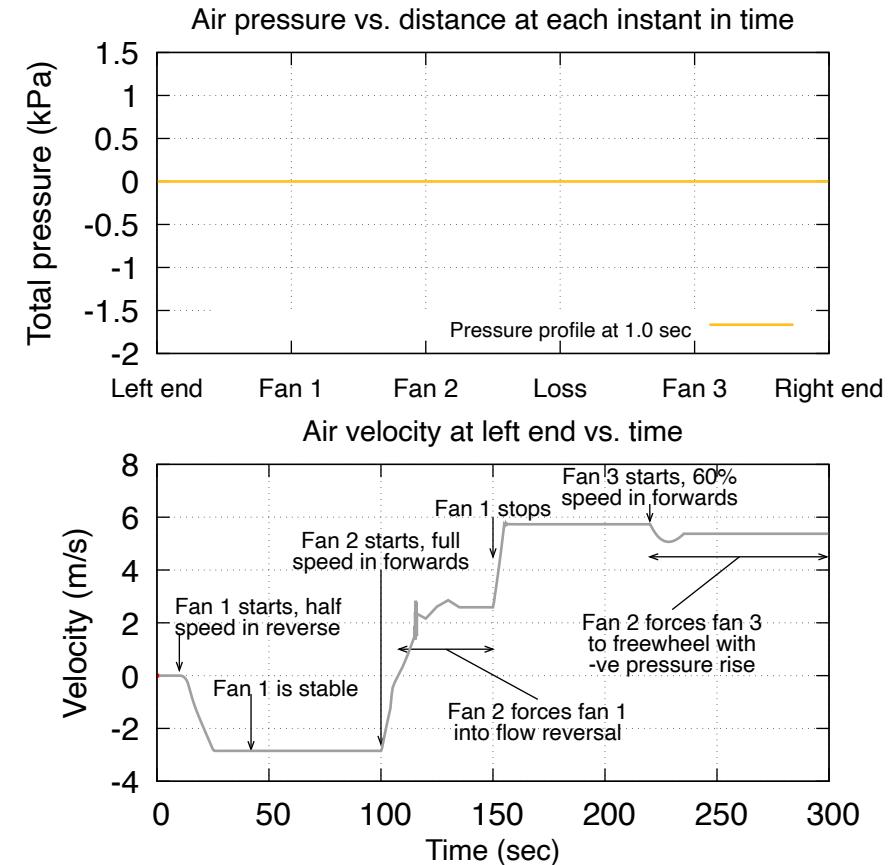
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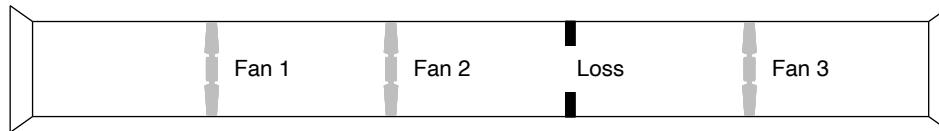
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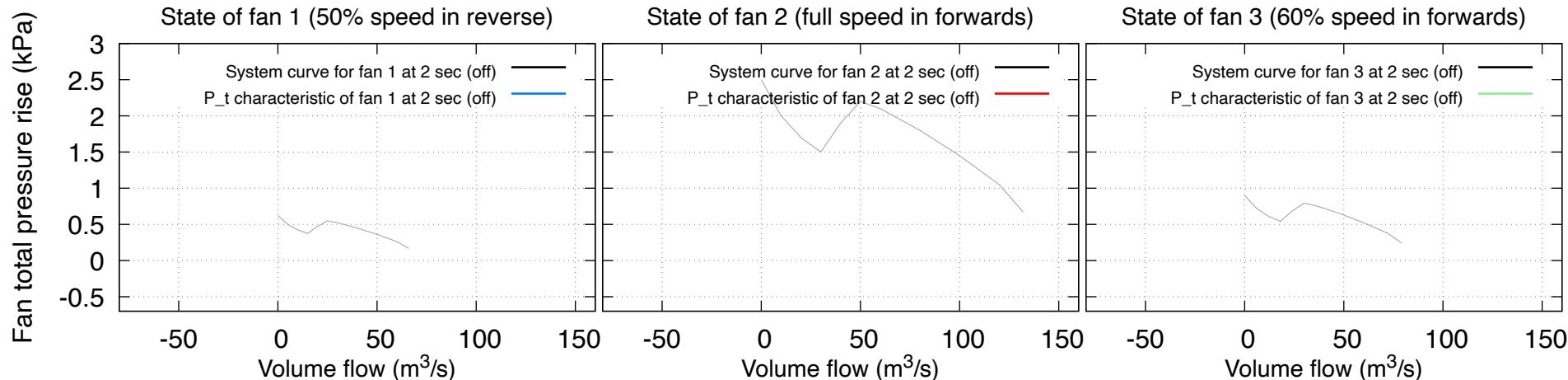
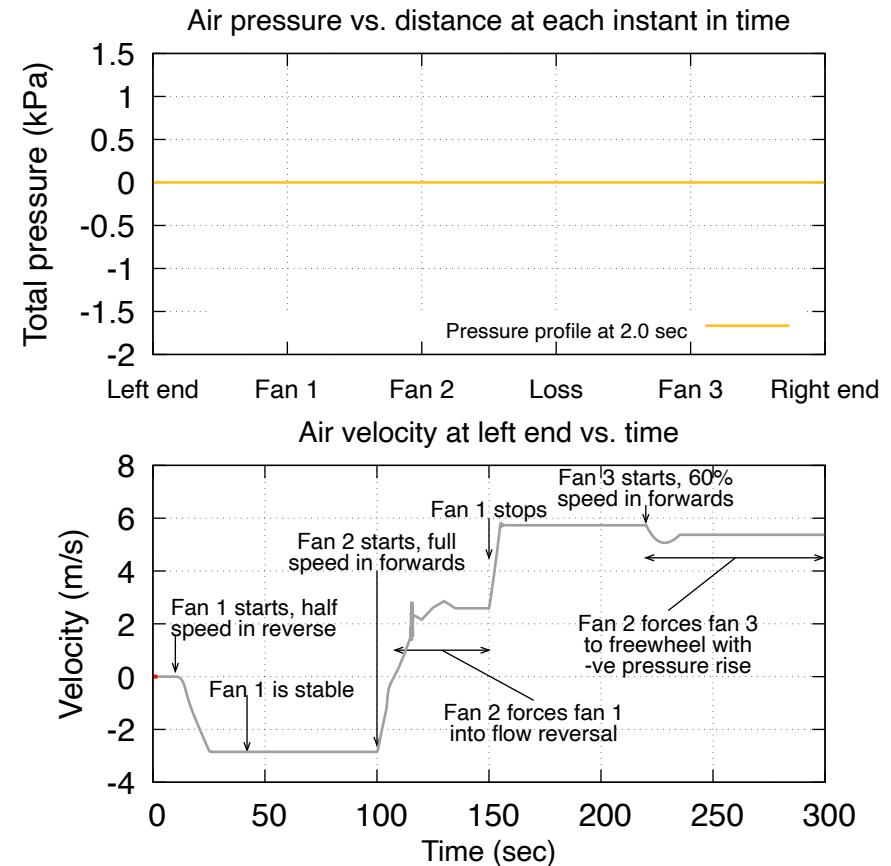
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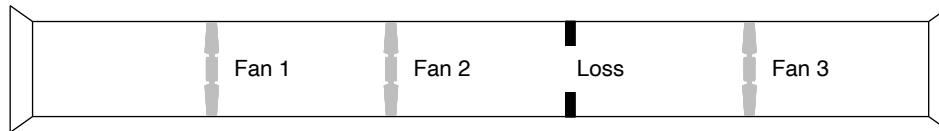
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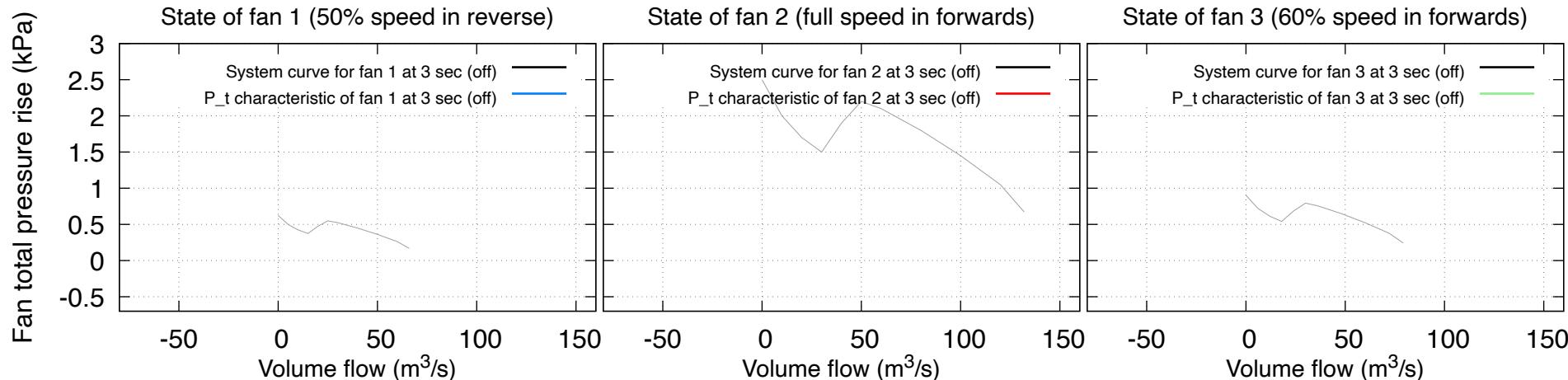
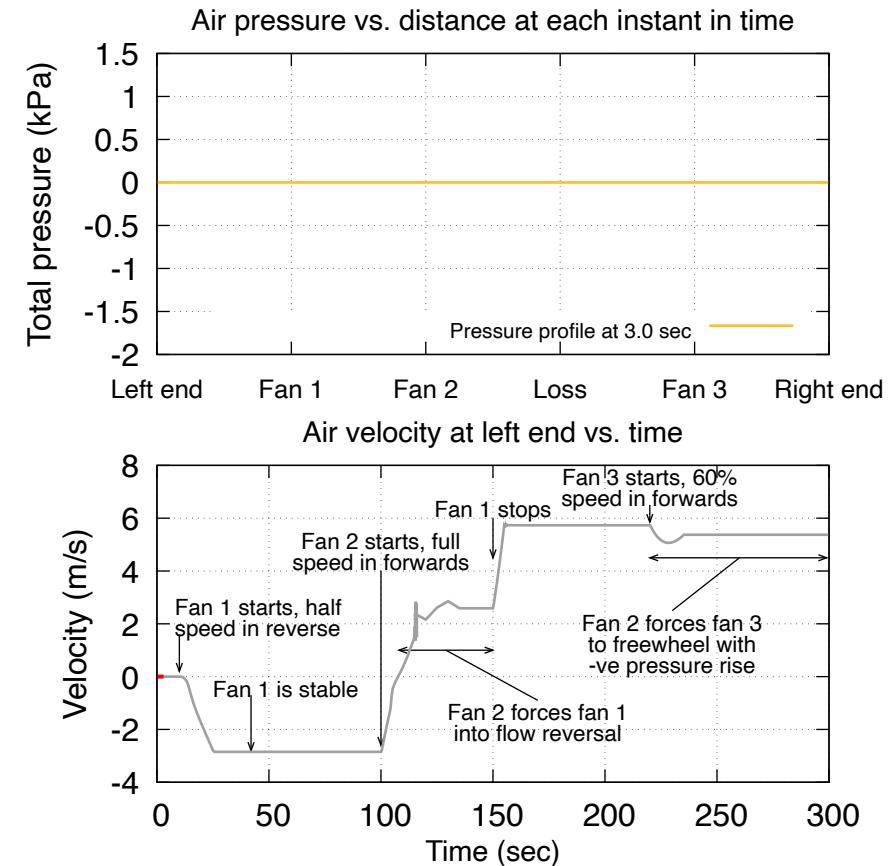
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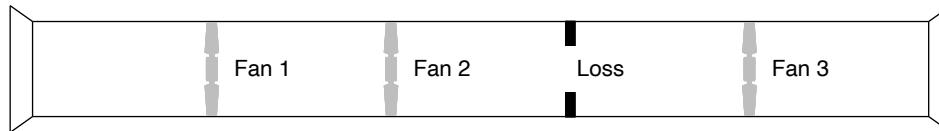
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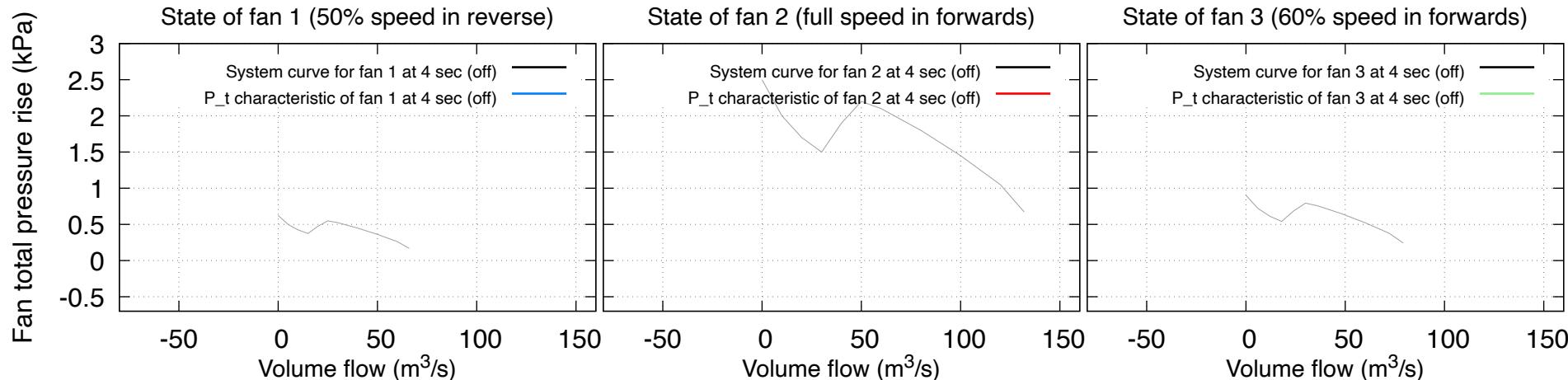
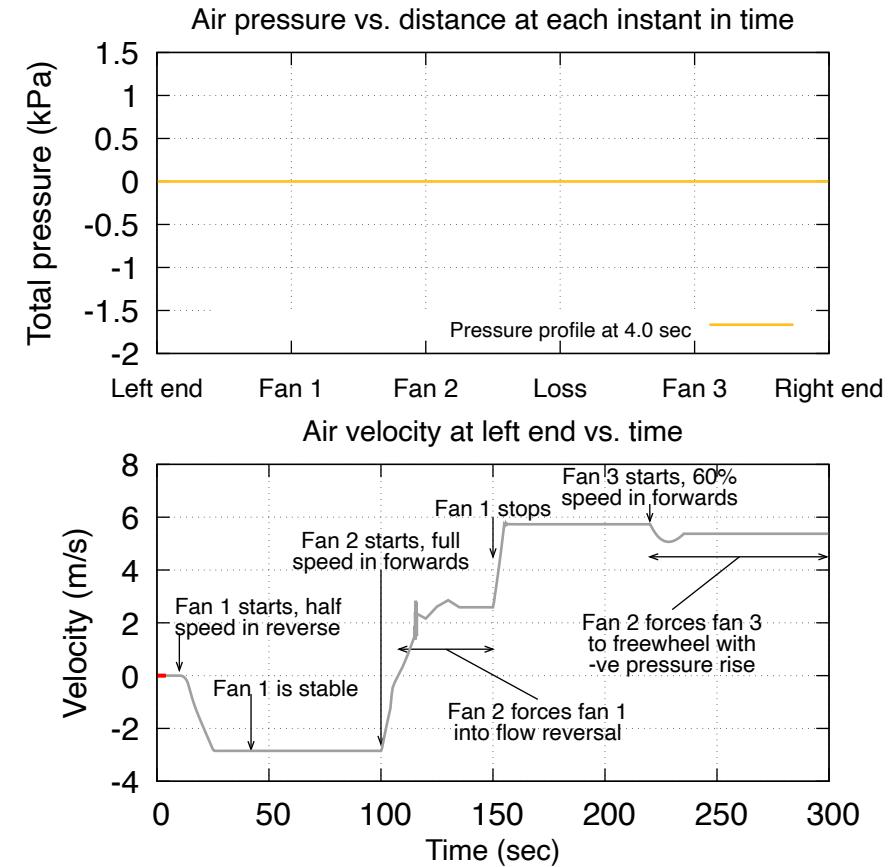
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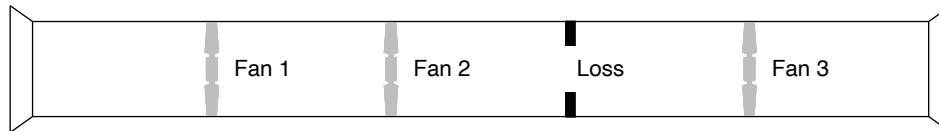
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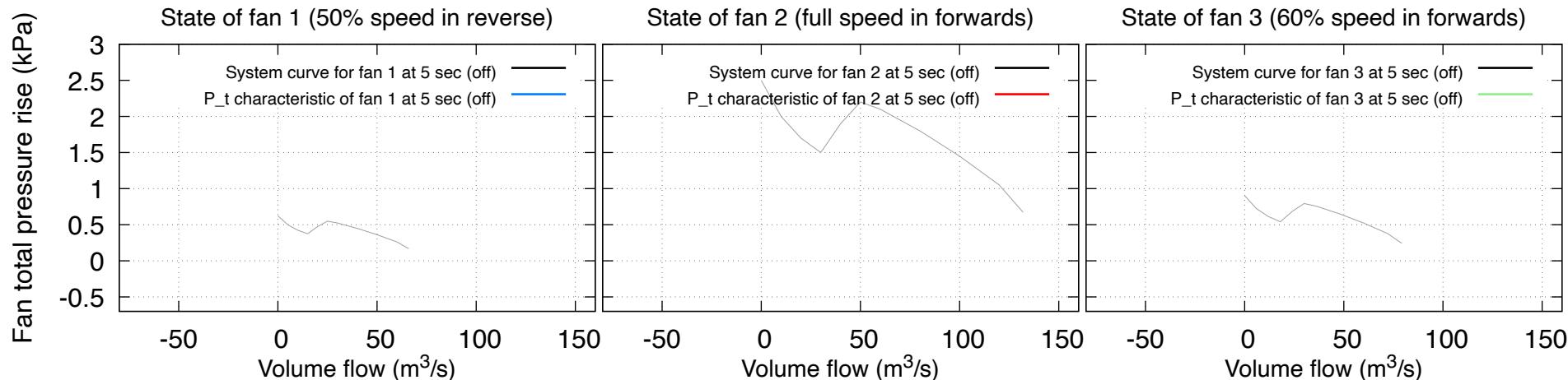
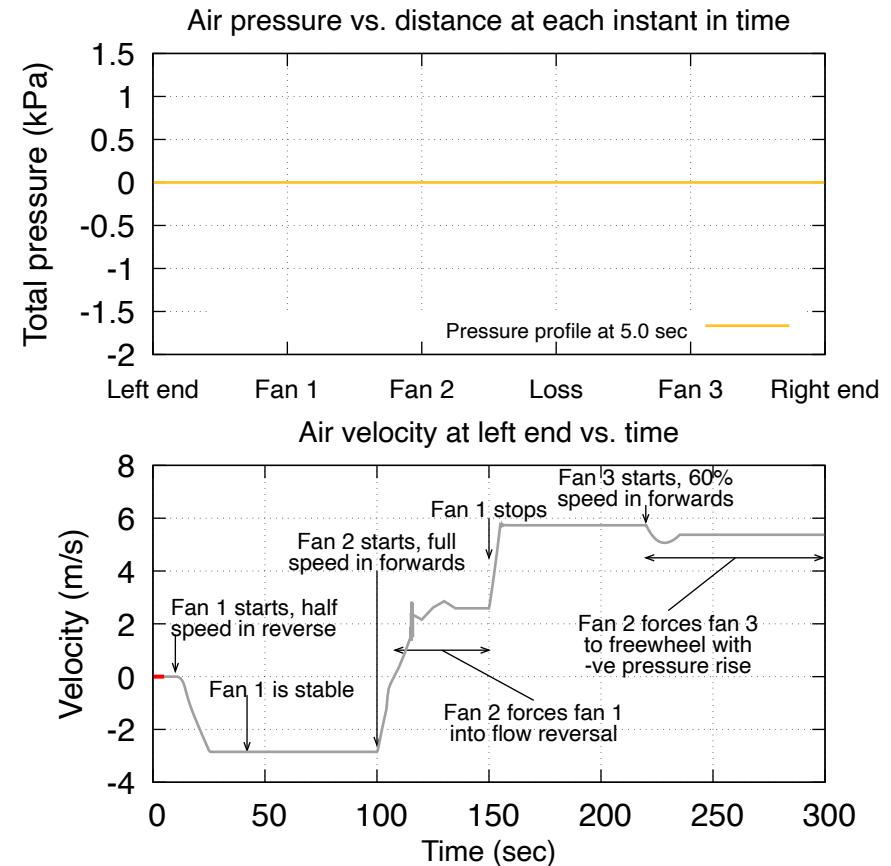
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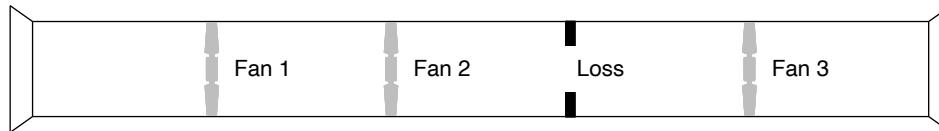
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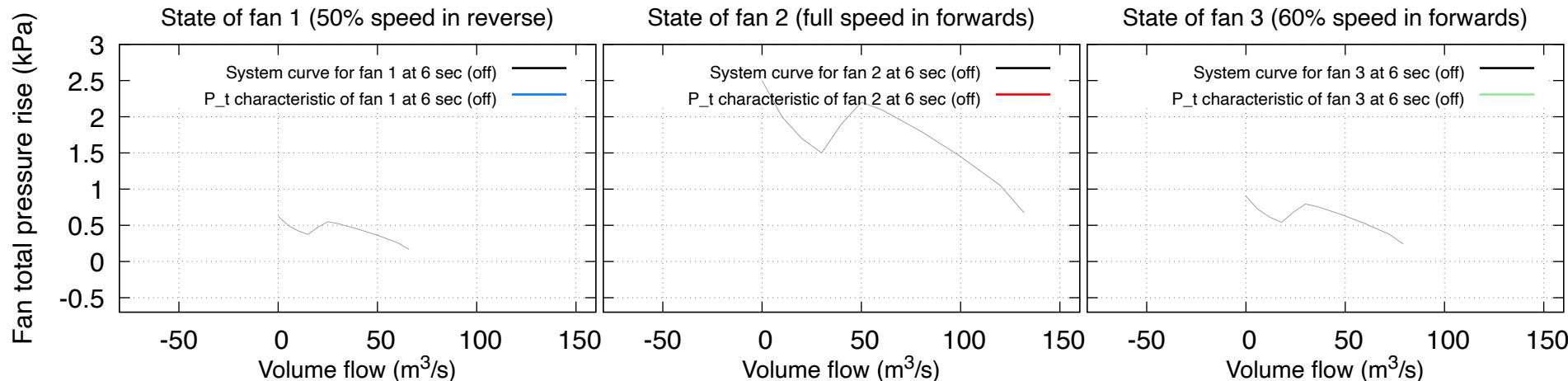
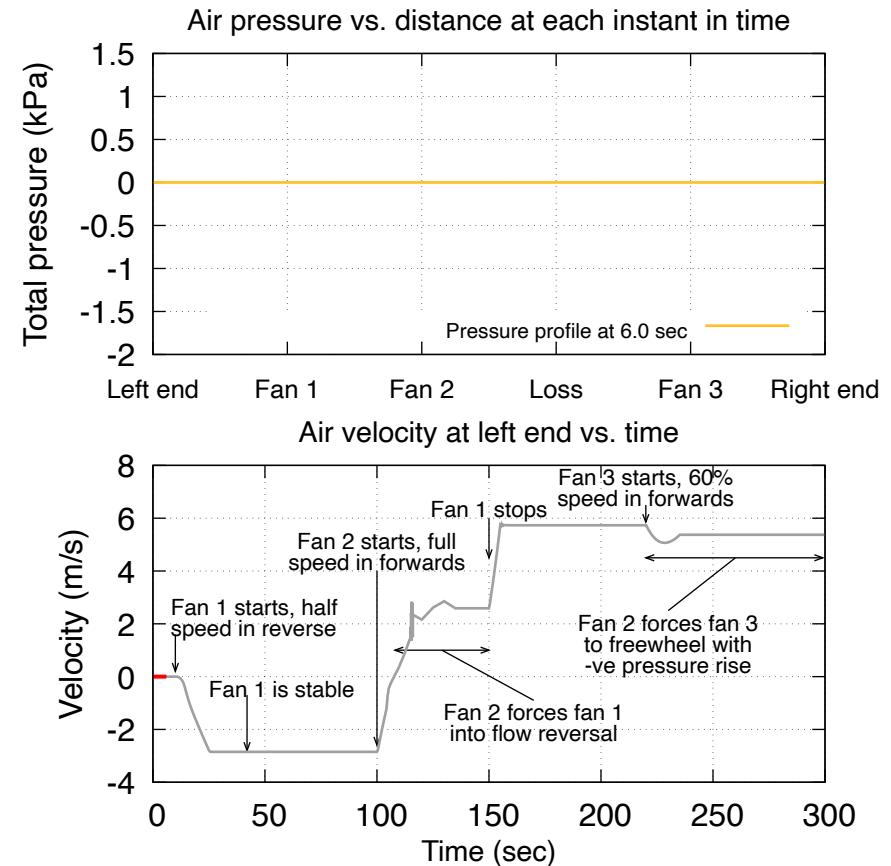
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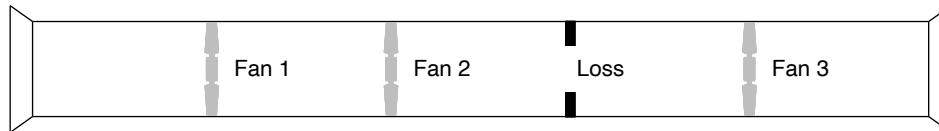
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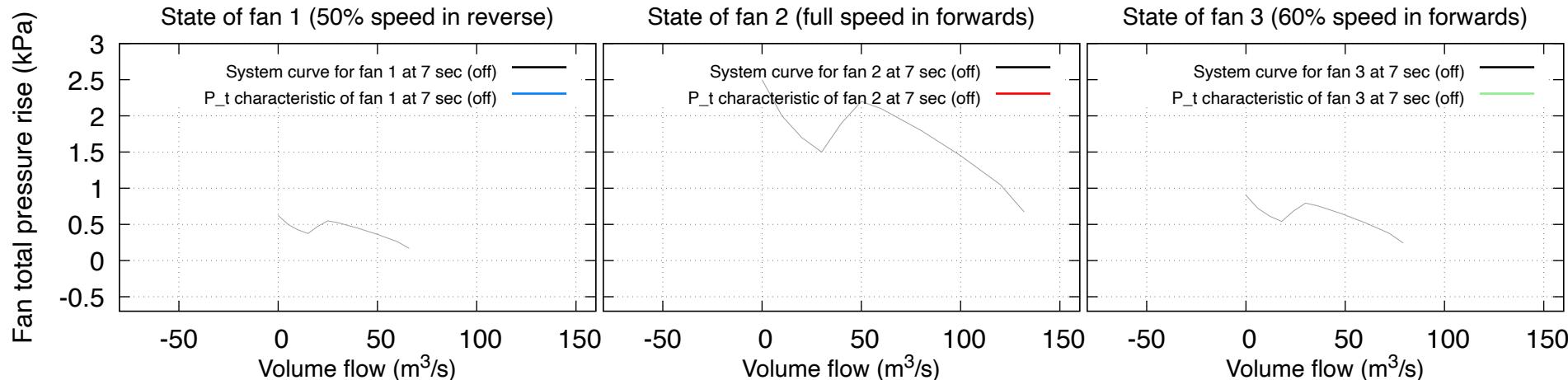
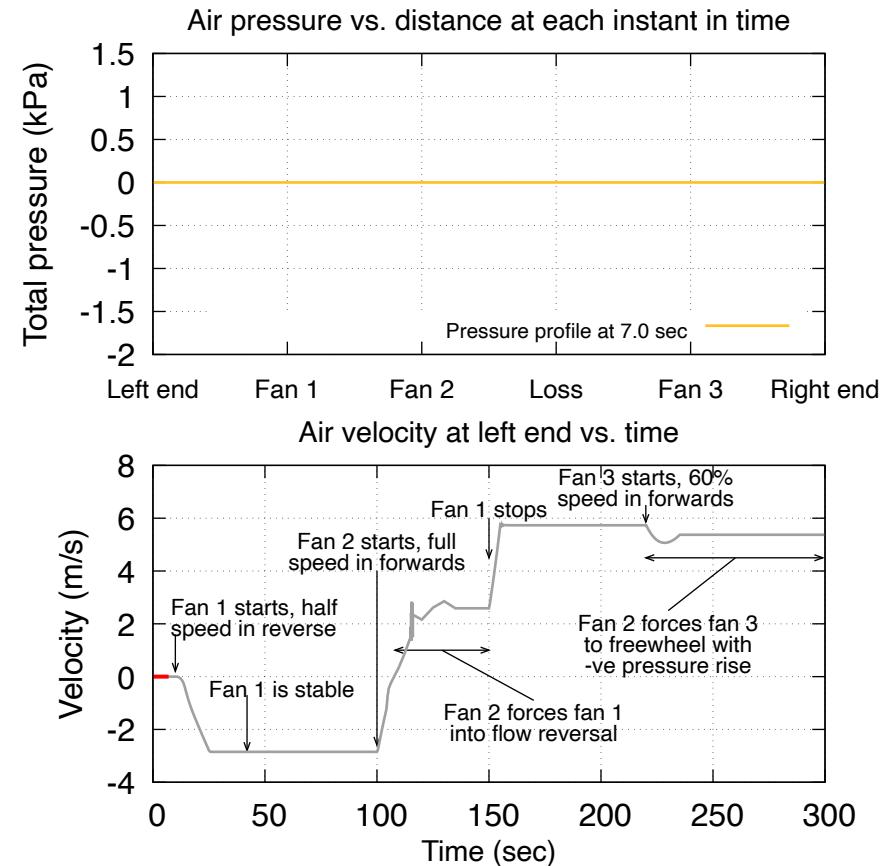
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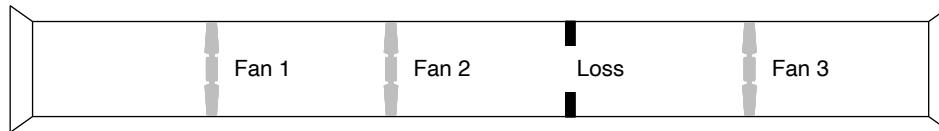
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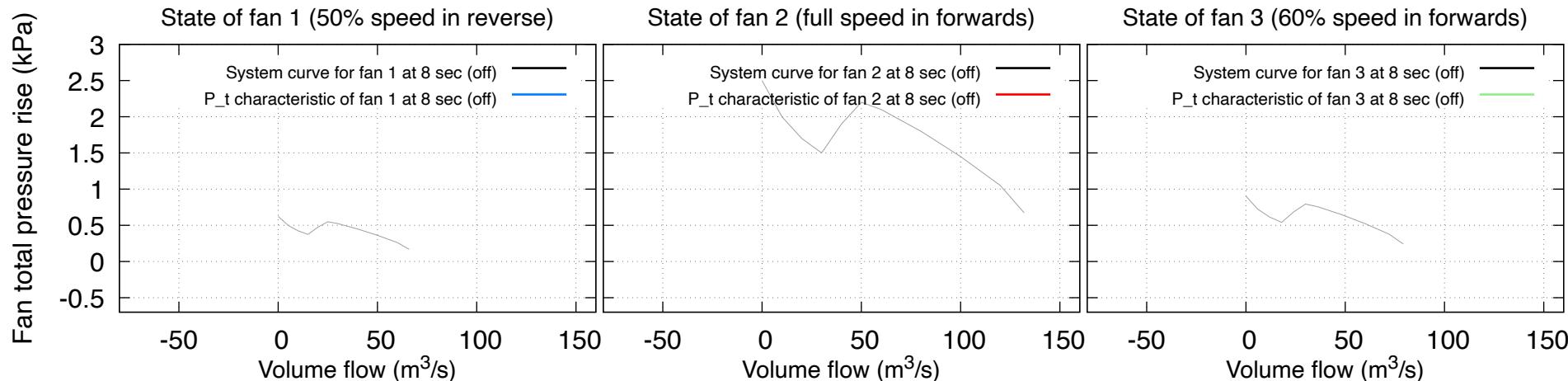
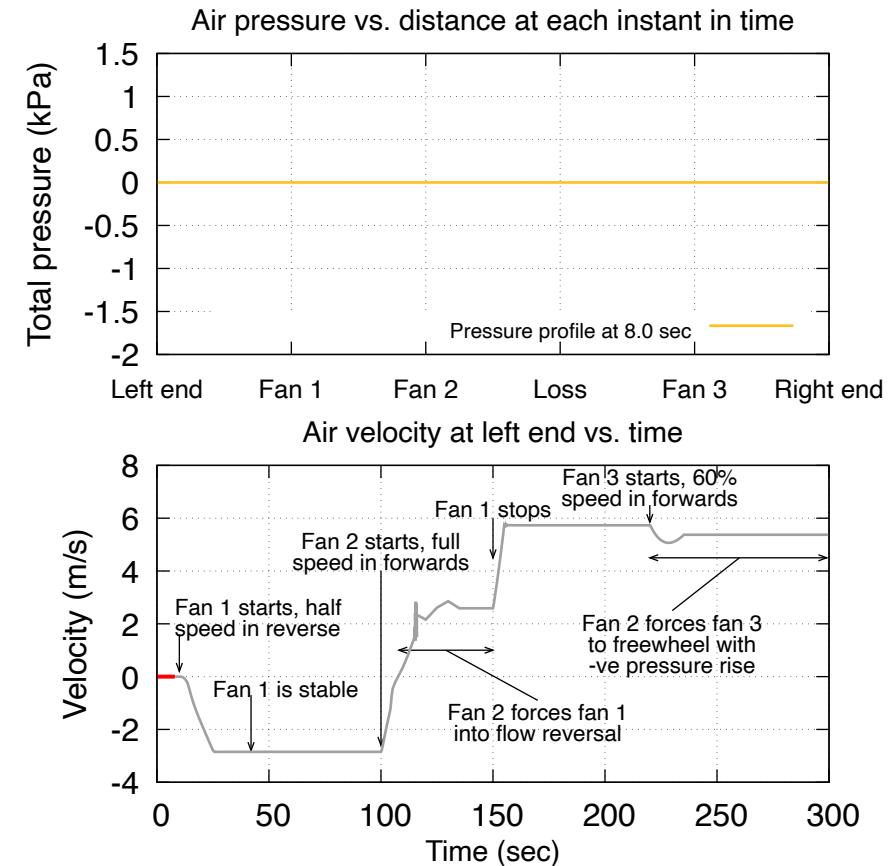
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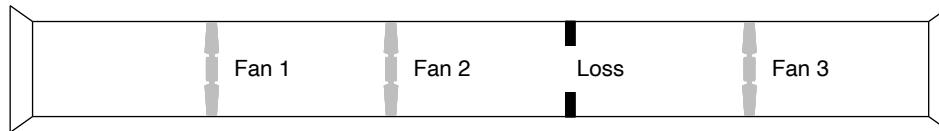
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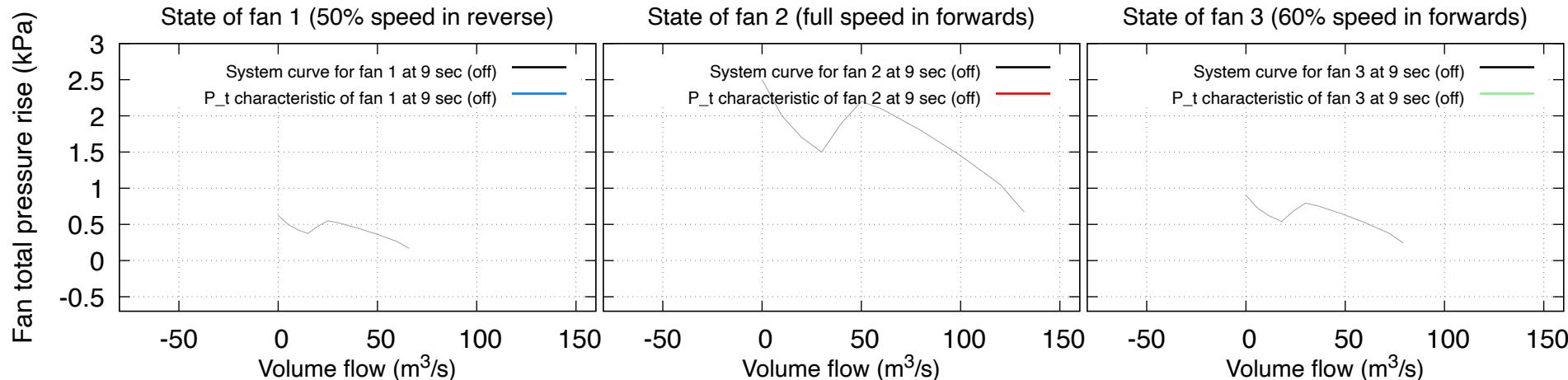
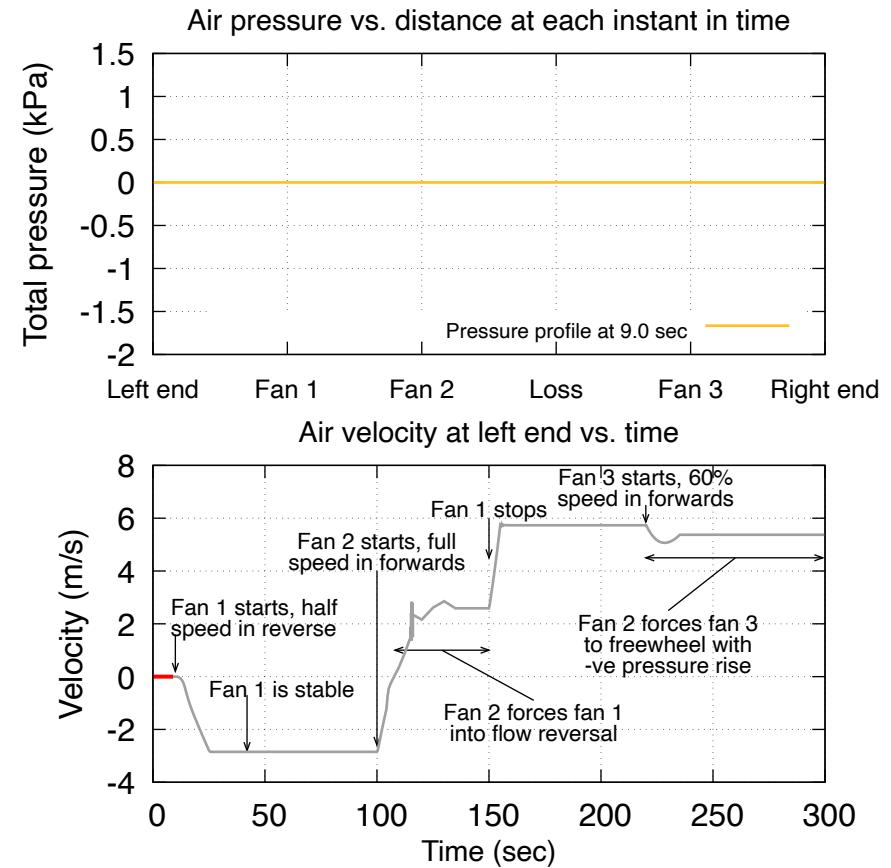
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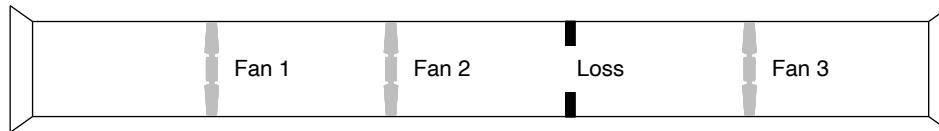
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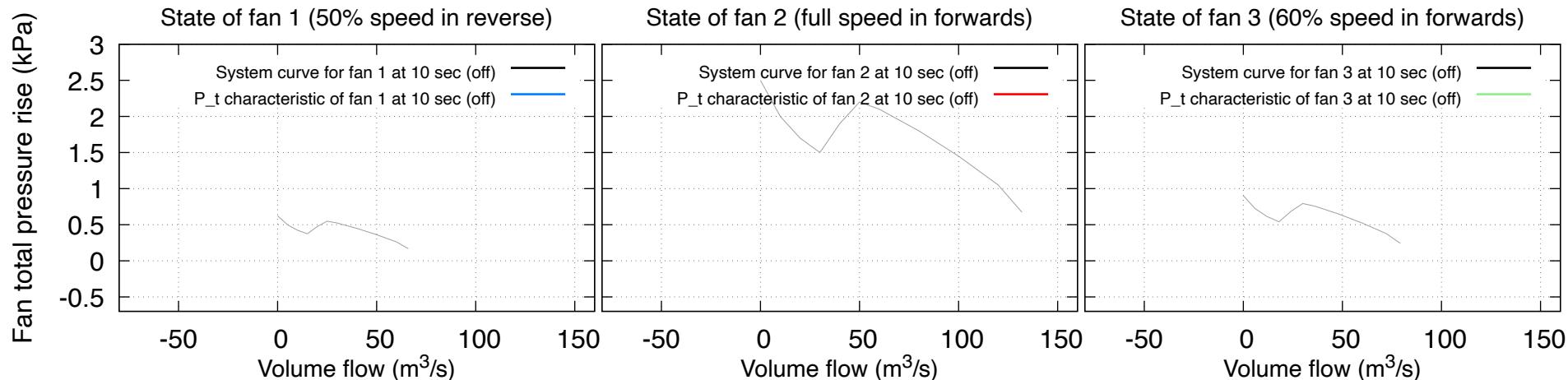
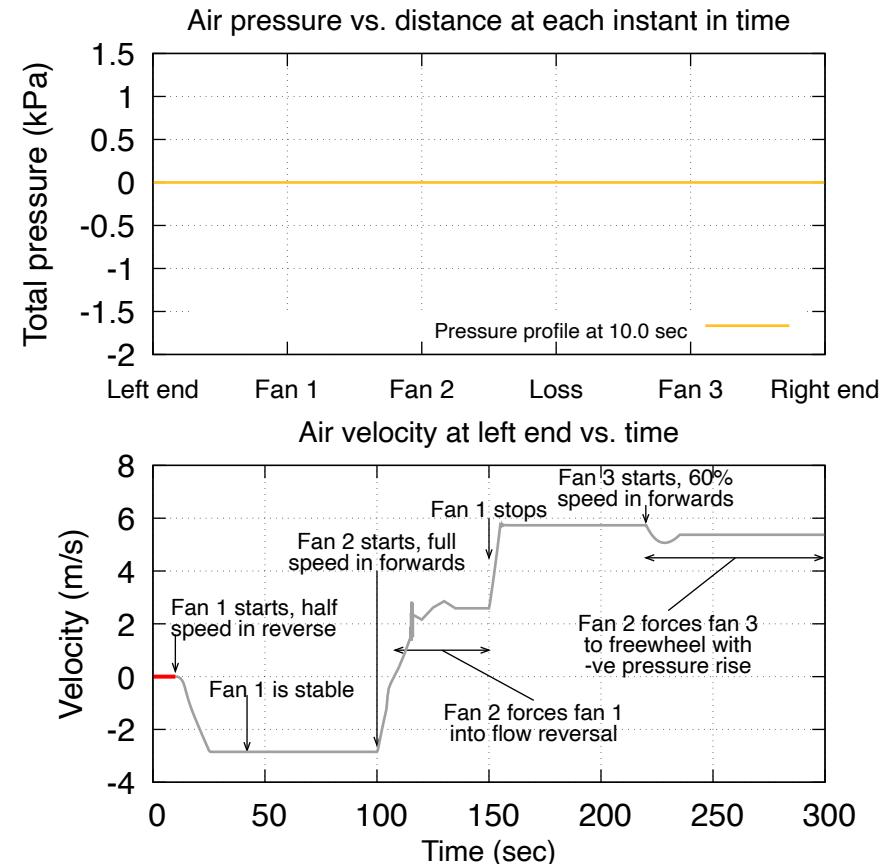
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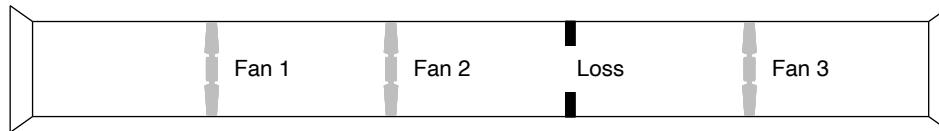
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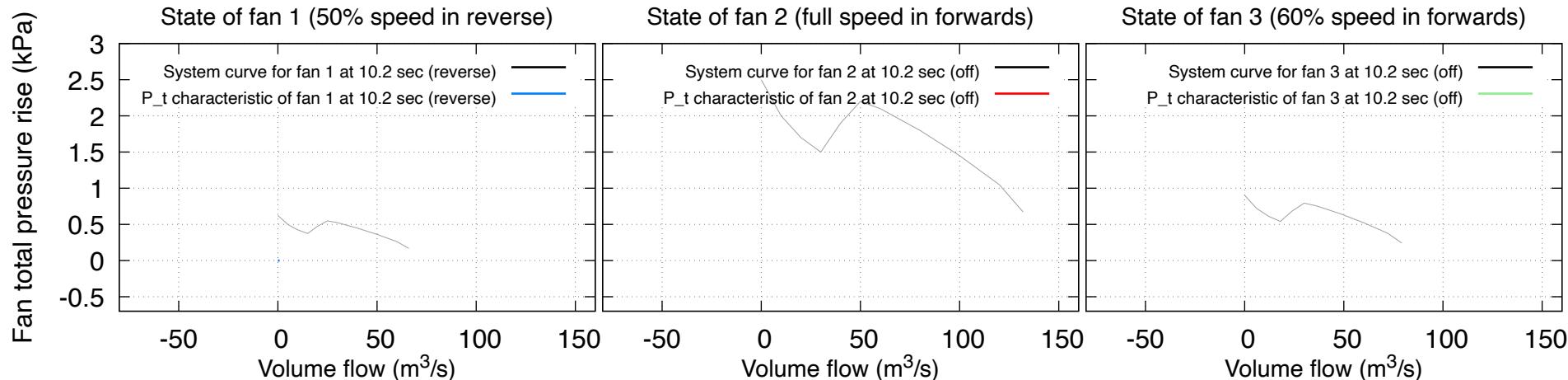
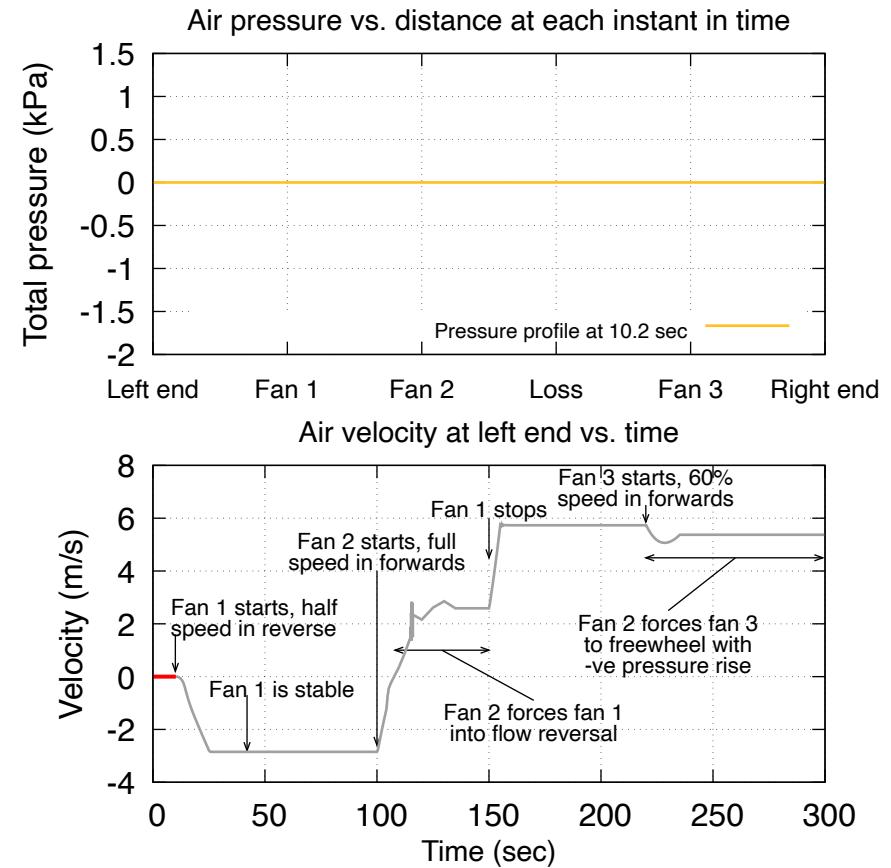
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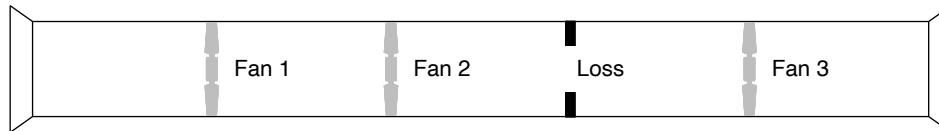
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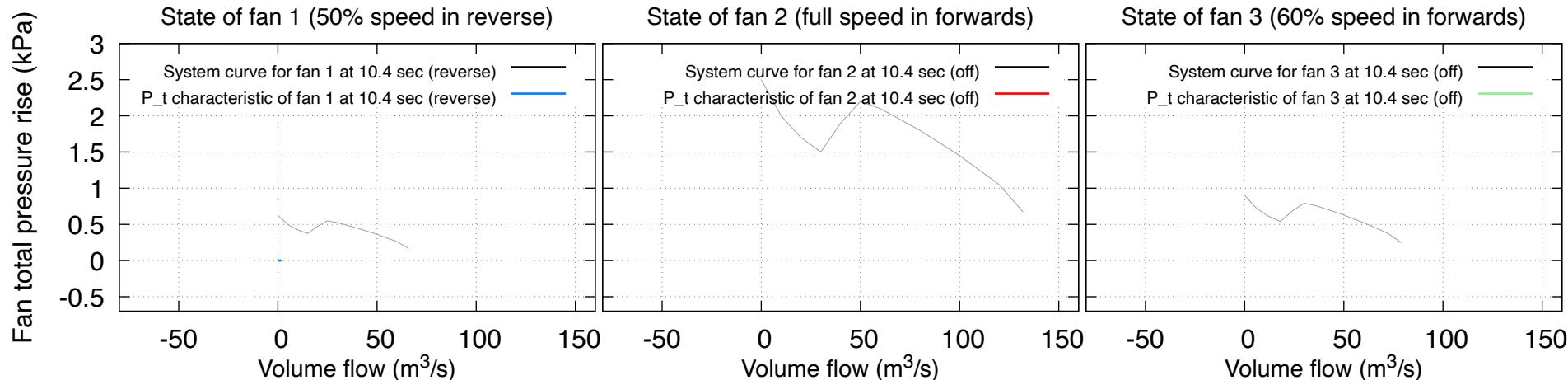
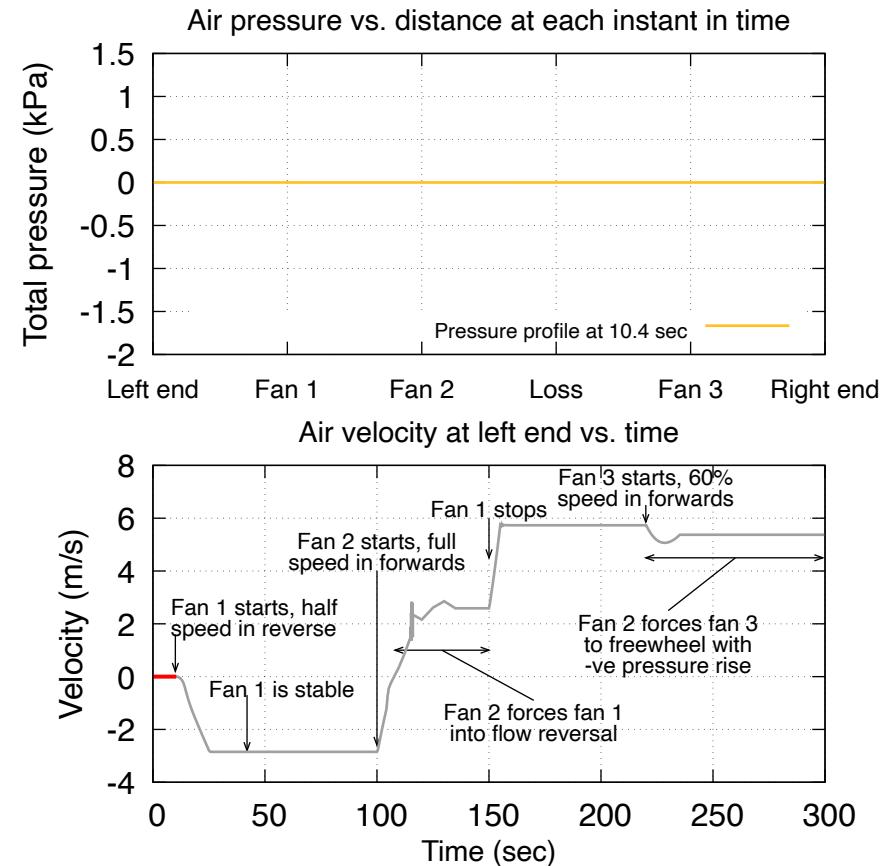
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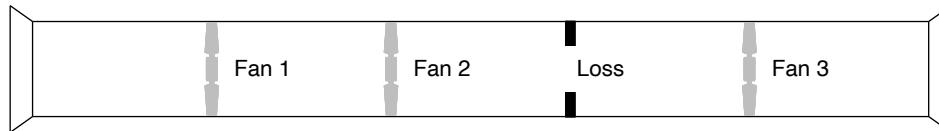
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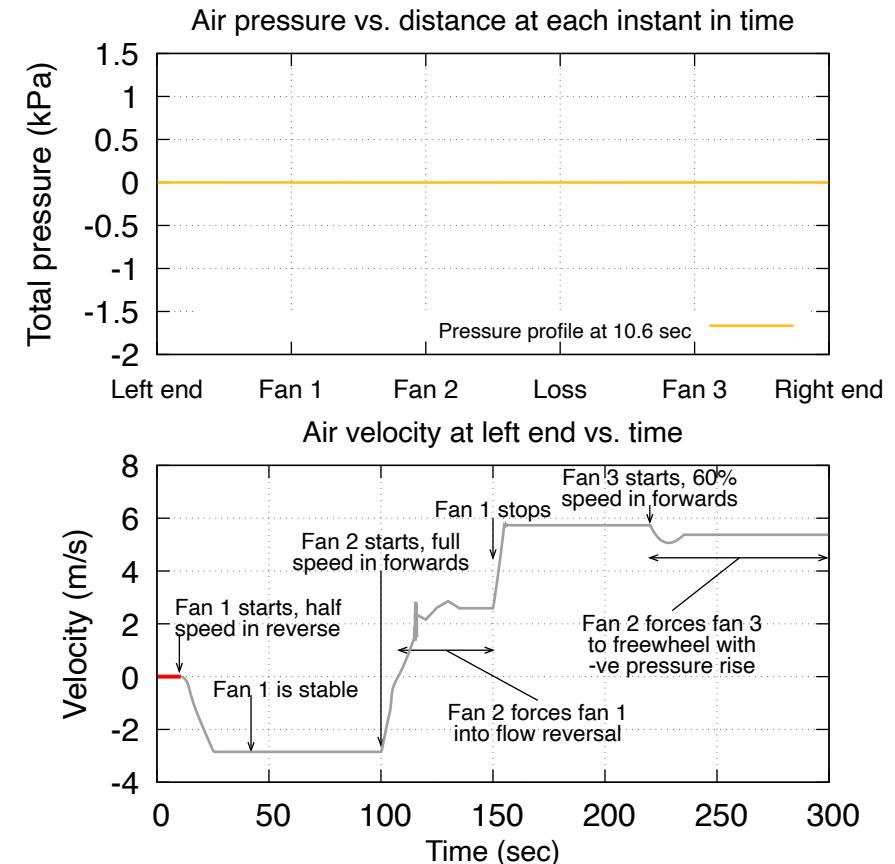
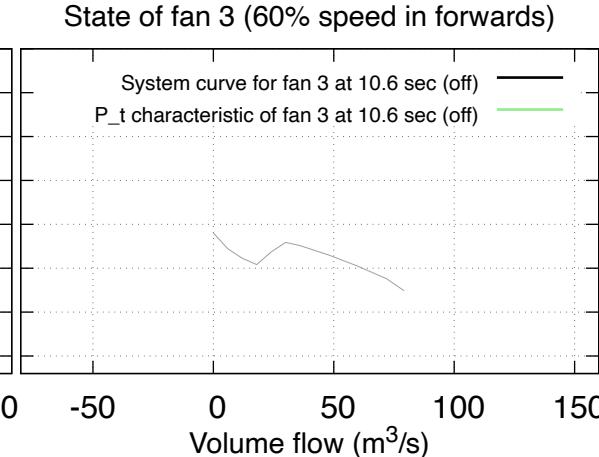
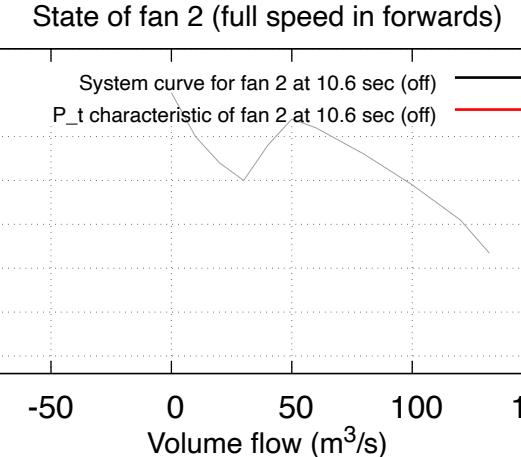
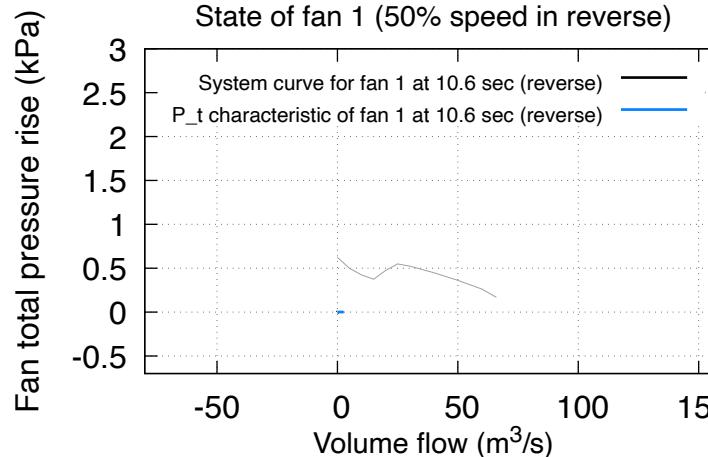
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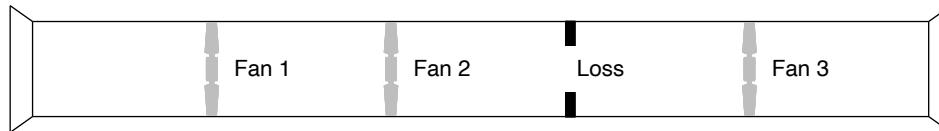
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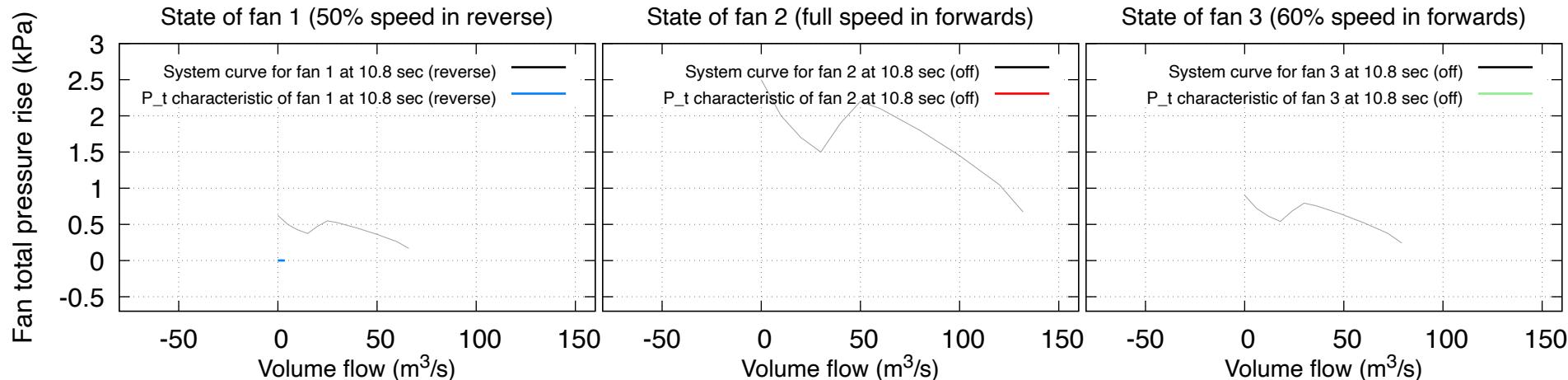
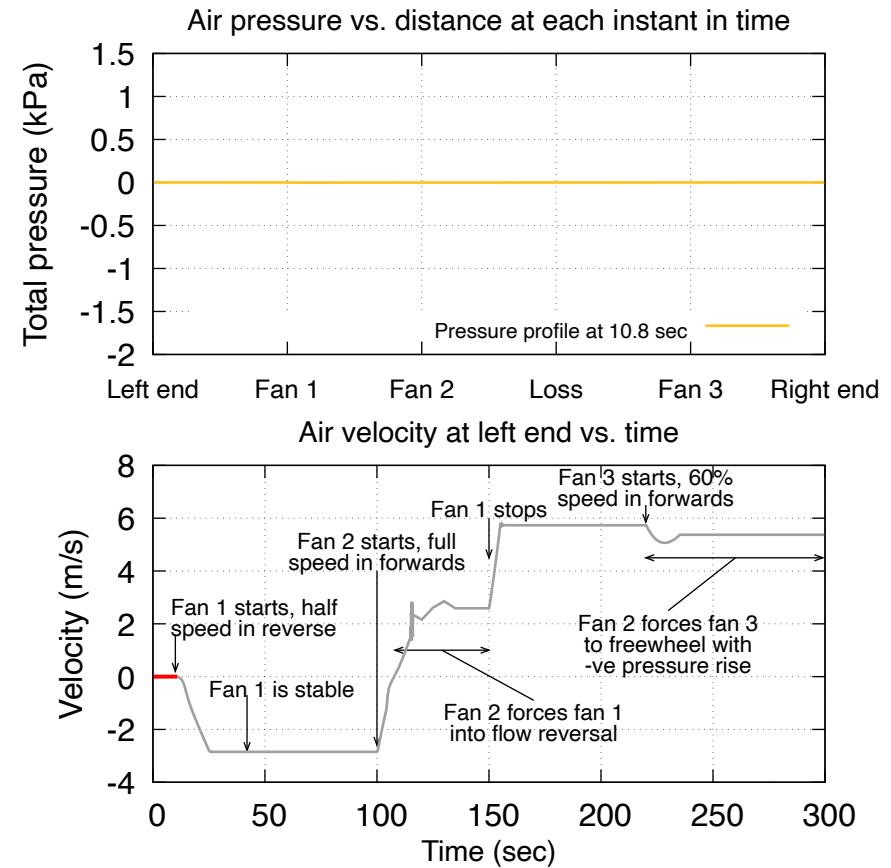
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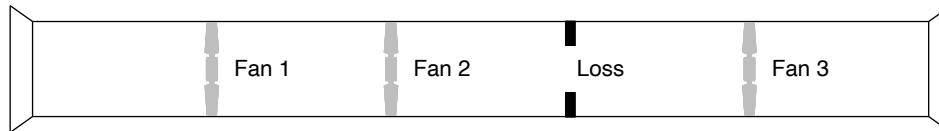
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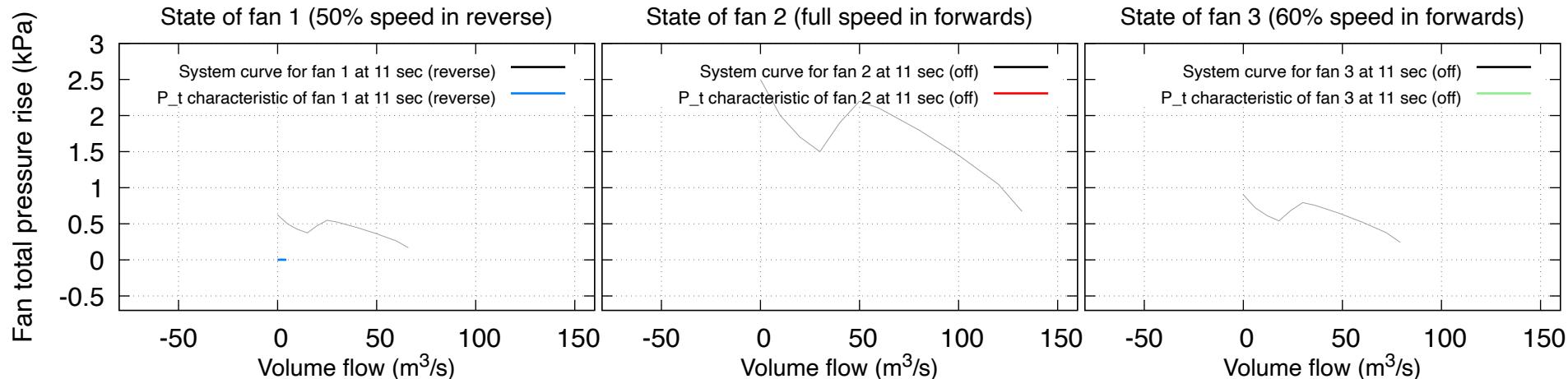
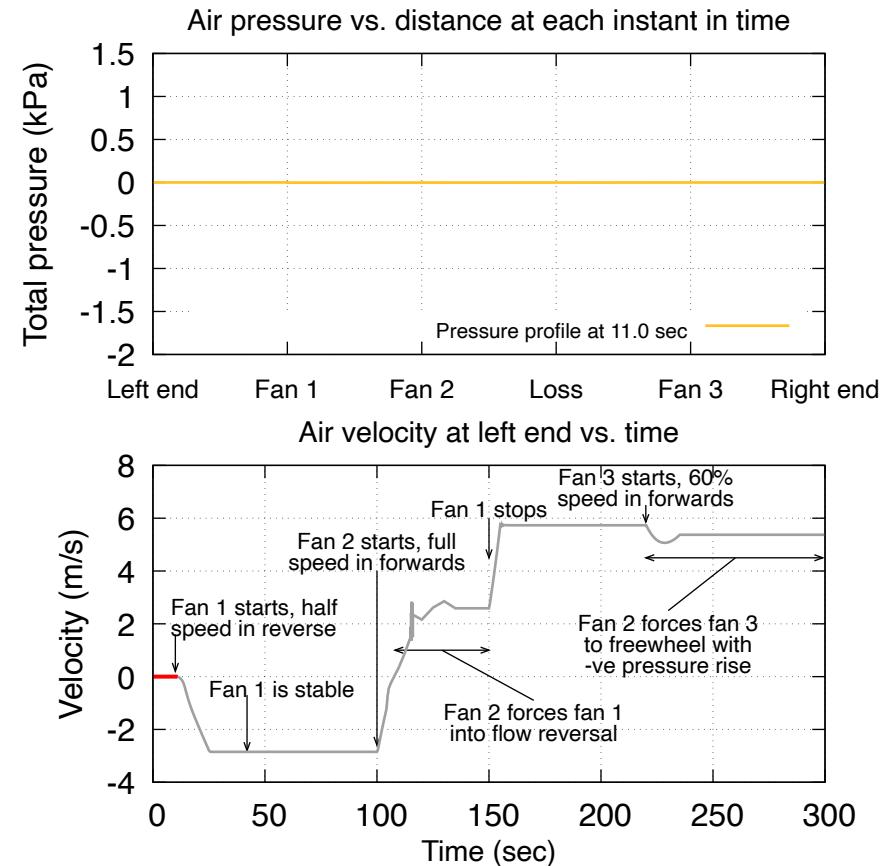
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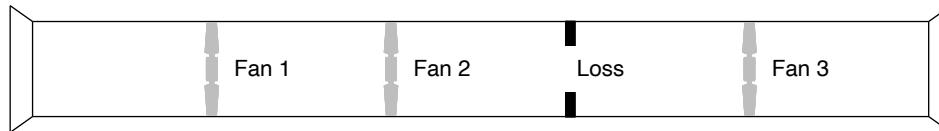
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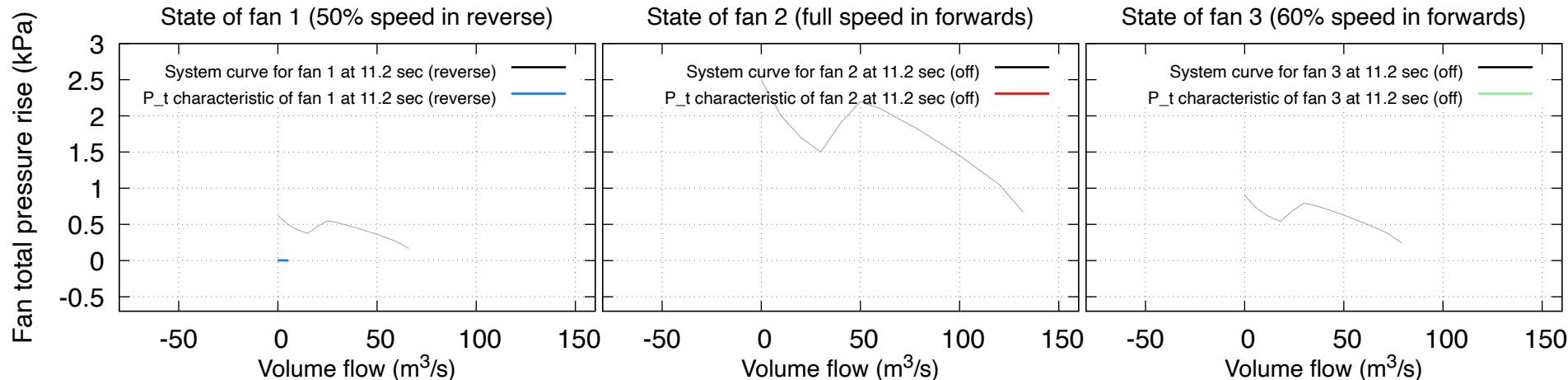
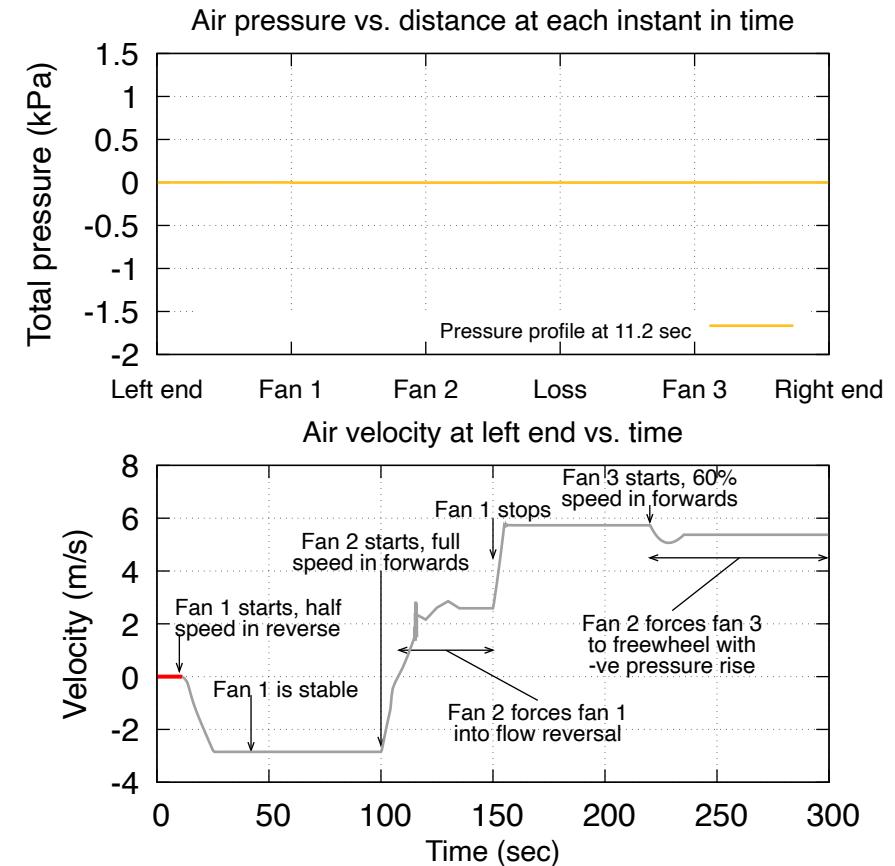
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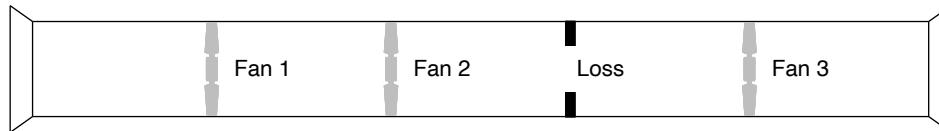
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Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



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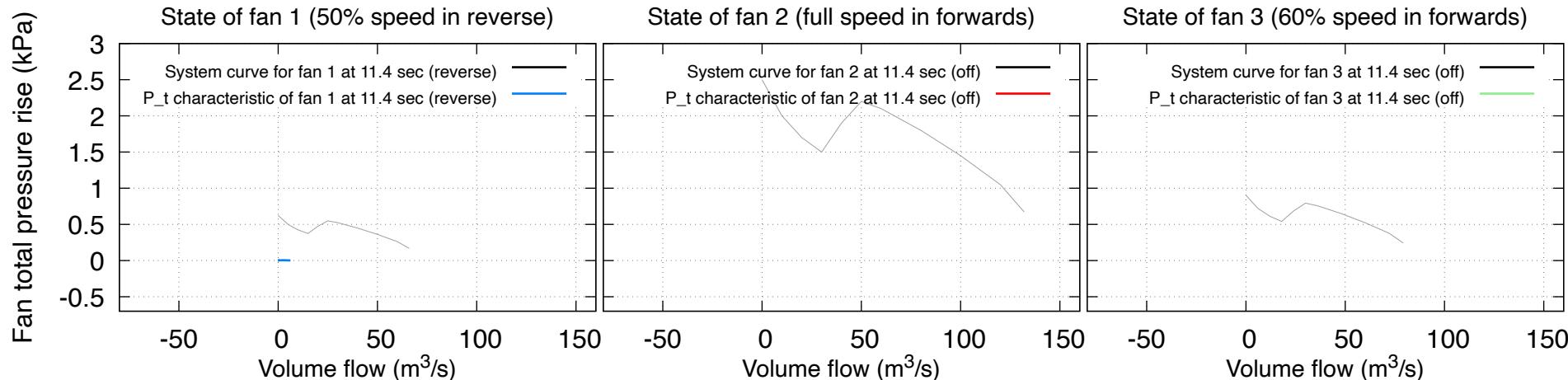
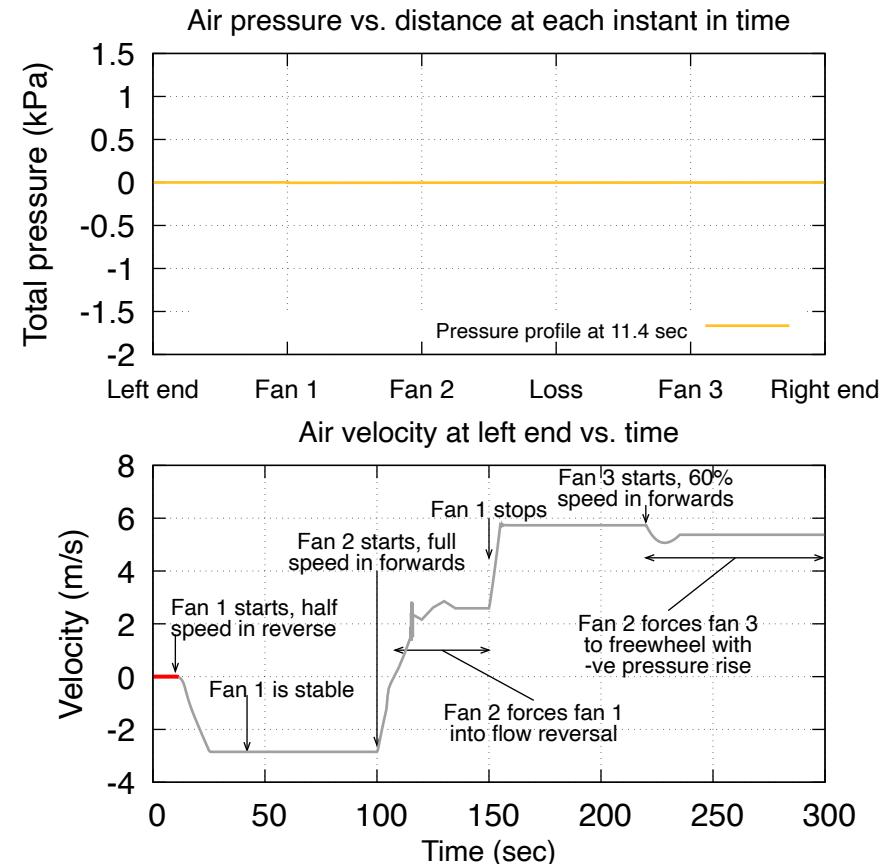
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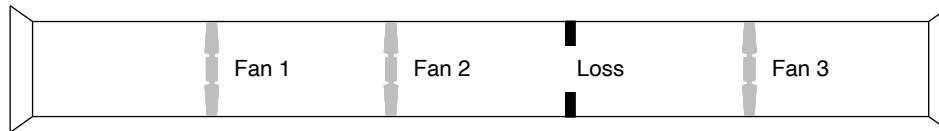
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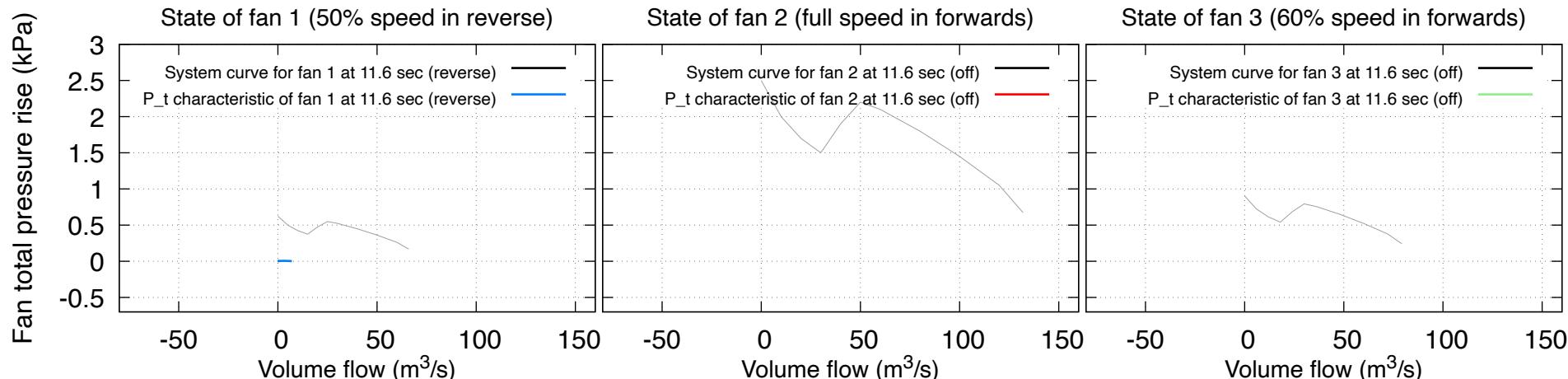
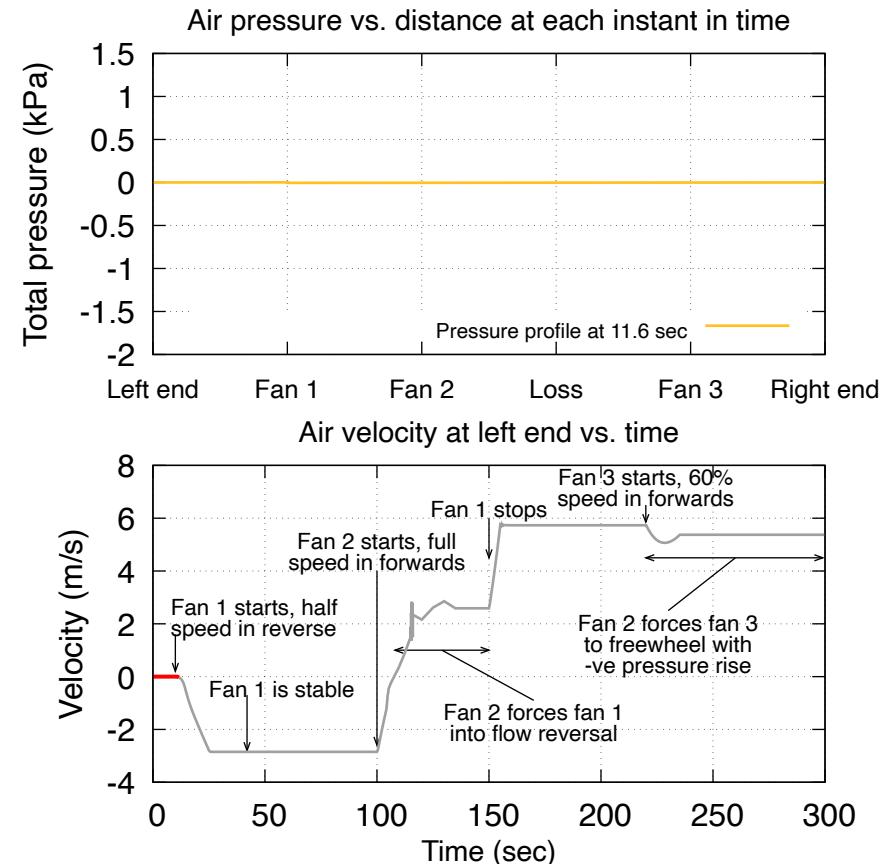
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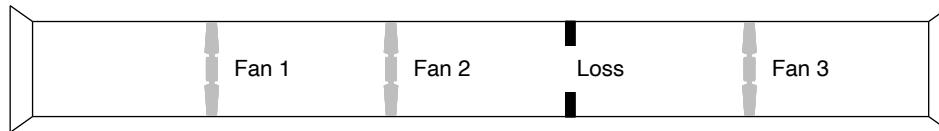
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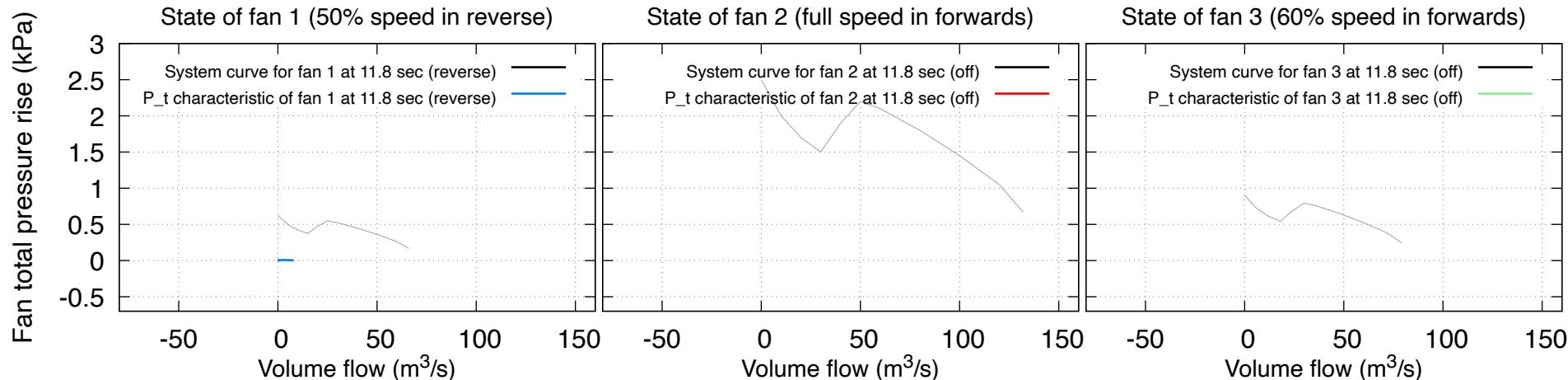
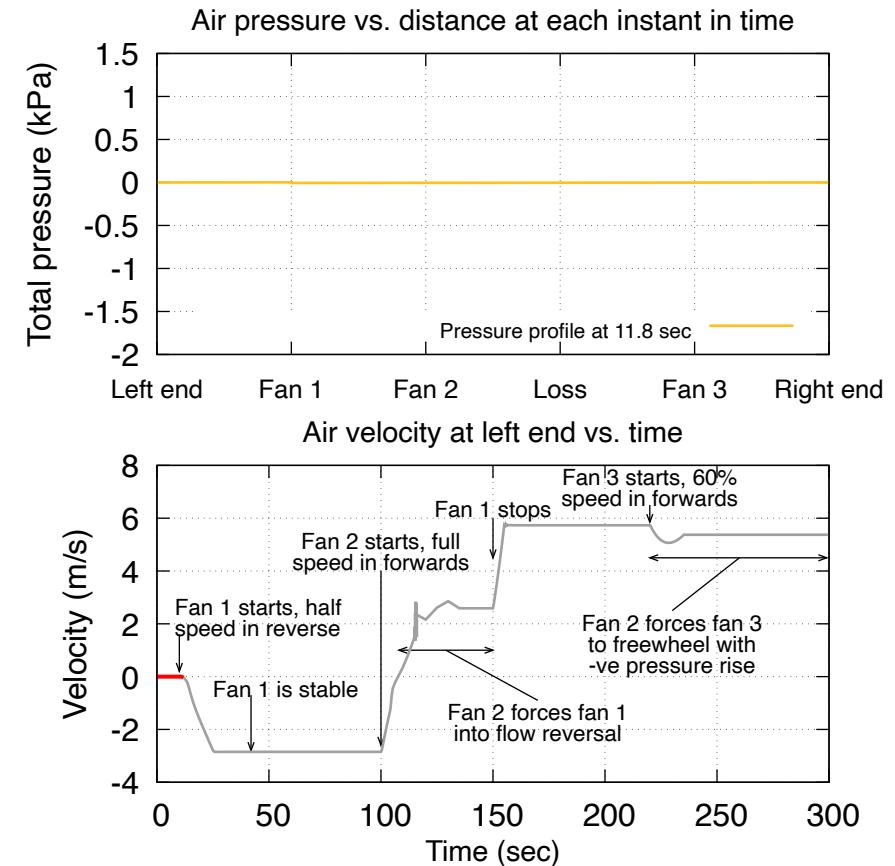
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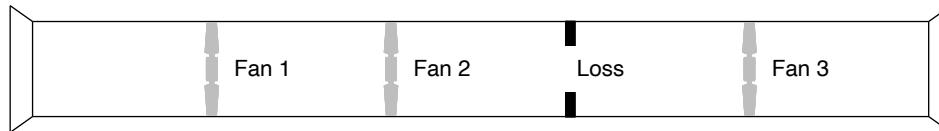
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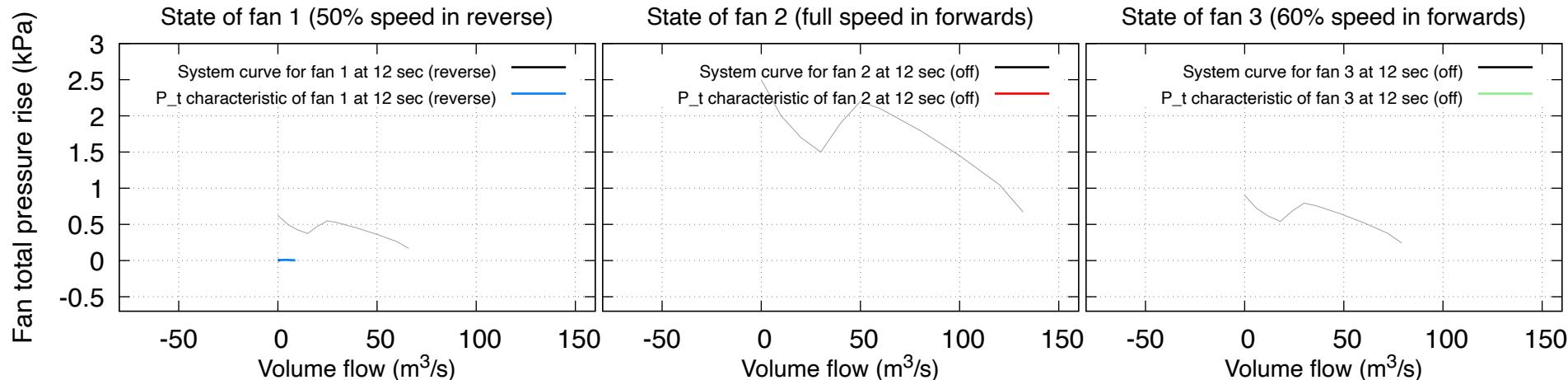
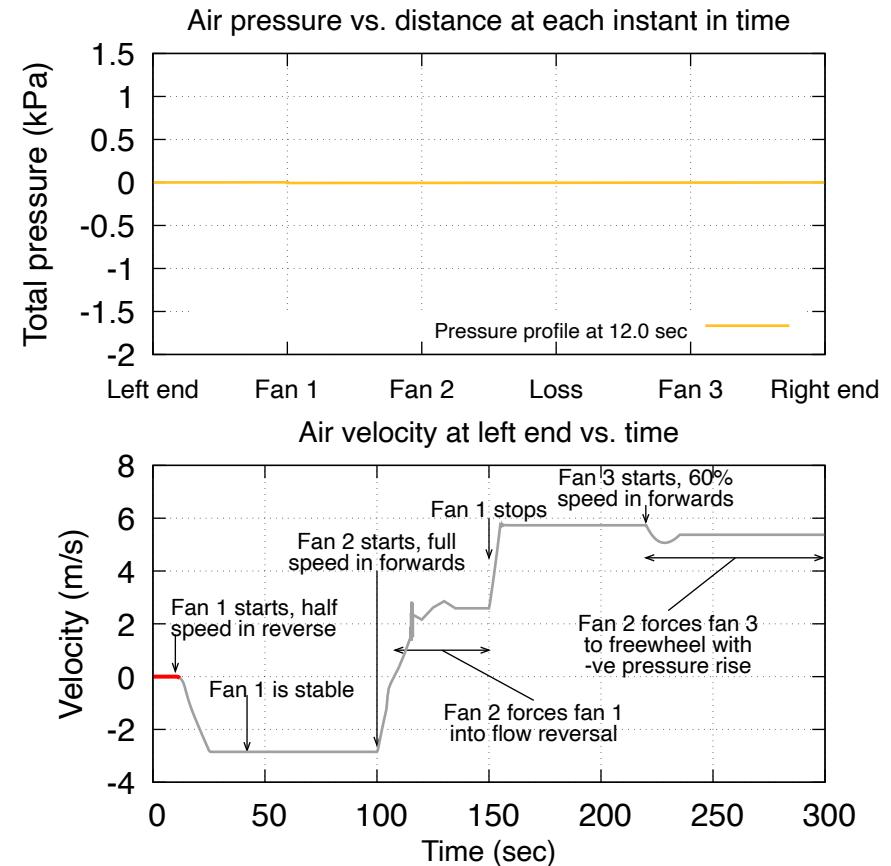
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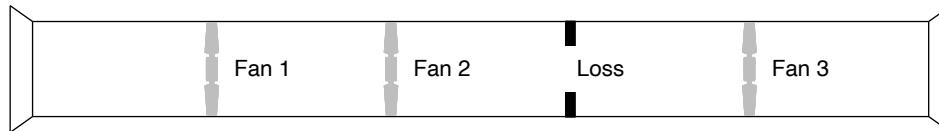
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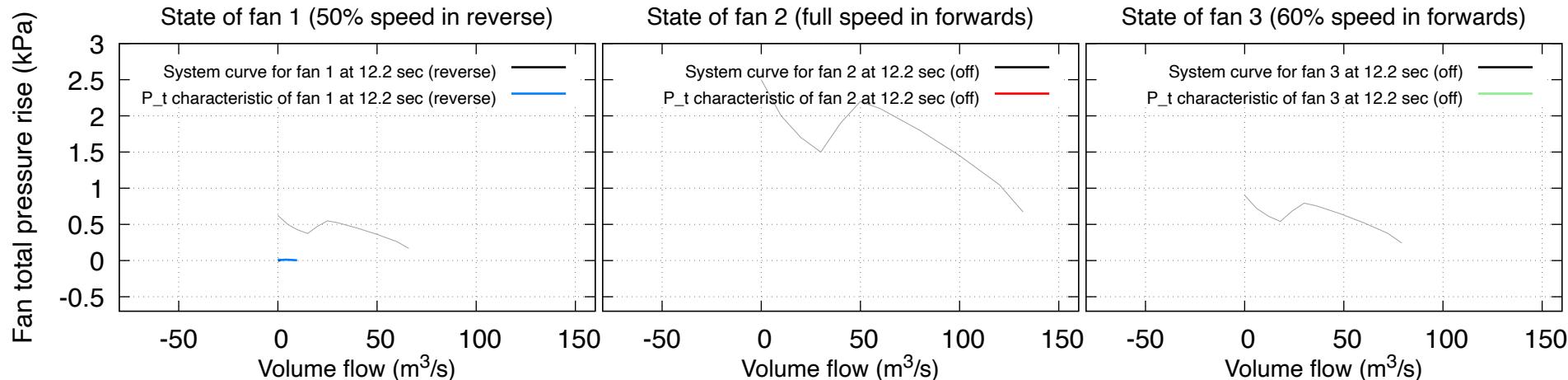
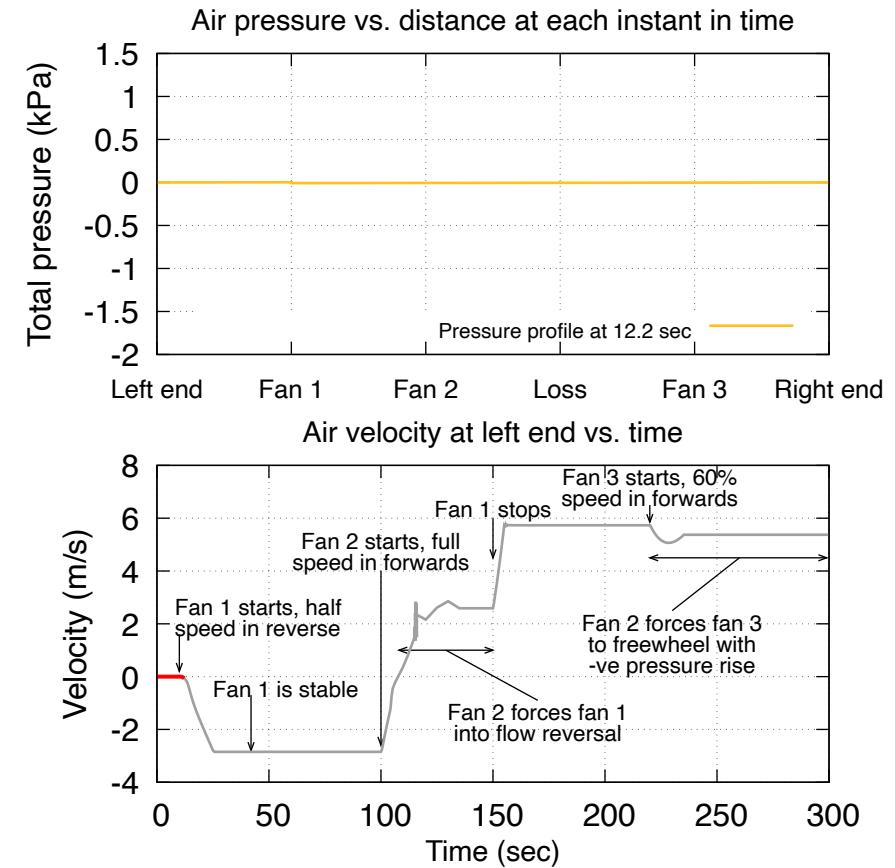
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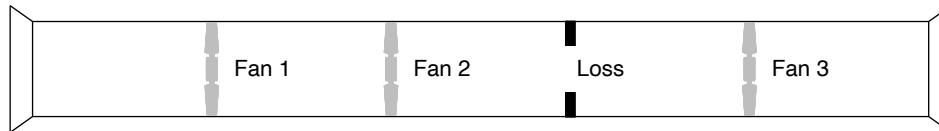
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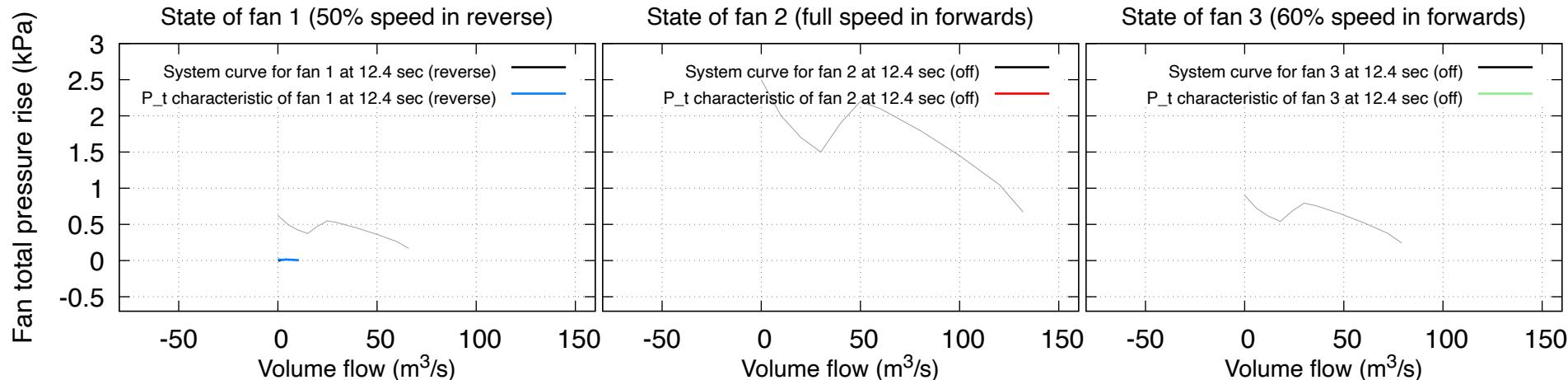
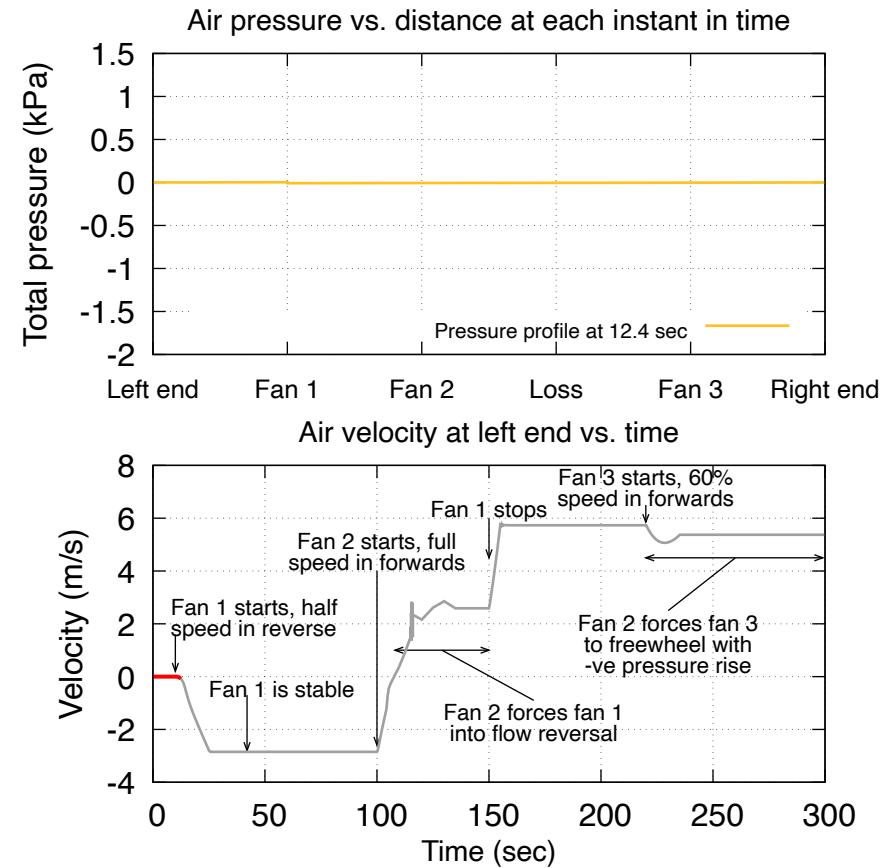
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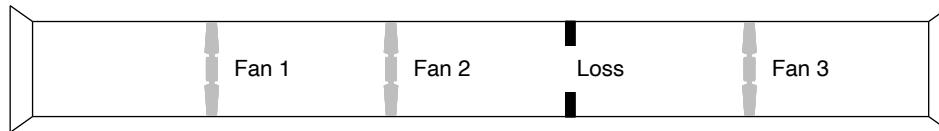
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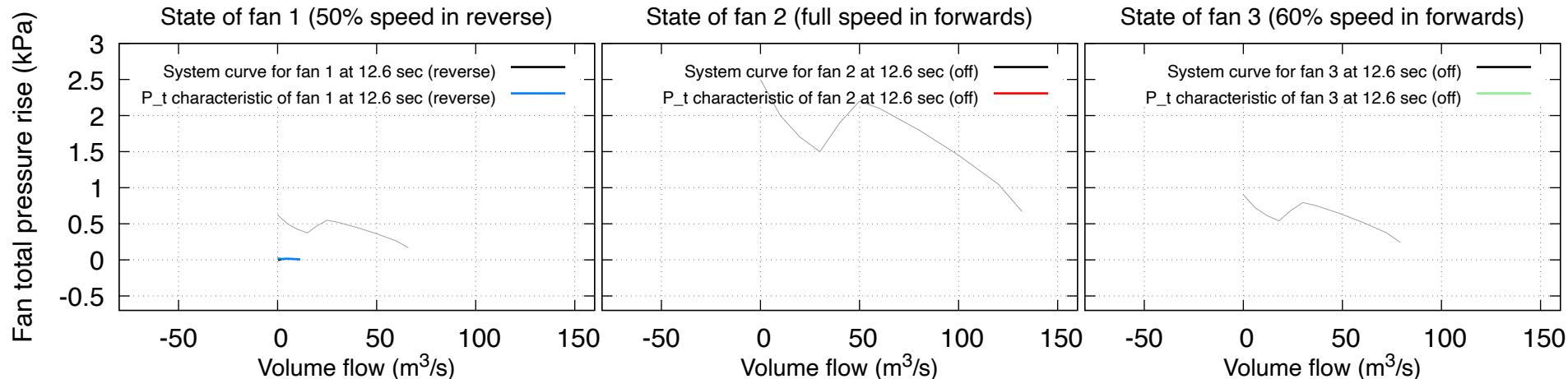
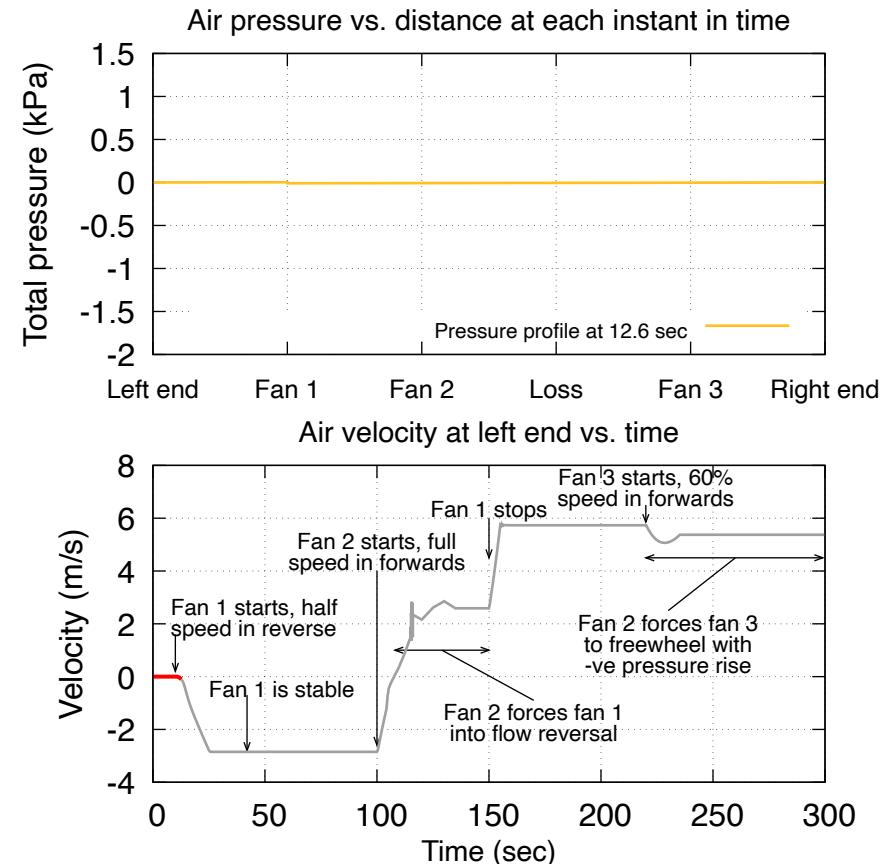
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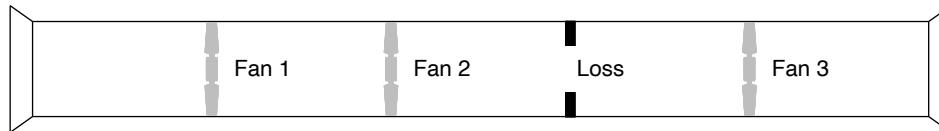
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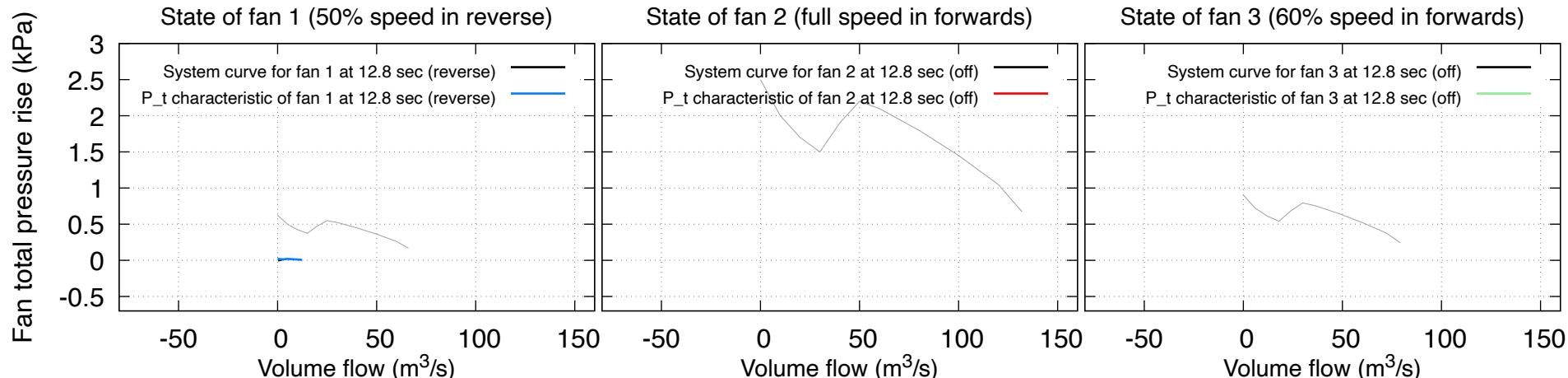
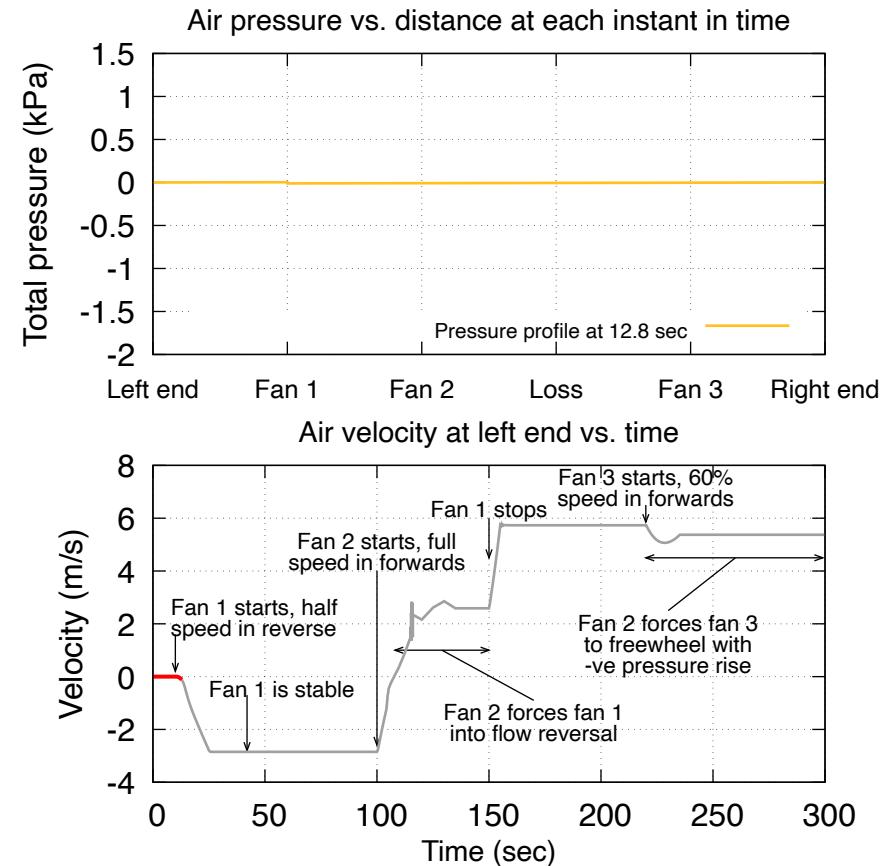
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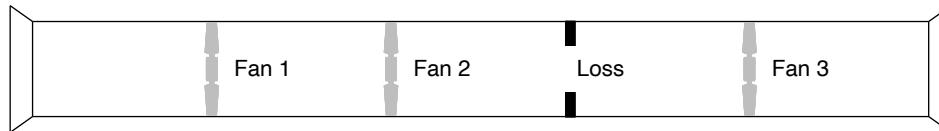
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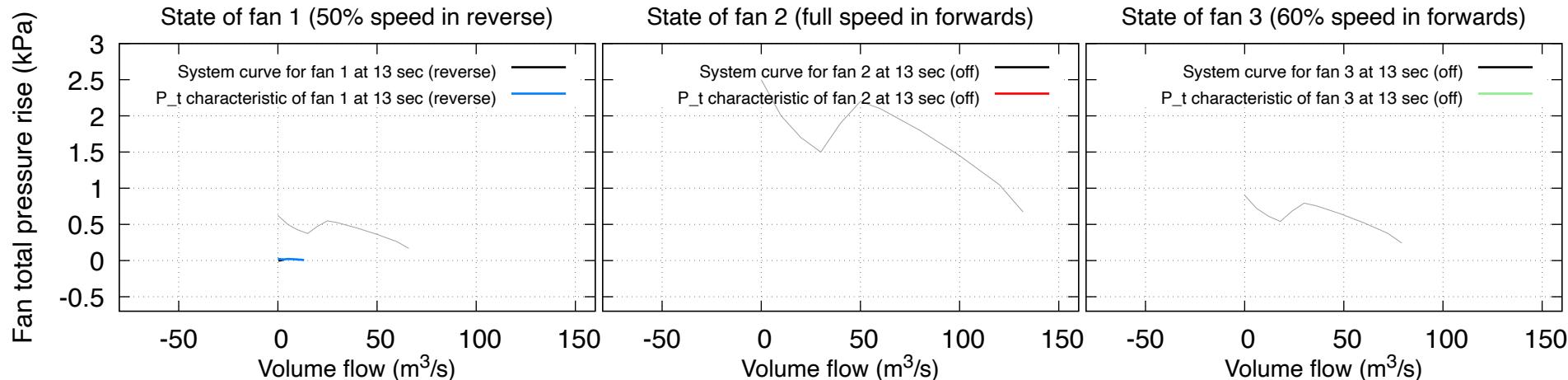
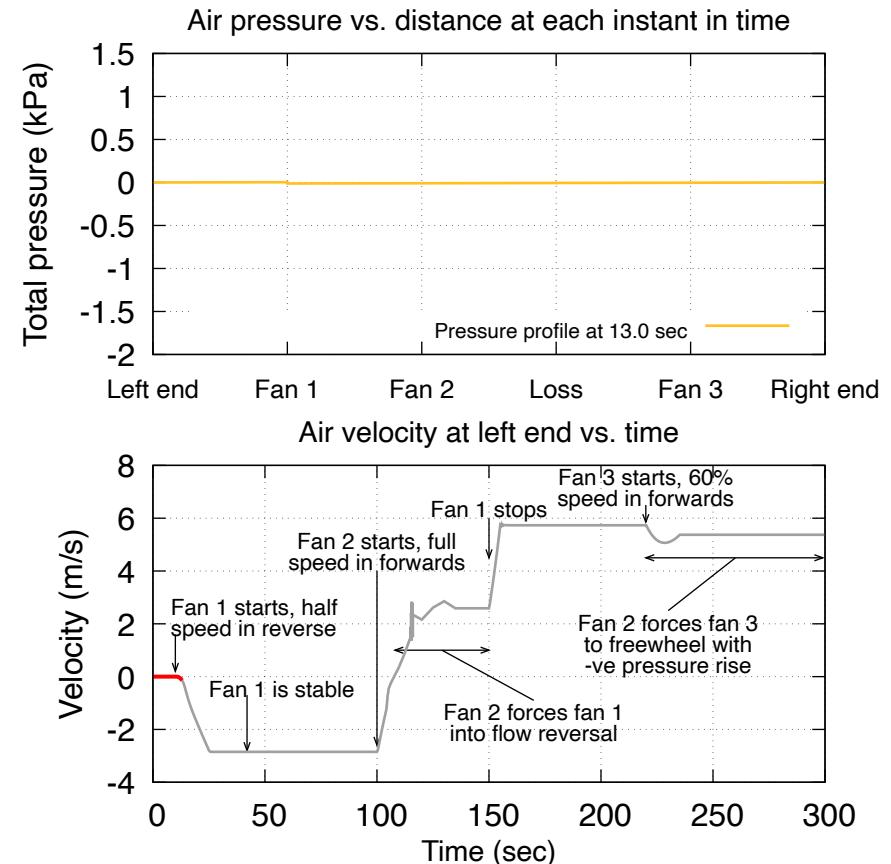
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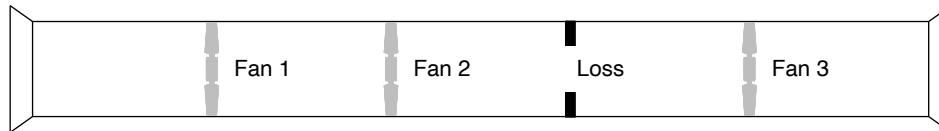
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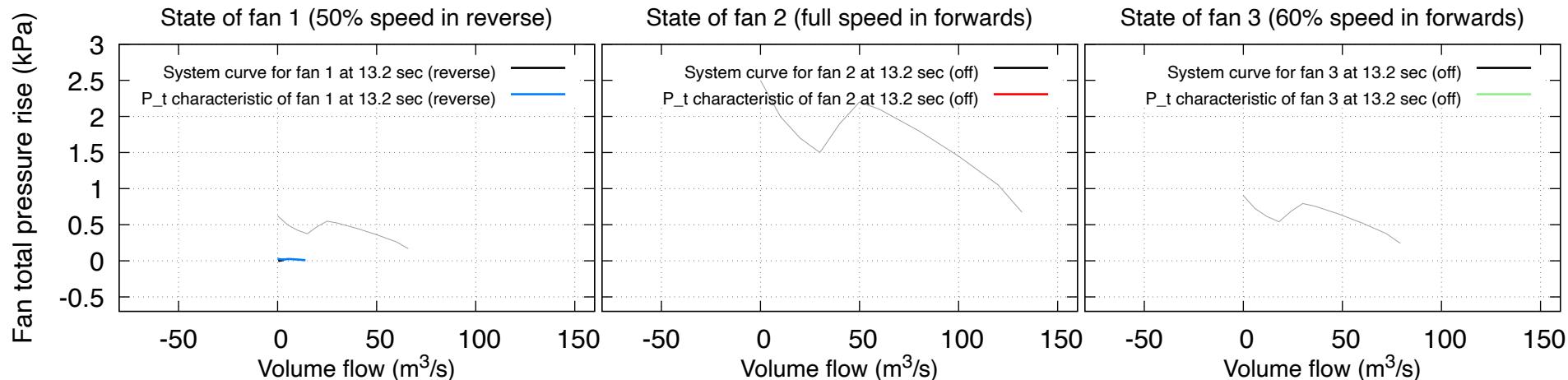
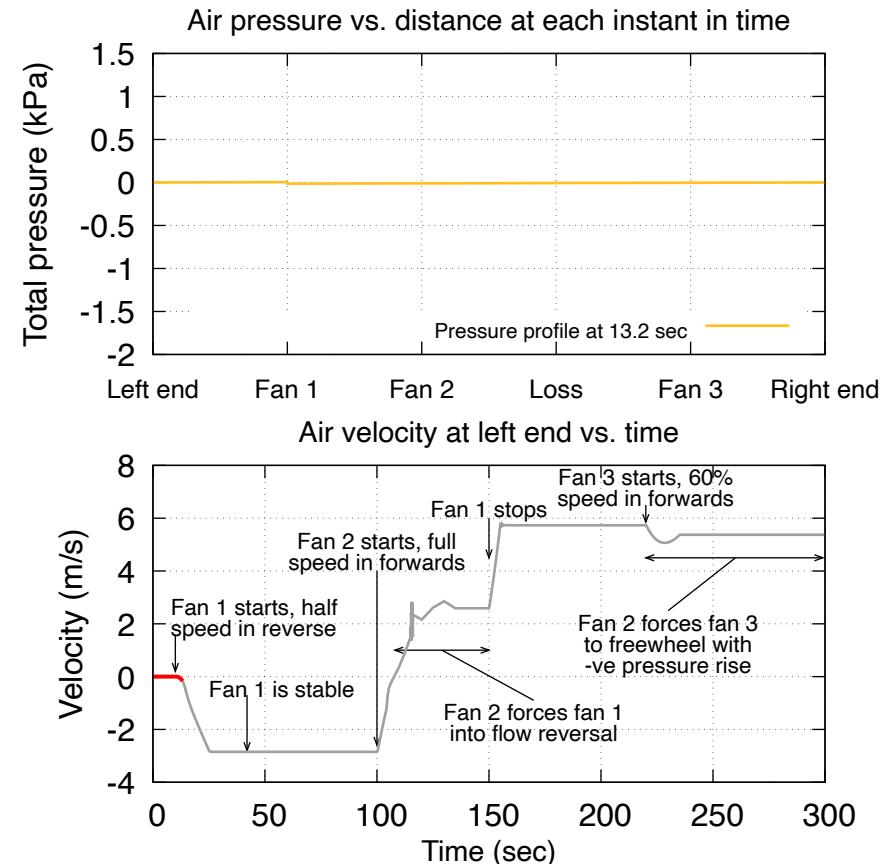
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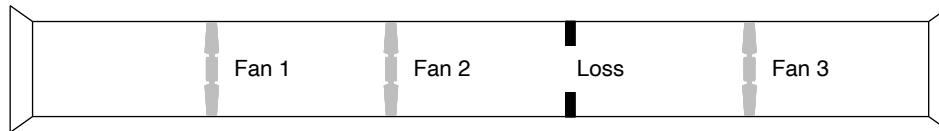
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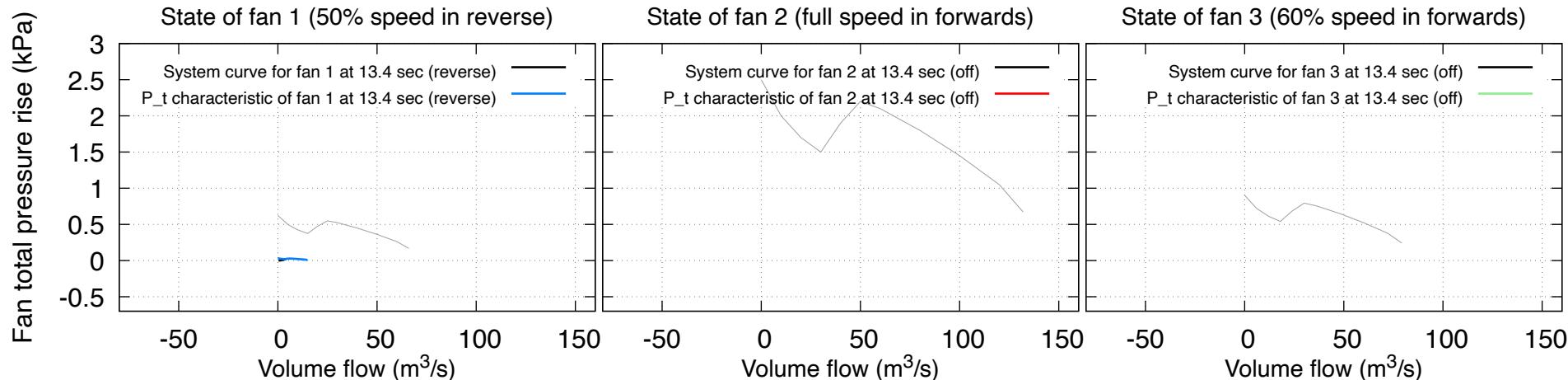
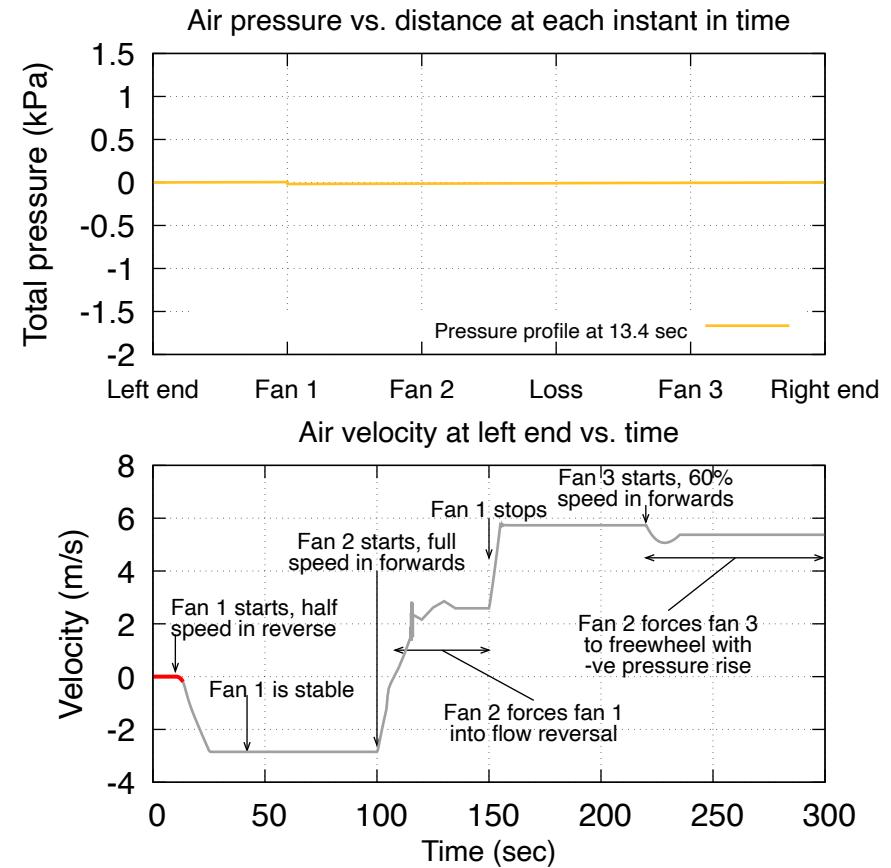
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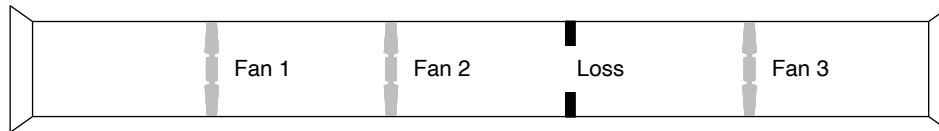
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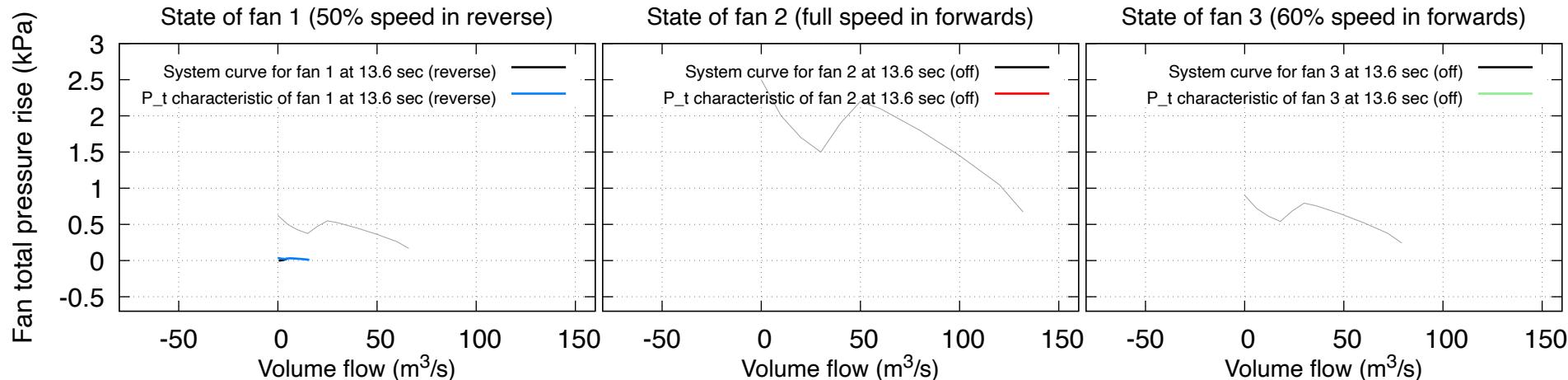
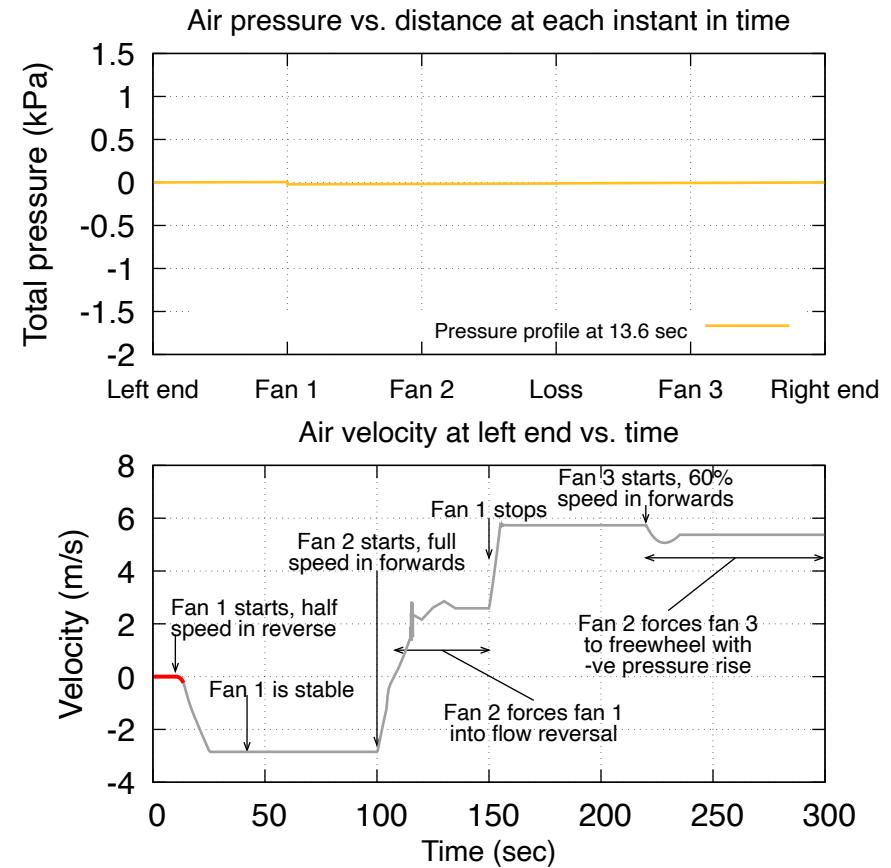
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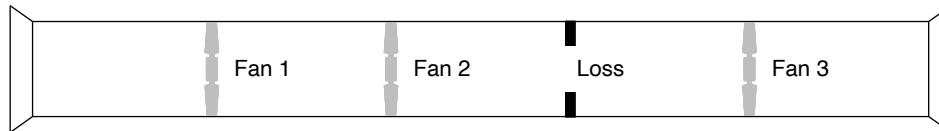
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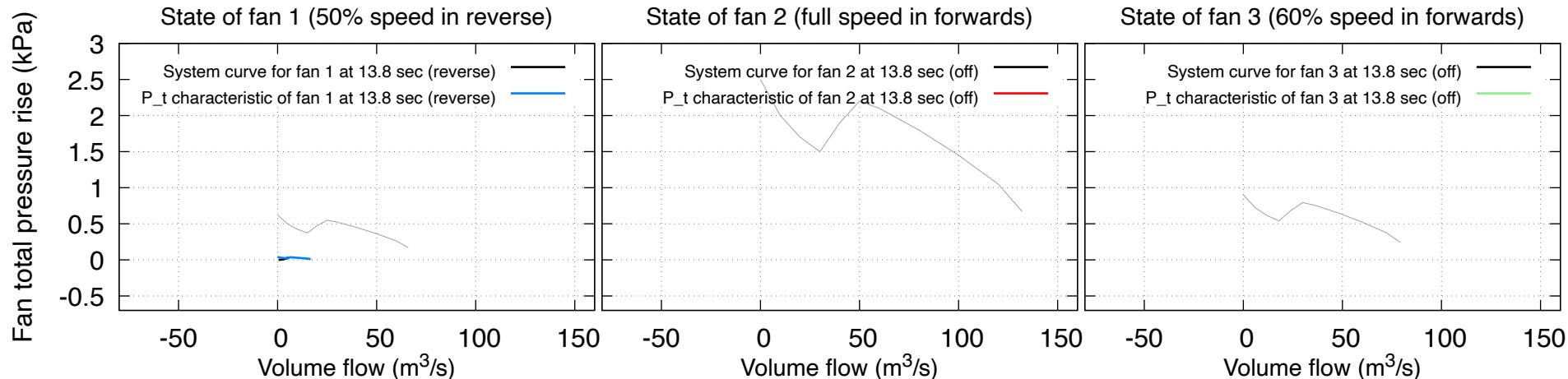
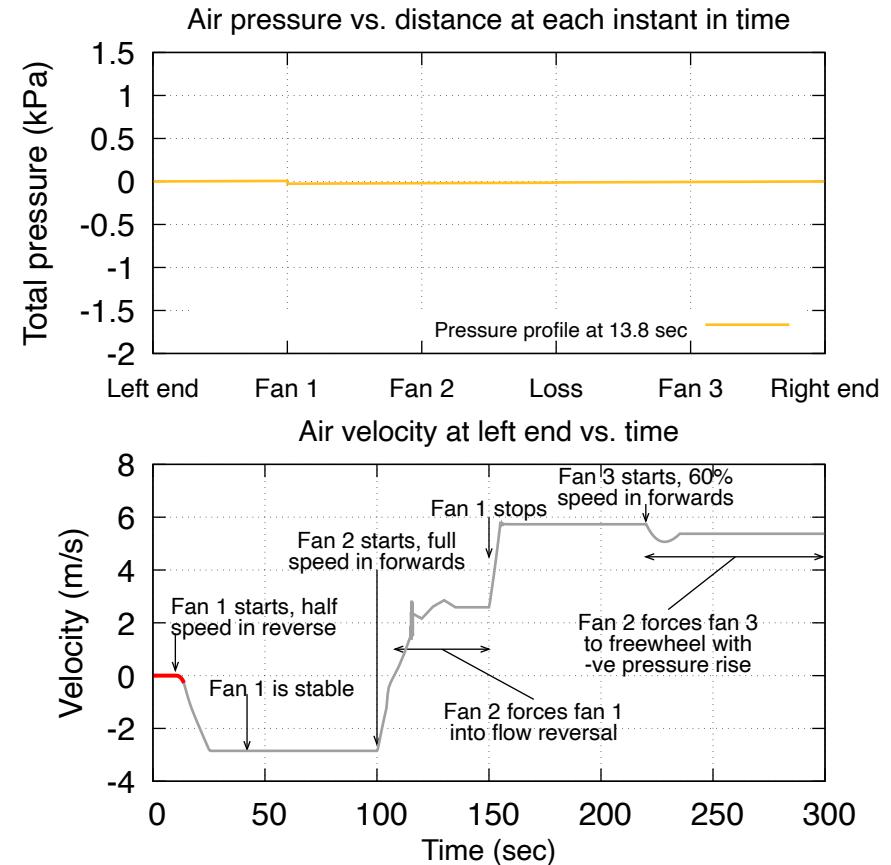
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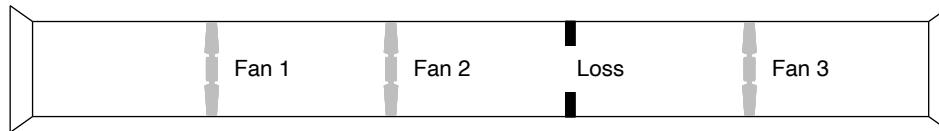
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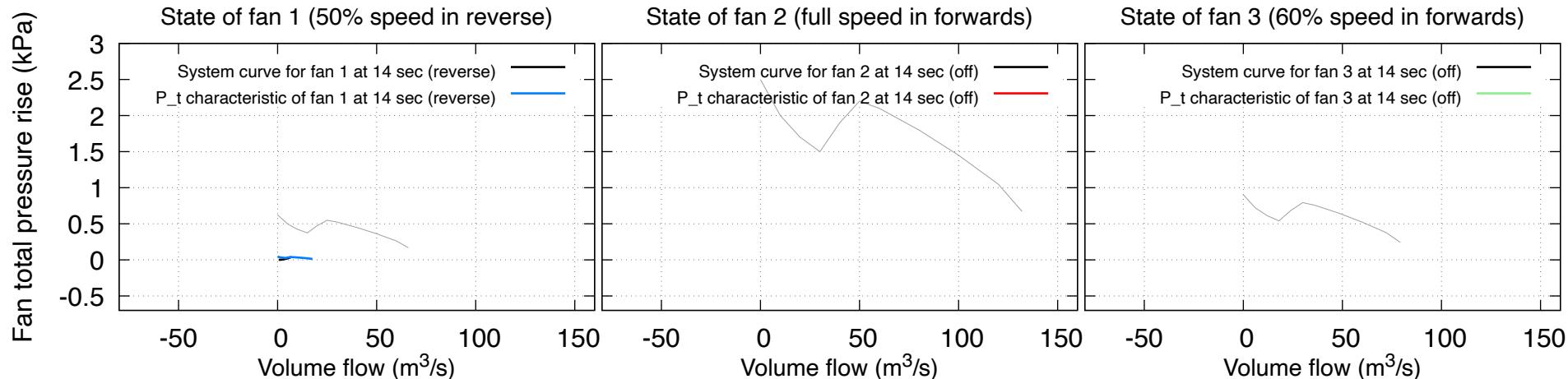
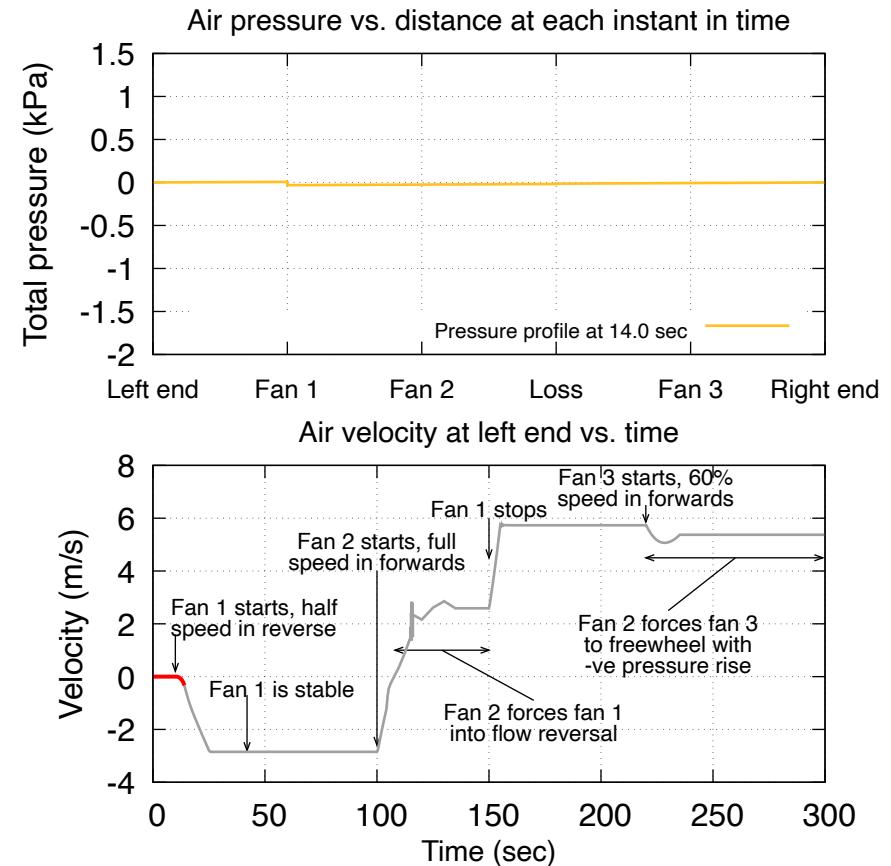
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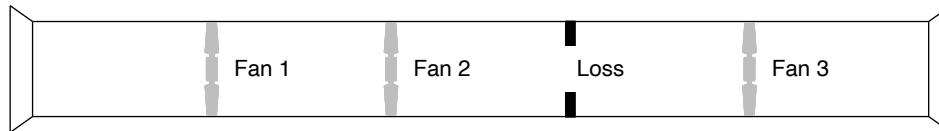
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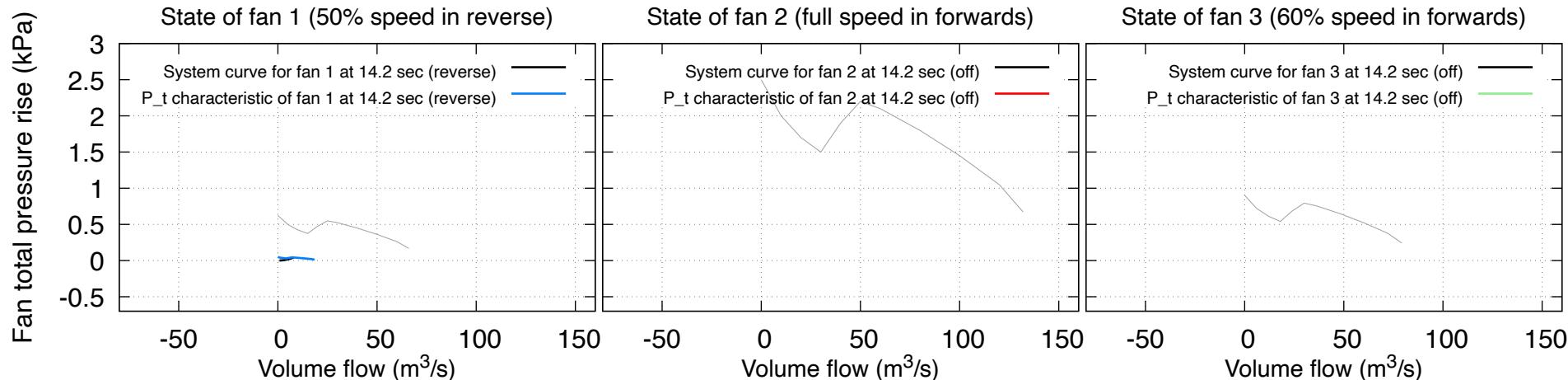
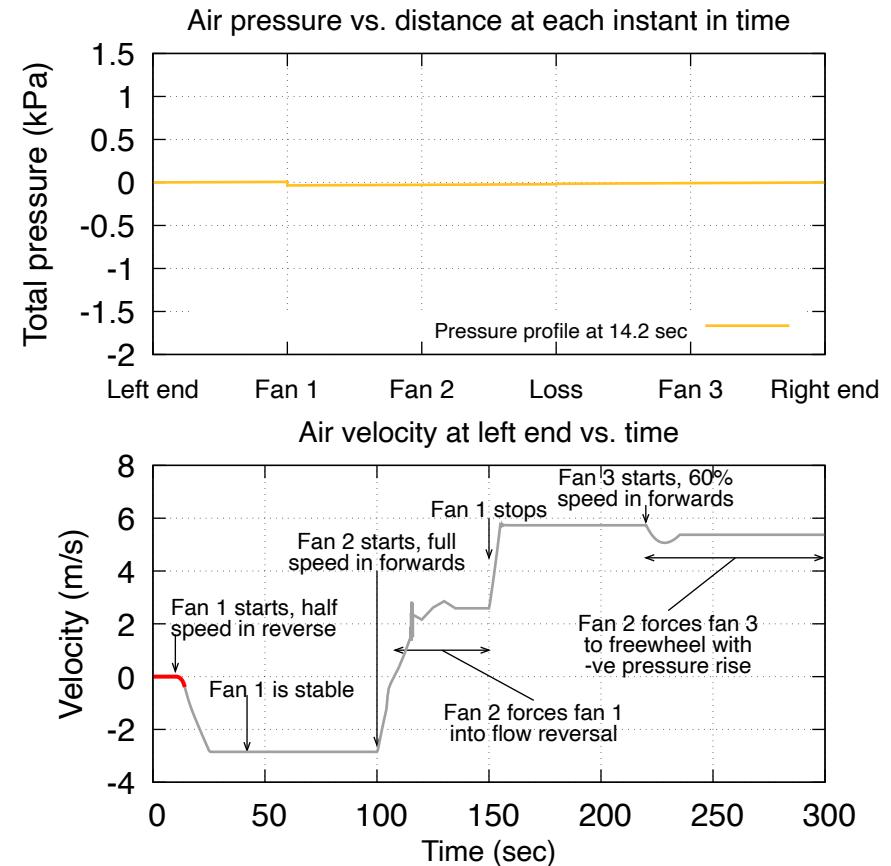
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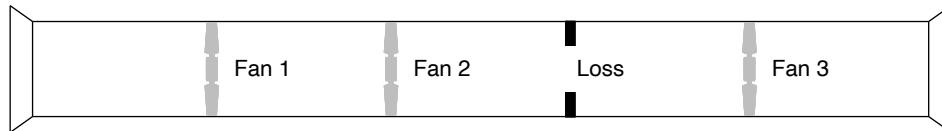
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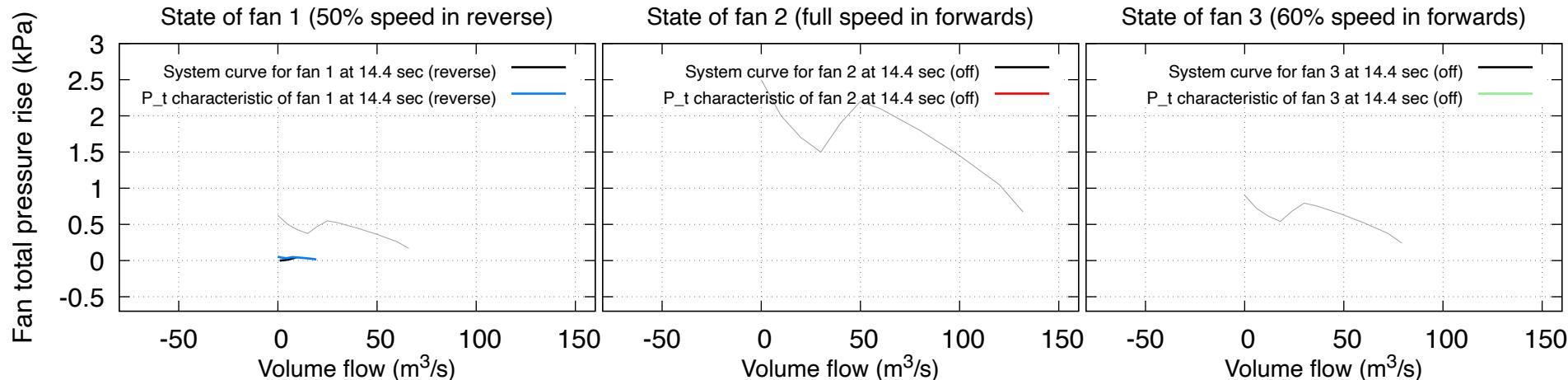
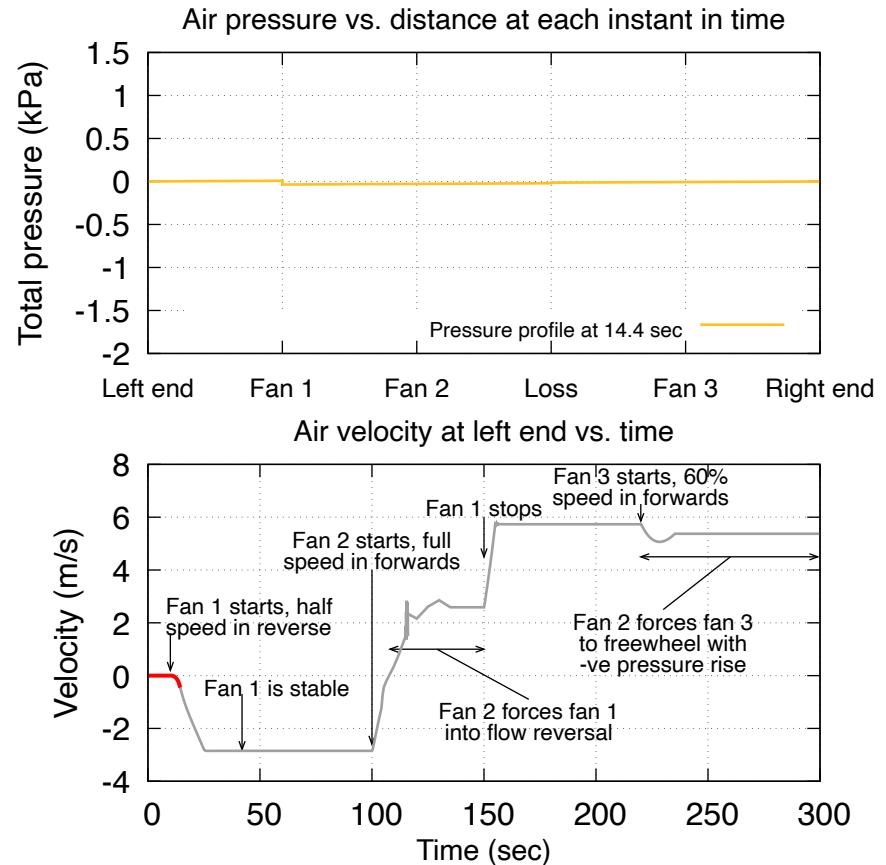
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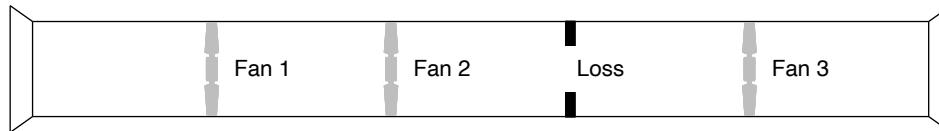
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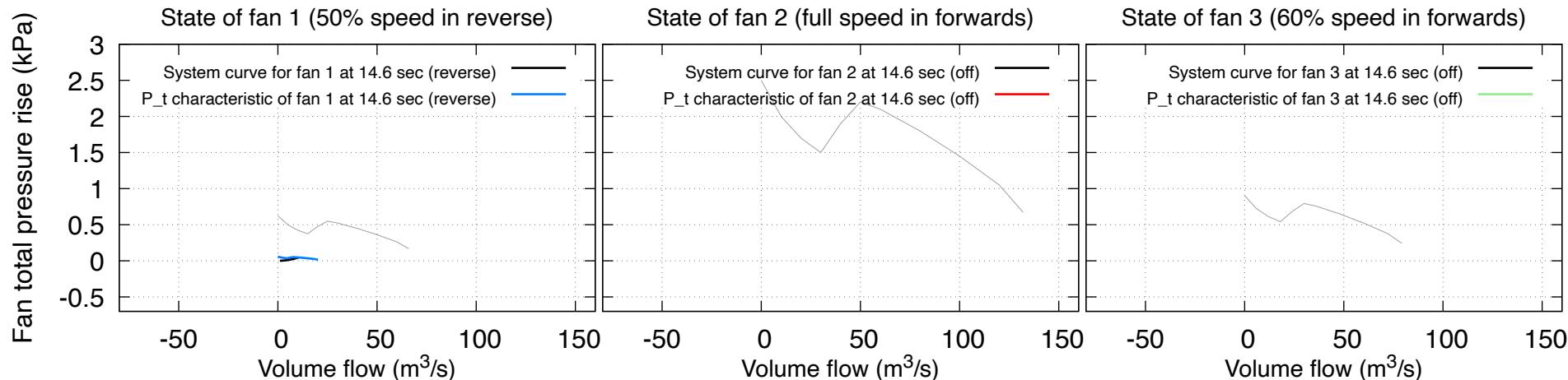
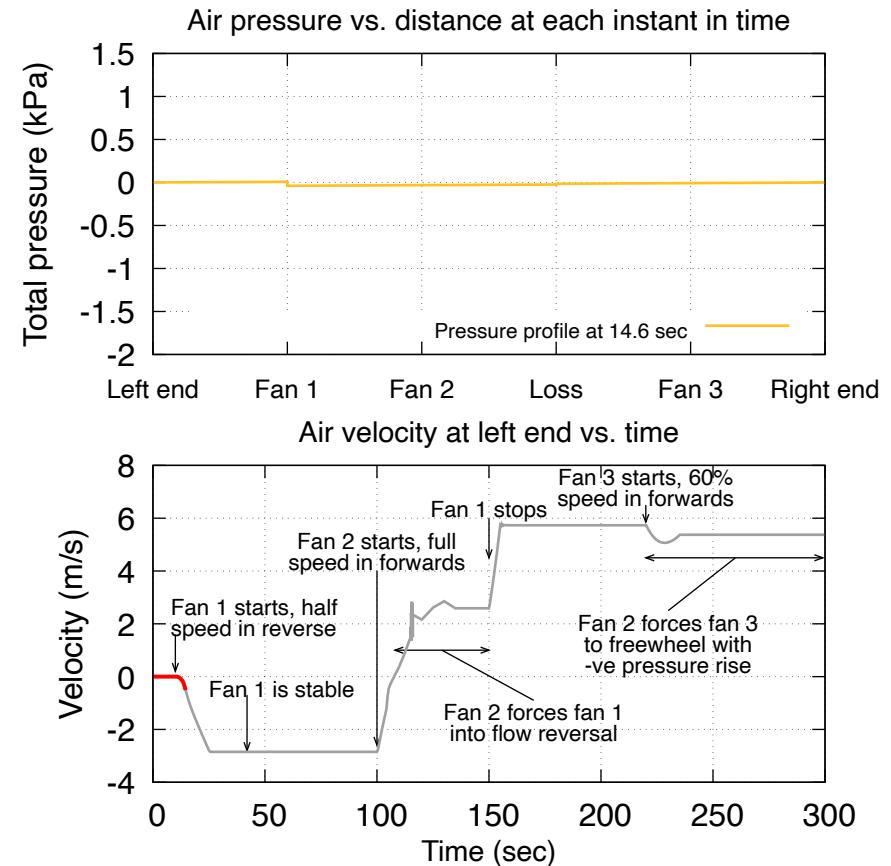
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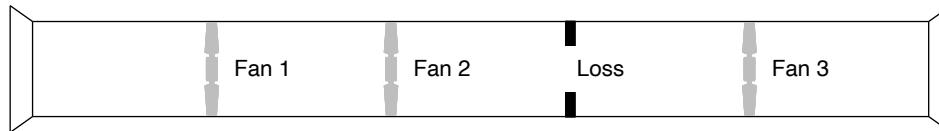
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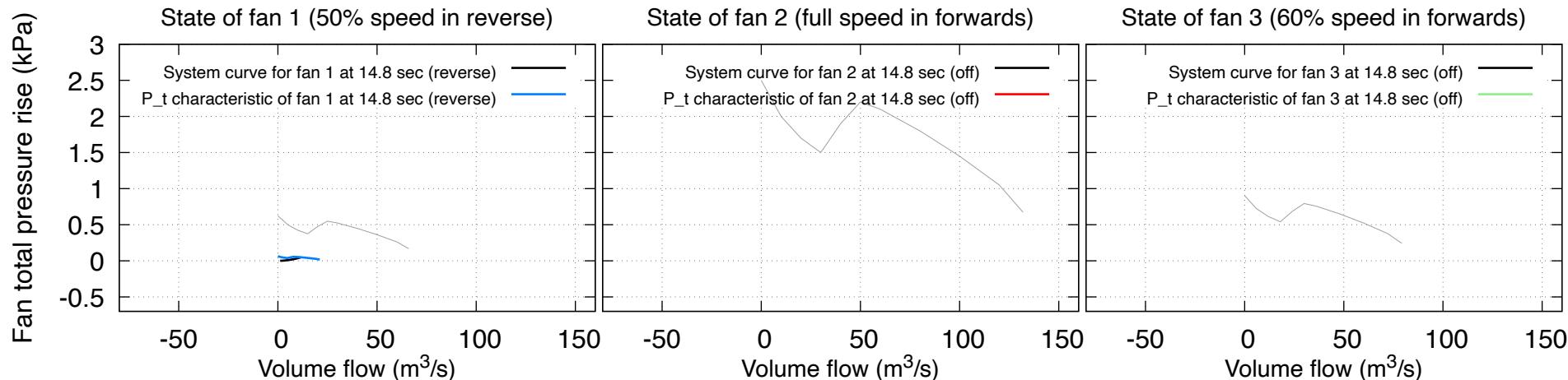
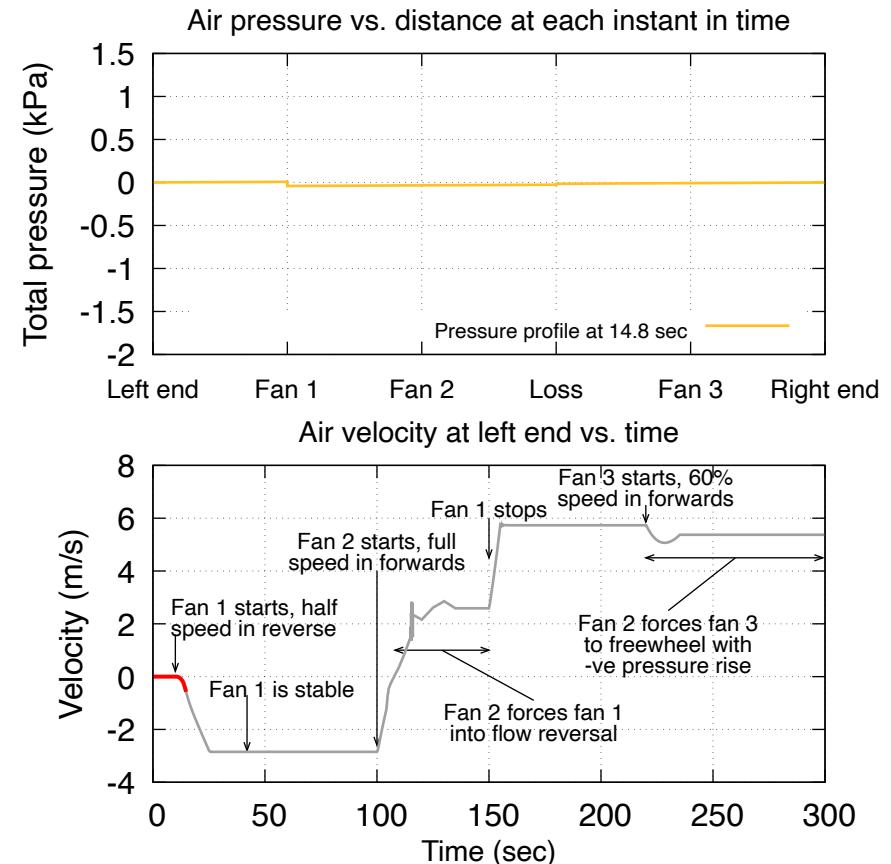
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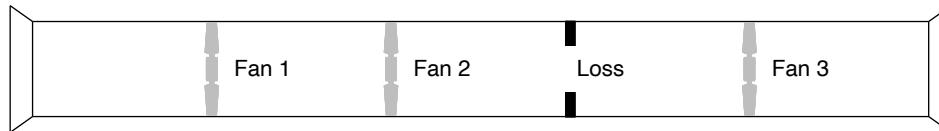
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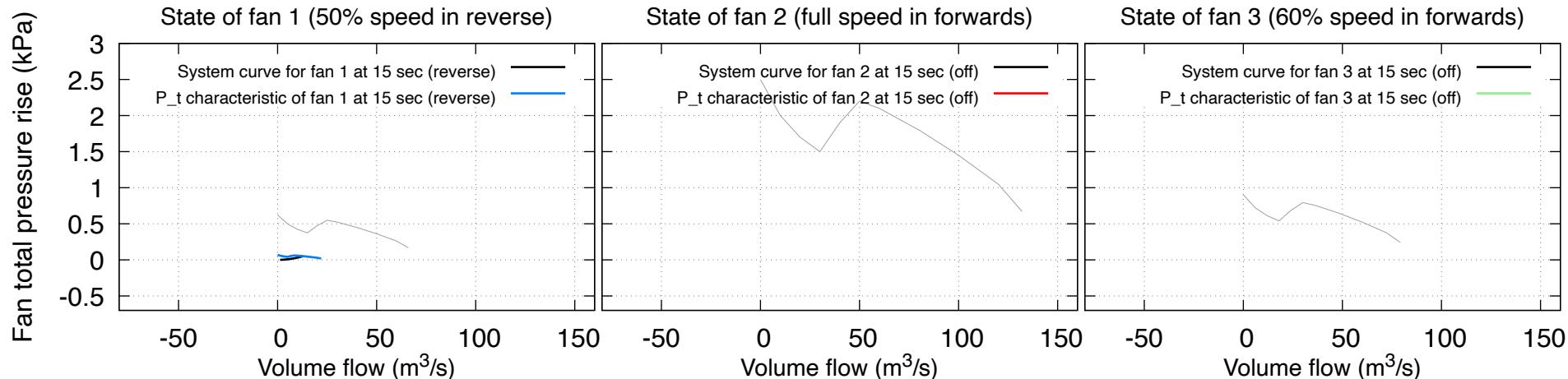
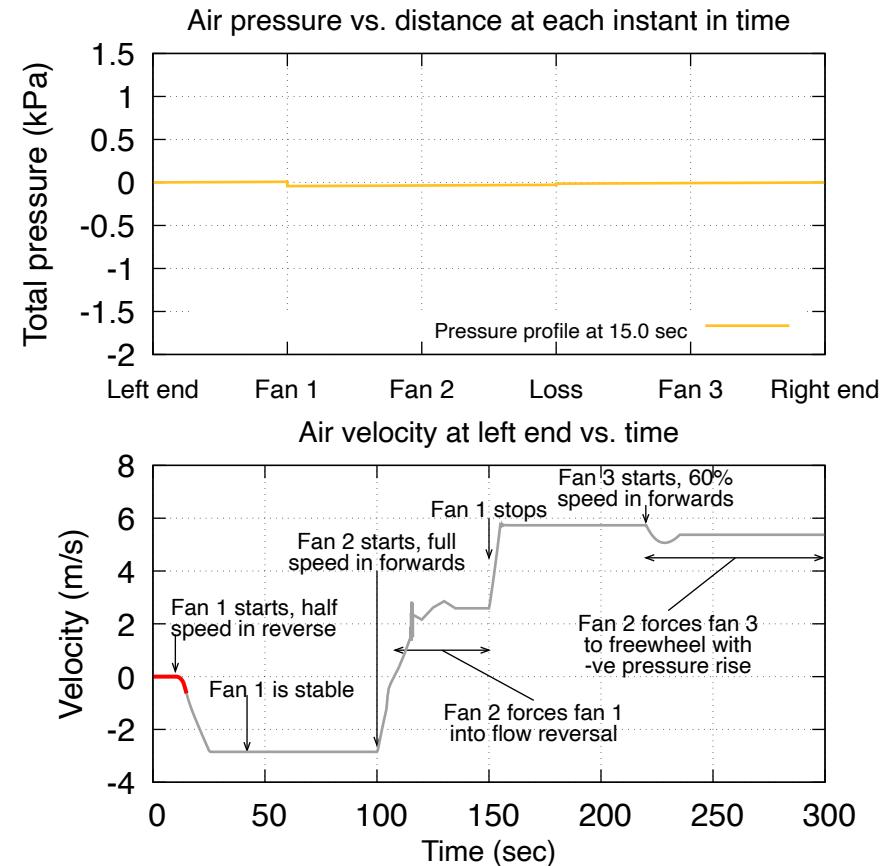
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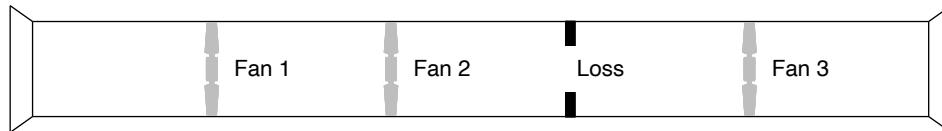
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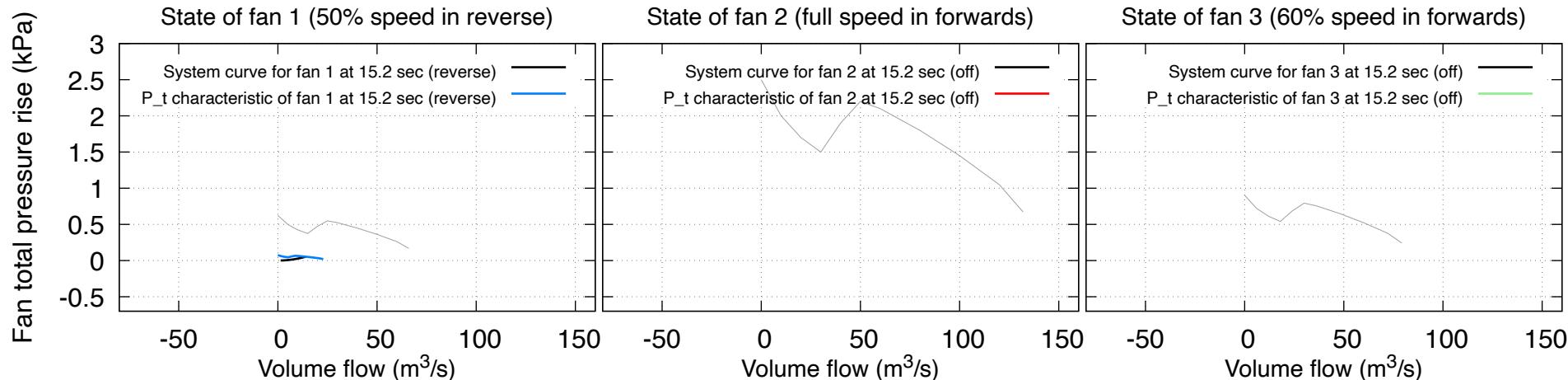
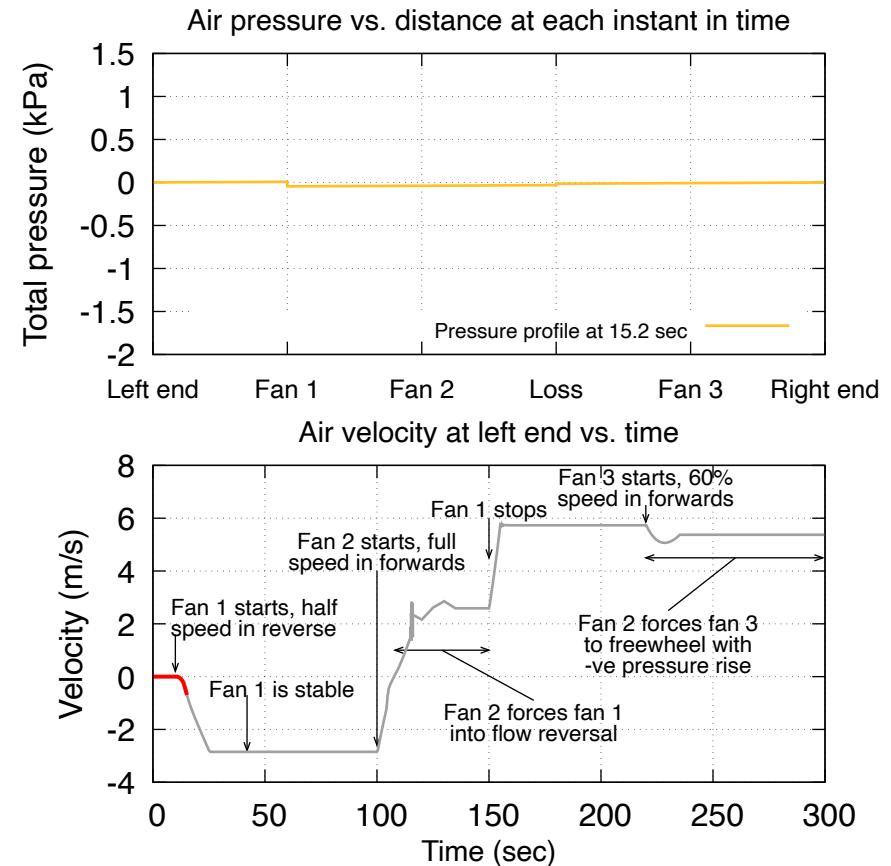
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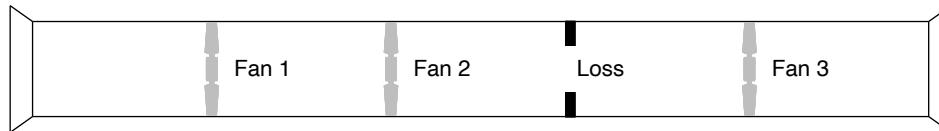
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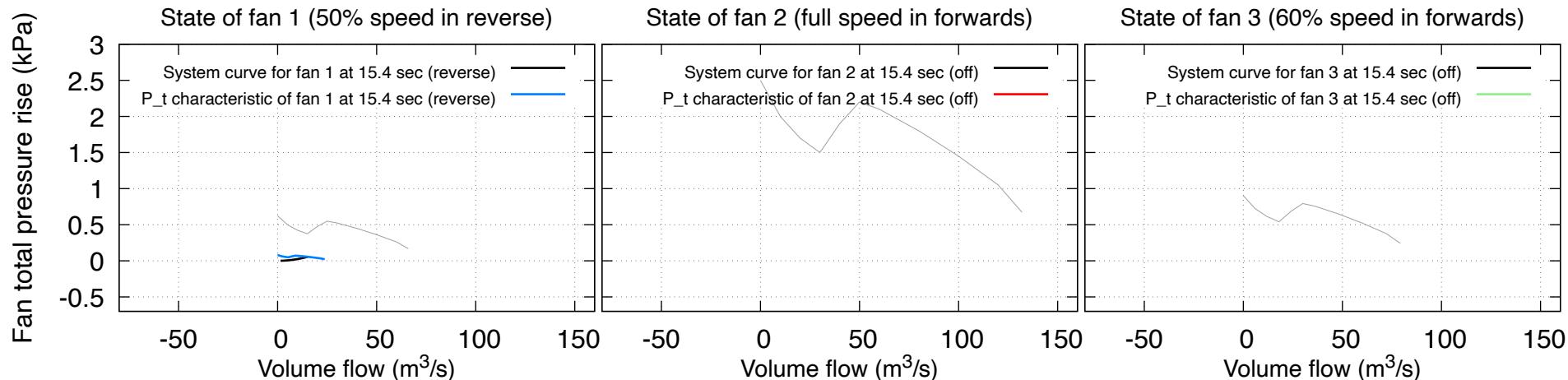
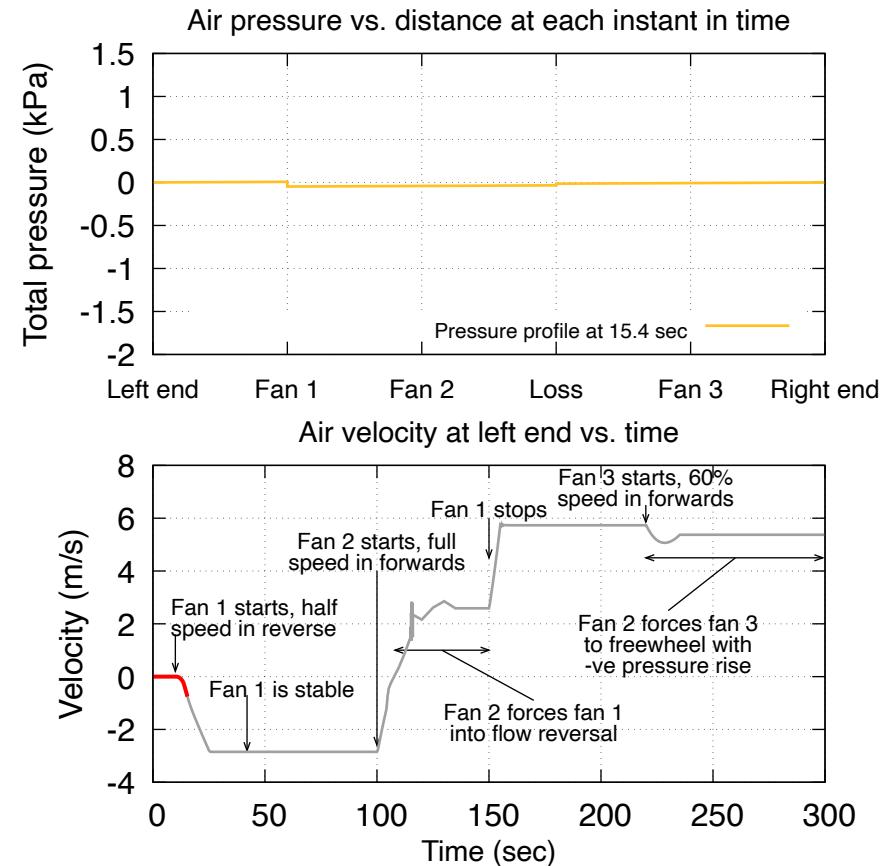
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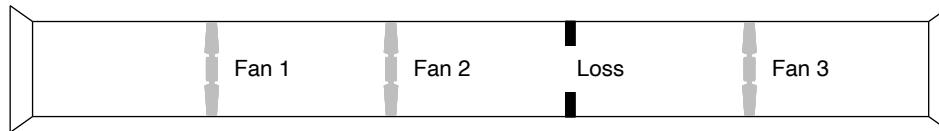
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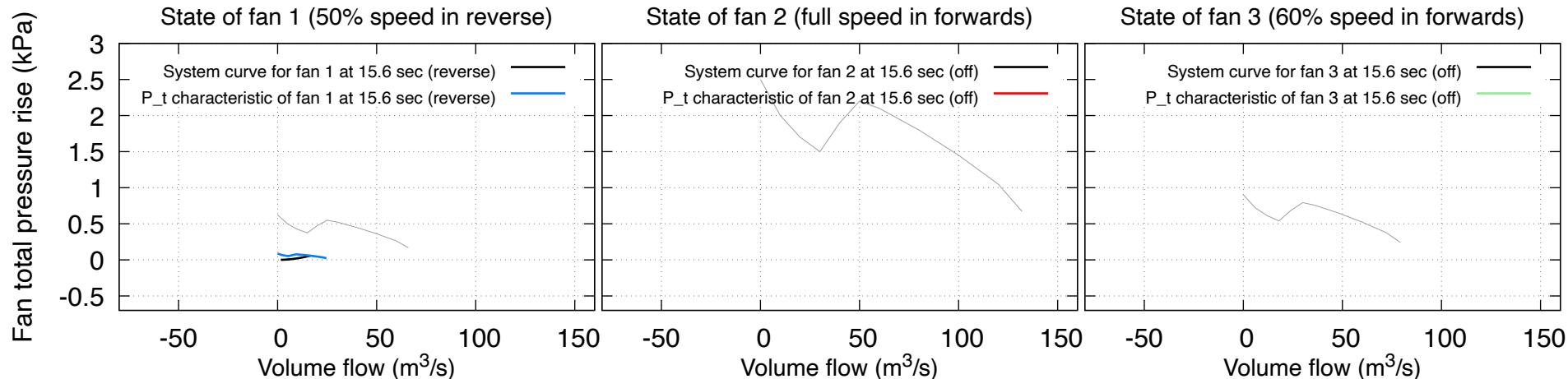
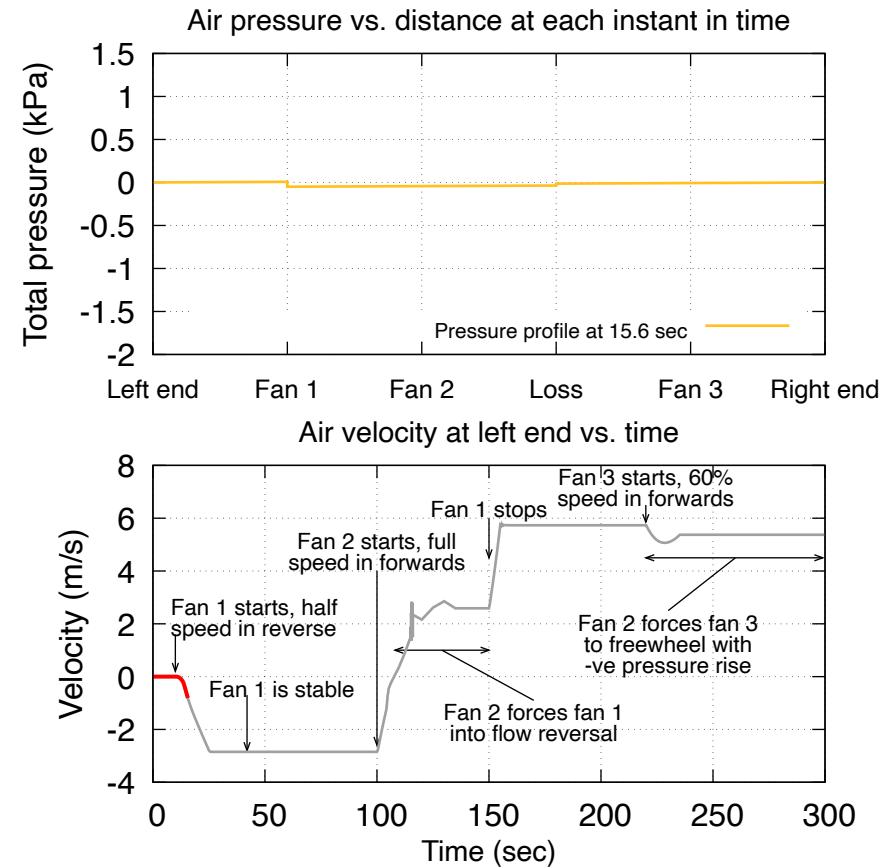
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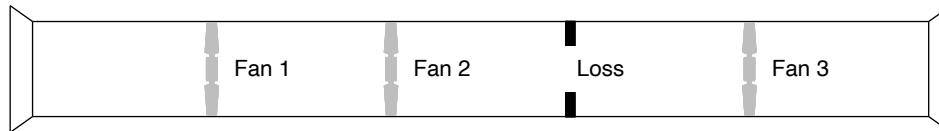
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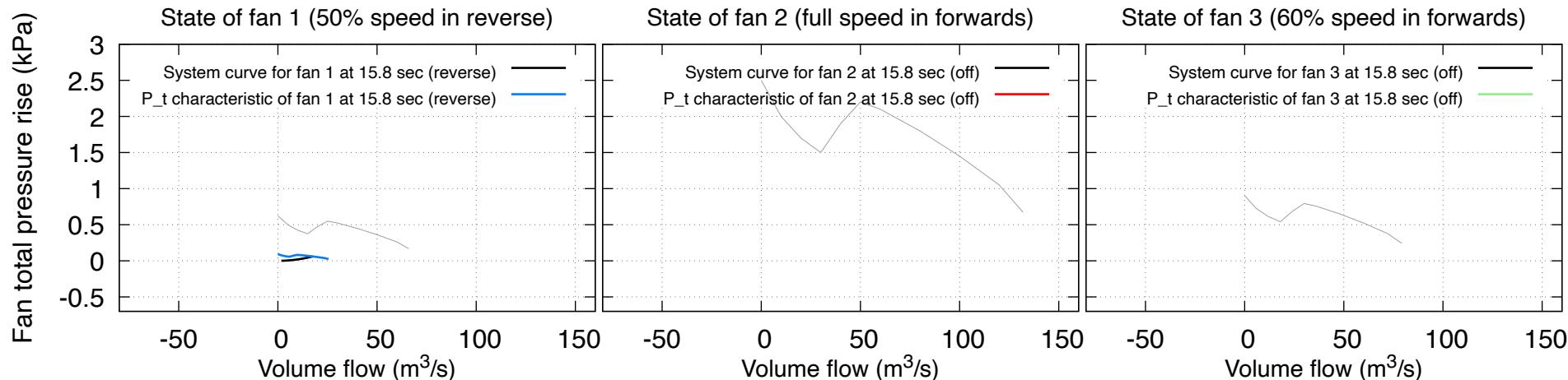
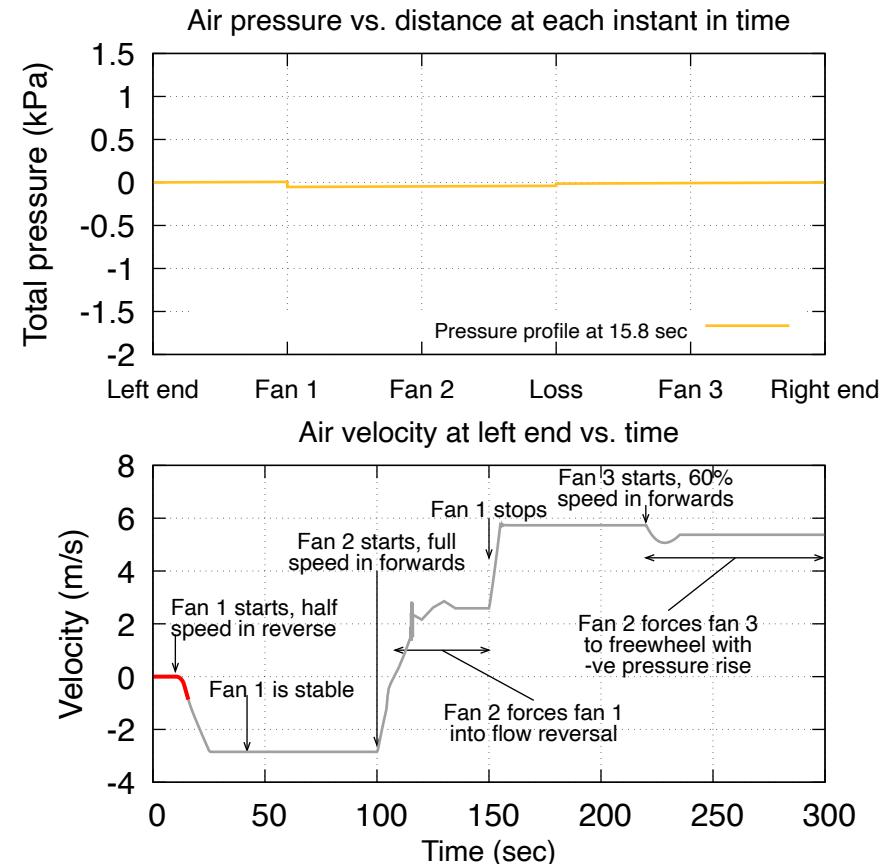
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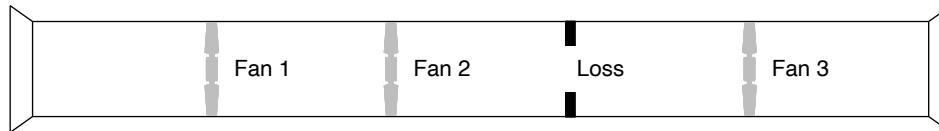
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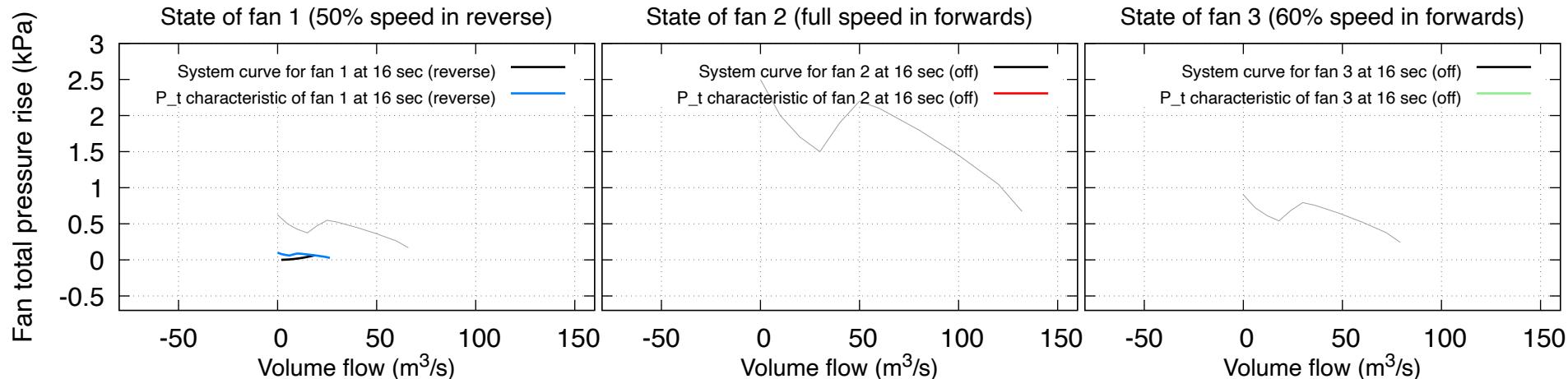
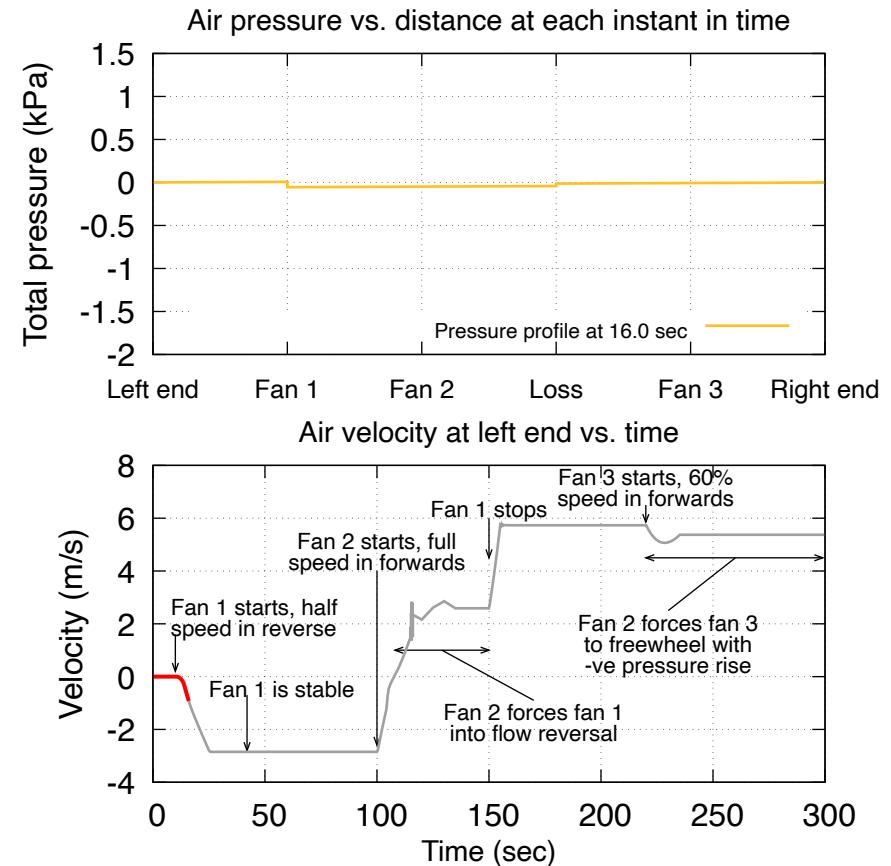
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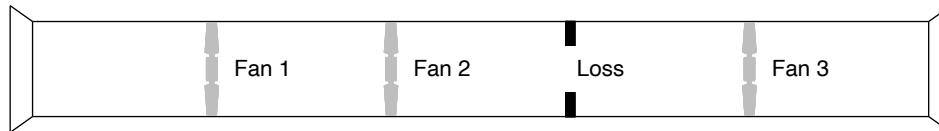
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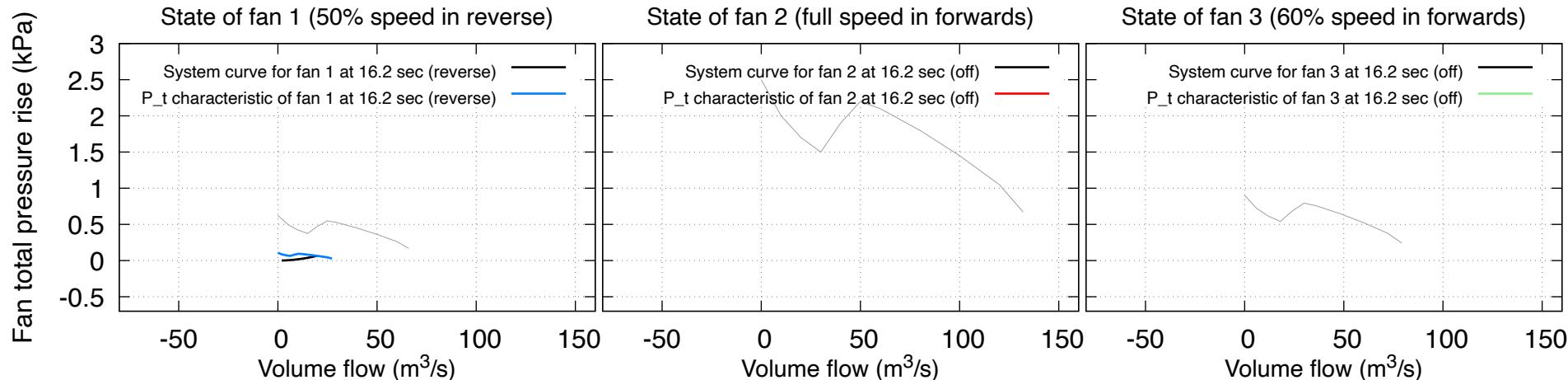
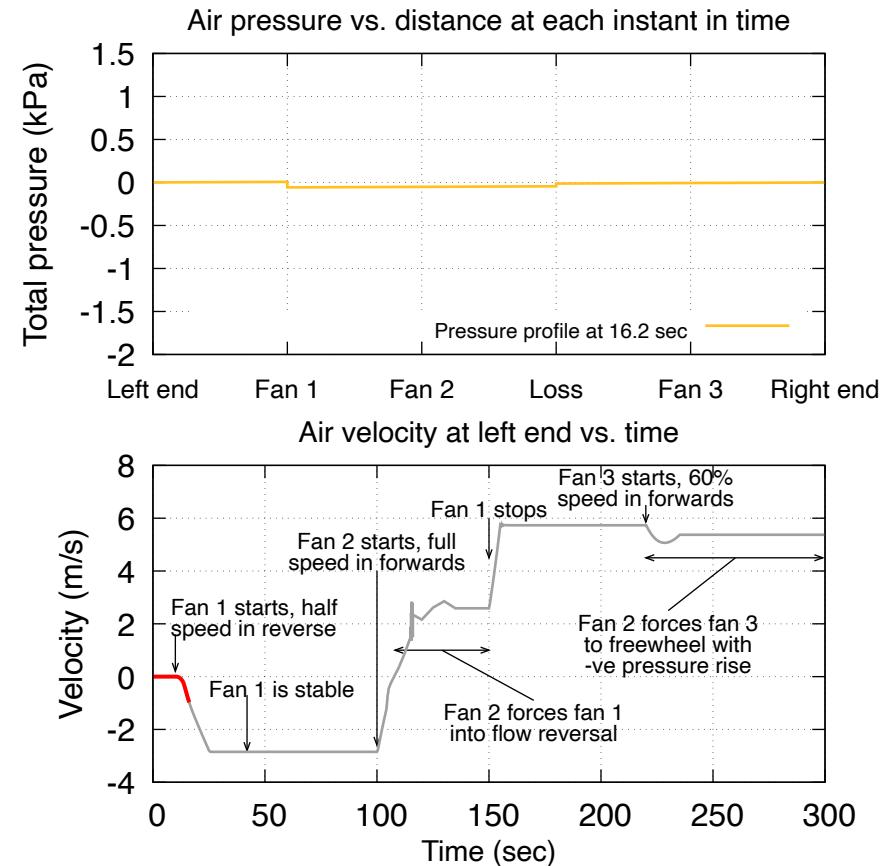
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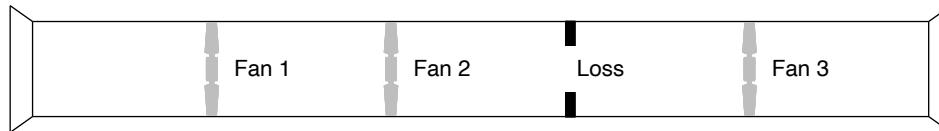
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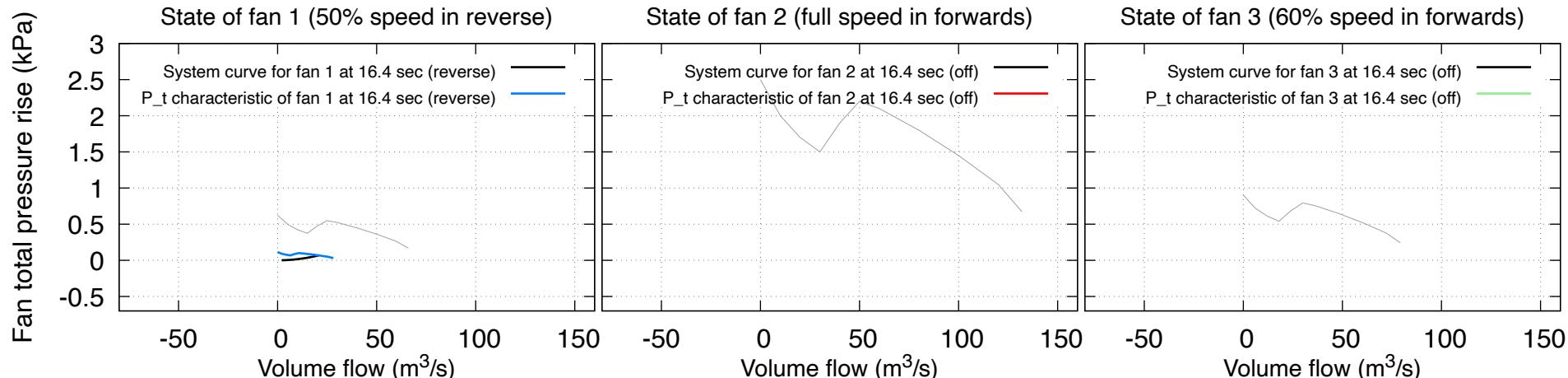
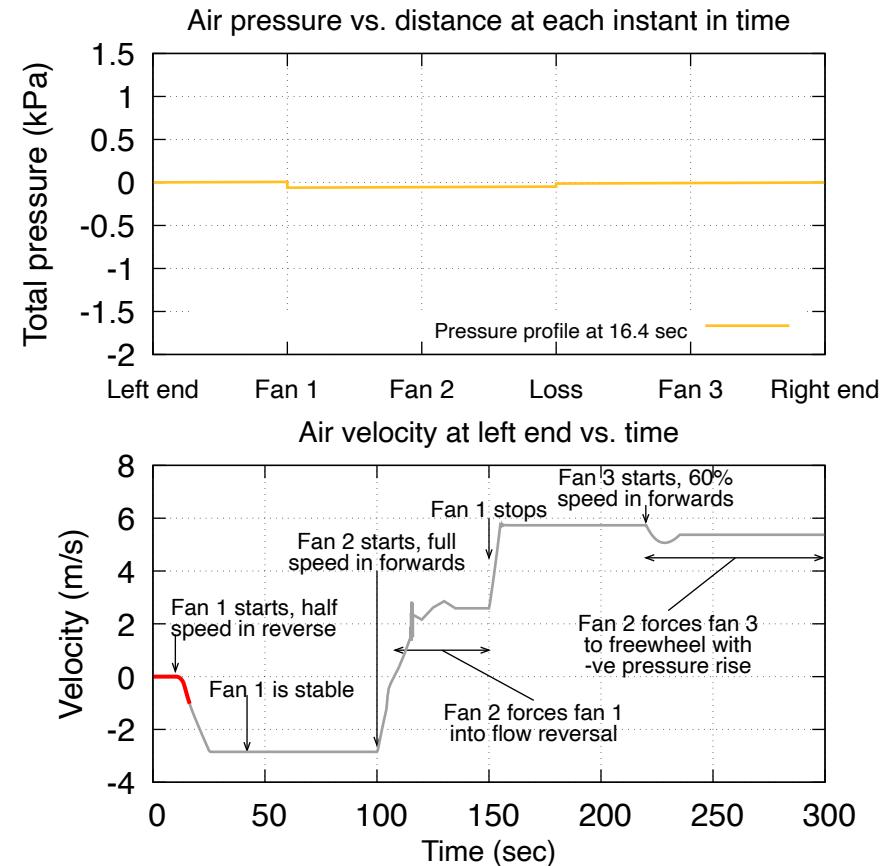
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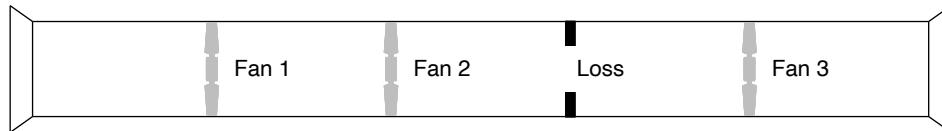
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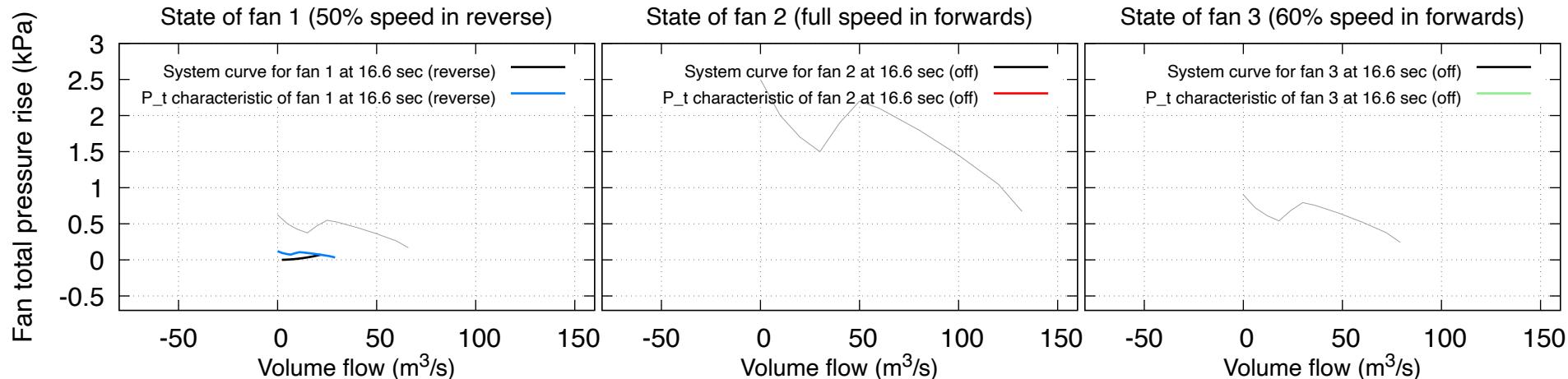
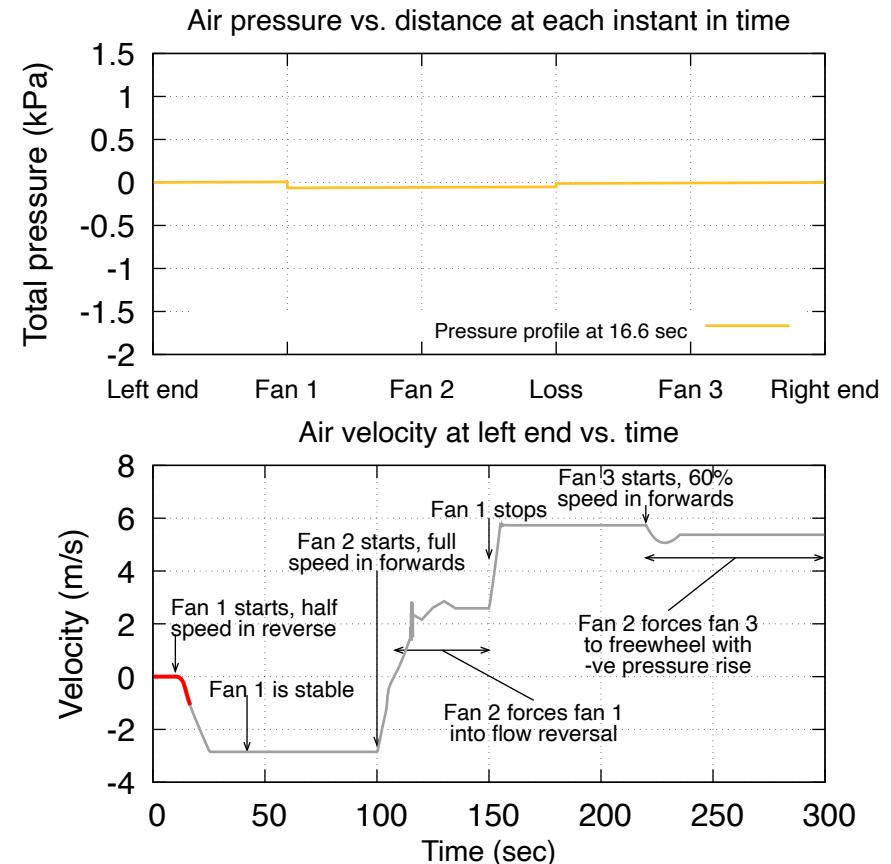
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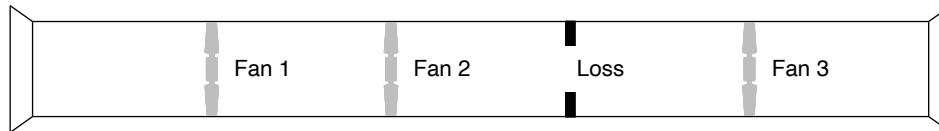
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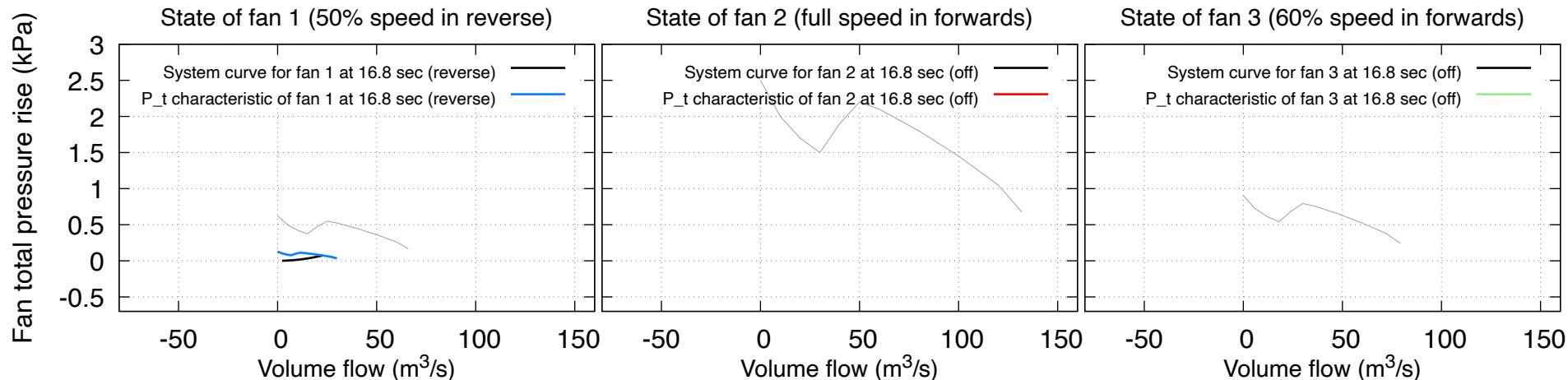
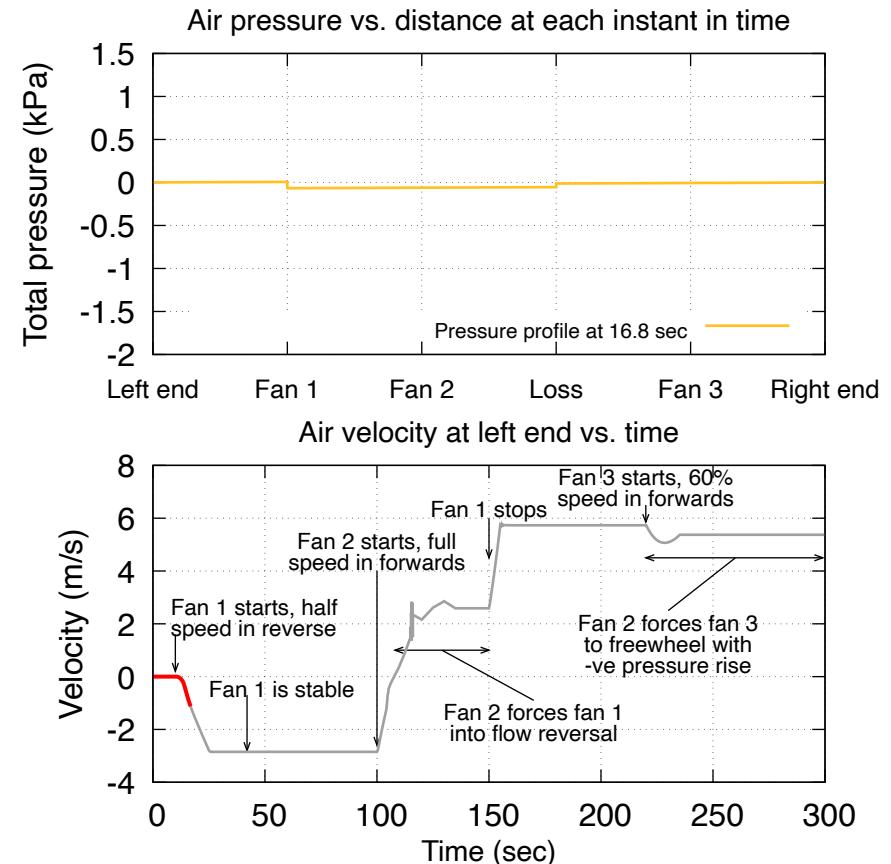
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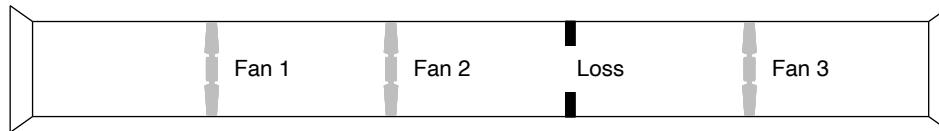
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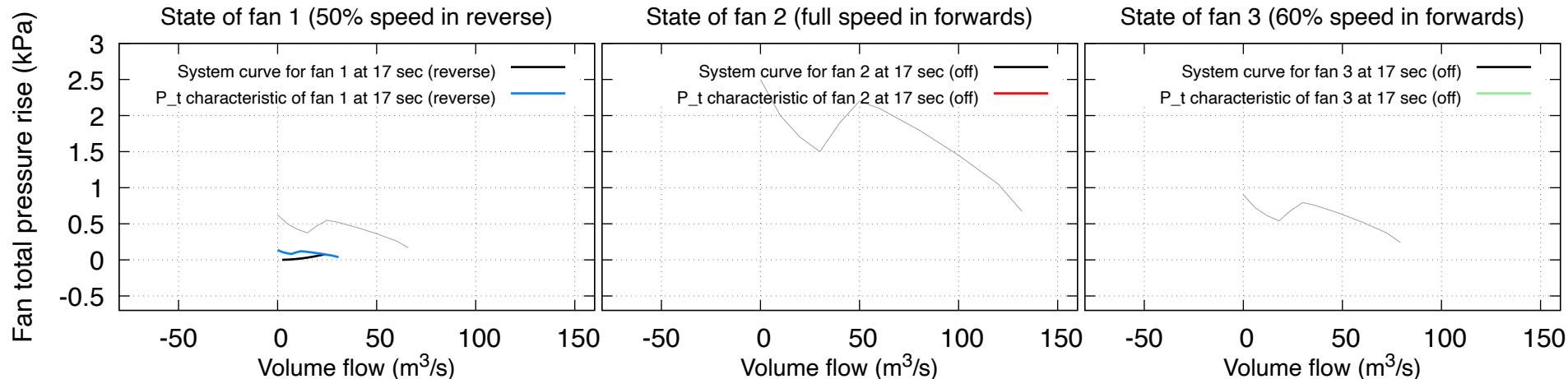
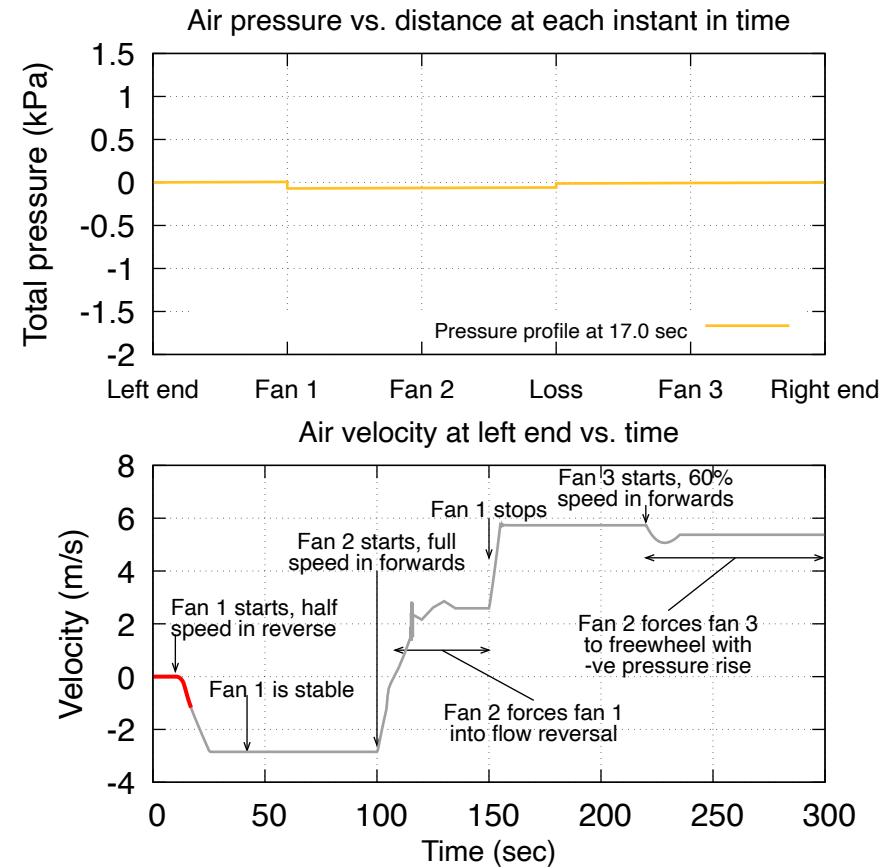
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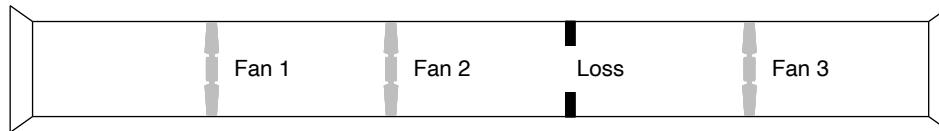
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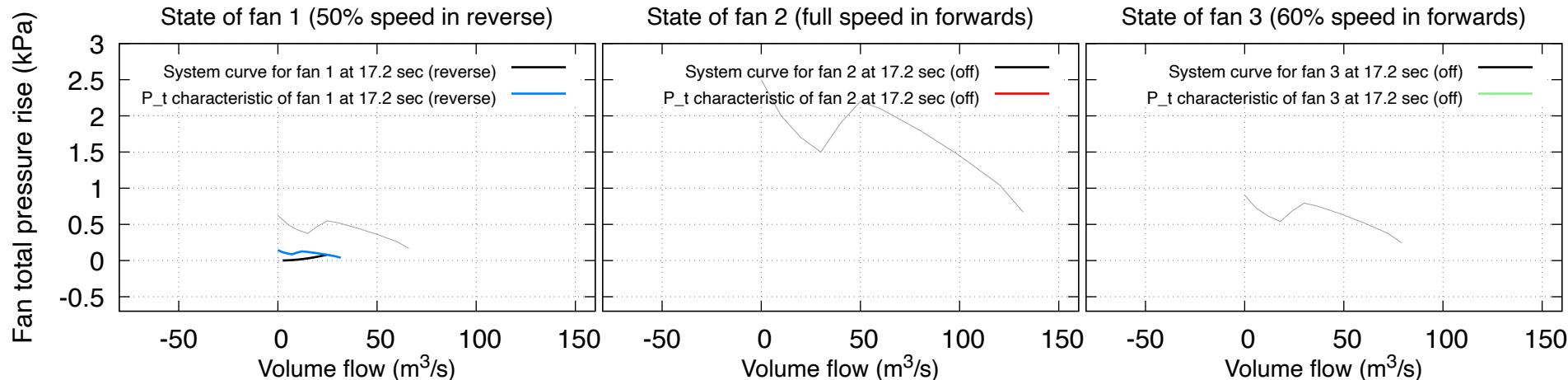
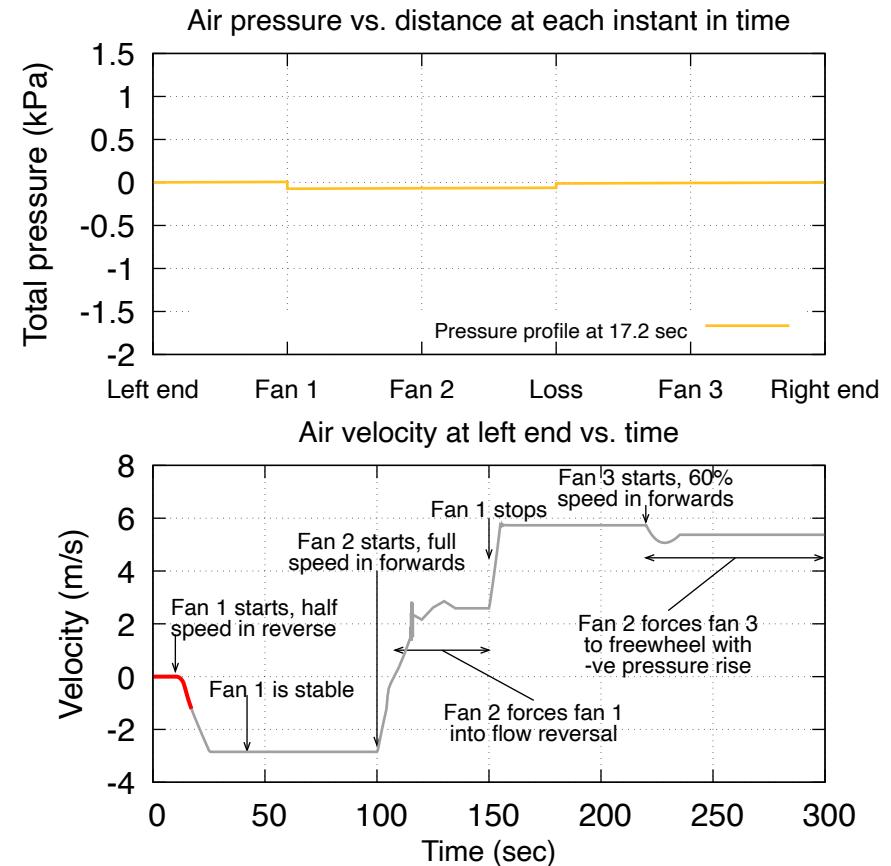
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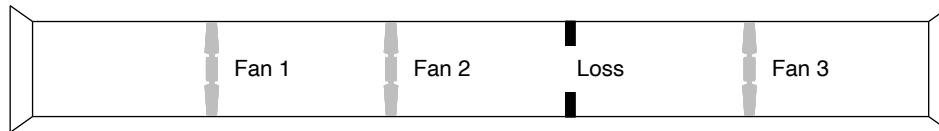
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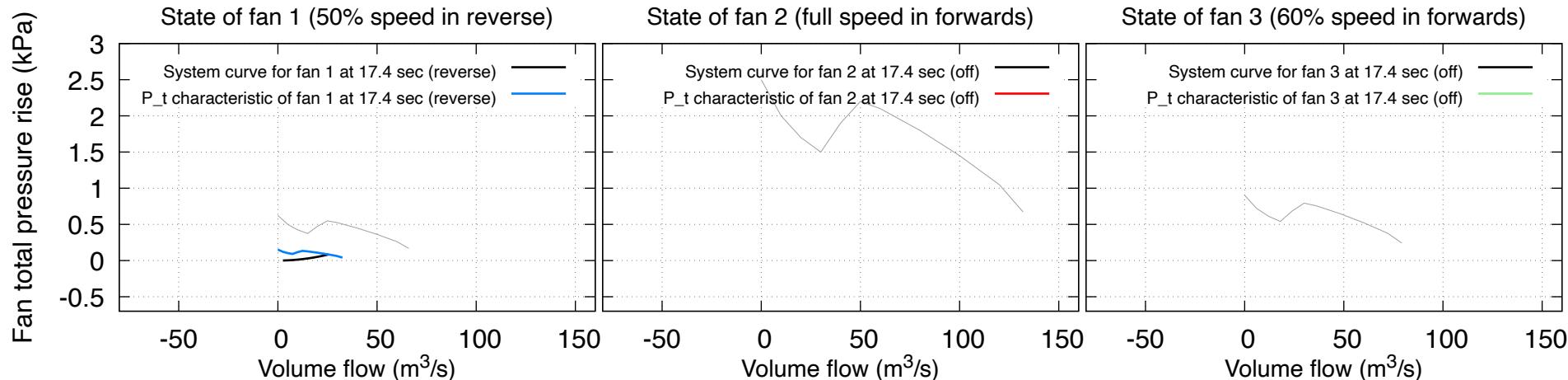
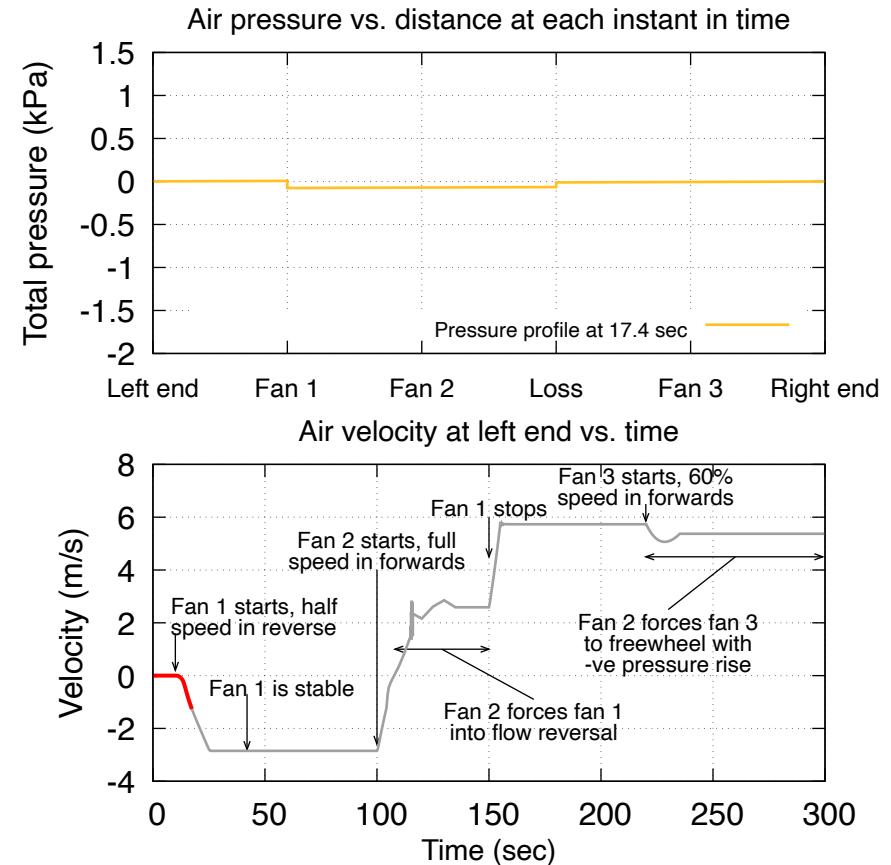
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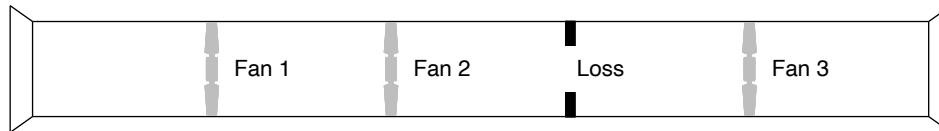
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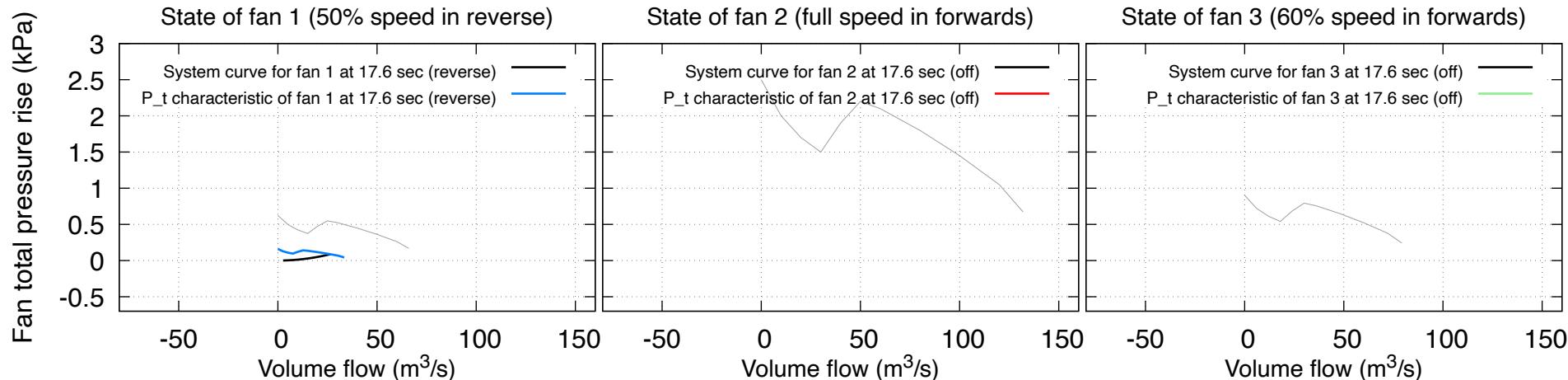
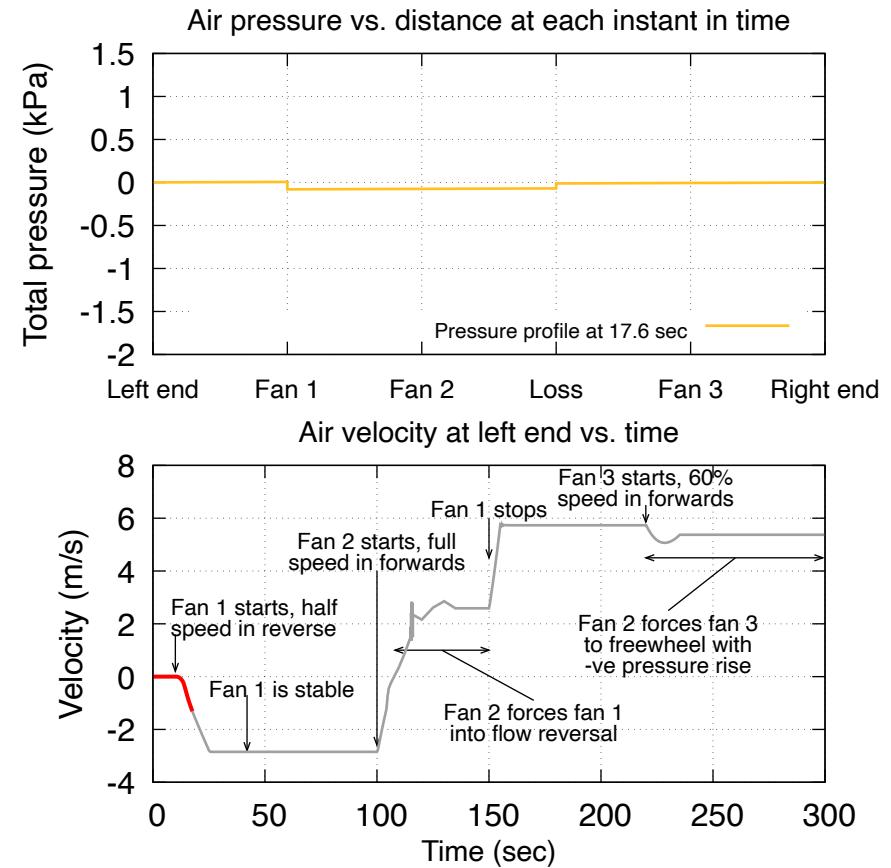
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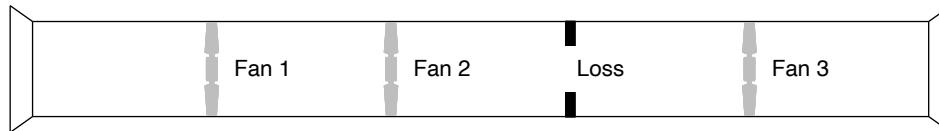
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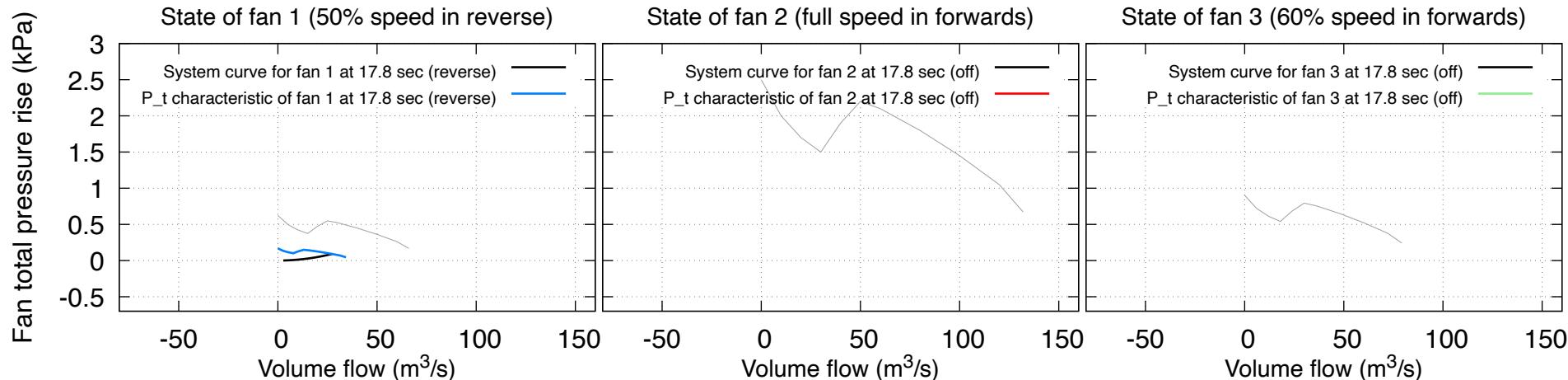
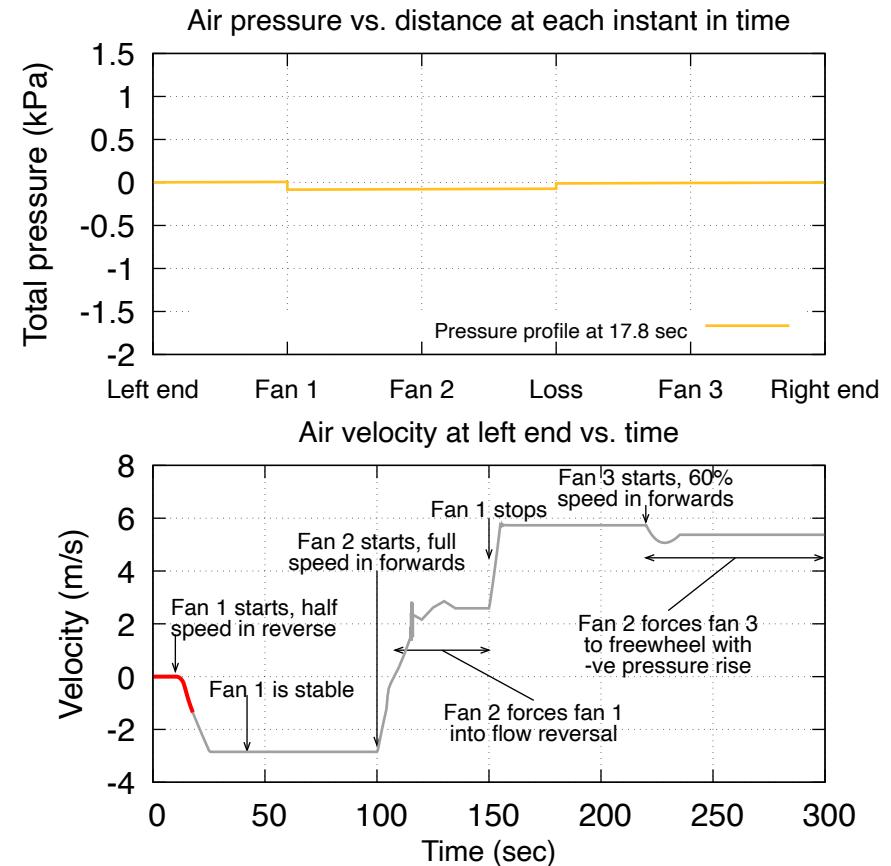
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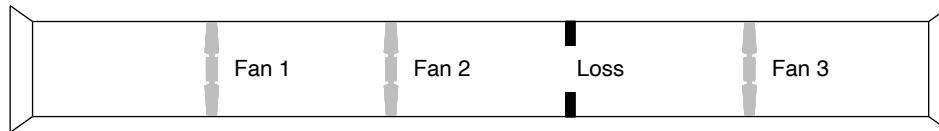
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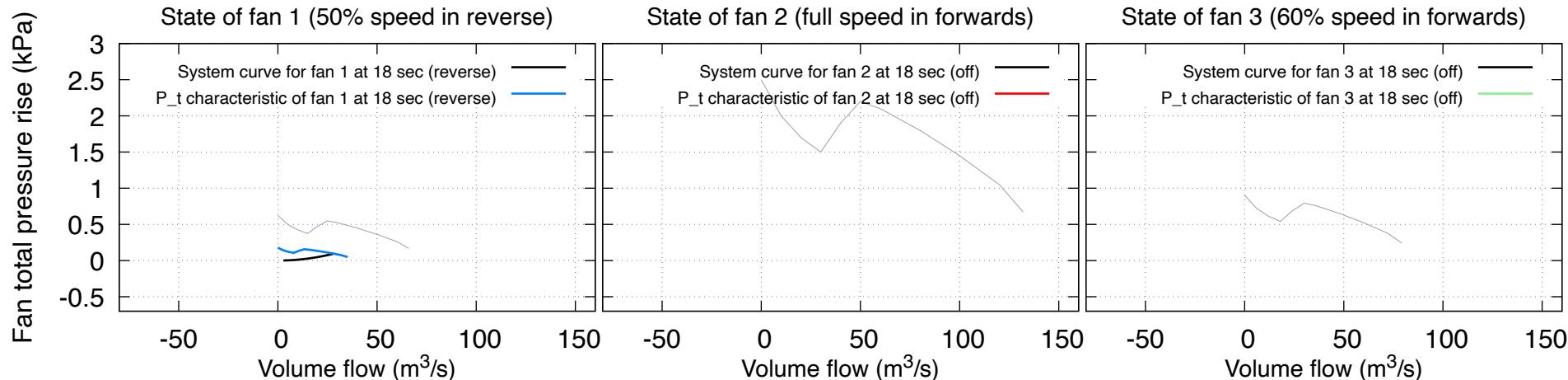
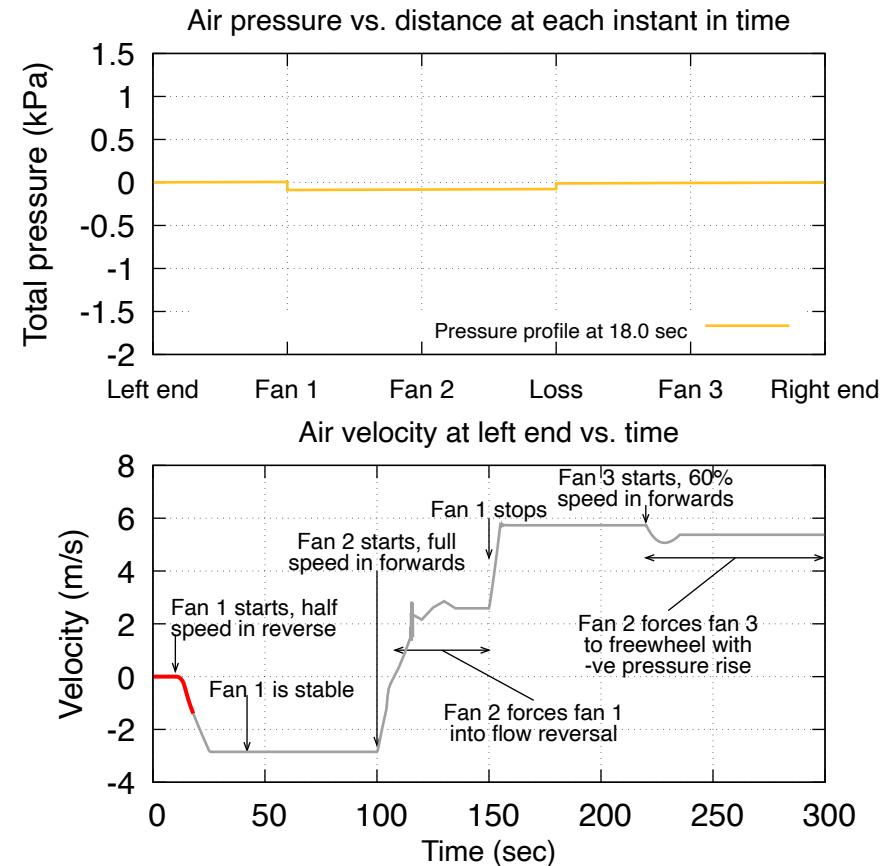
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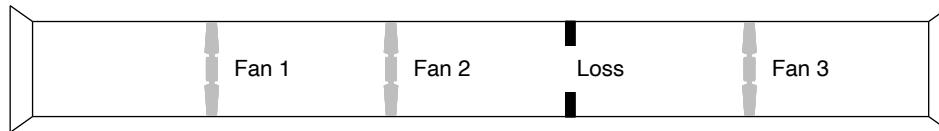
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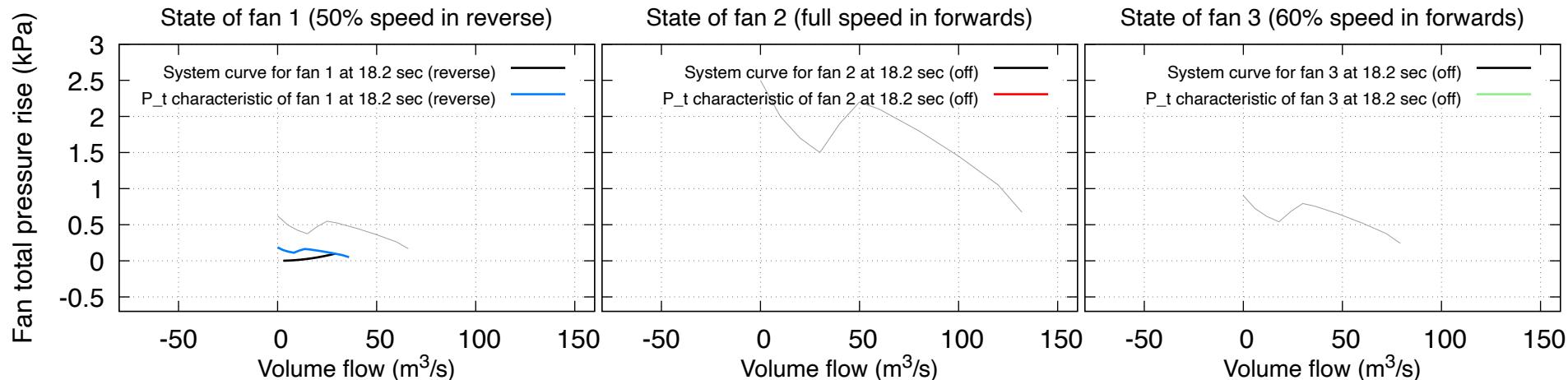
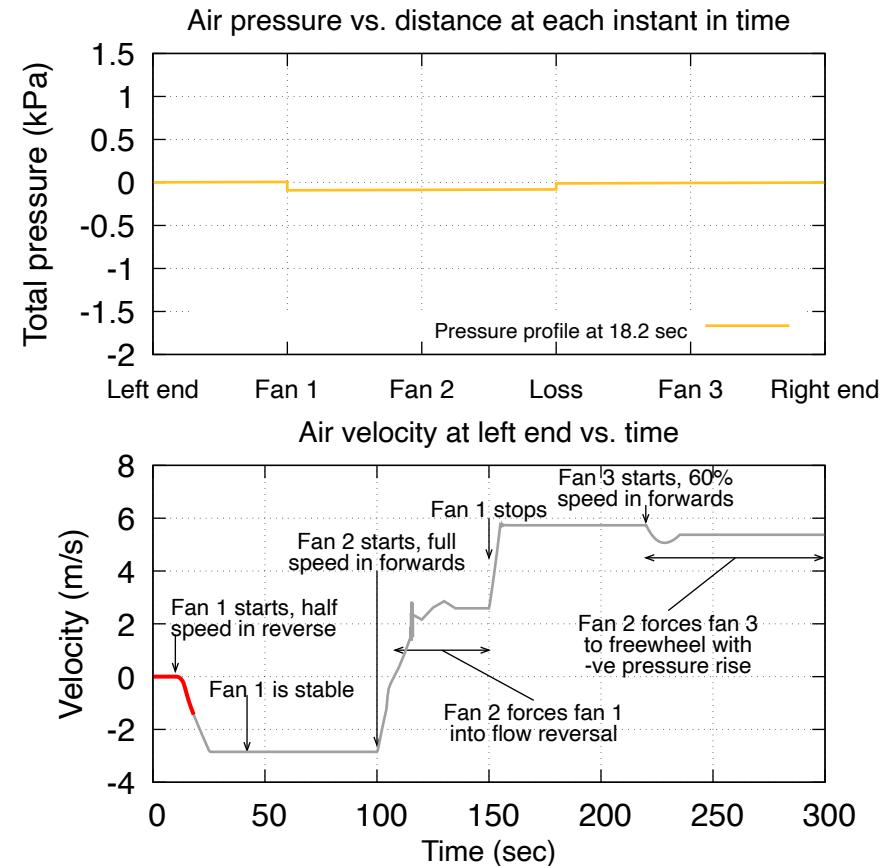
Fan 1 starts in reverse at half speed and ends up at a suitable duty point.

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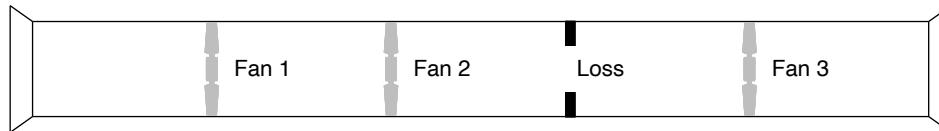
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



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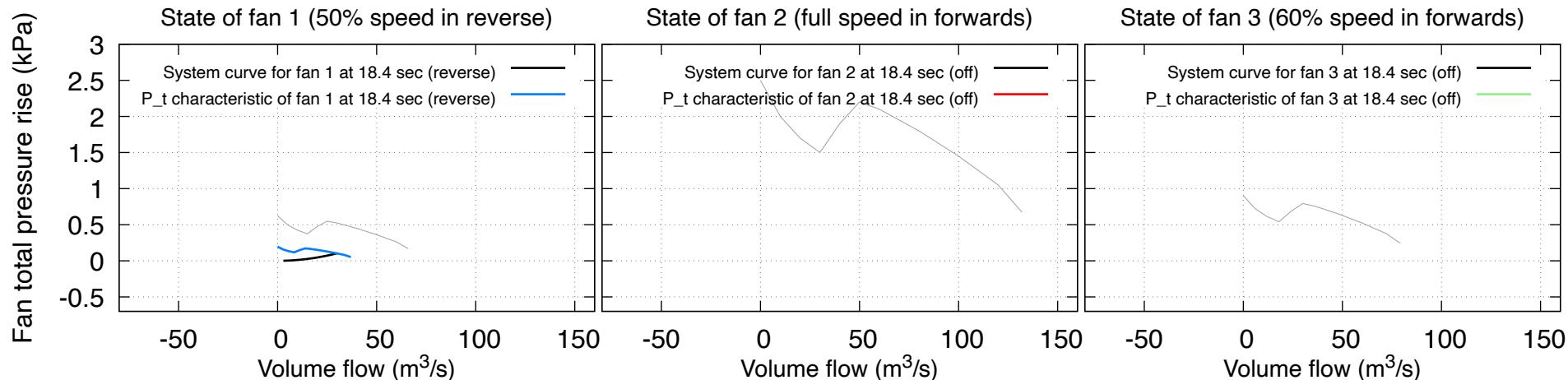
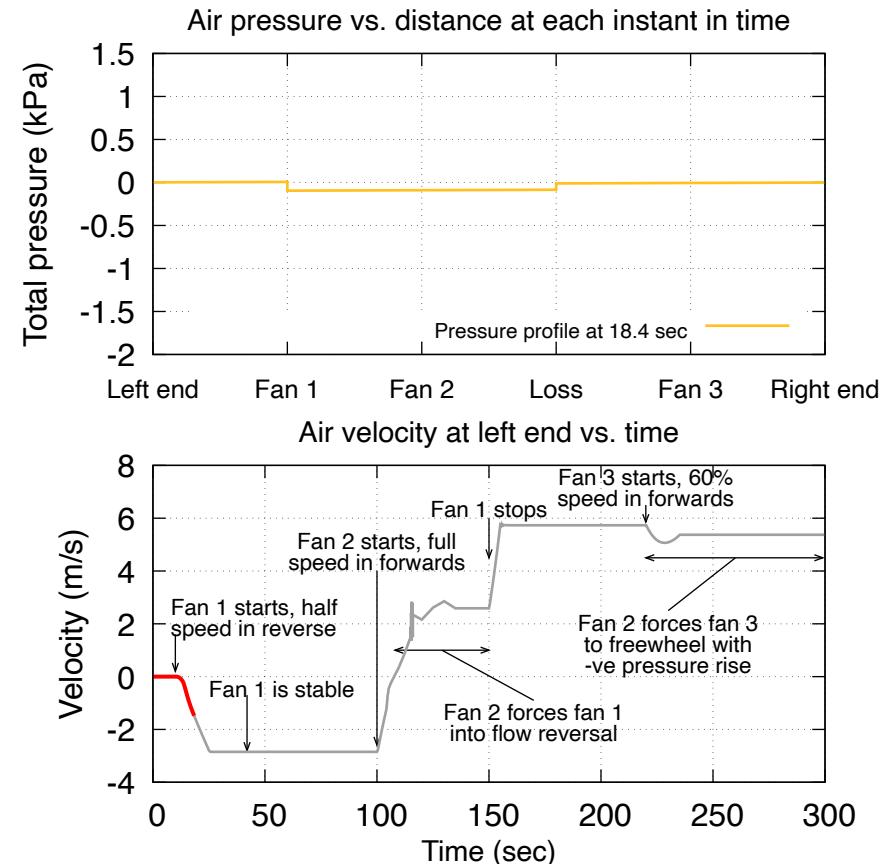
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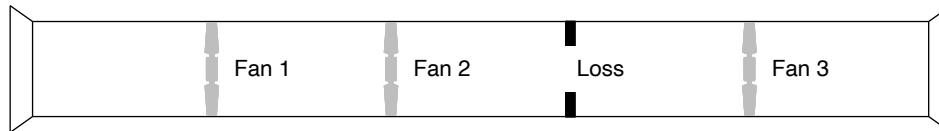
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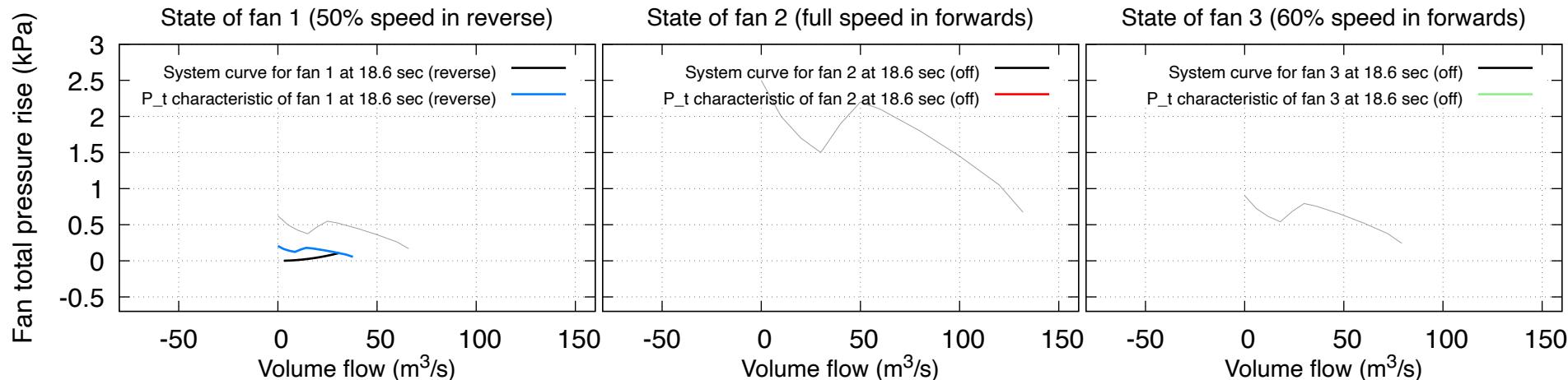
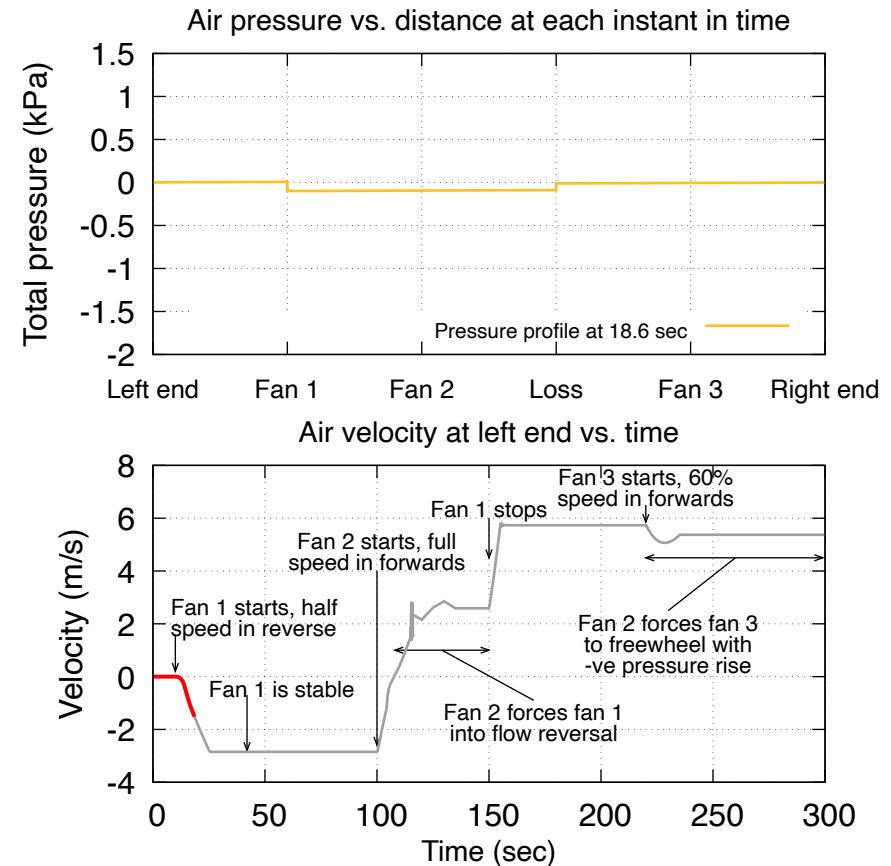
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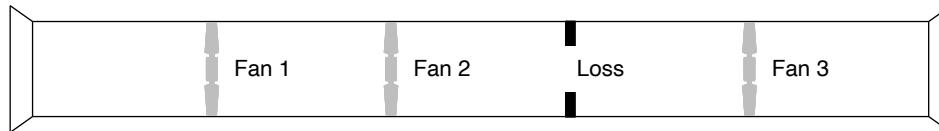
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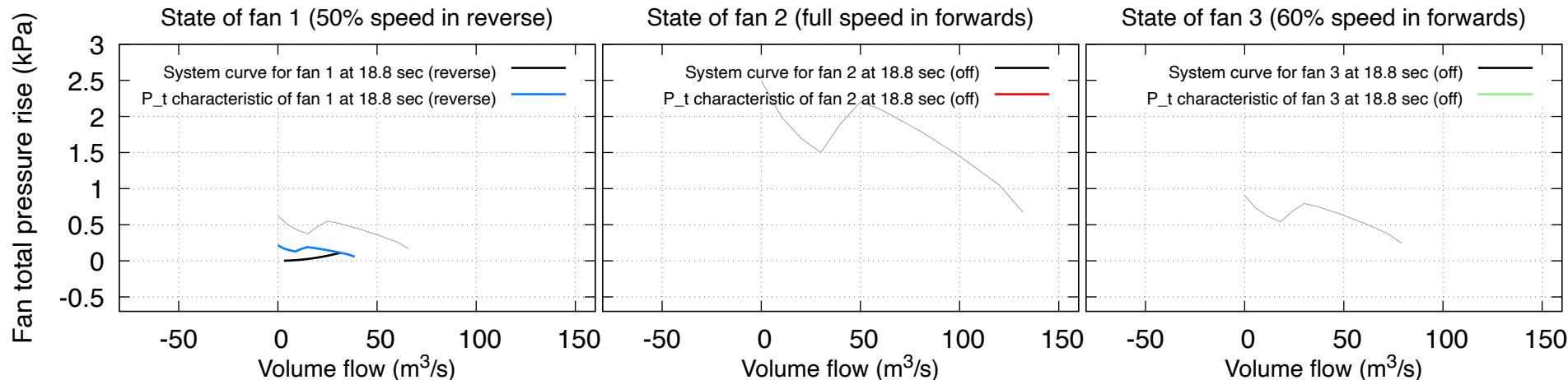
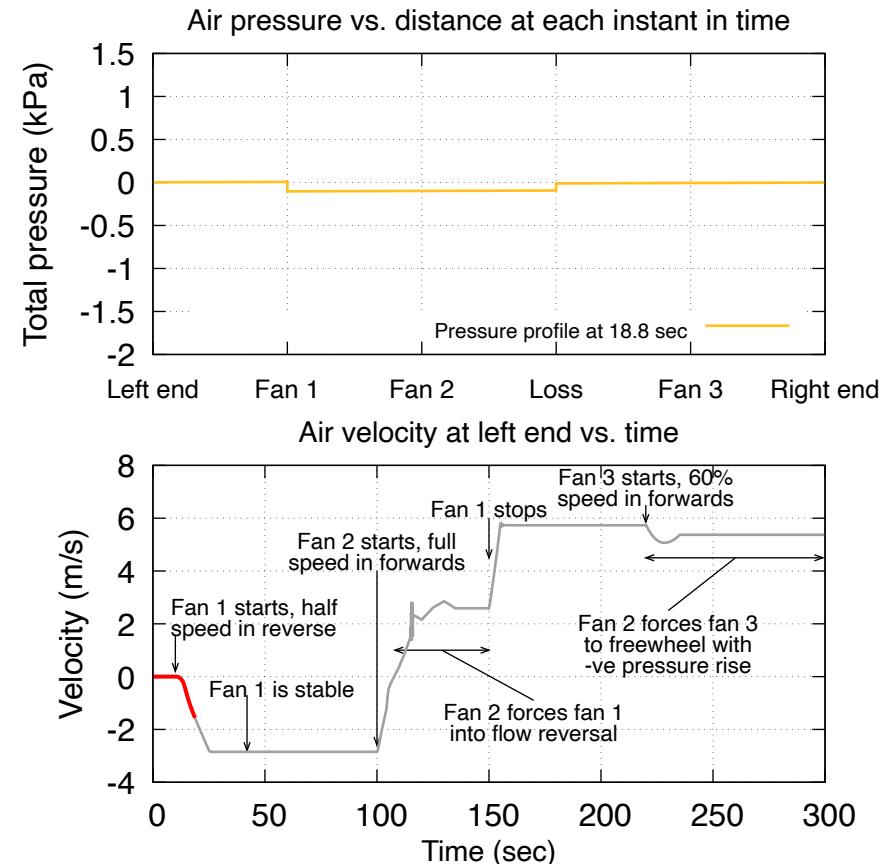
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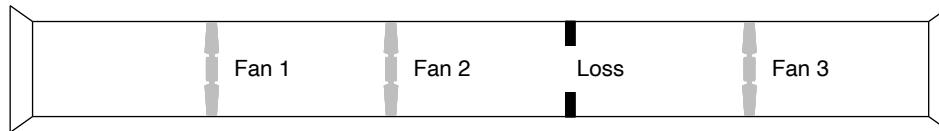
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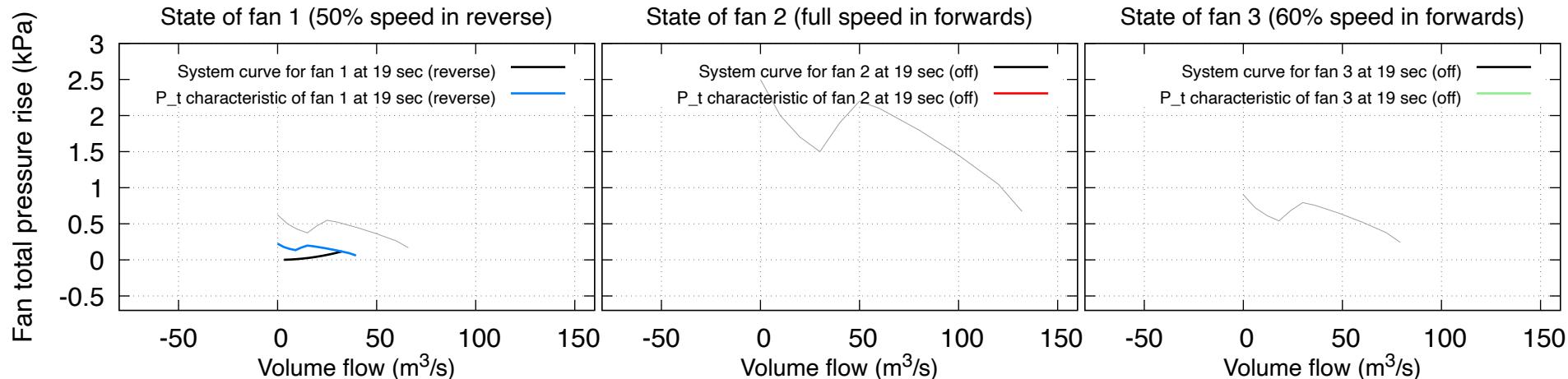
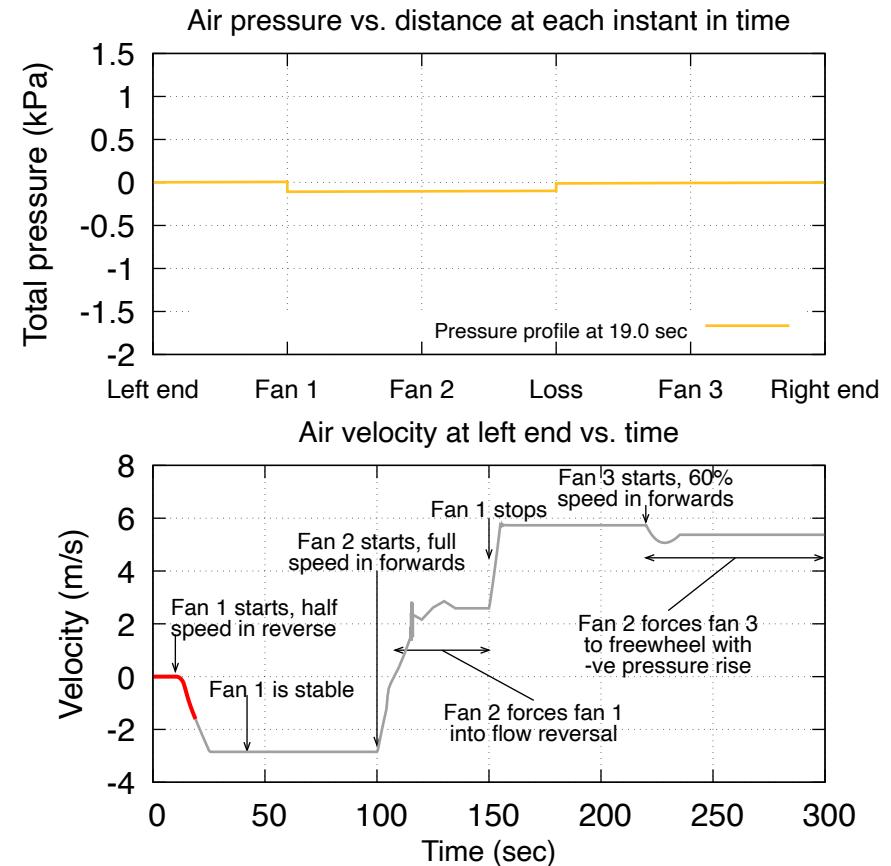
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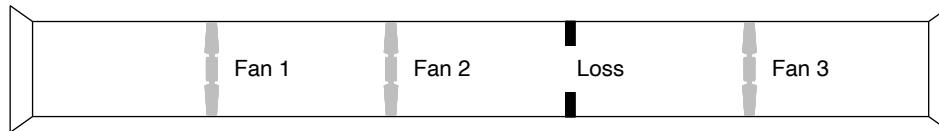
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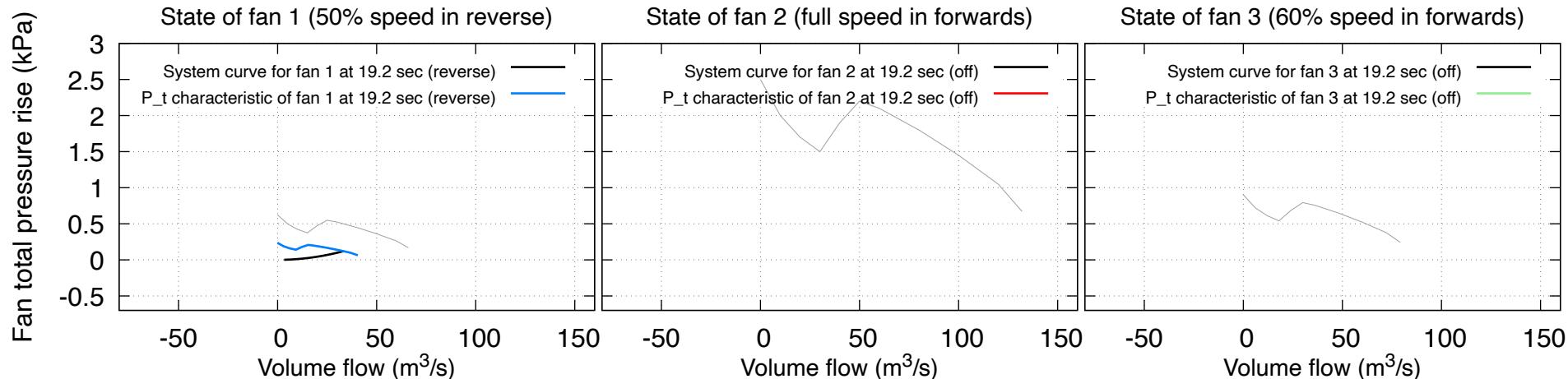
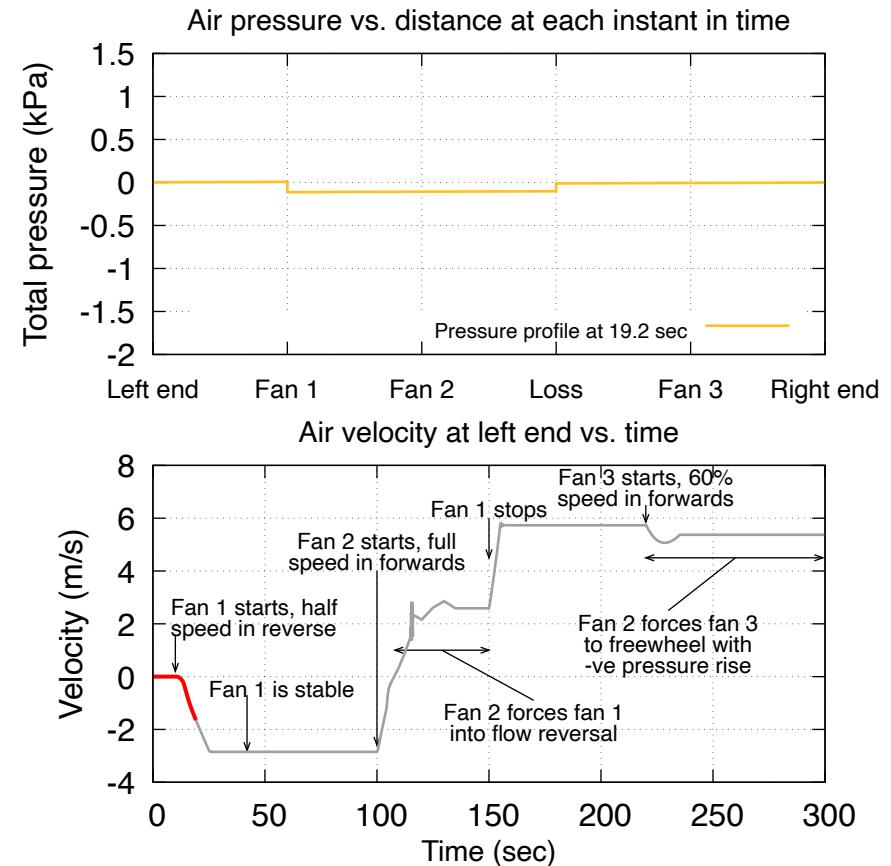
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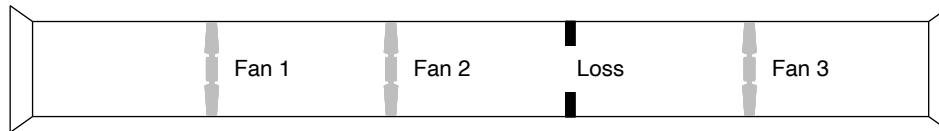
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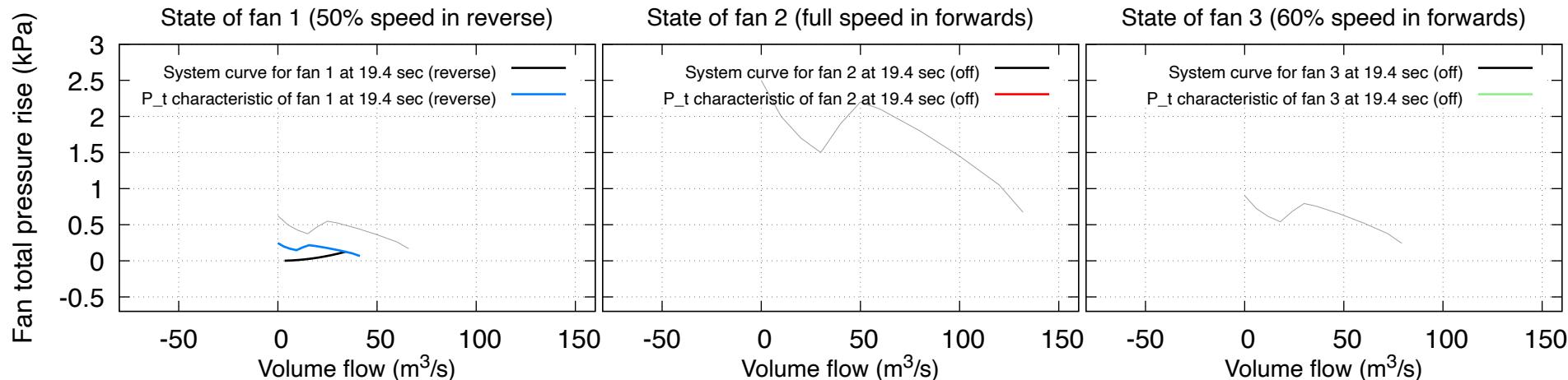
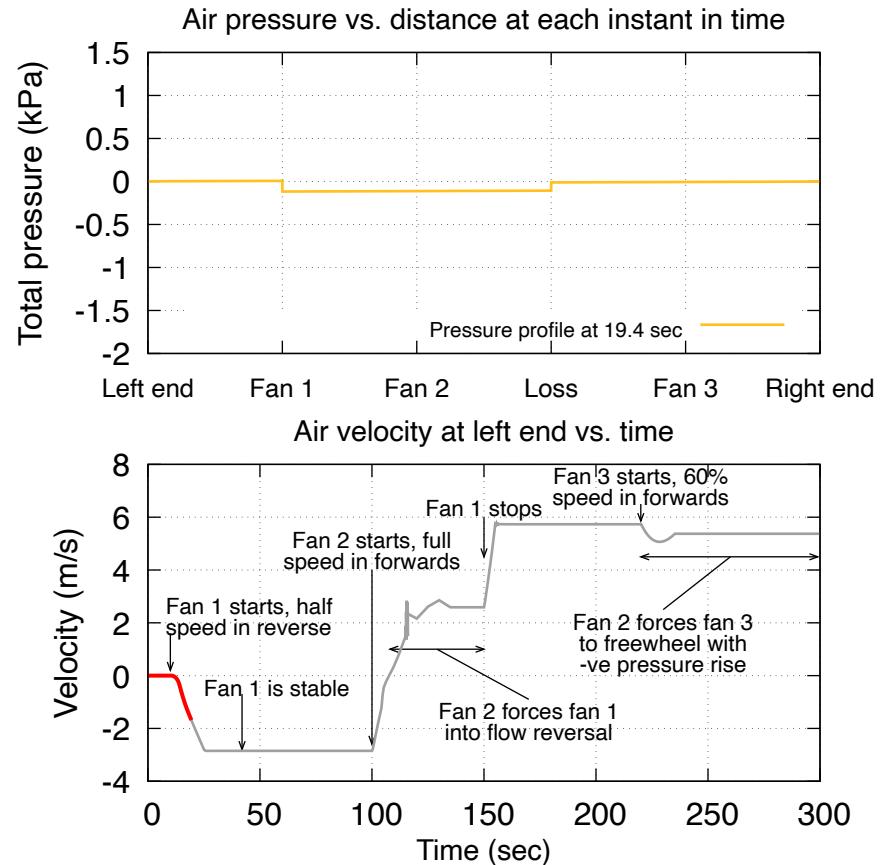
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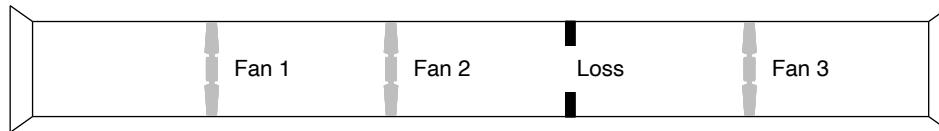
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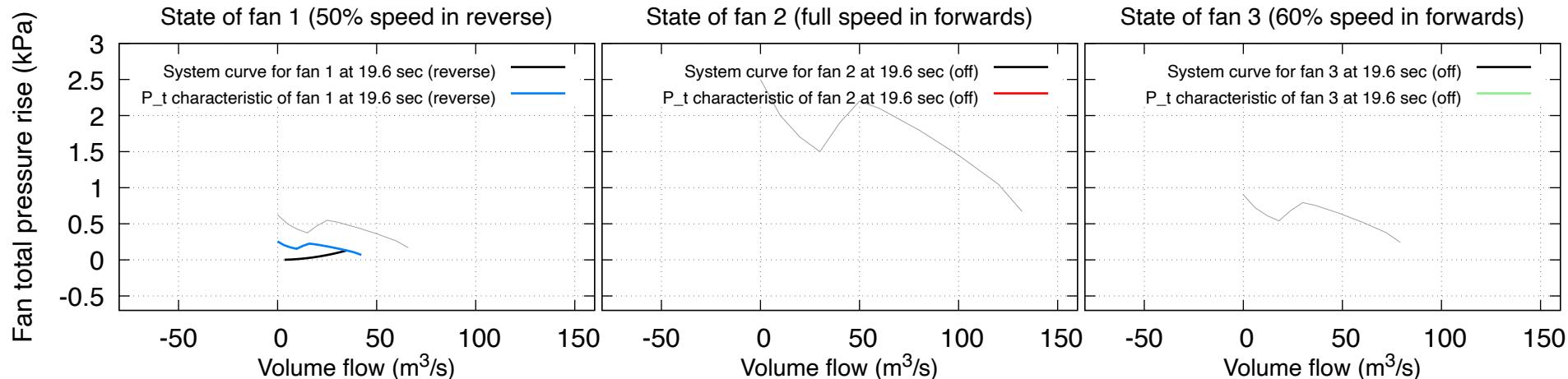
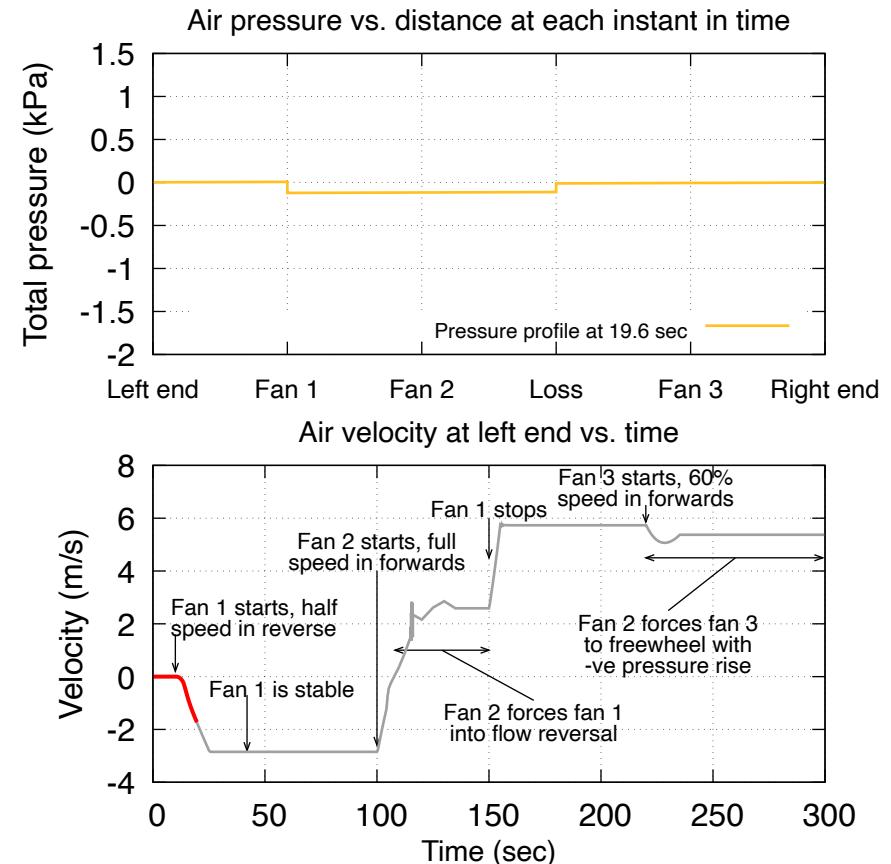
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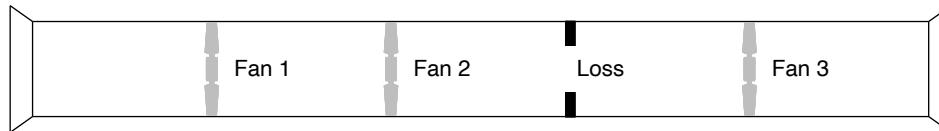
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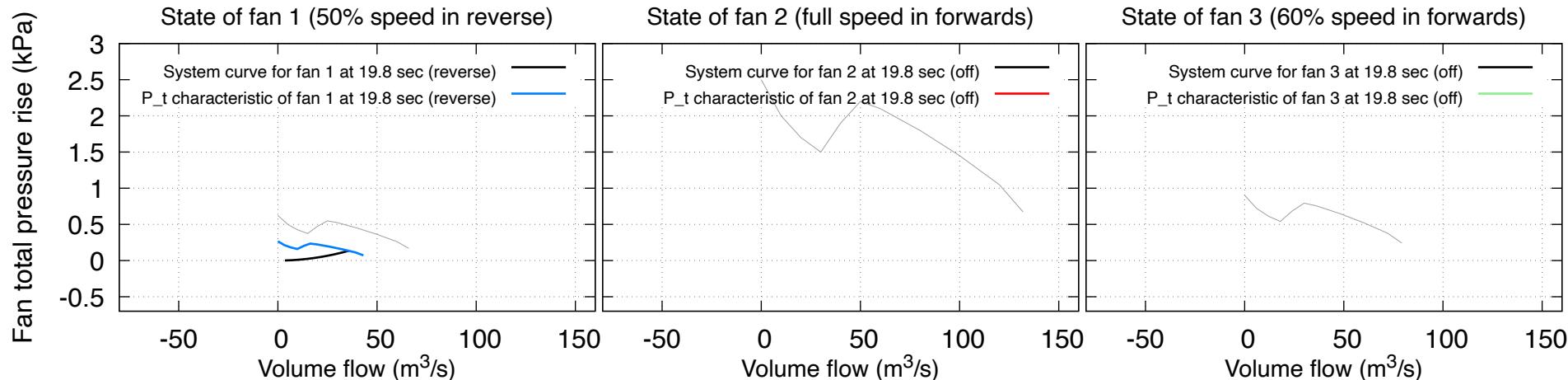
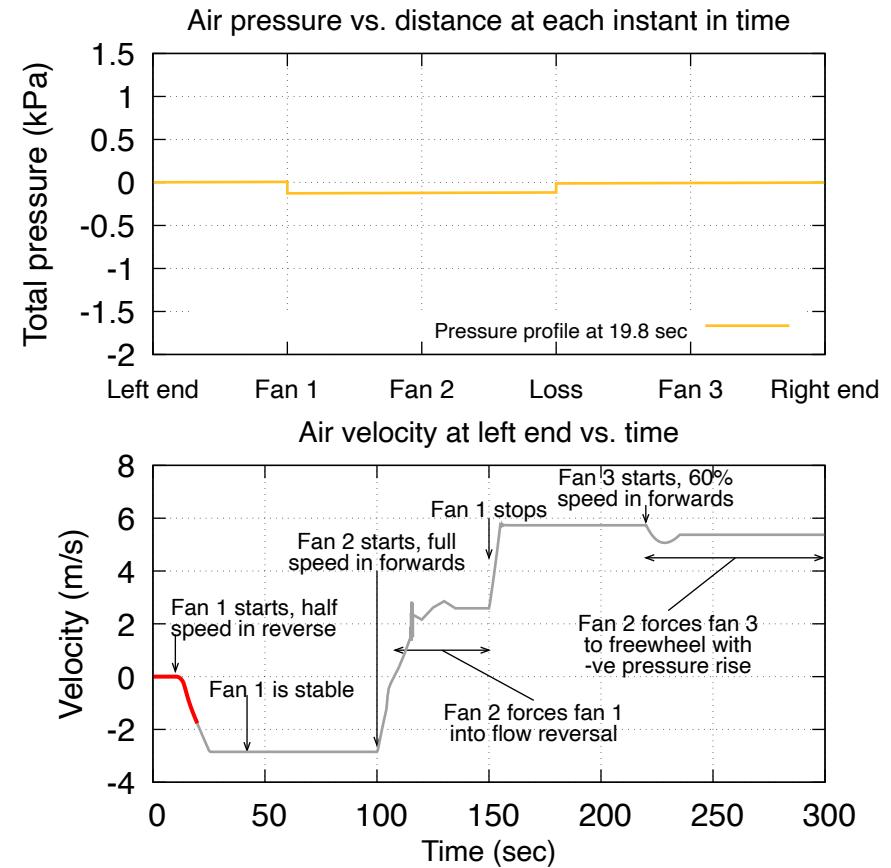
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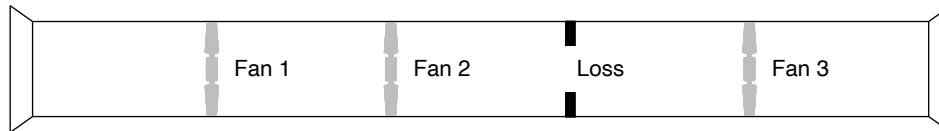
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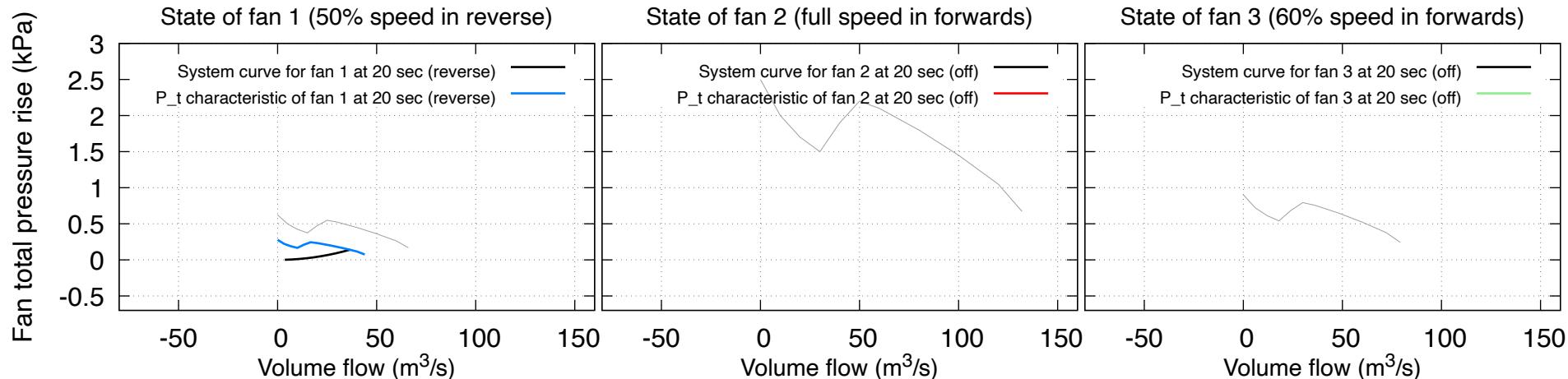
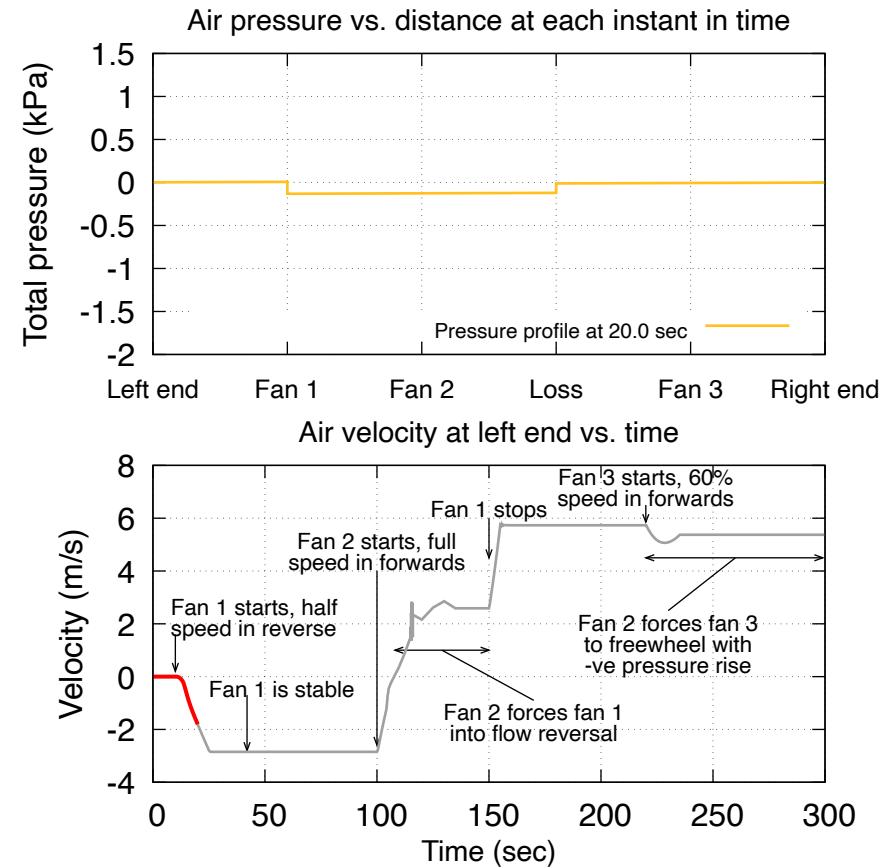
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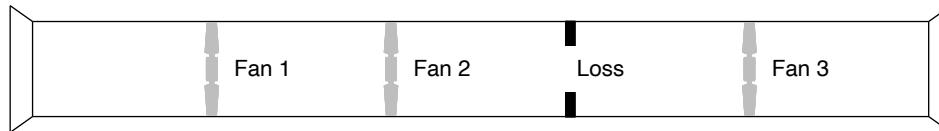
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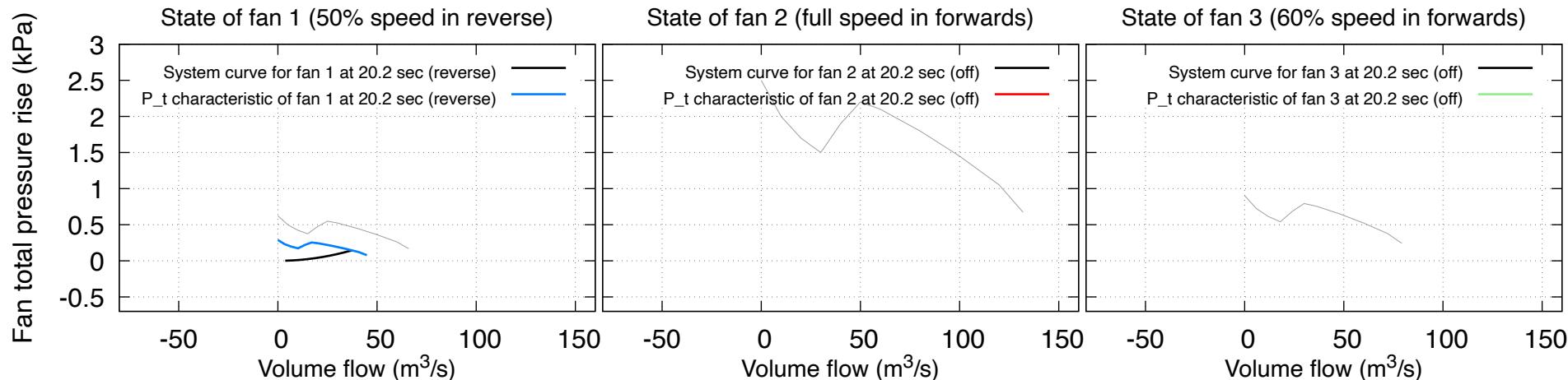
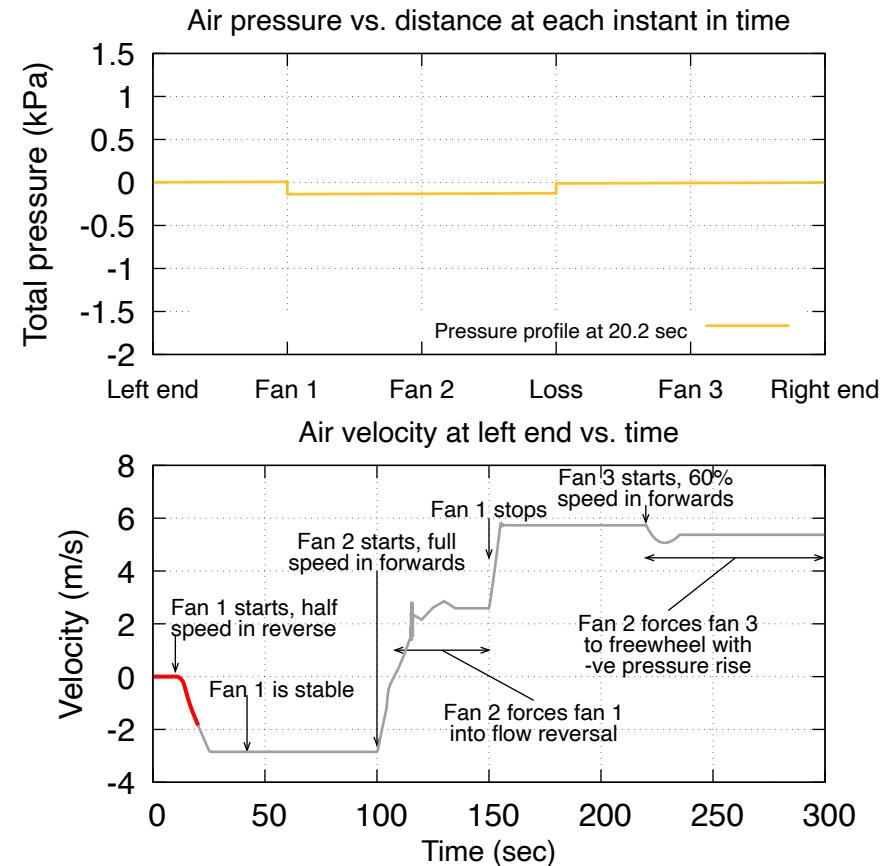
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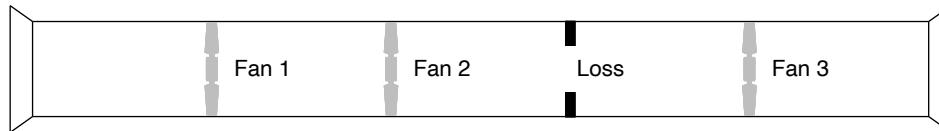
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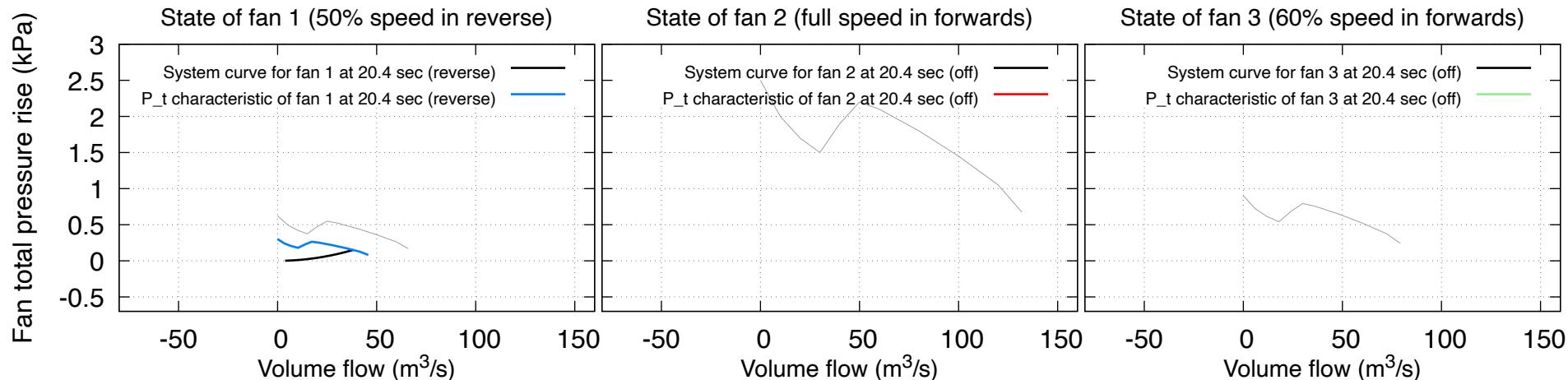
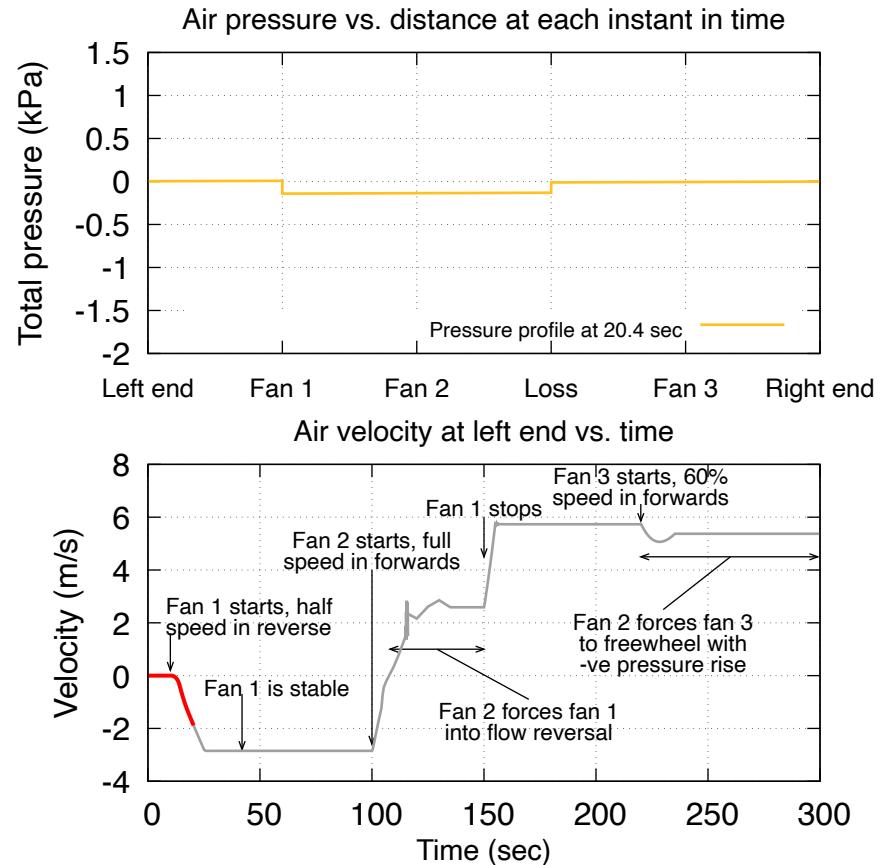
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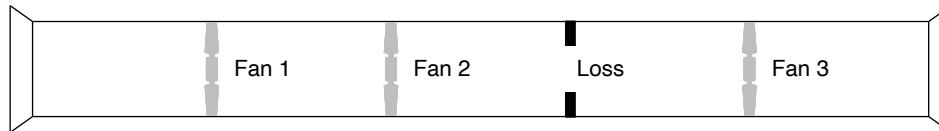
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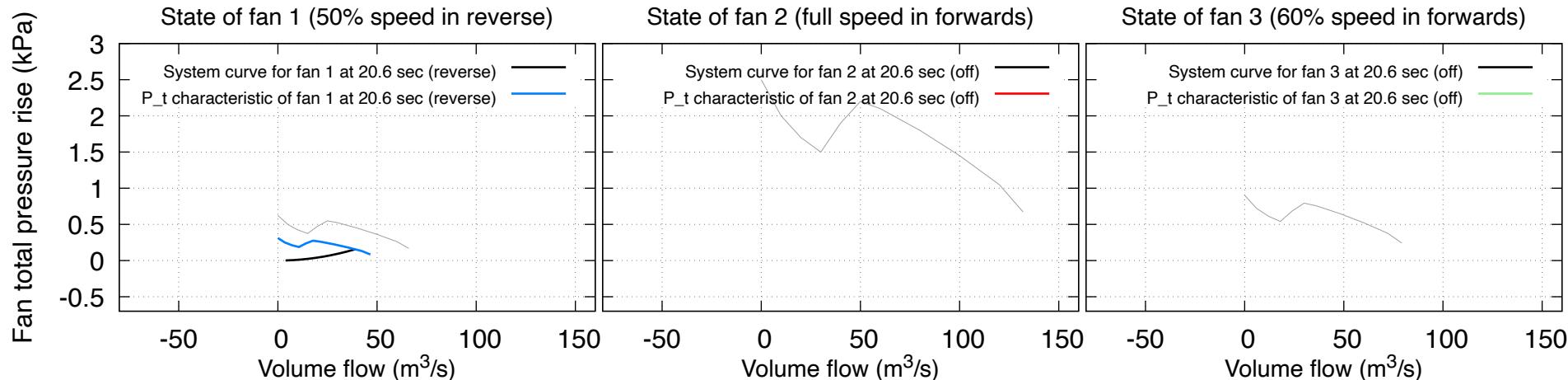
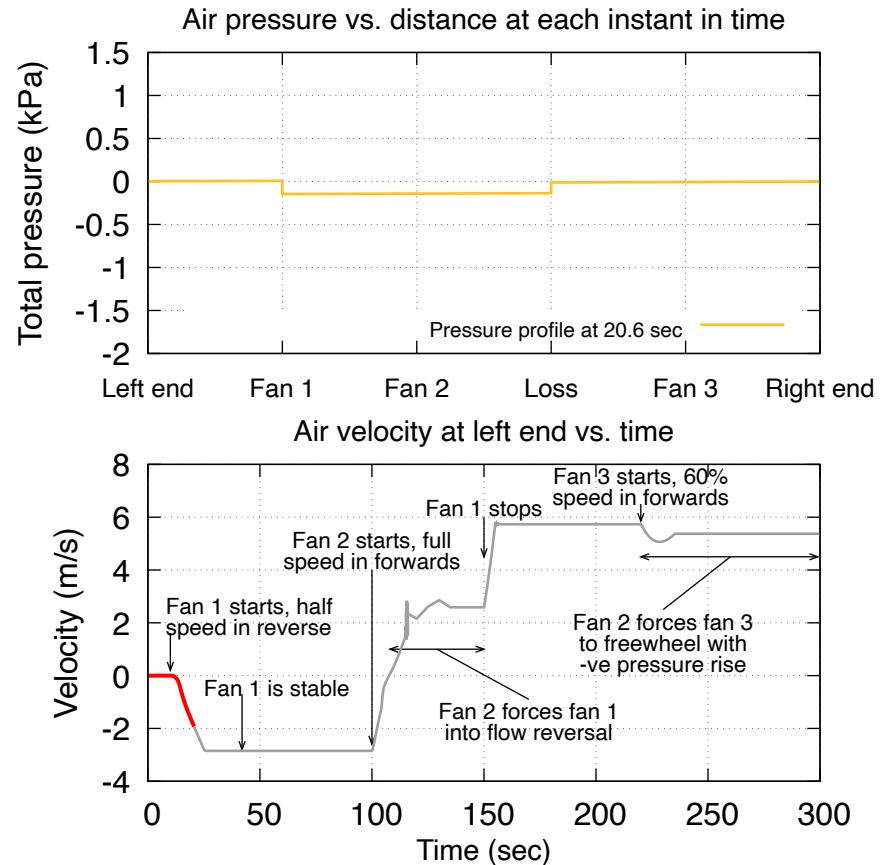
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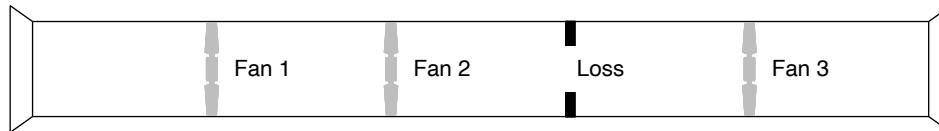
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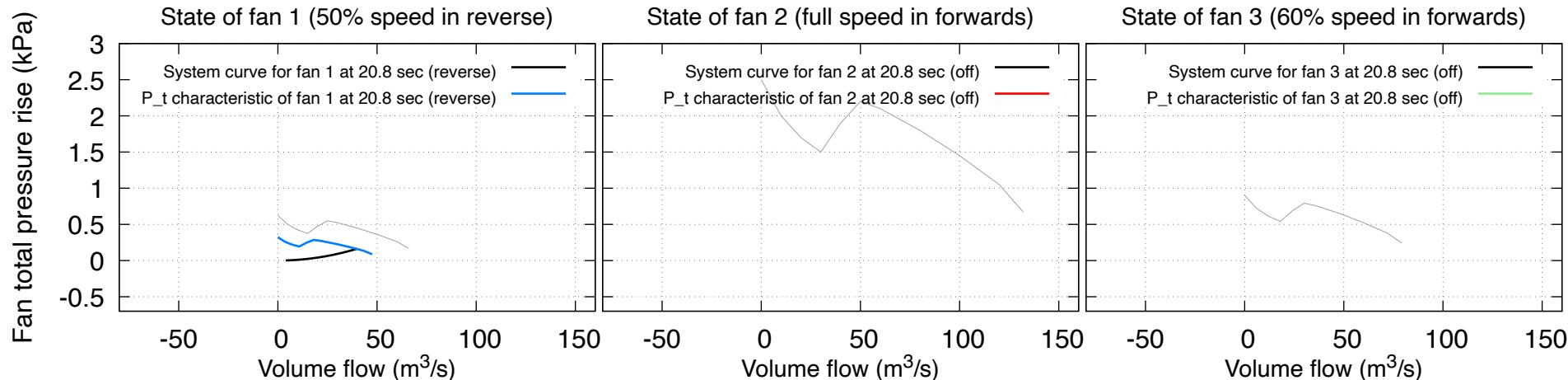
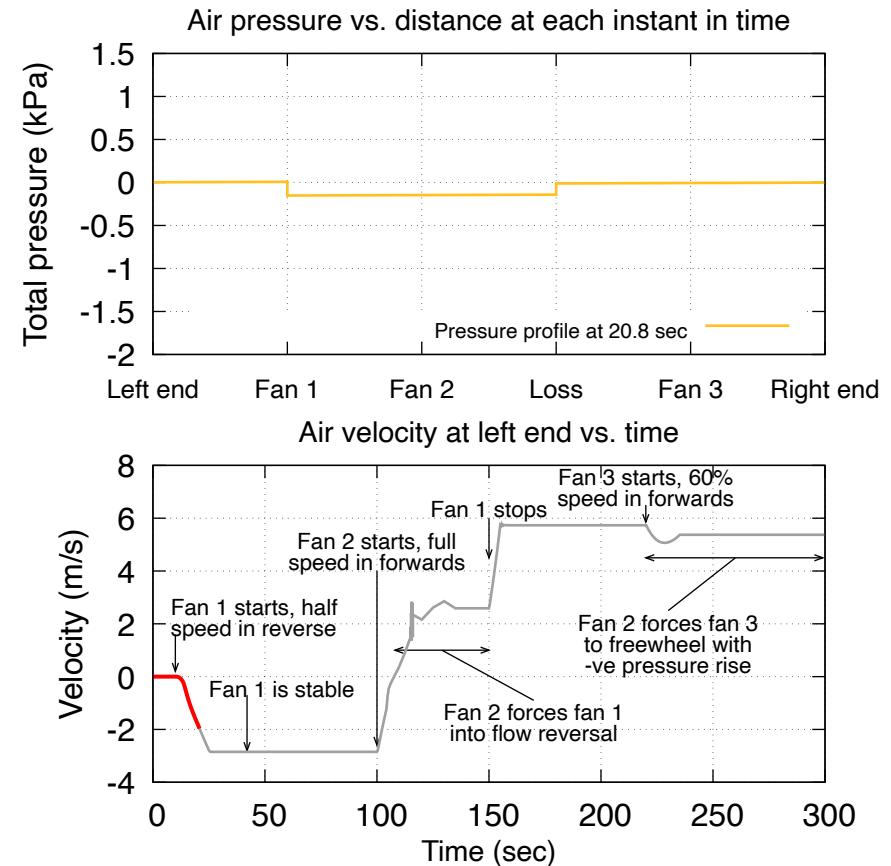
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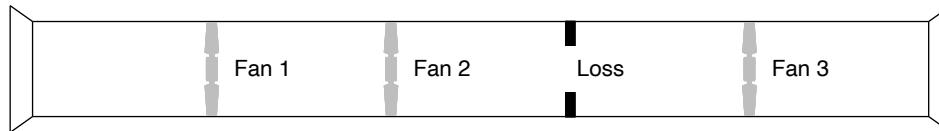
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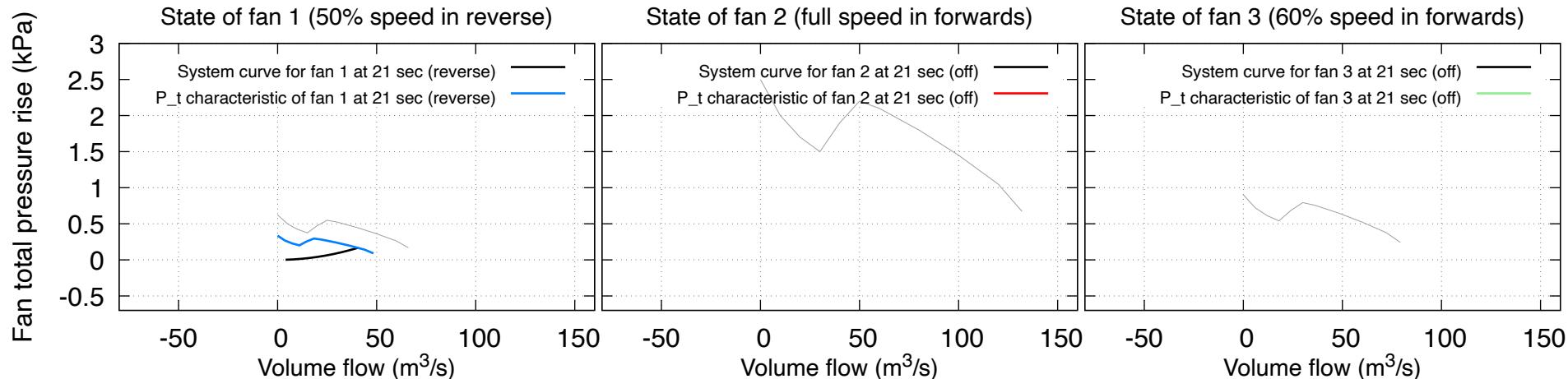
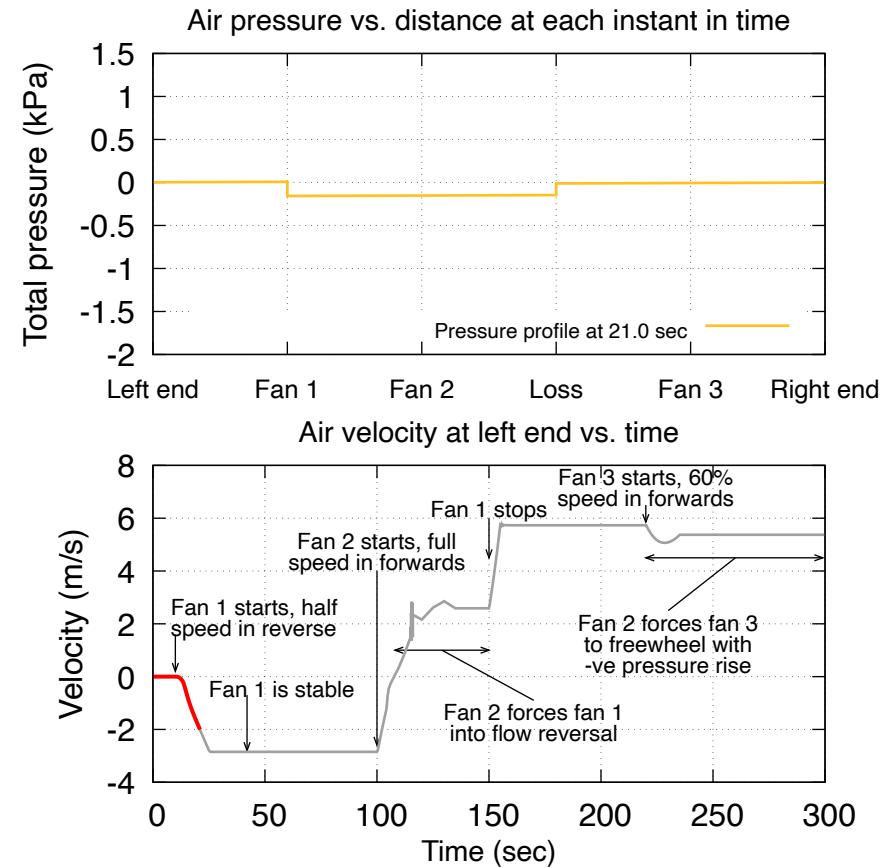
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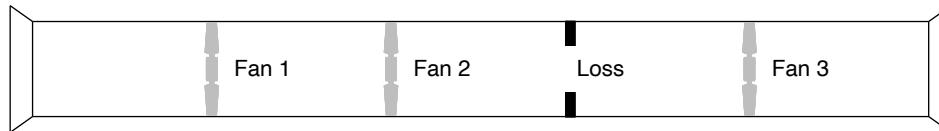
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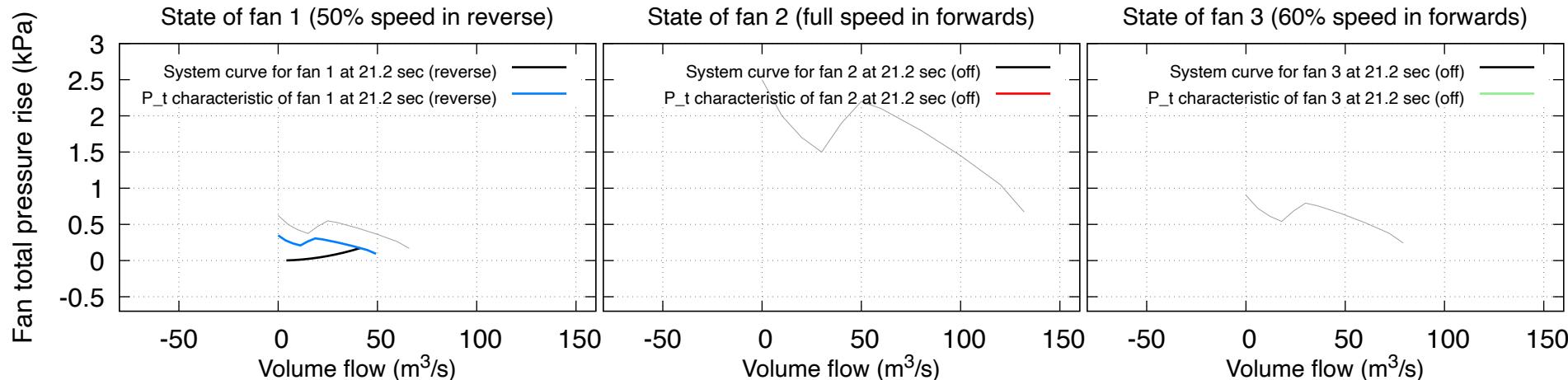
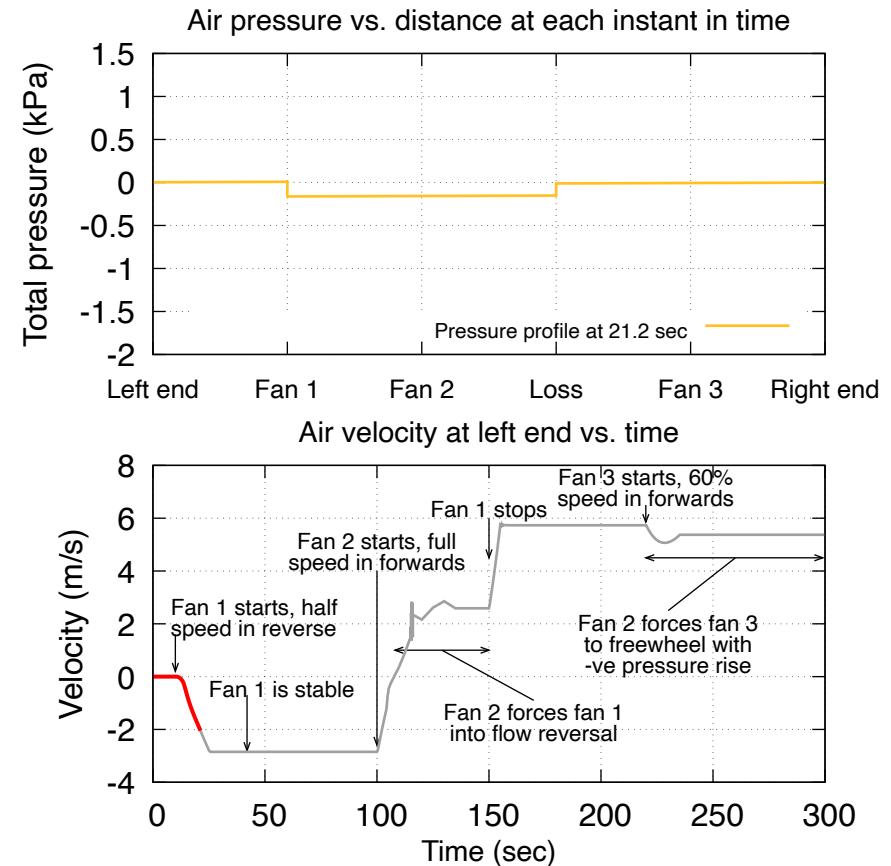
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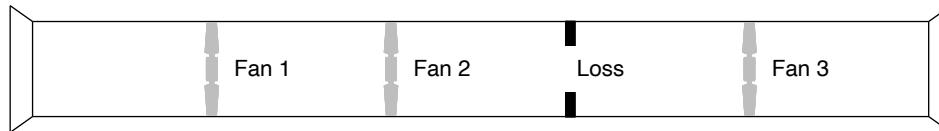
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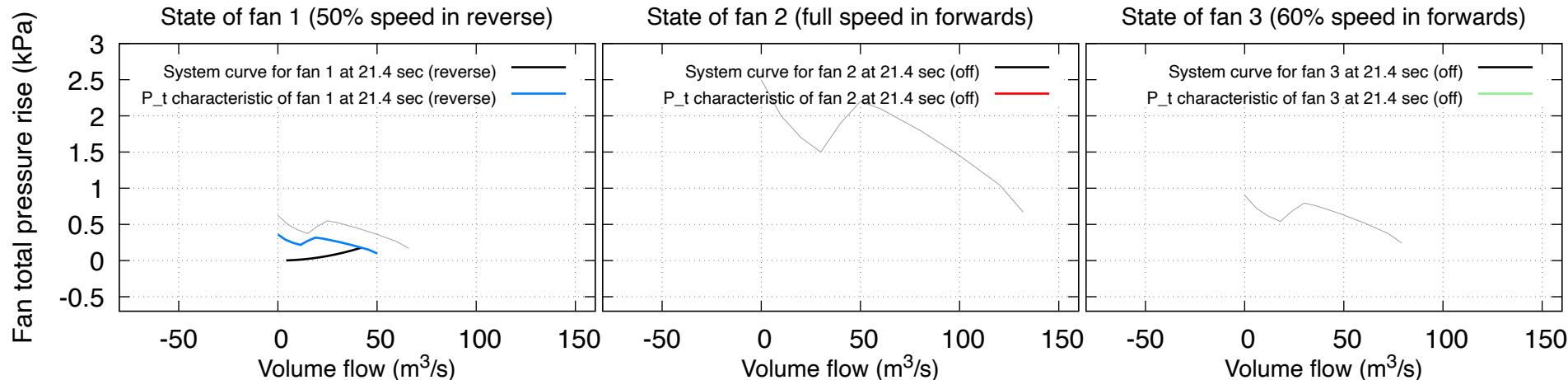
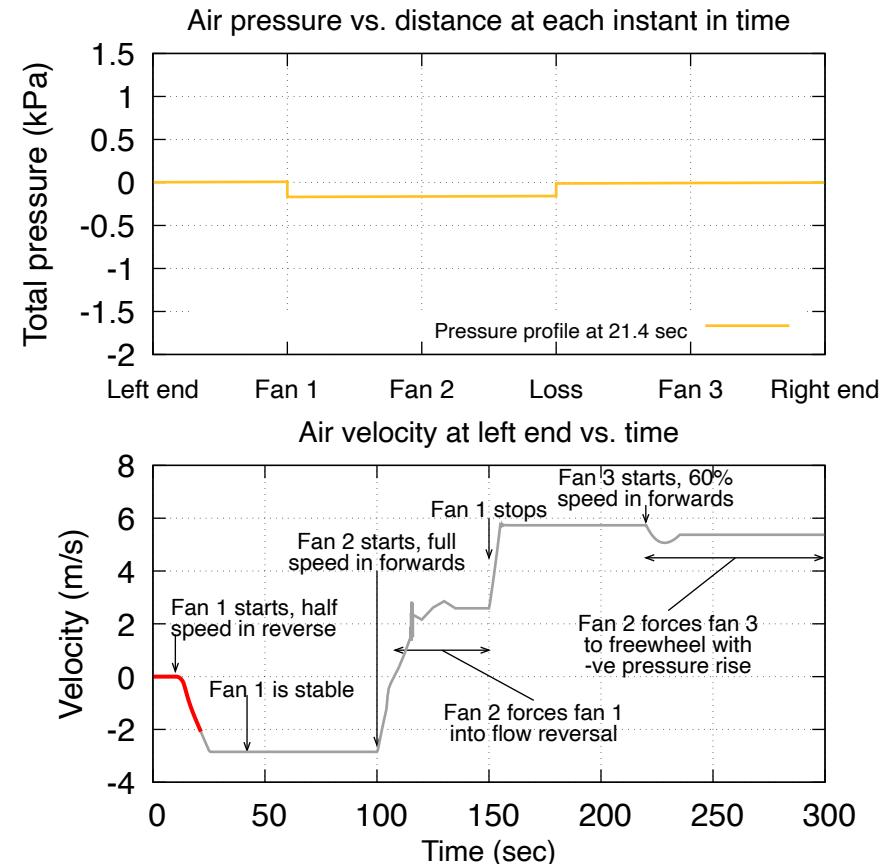
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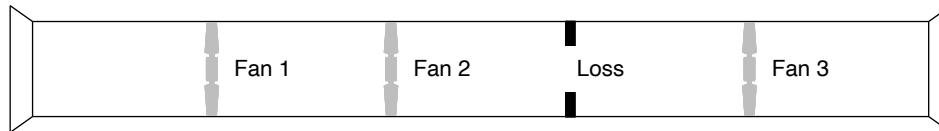
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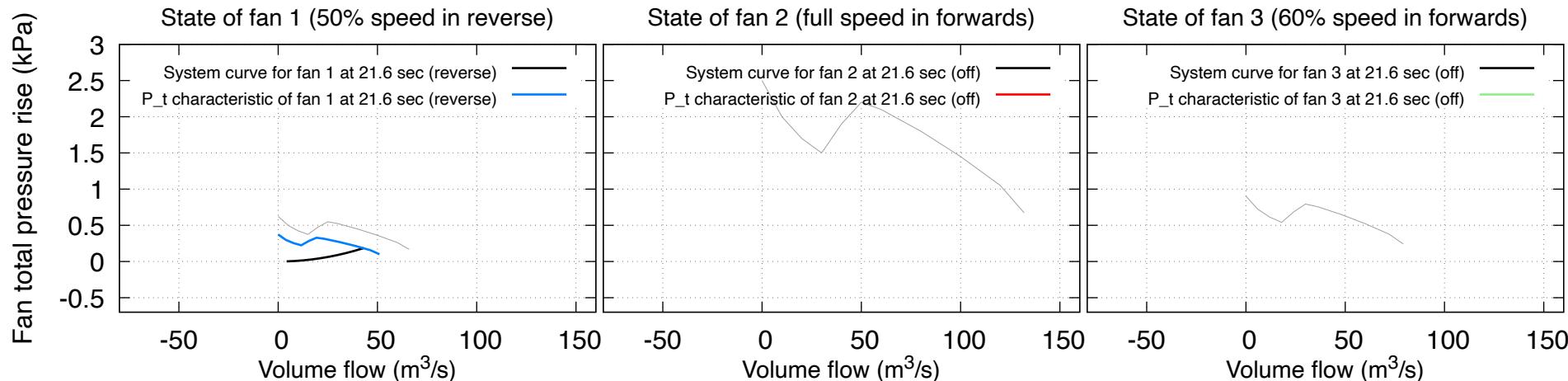
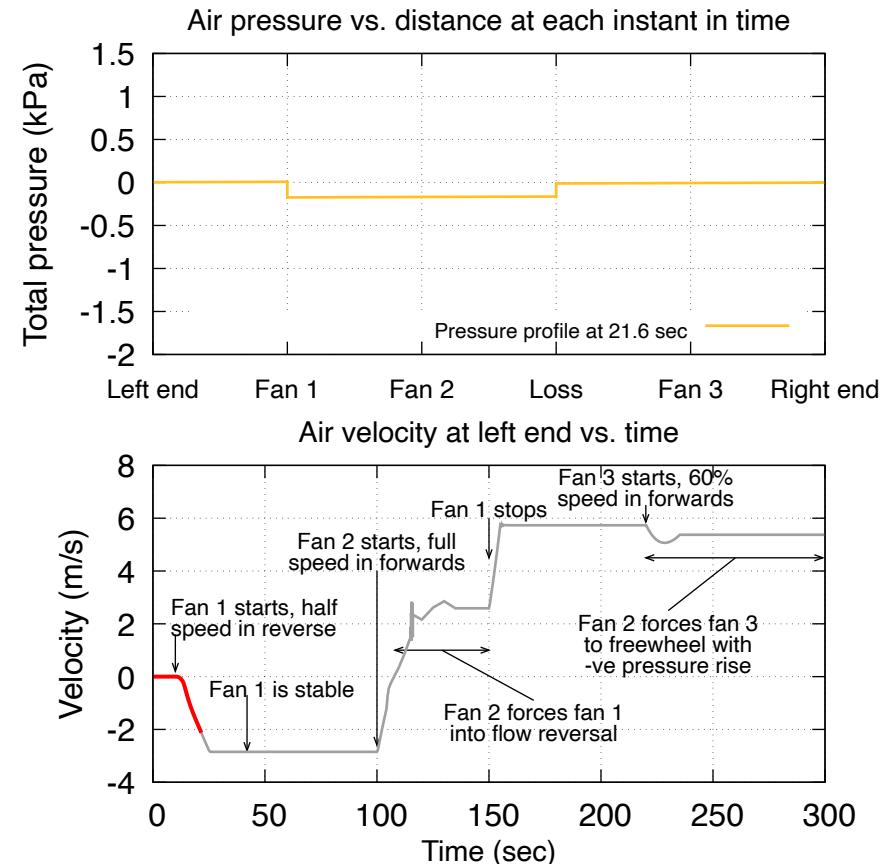
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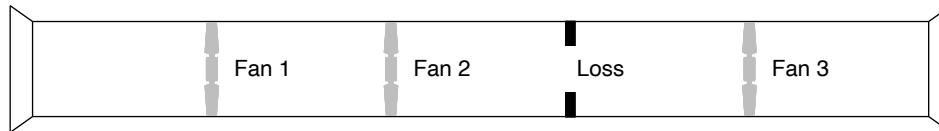
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



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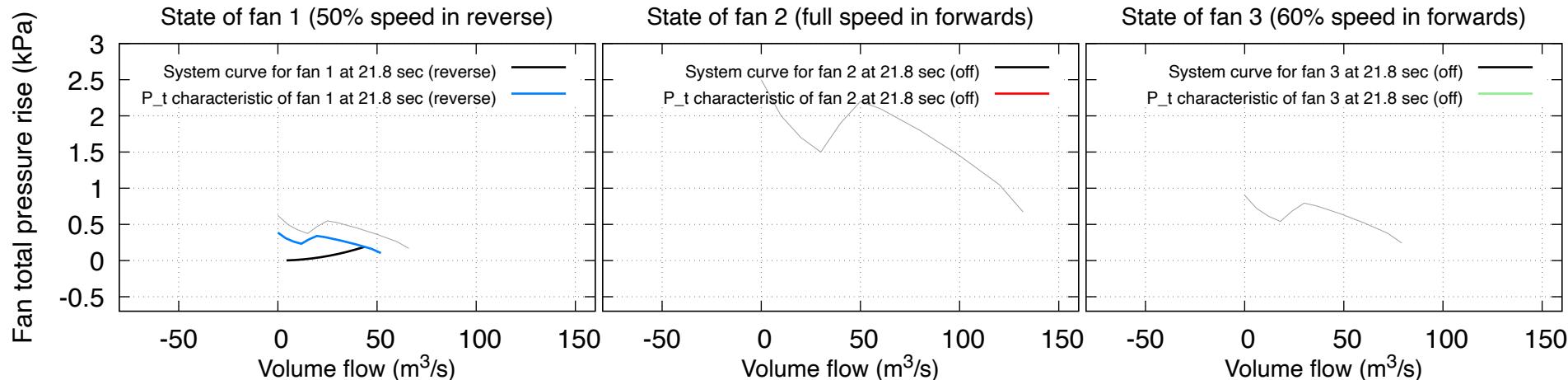
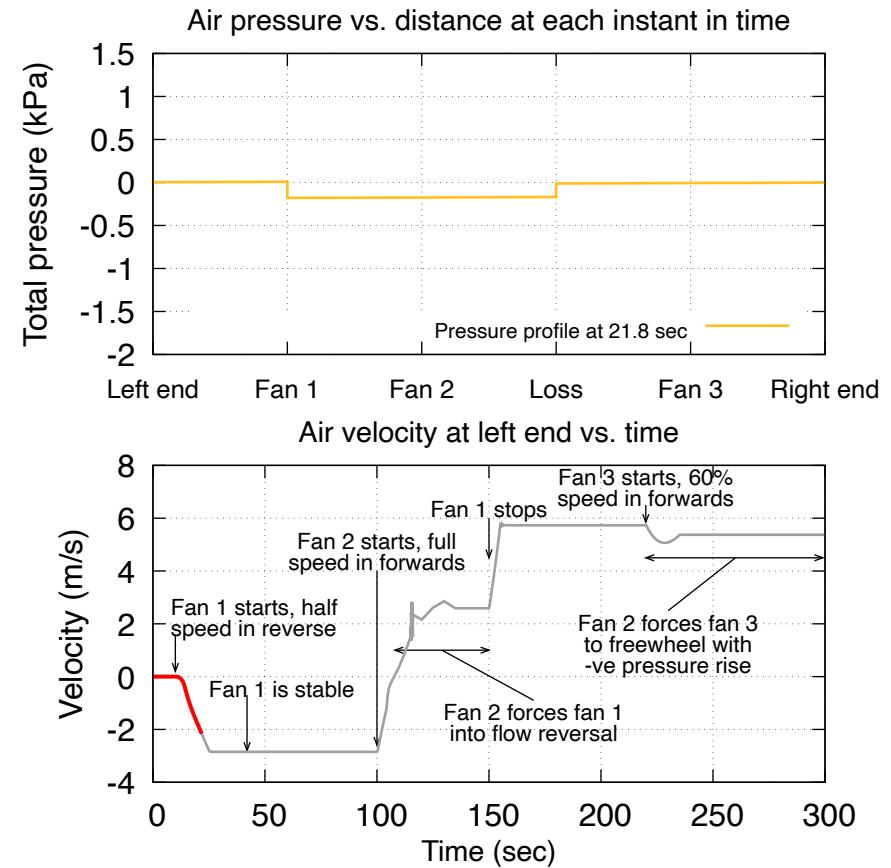
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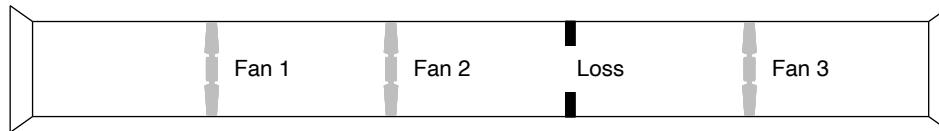
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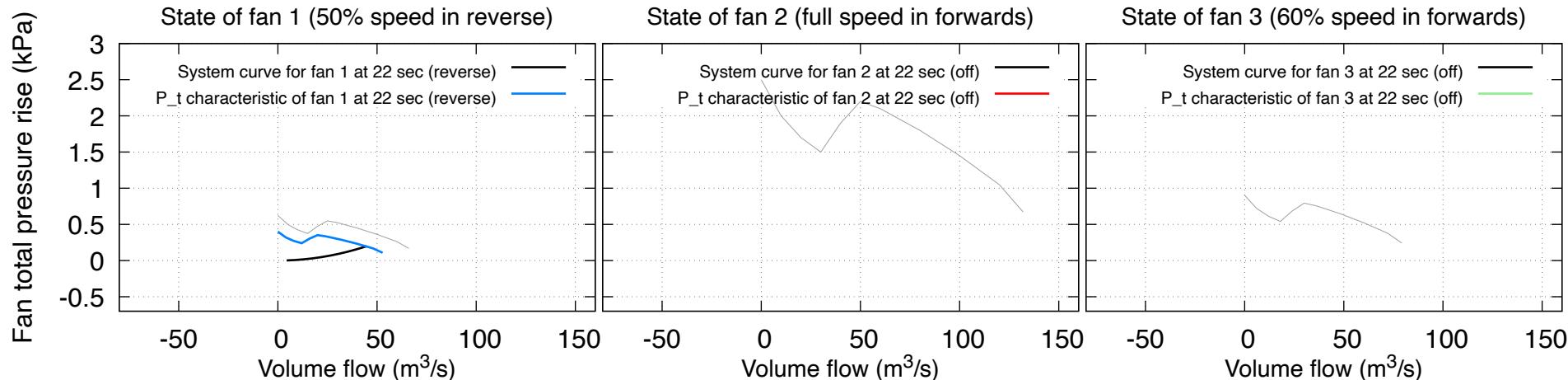
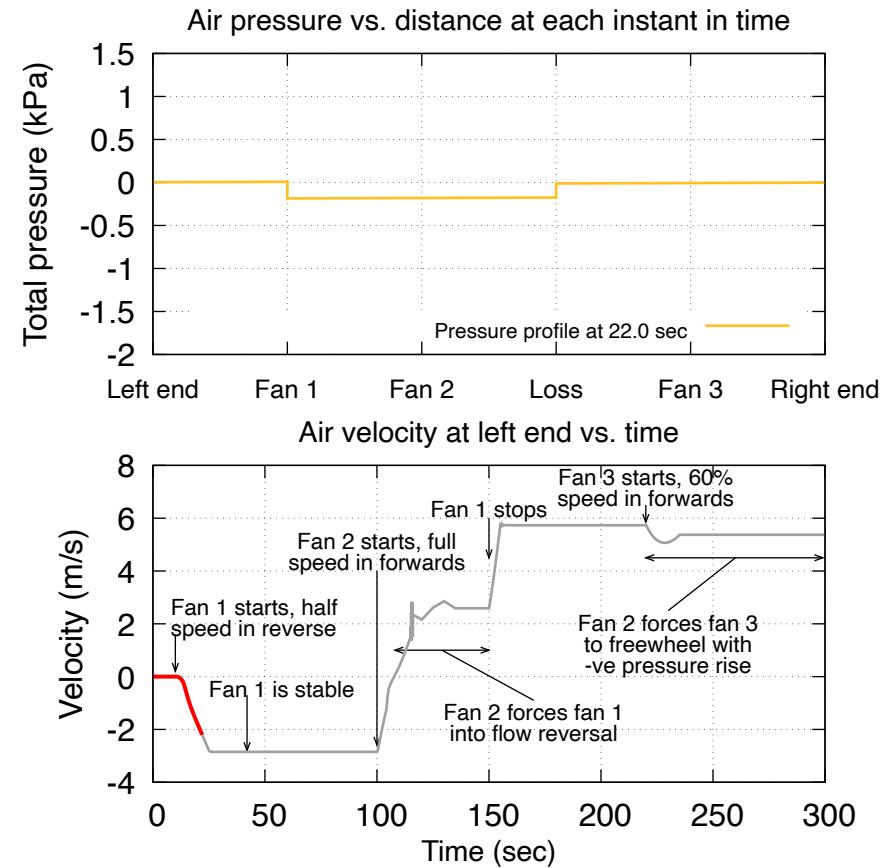
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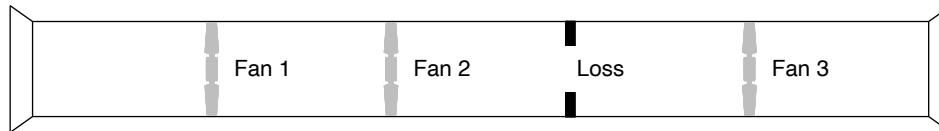
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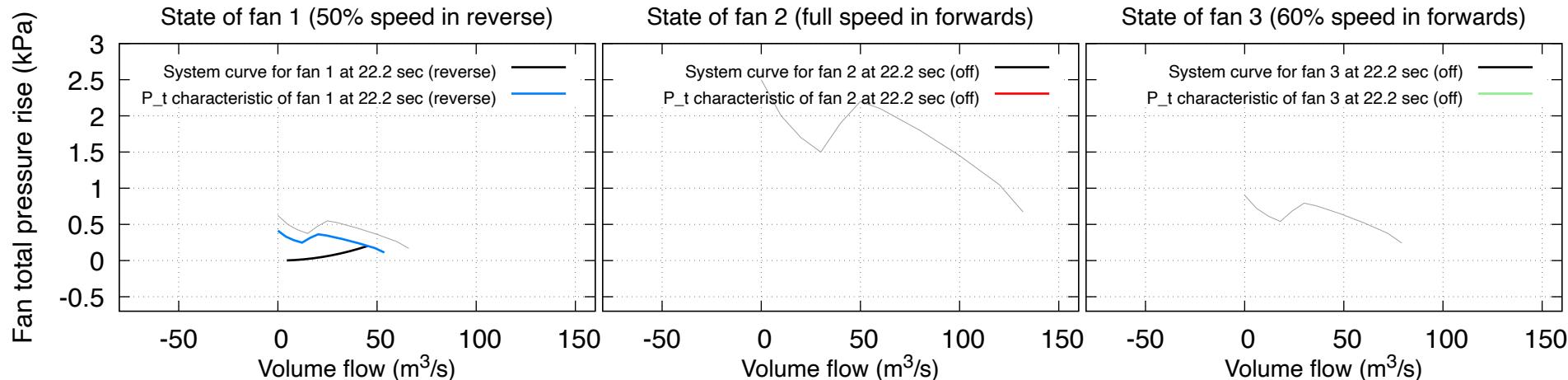
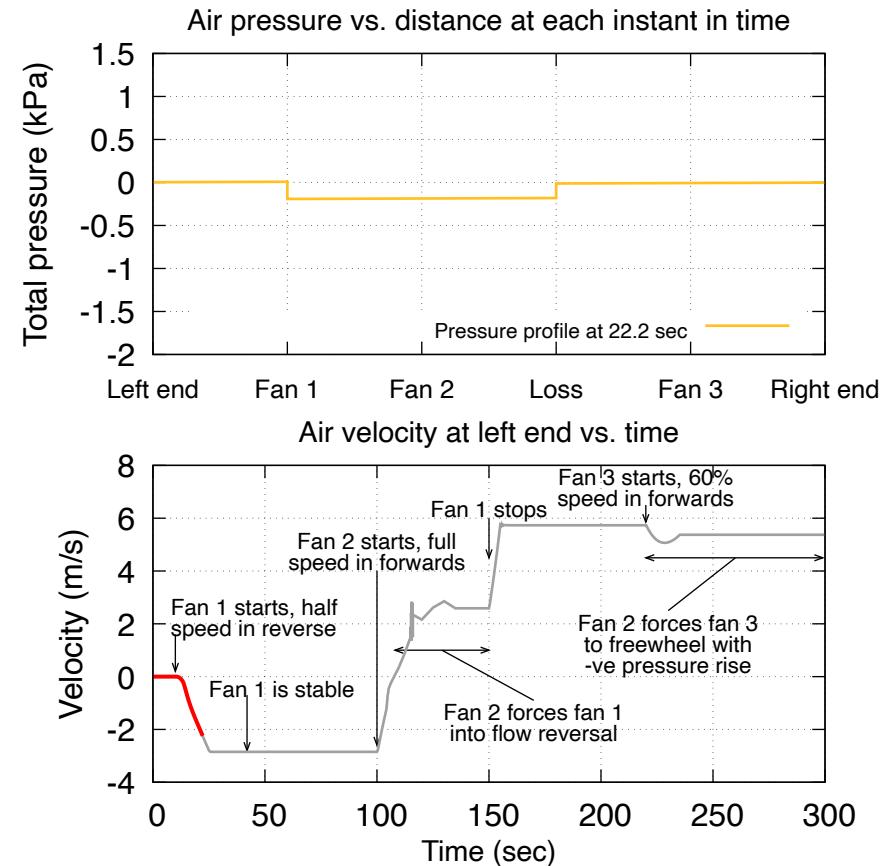
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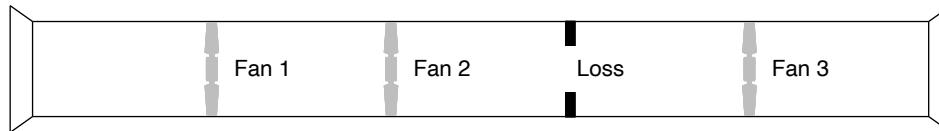
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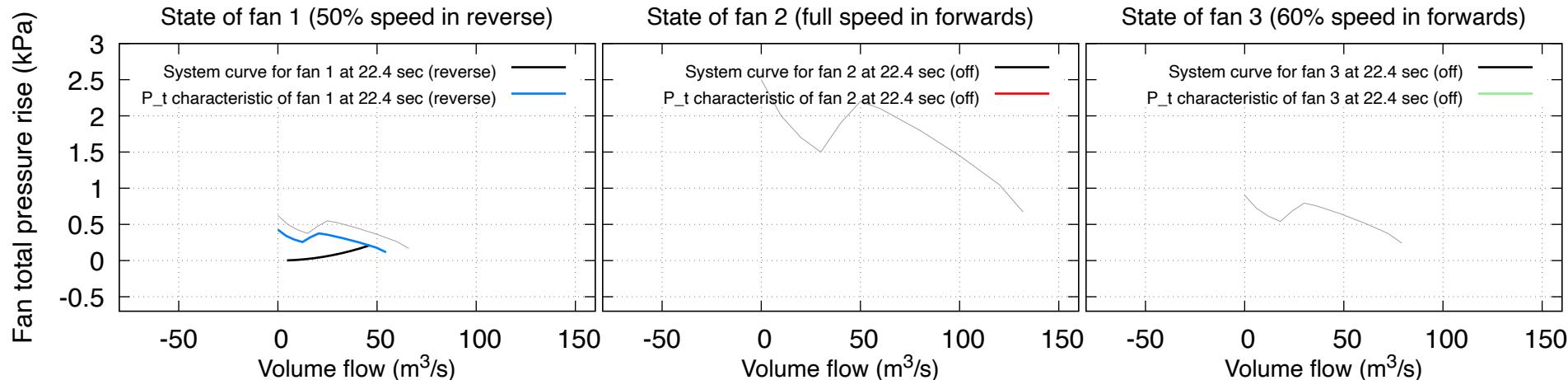
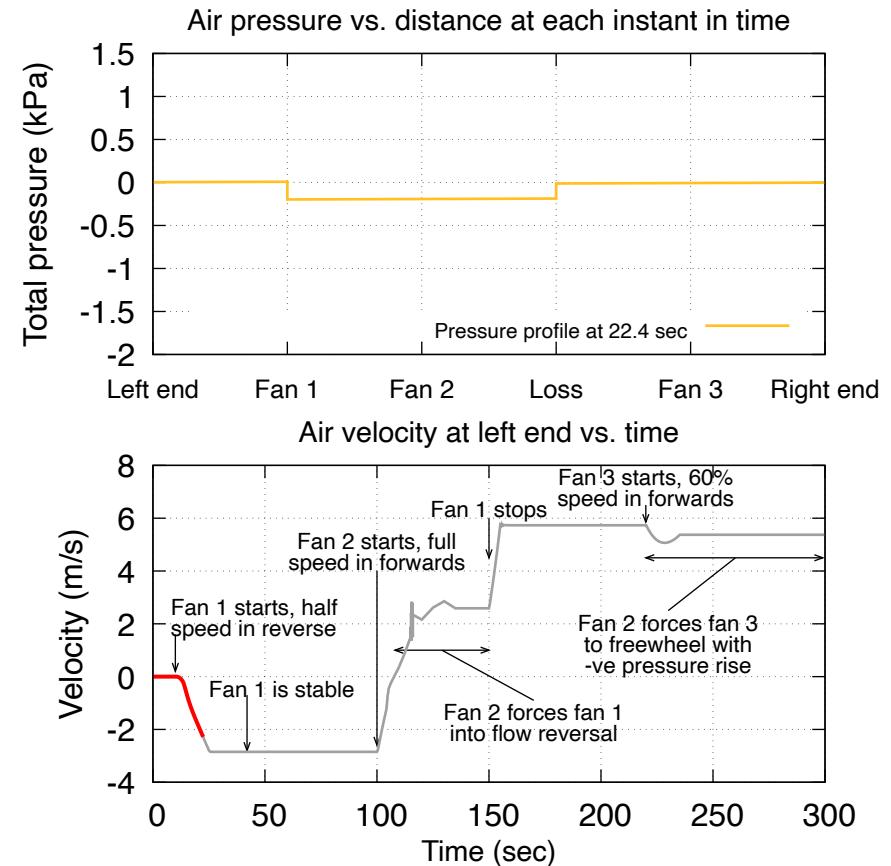
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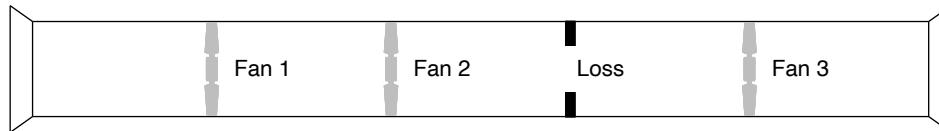
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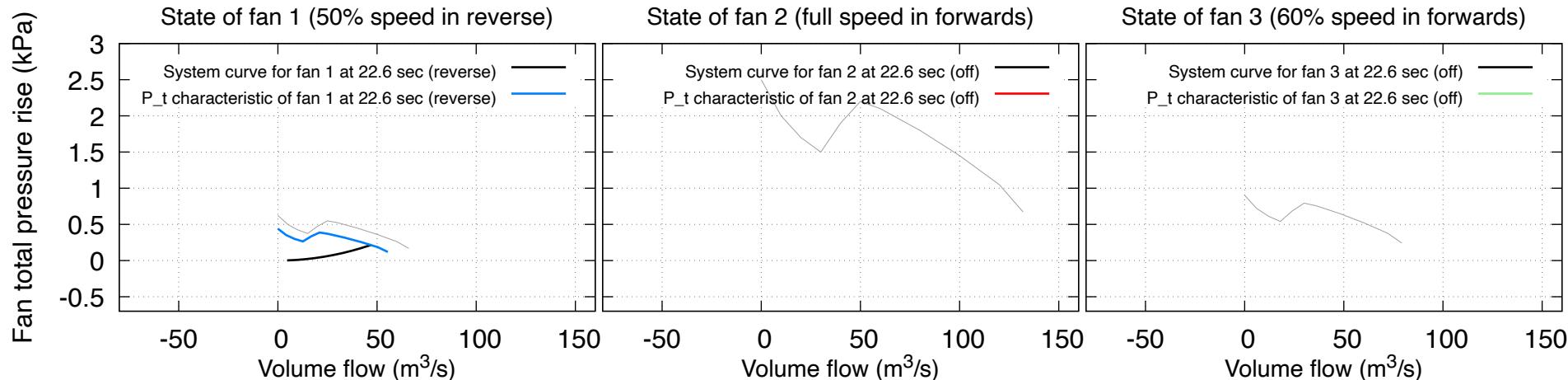
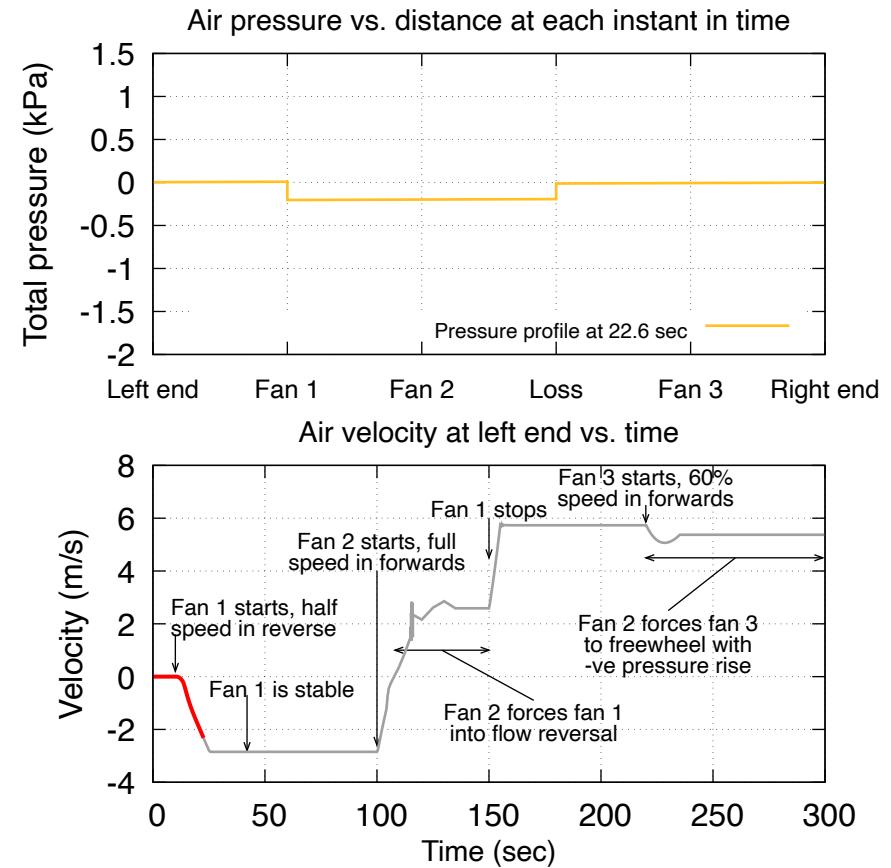
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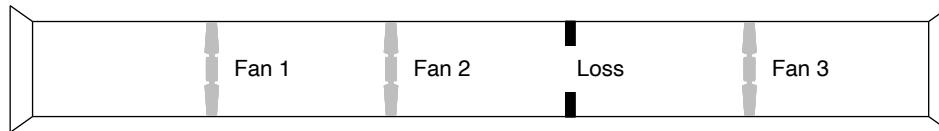
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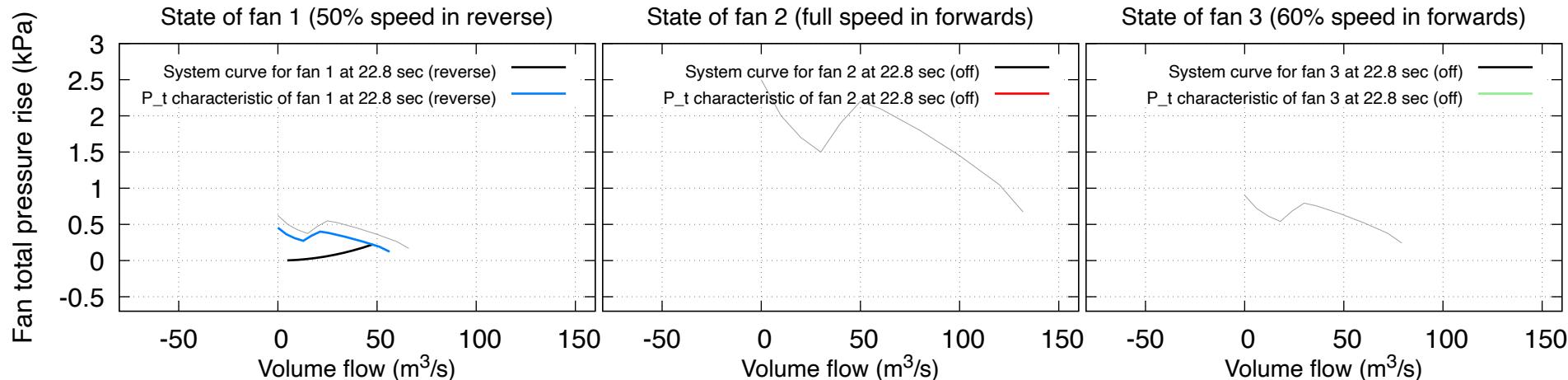
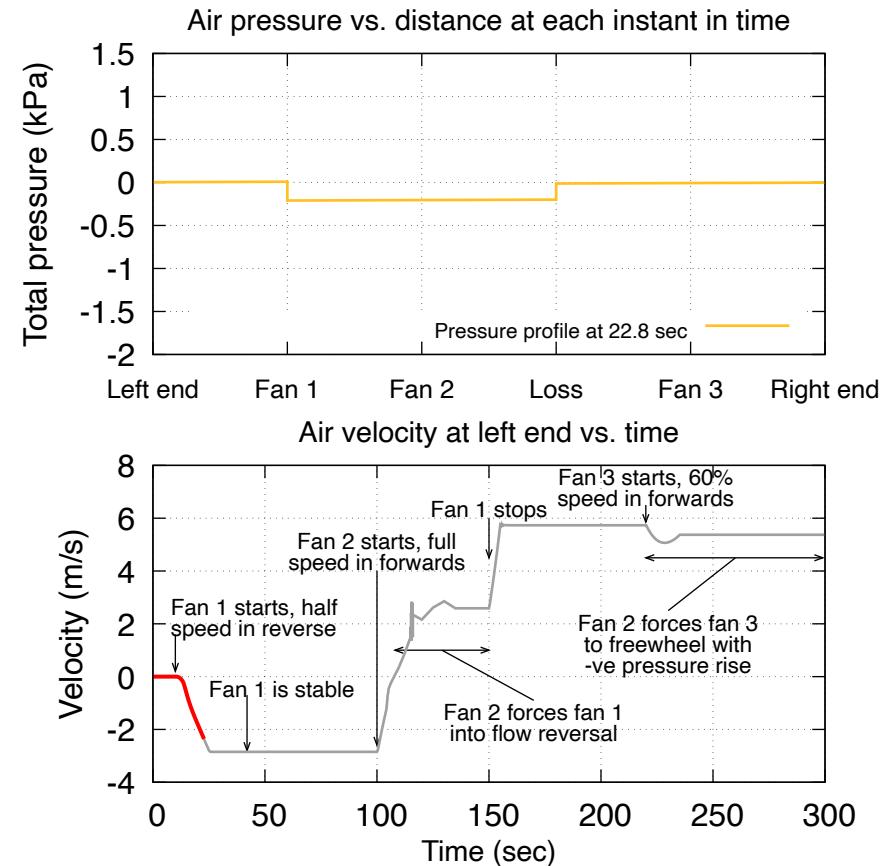
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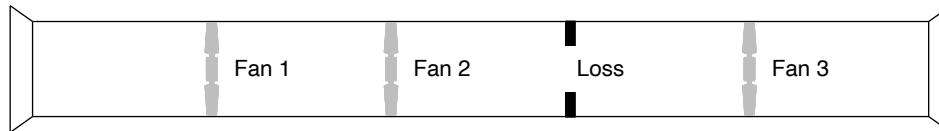
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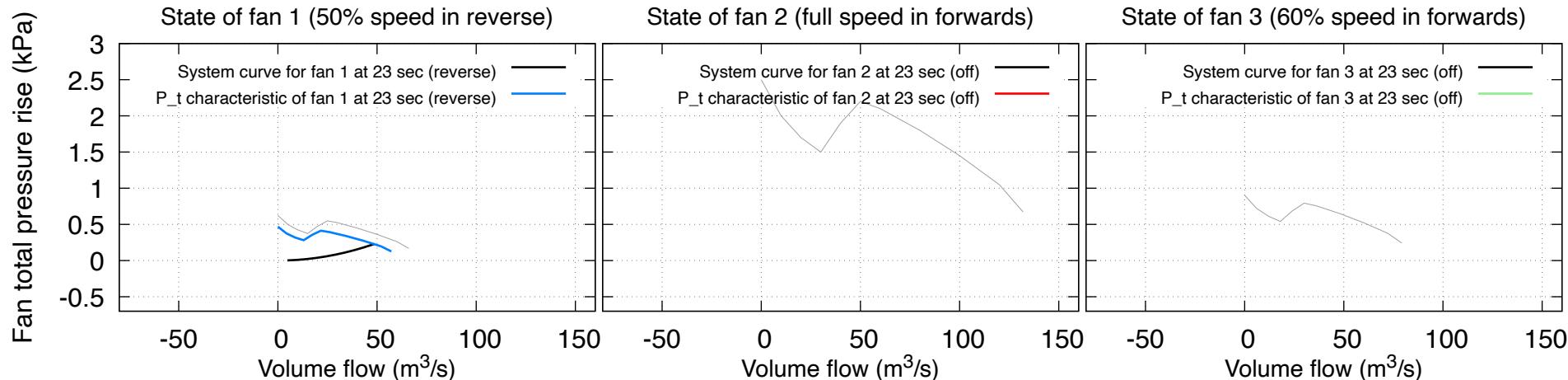
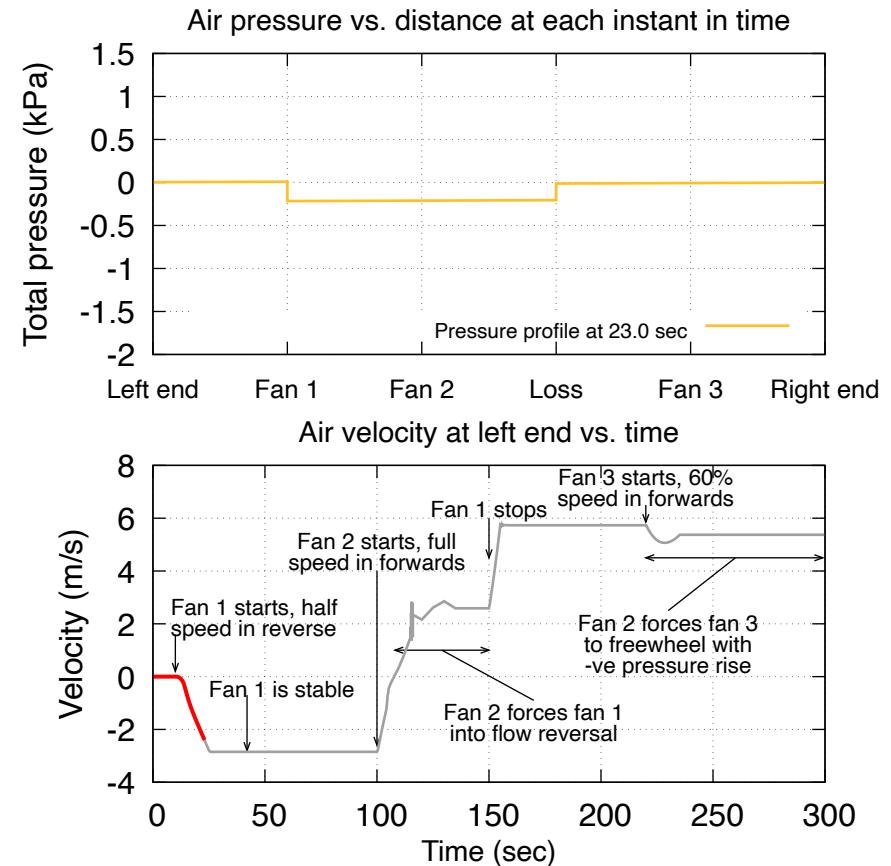
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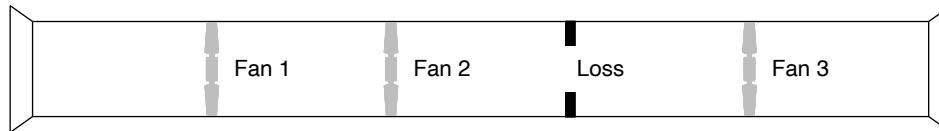
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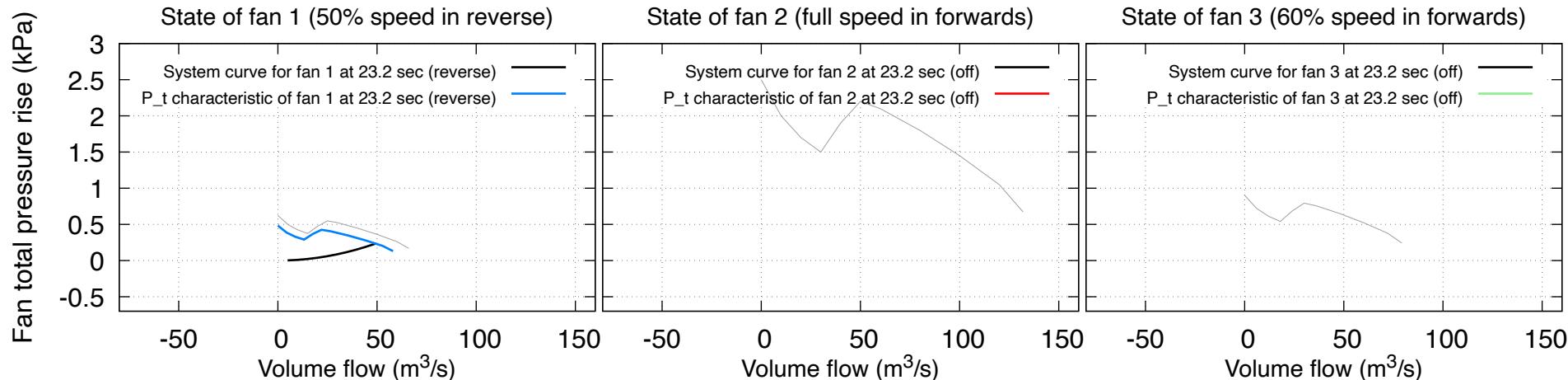
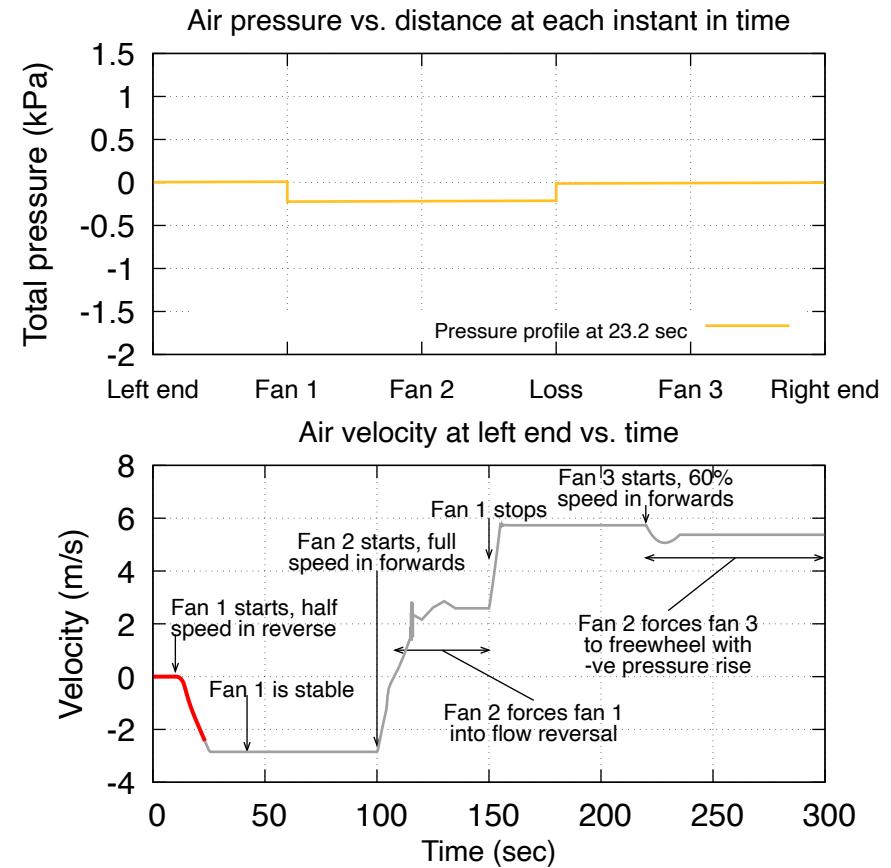
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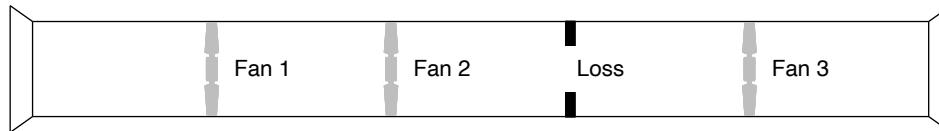
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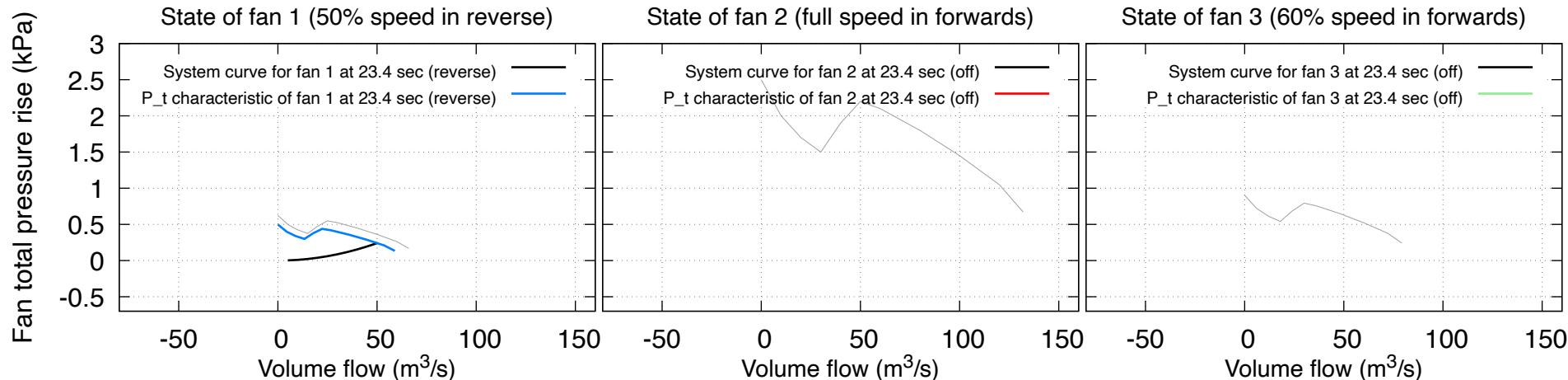
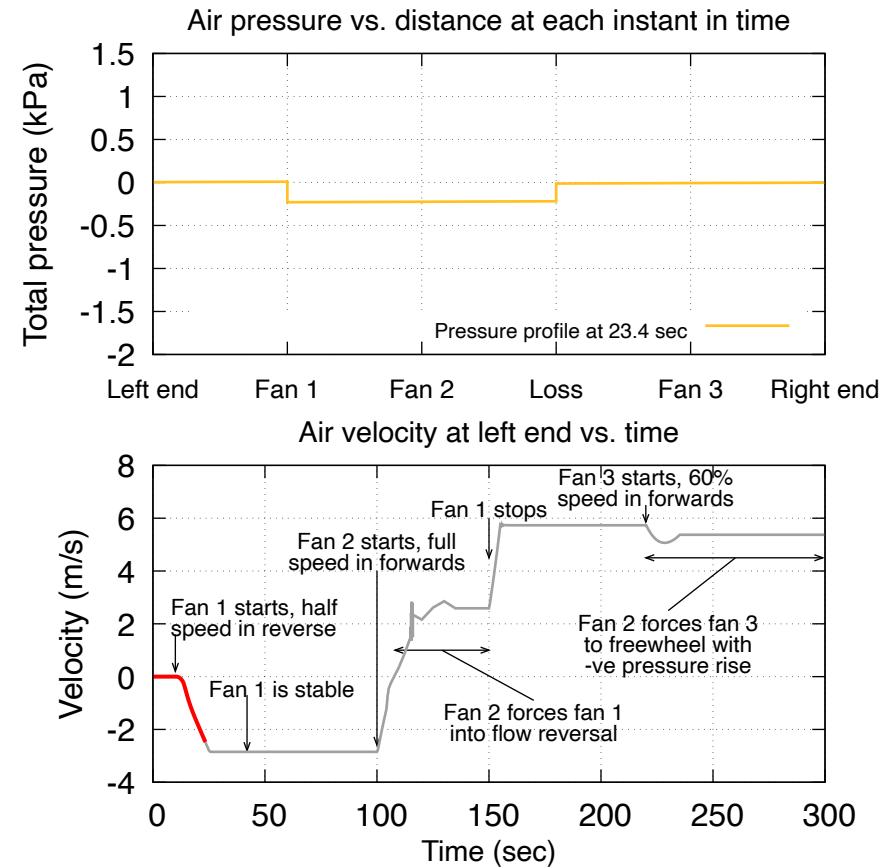
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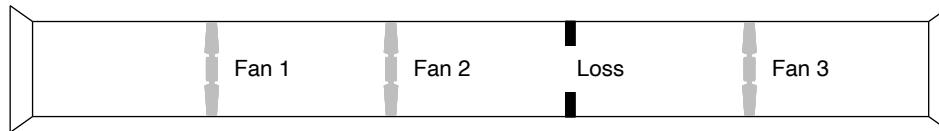
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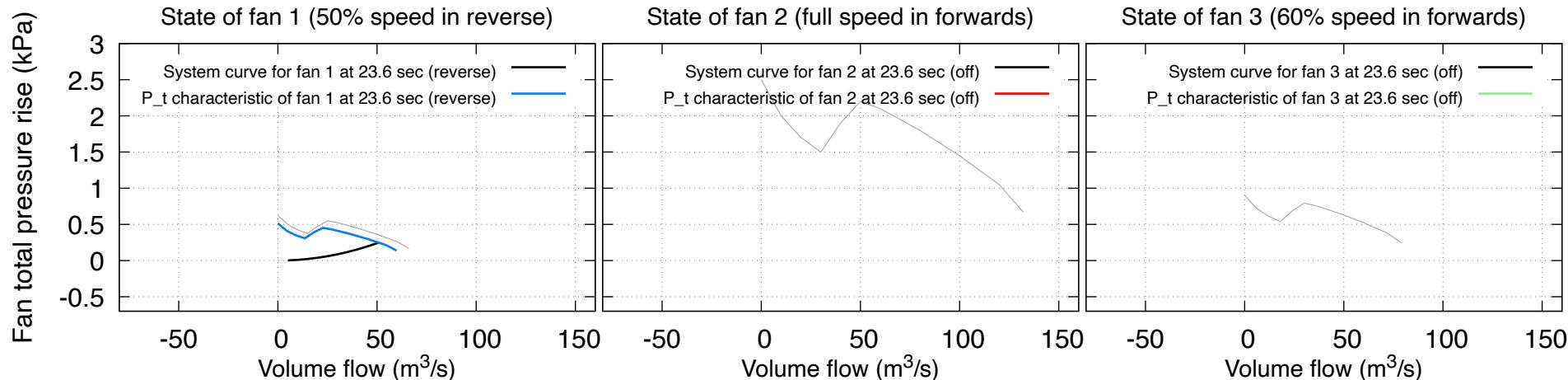
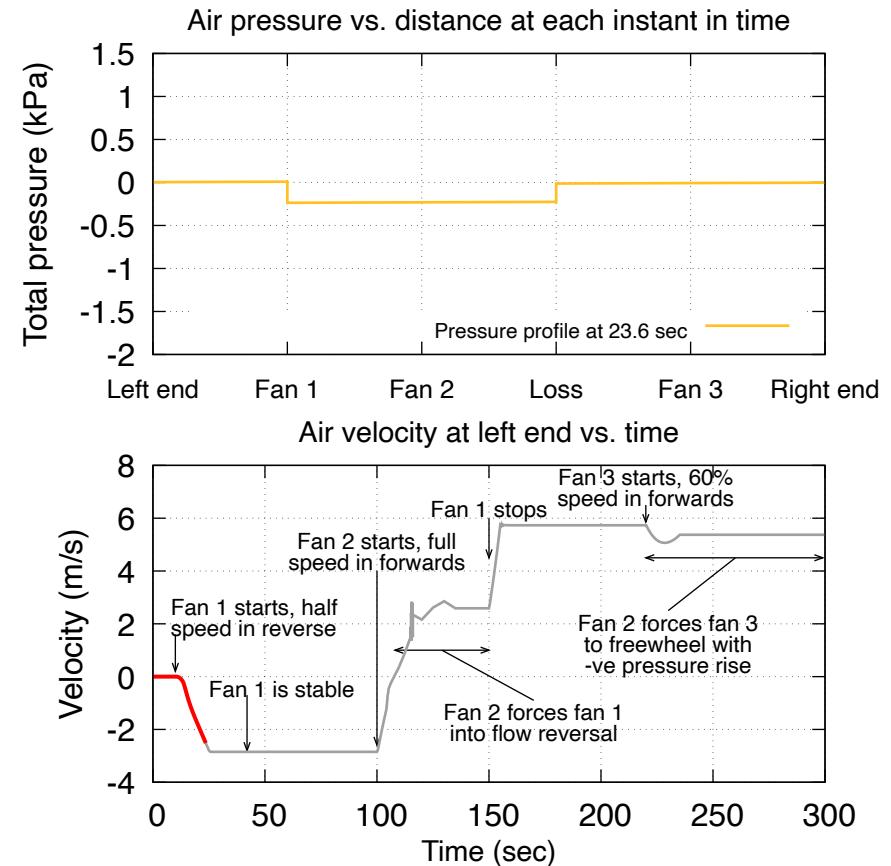
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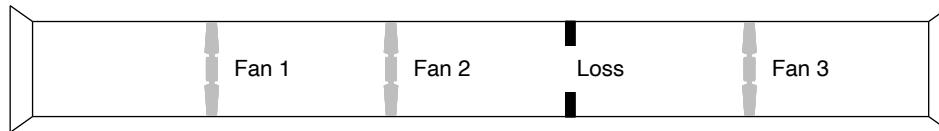
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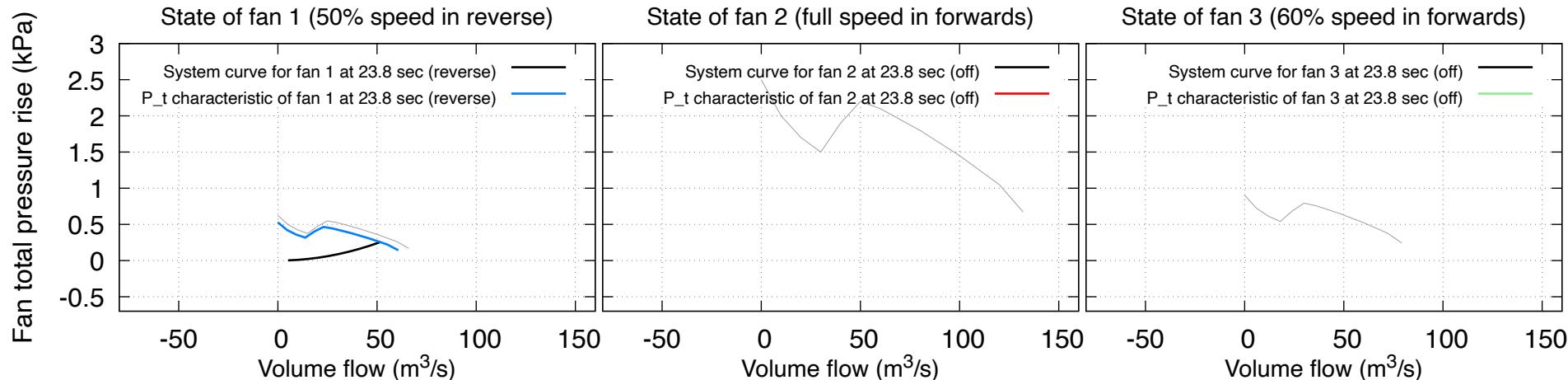
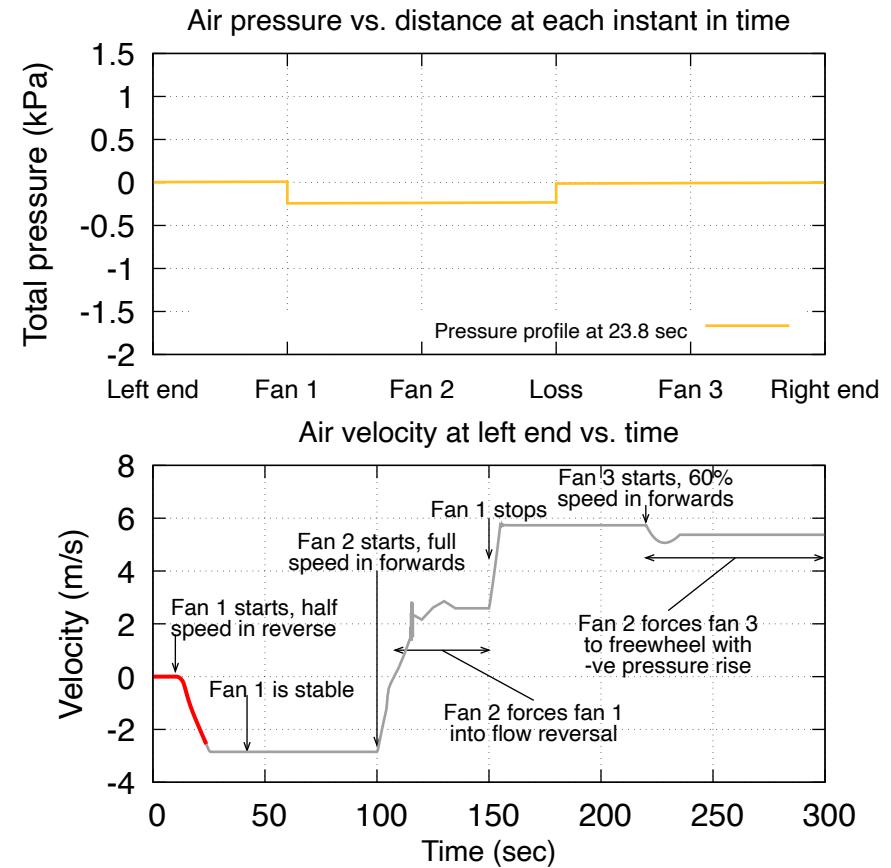
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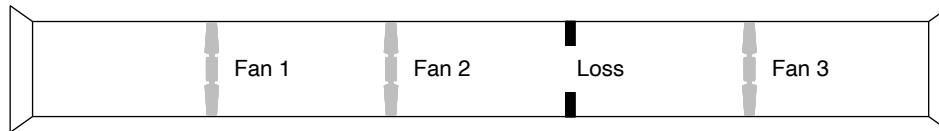
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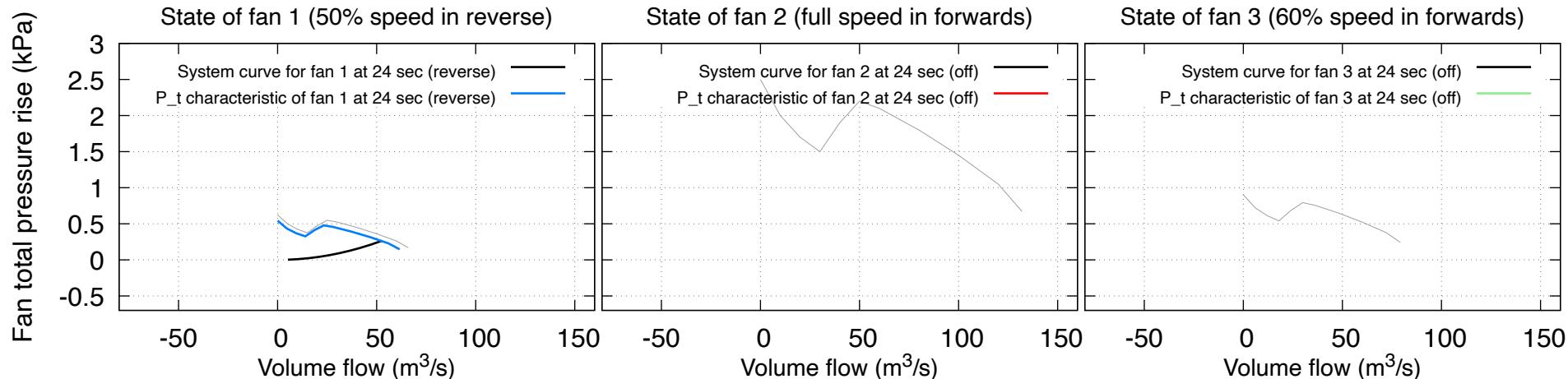
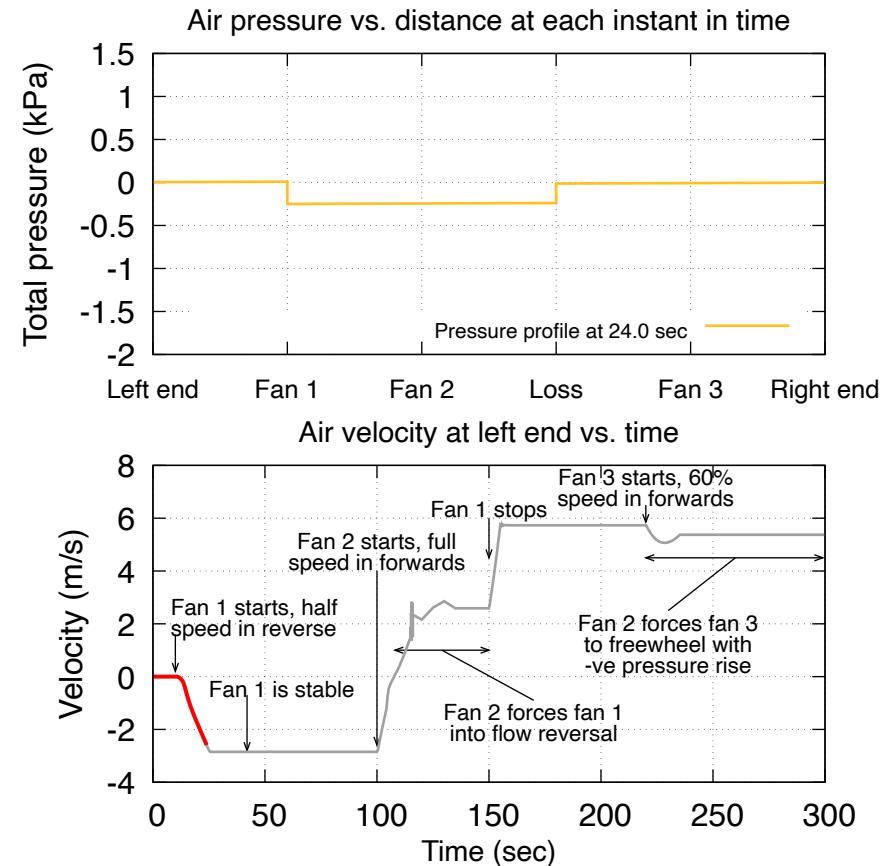
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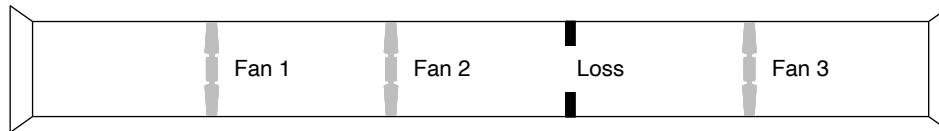
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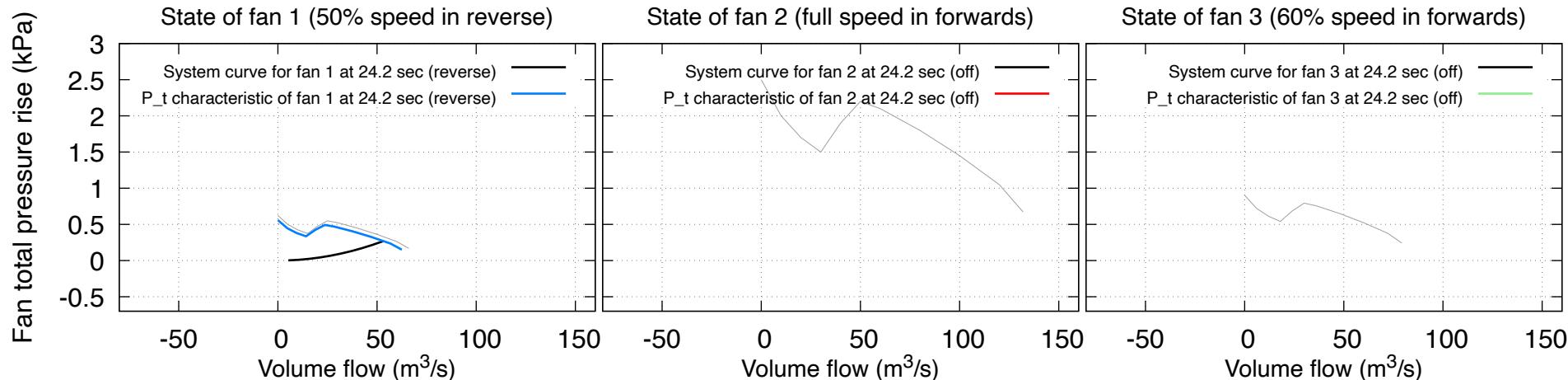
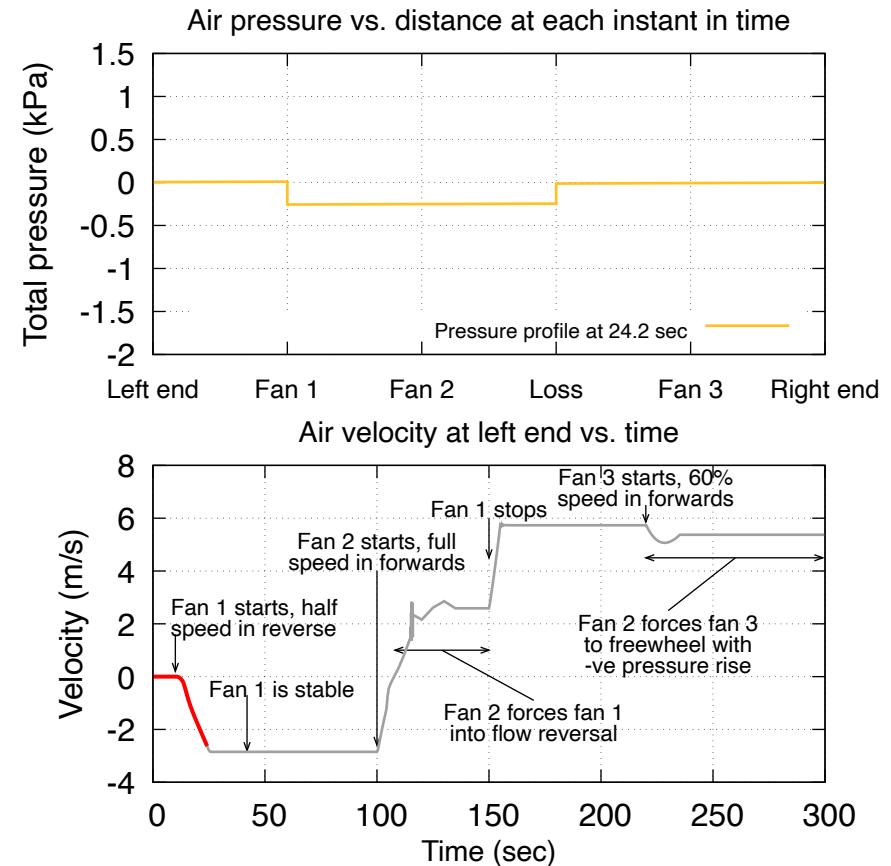
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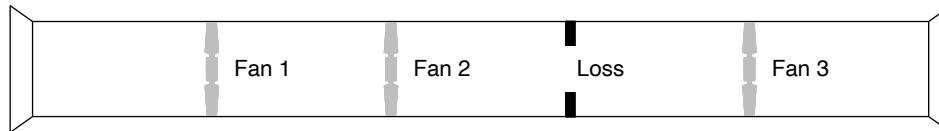
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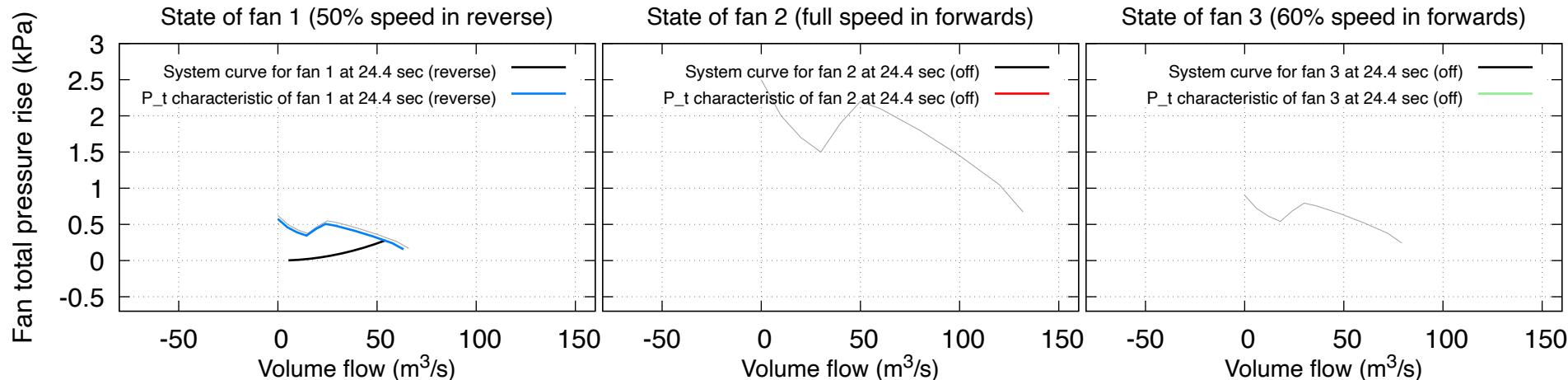
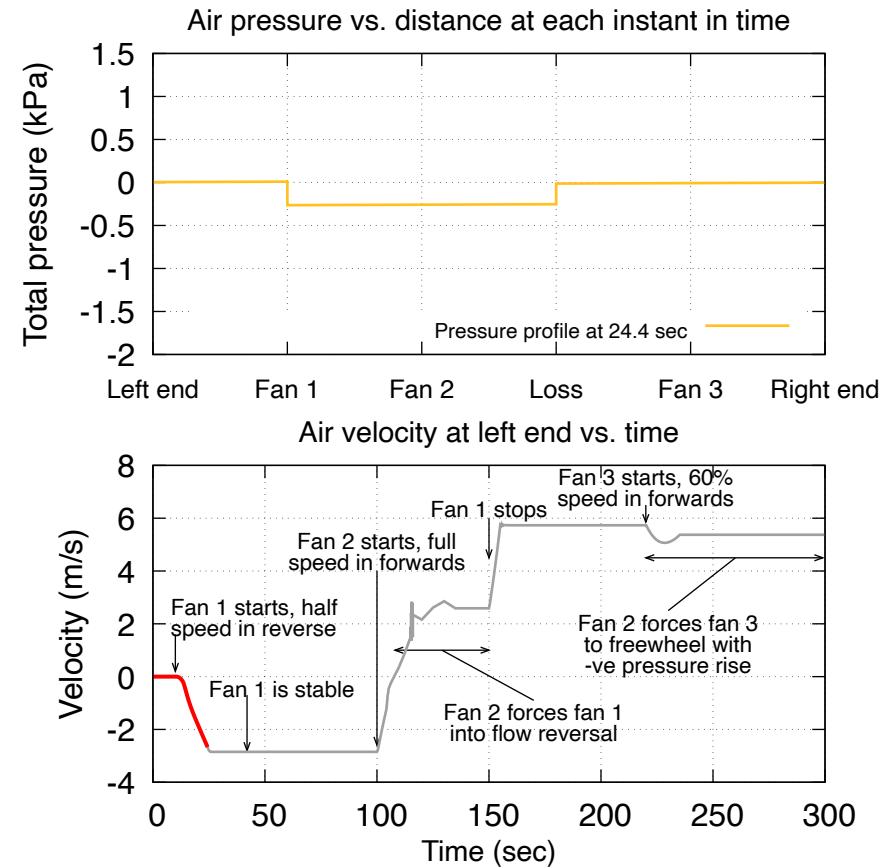
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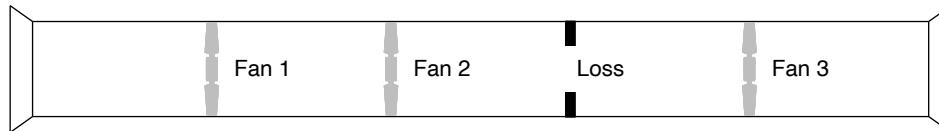
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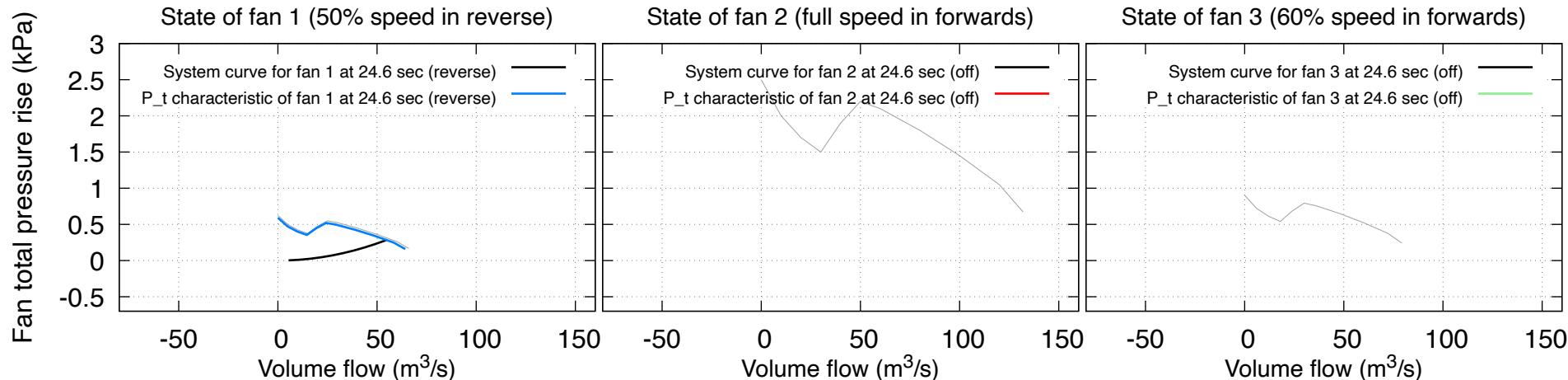
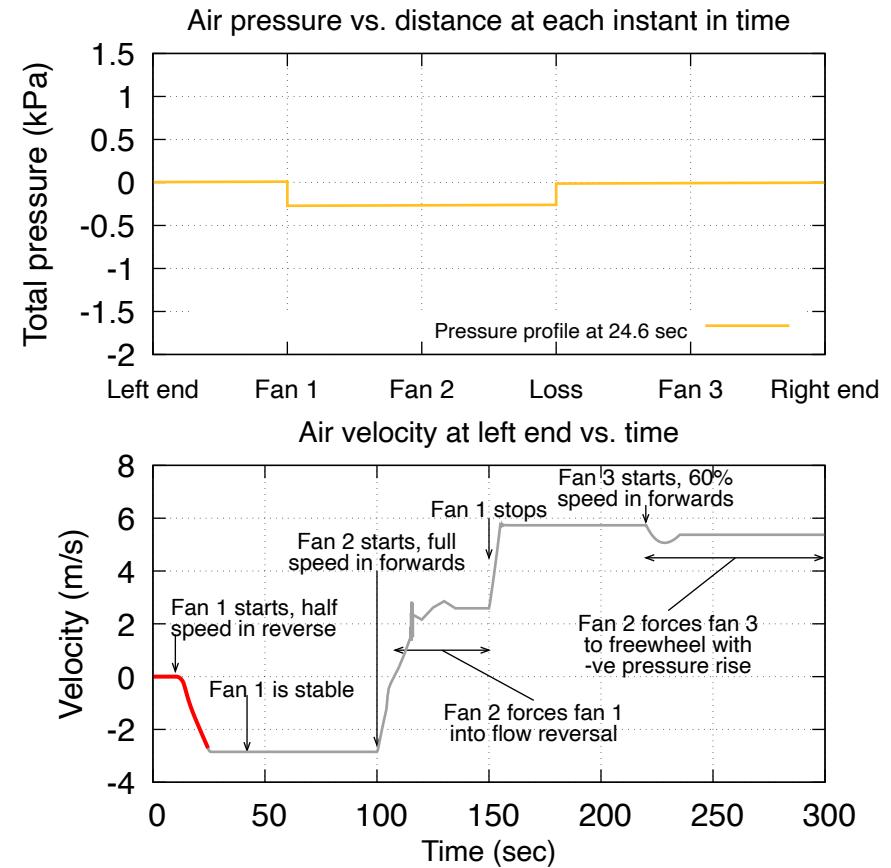
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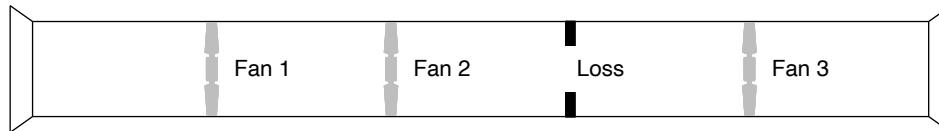
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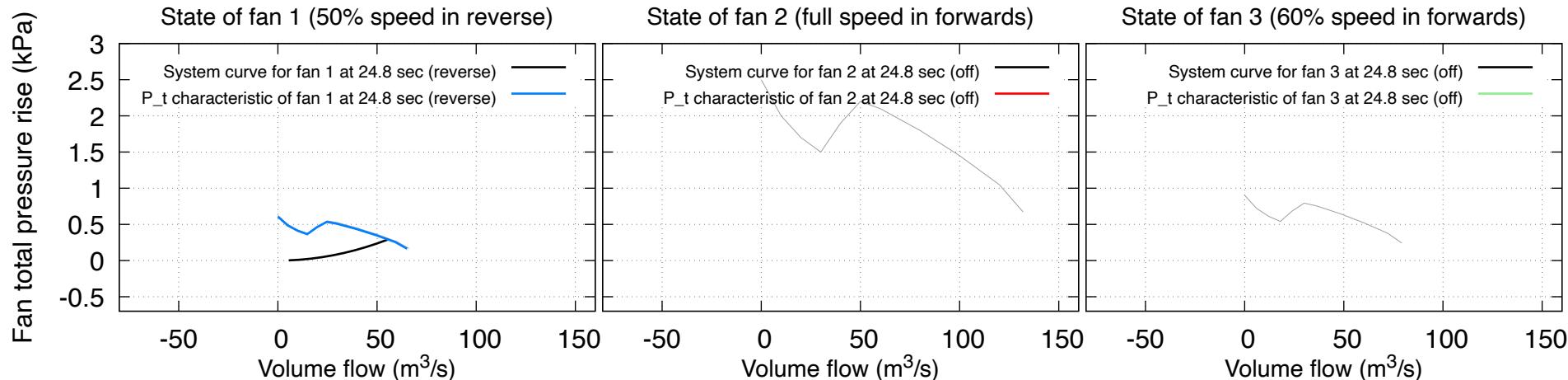
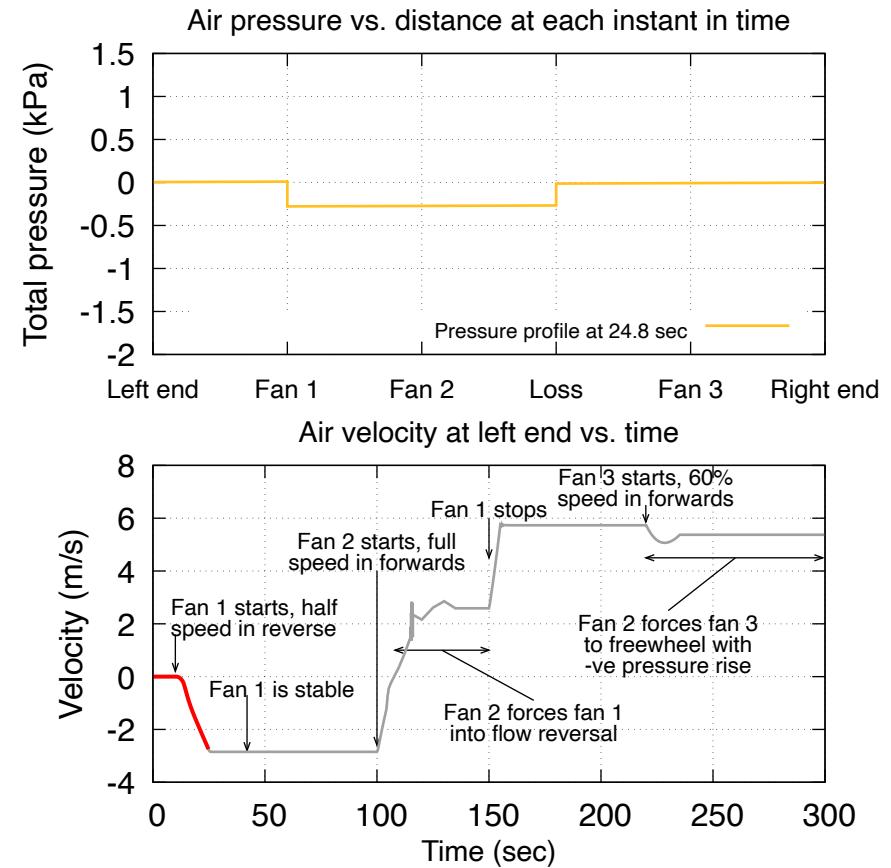
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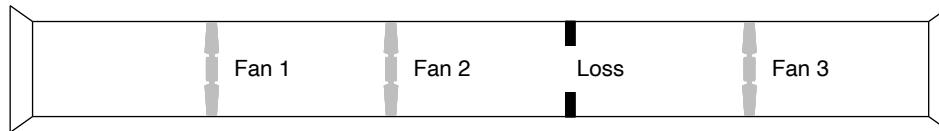
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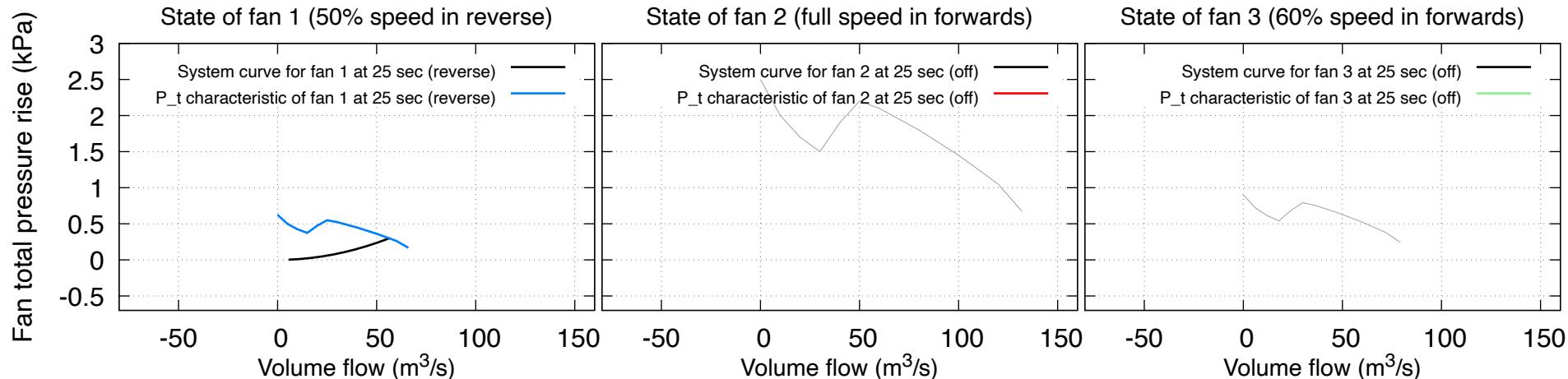
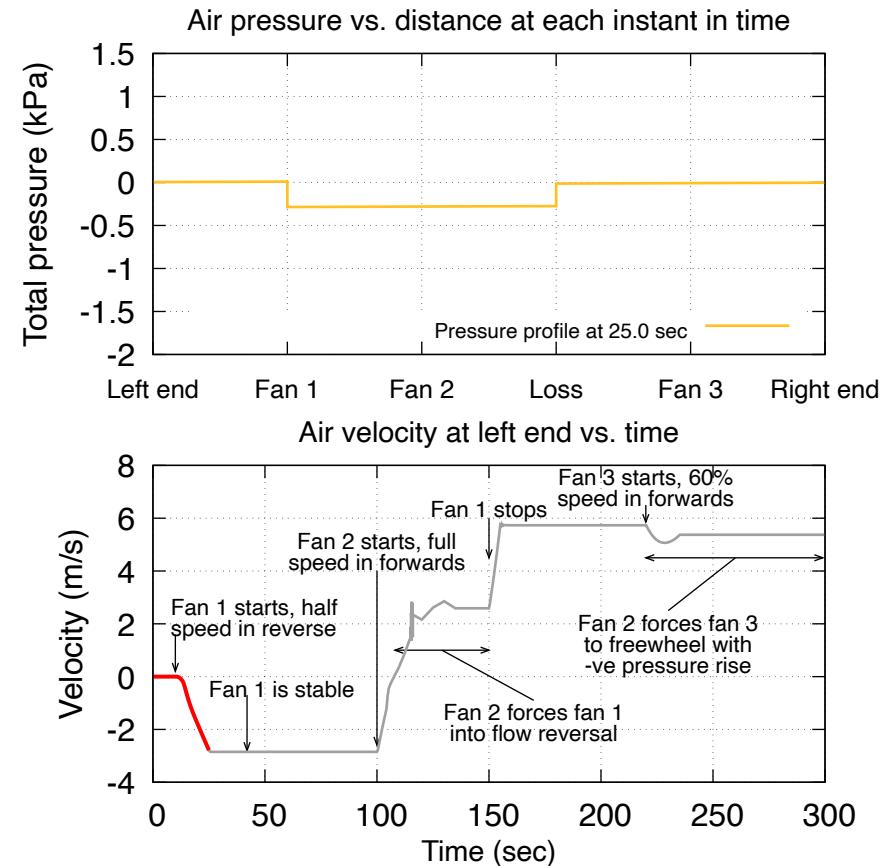
Fan 1 starts in reverse at half speed and ends up at a suitable duty point.

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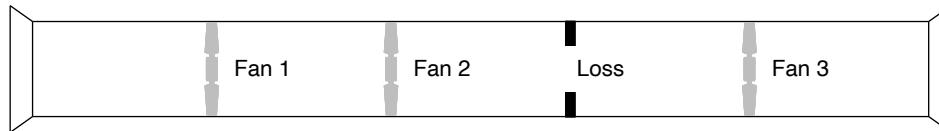
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



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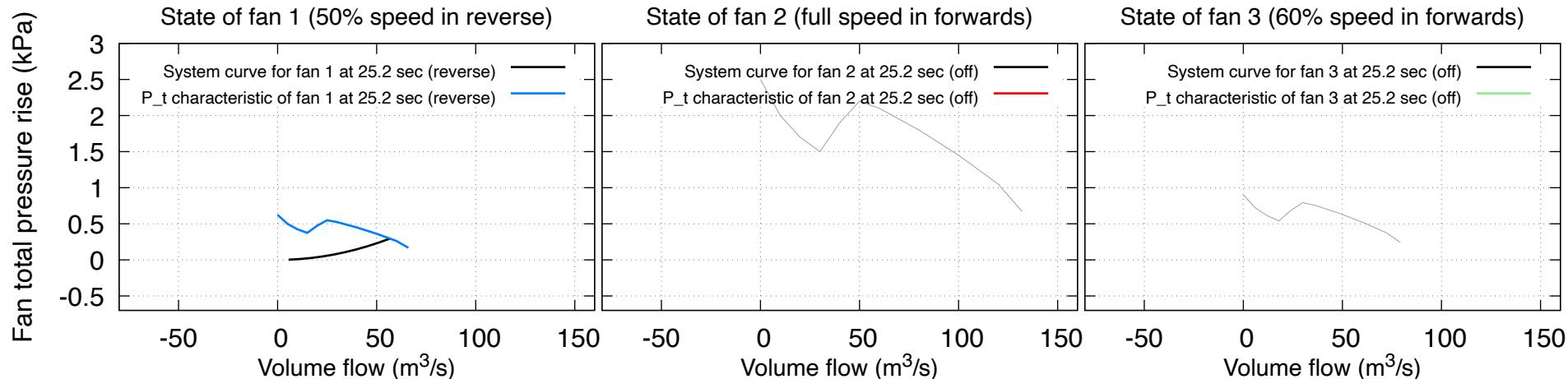
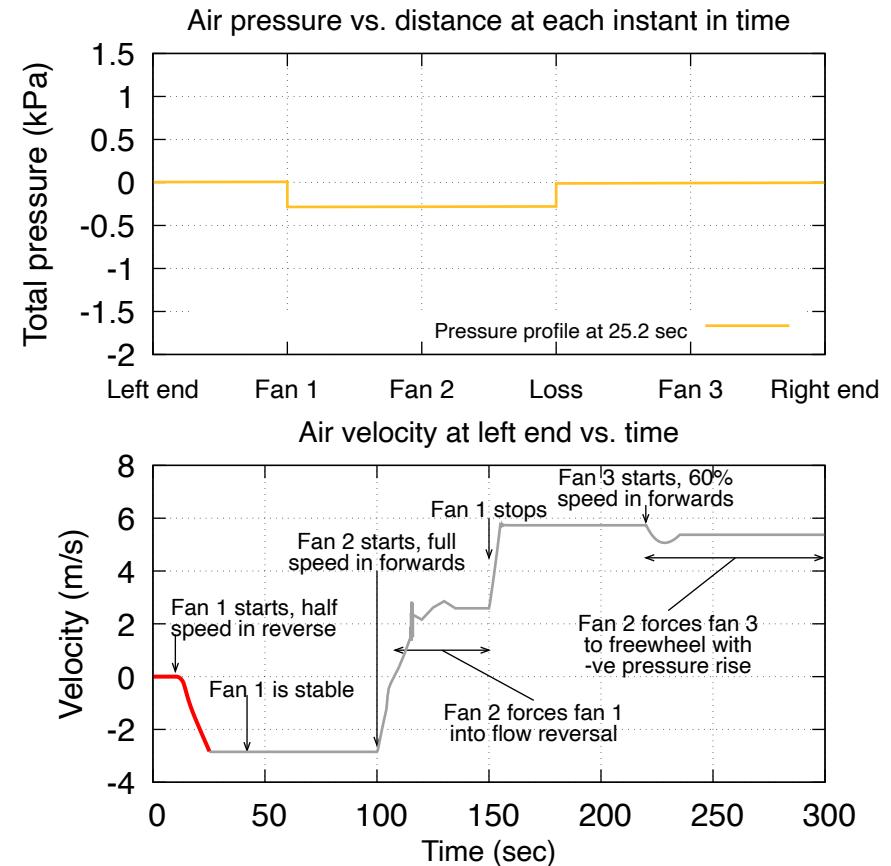
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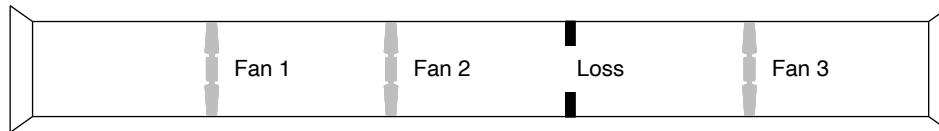
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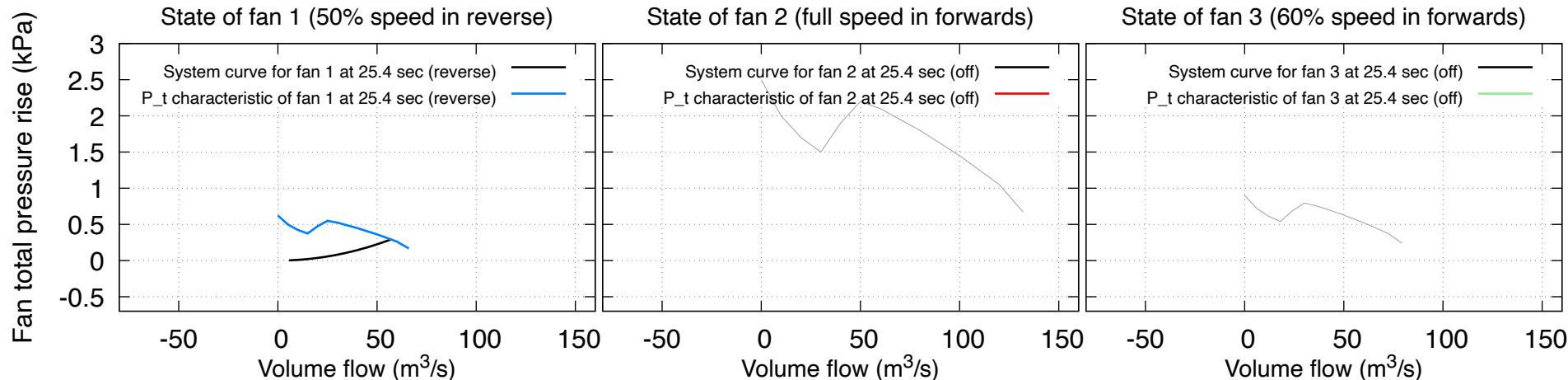
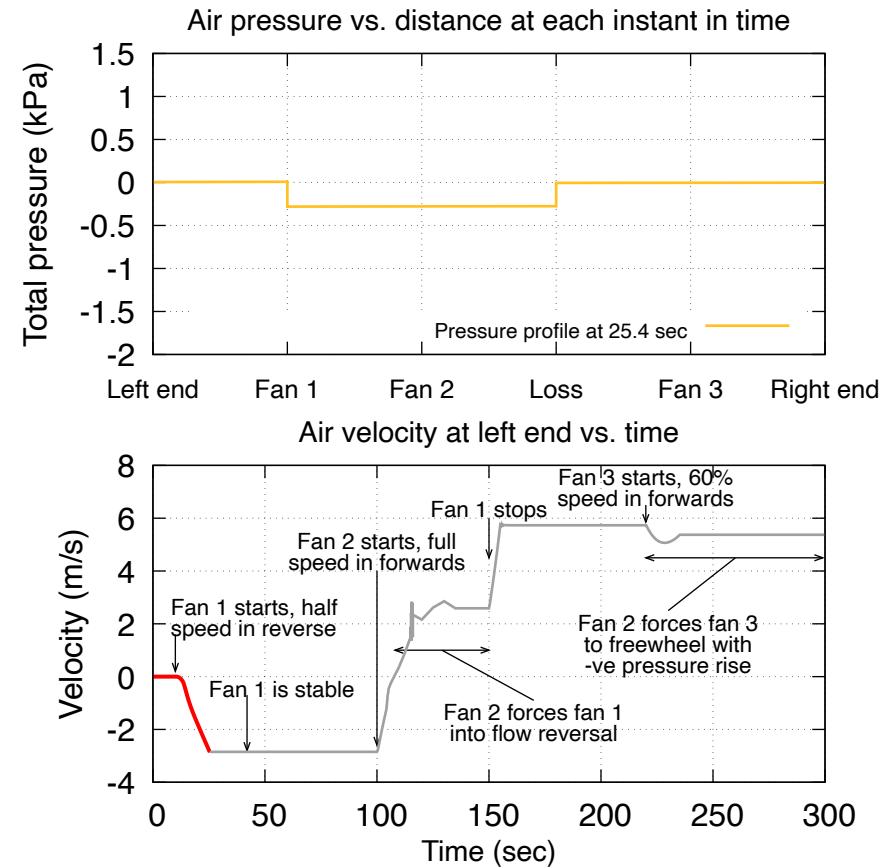
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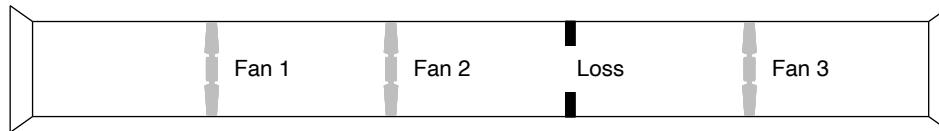
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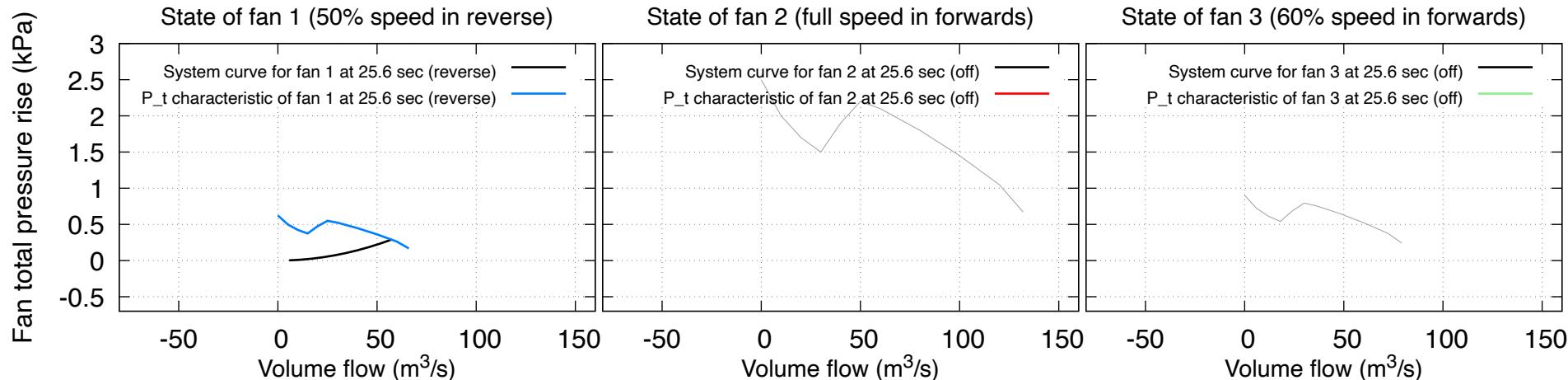
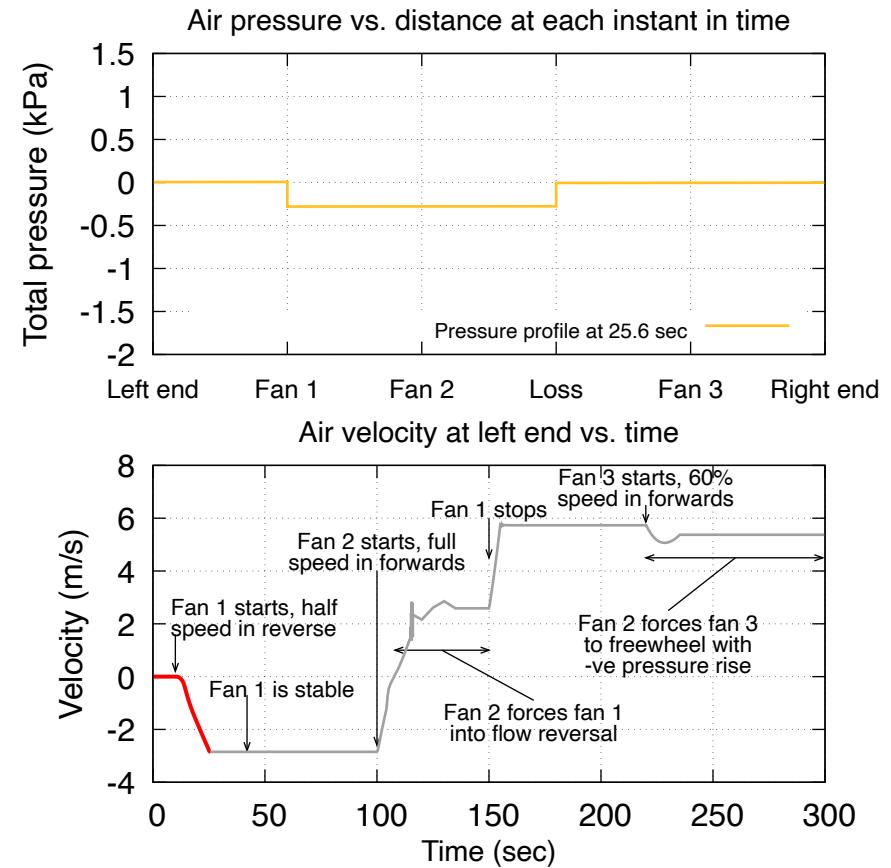
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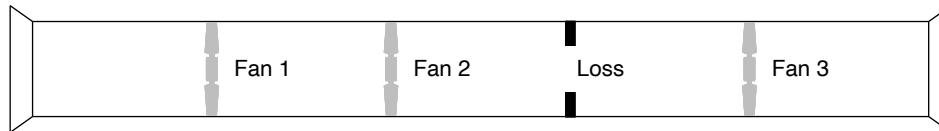
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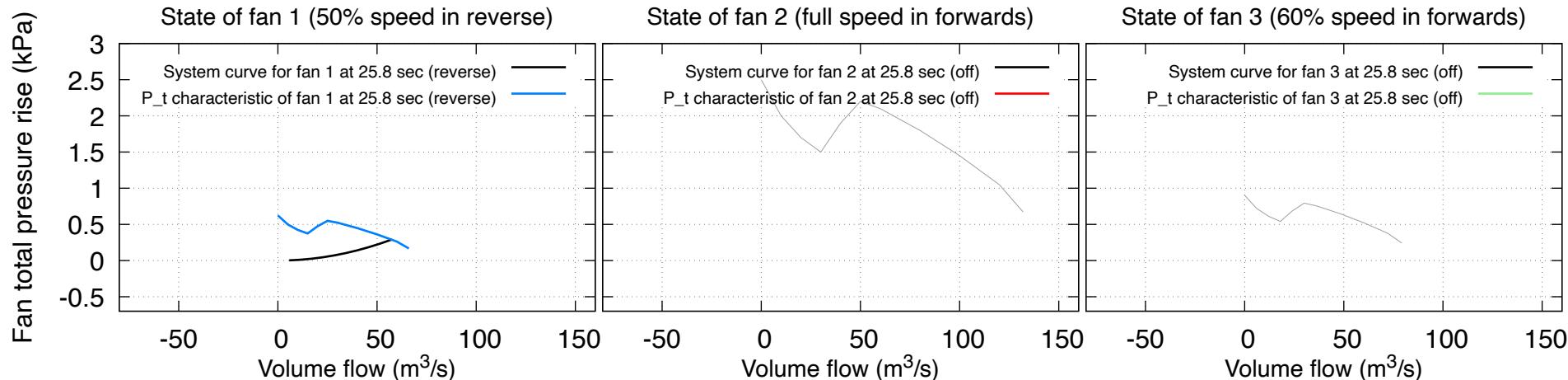
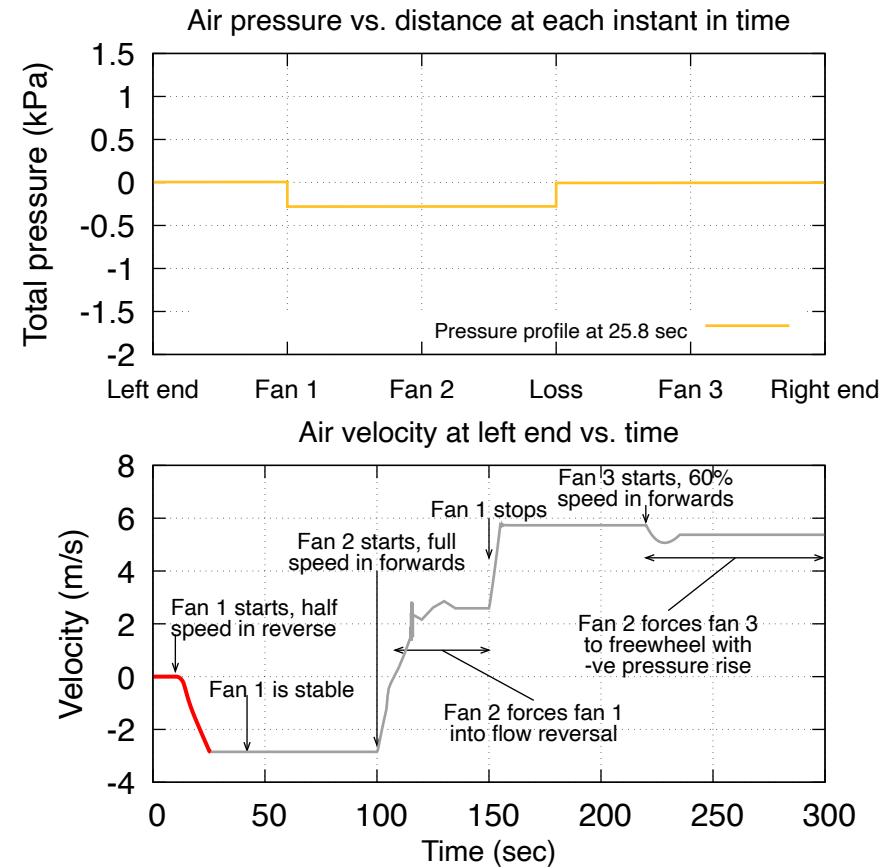
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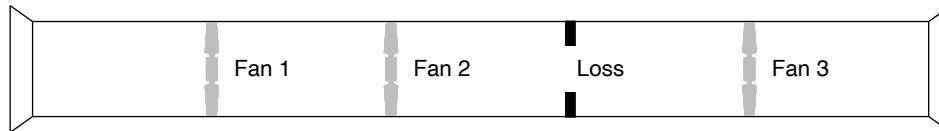
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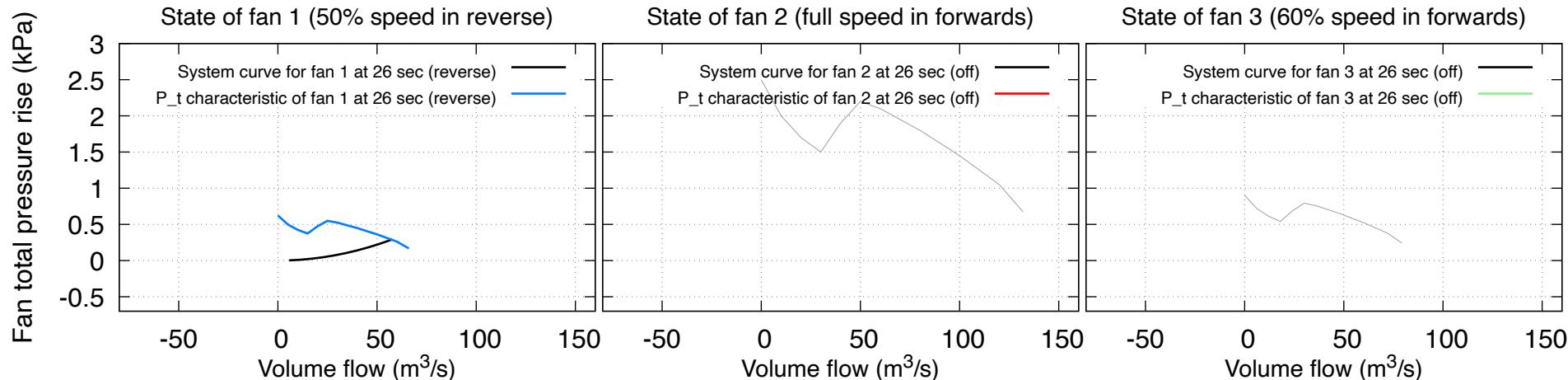
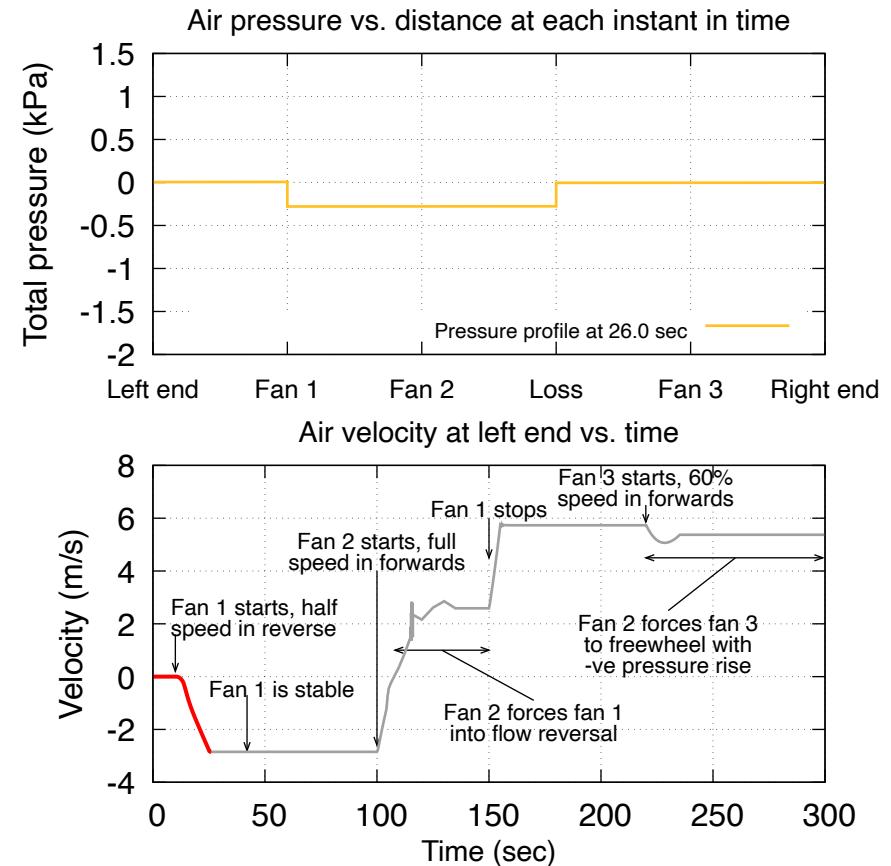
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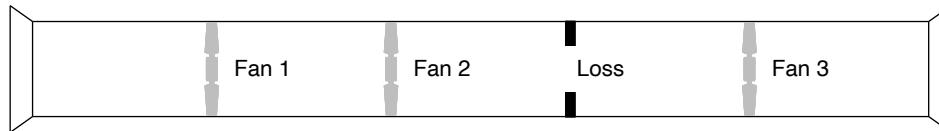
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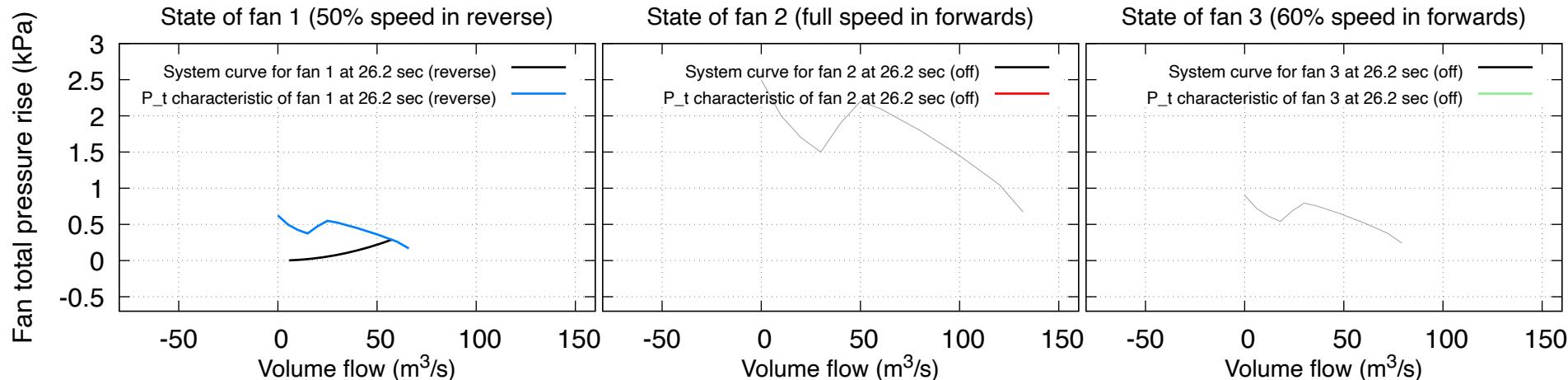
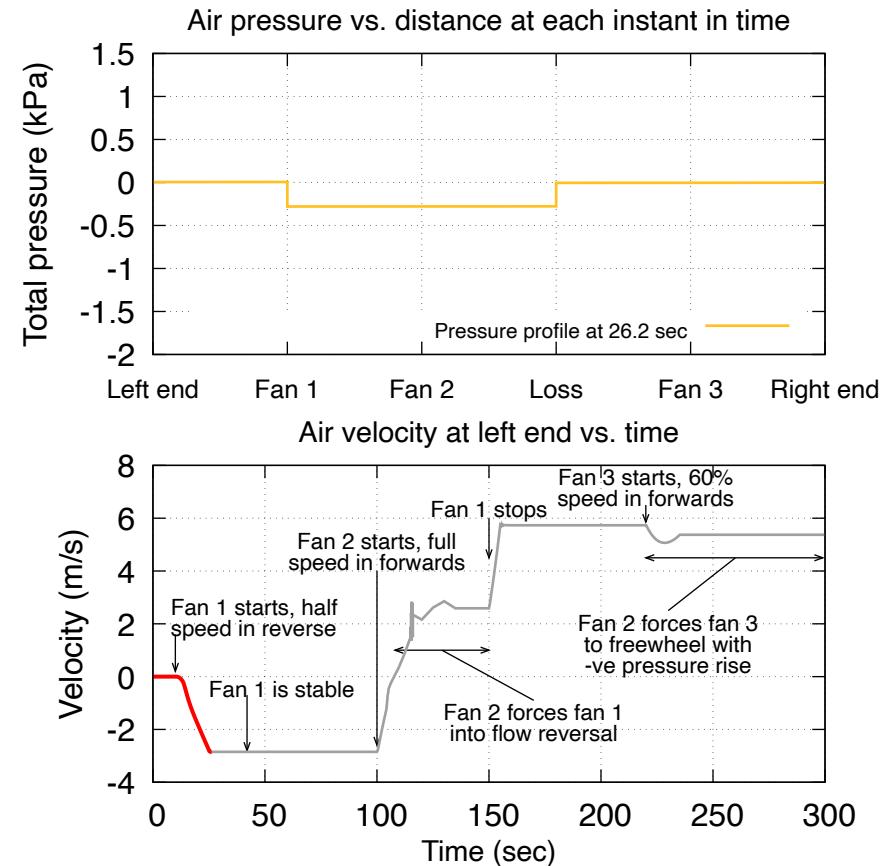
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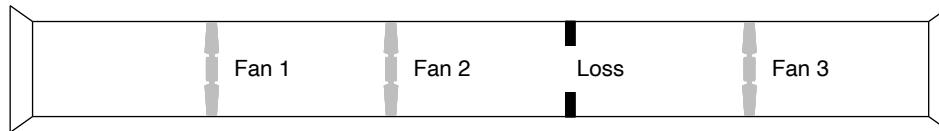
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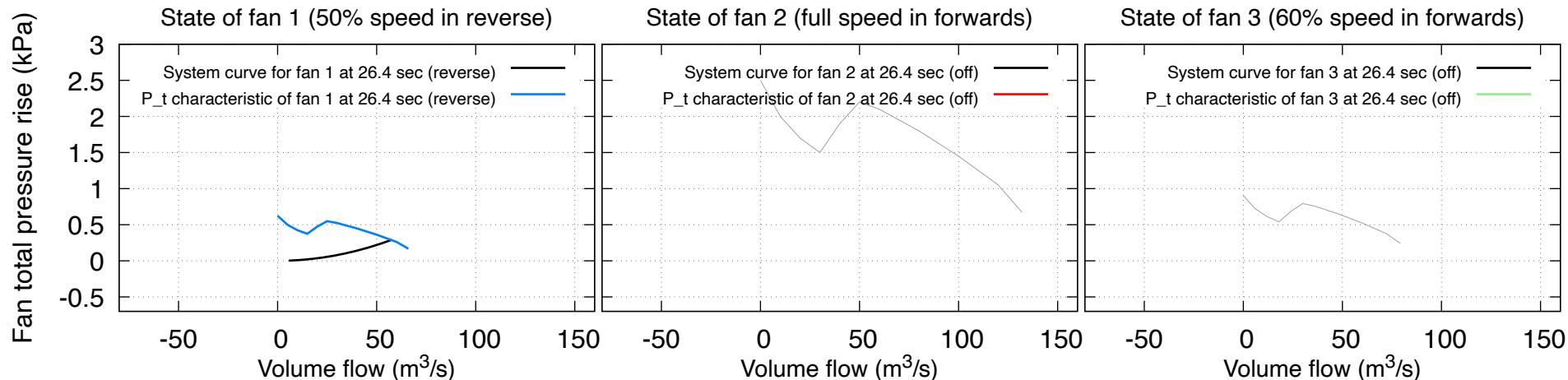
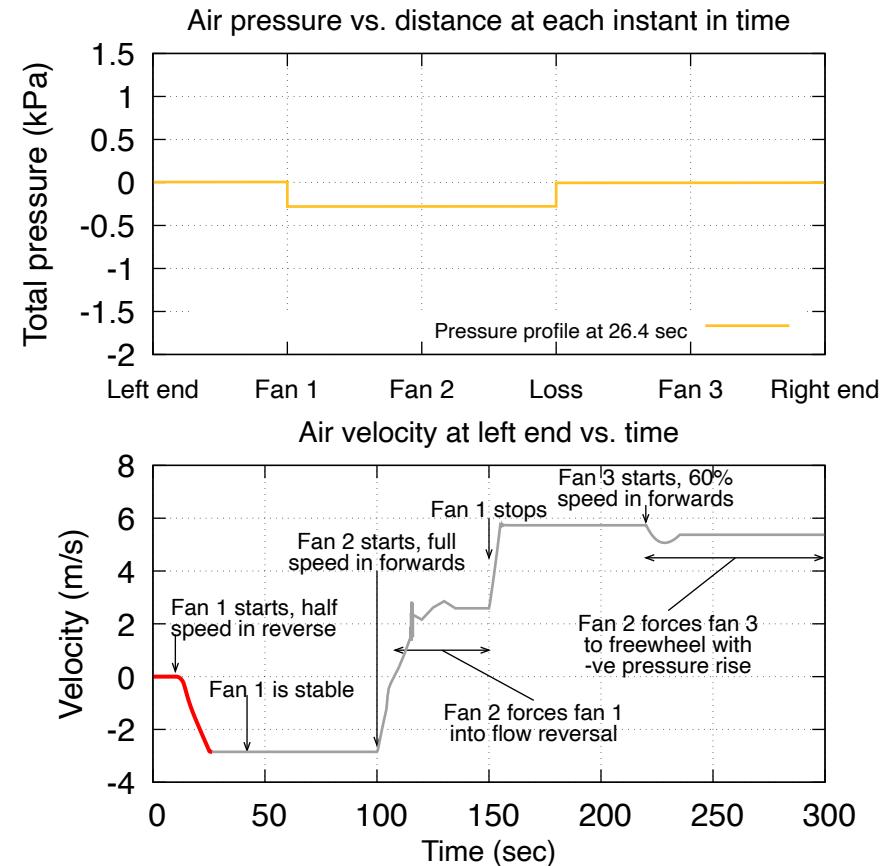
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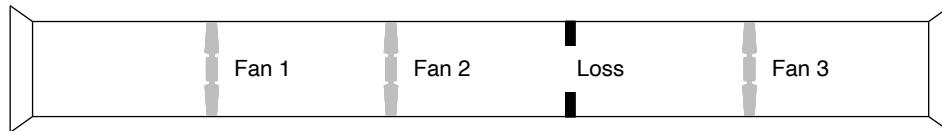
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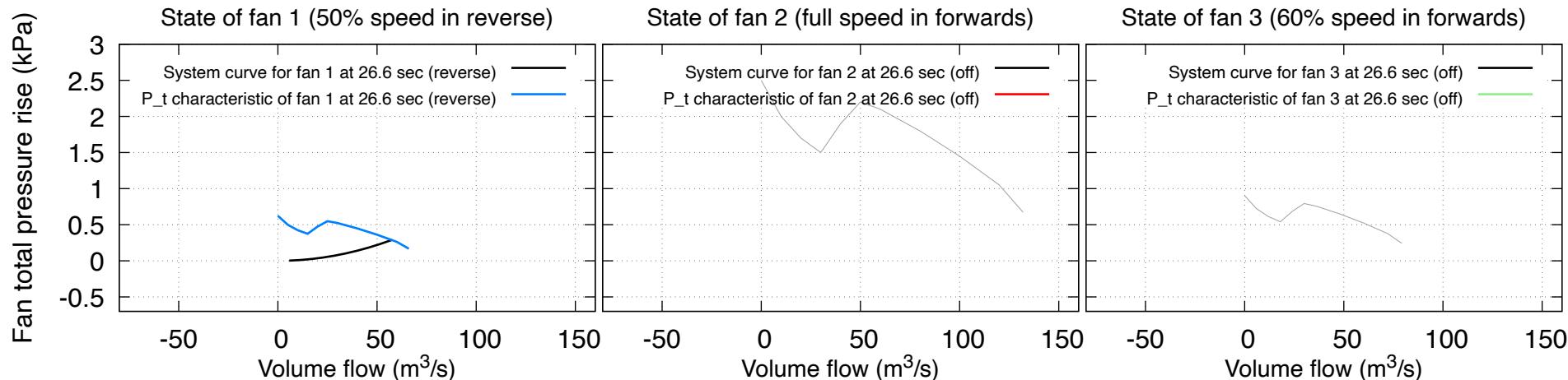
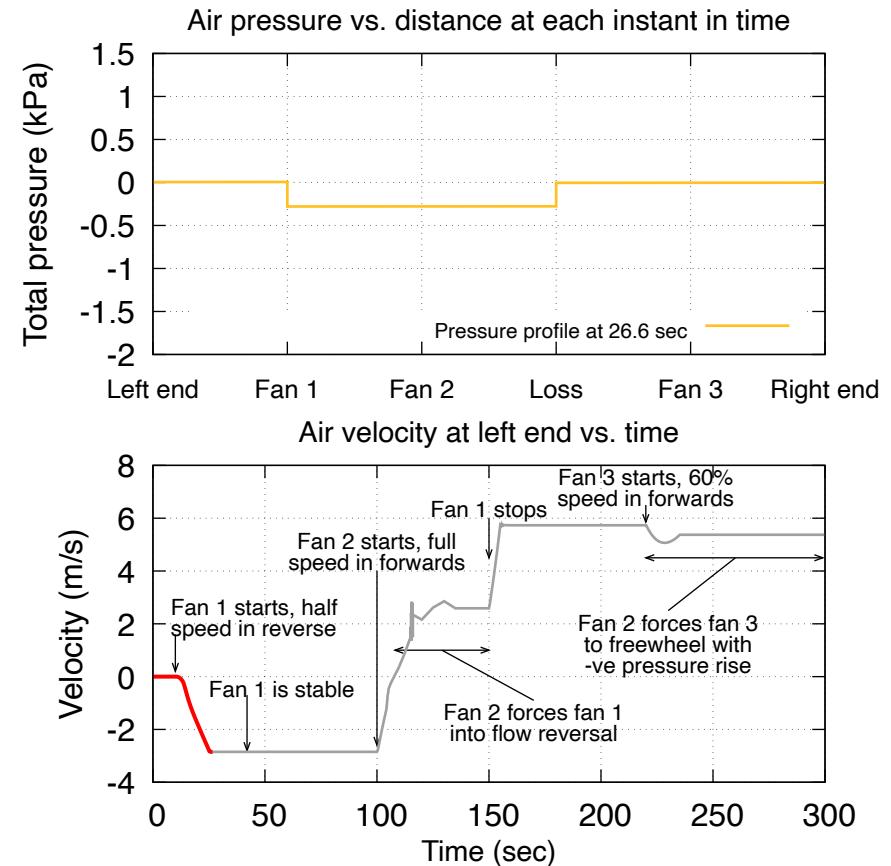
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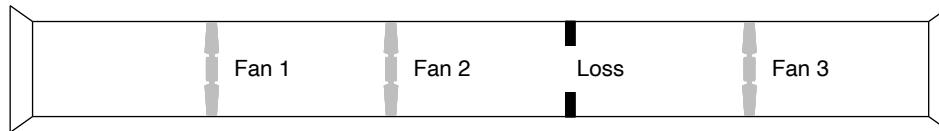
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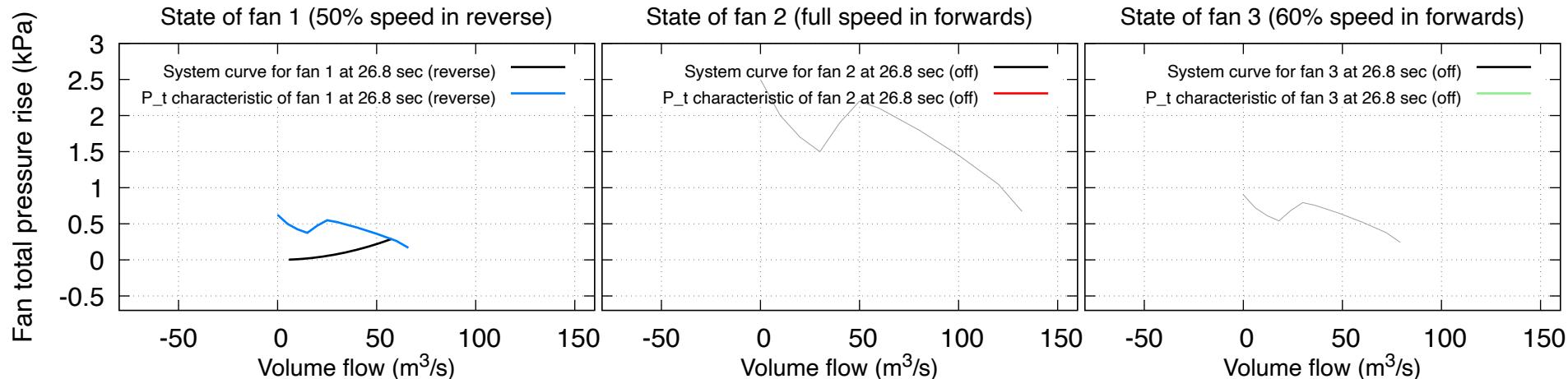
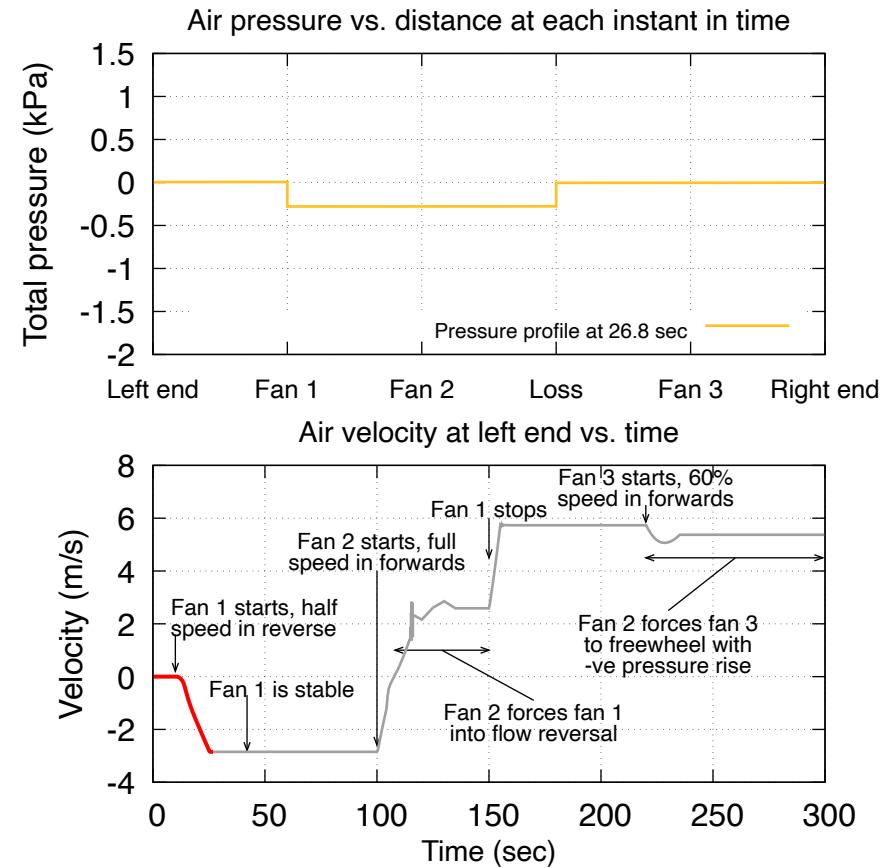
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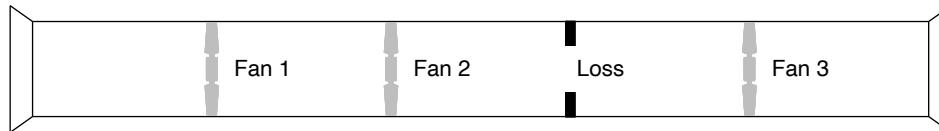
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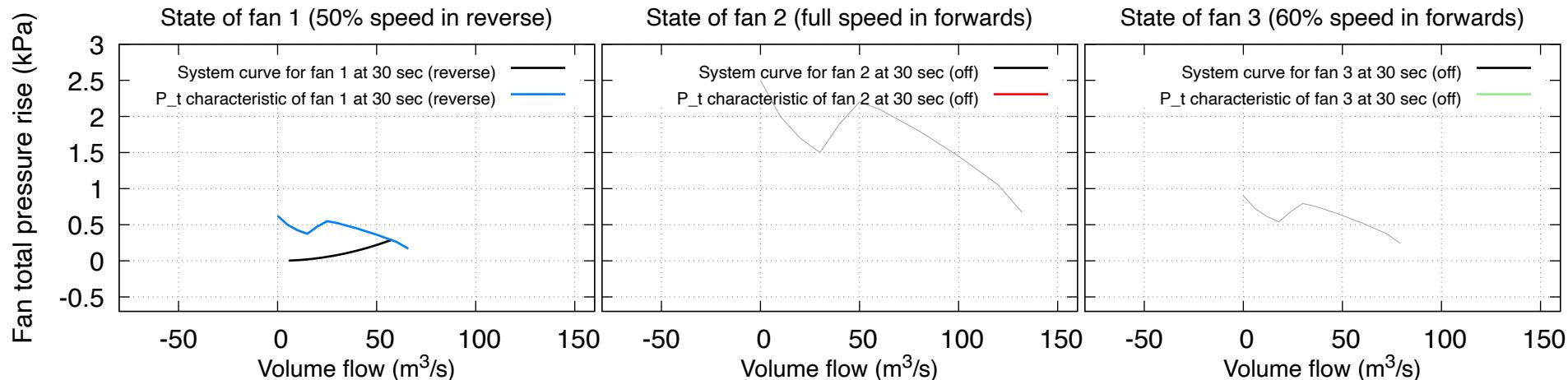
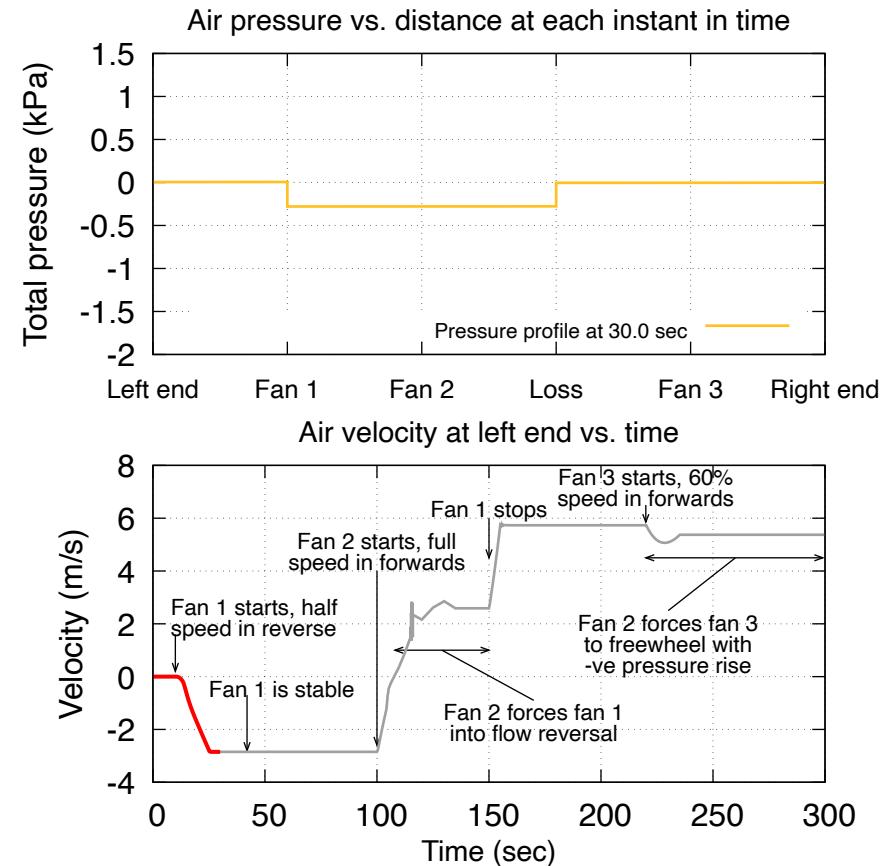
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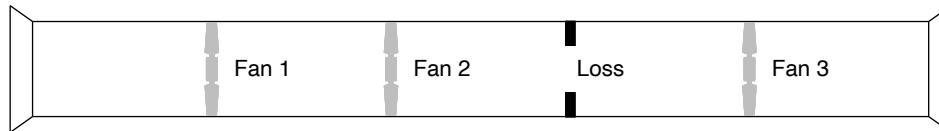
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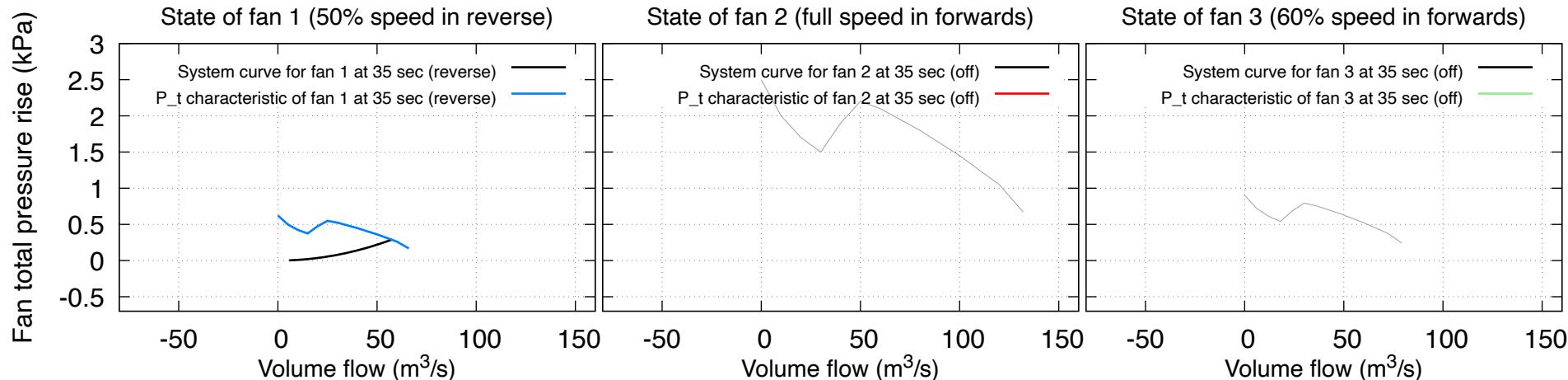
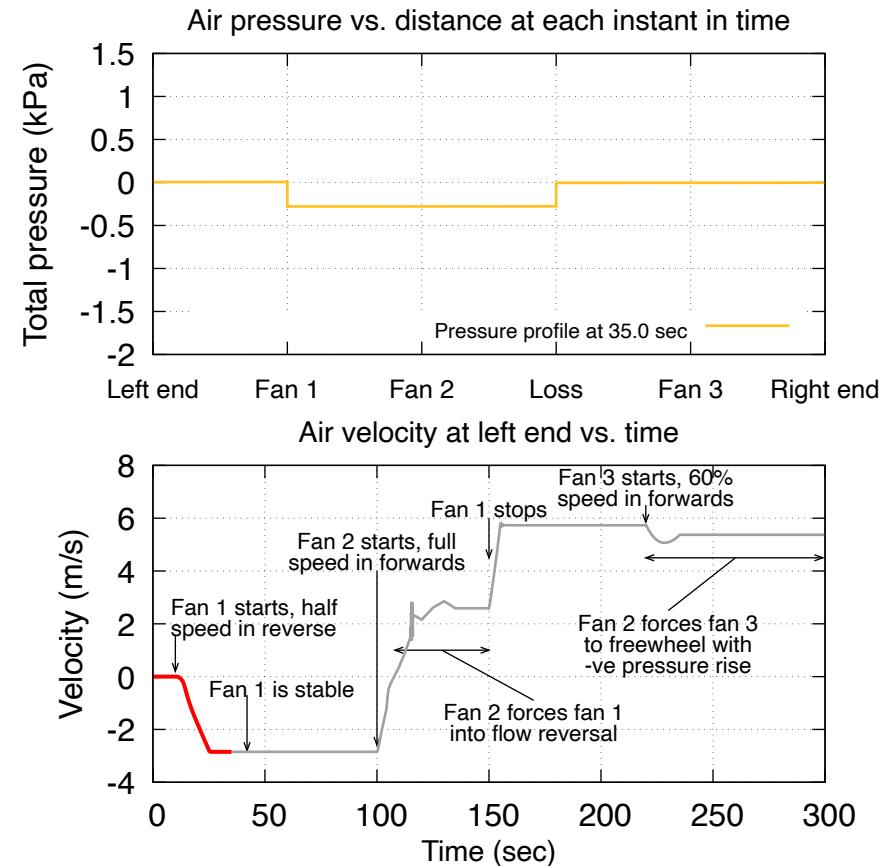
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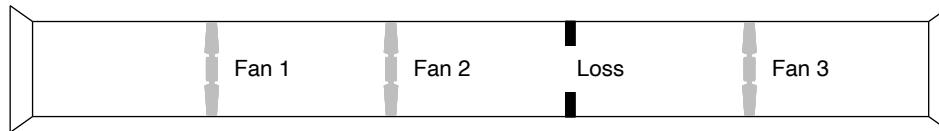
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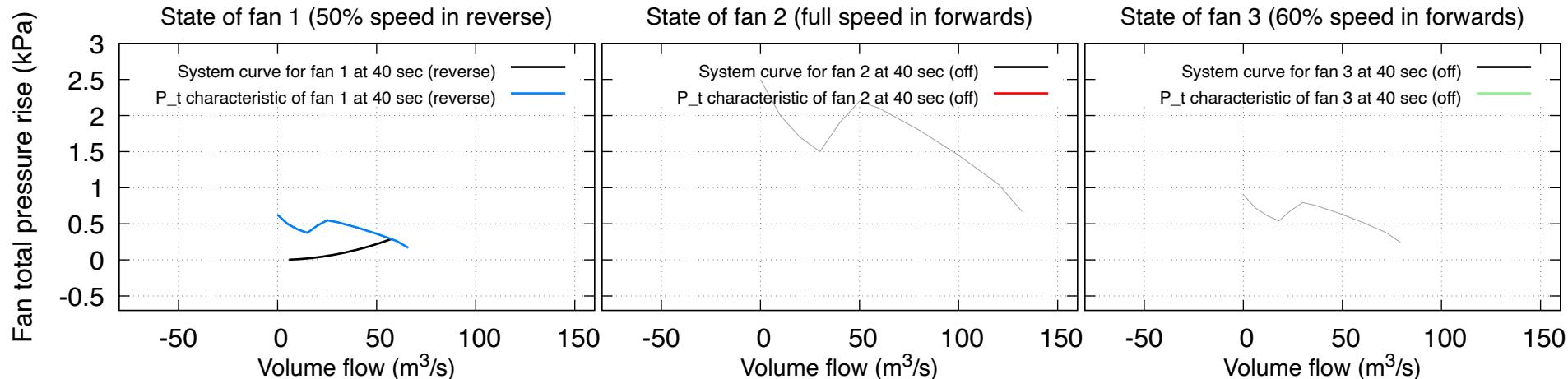
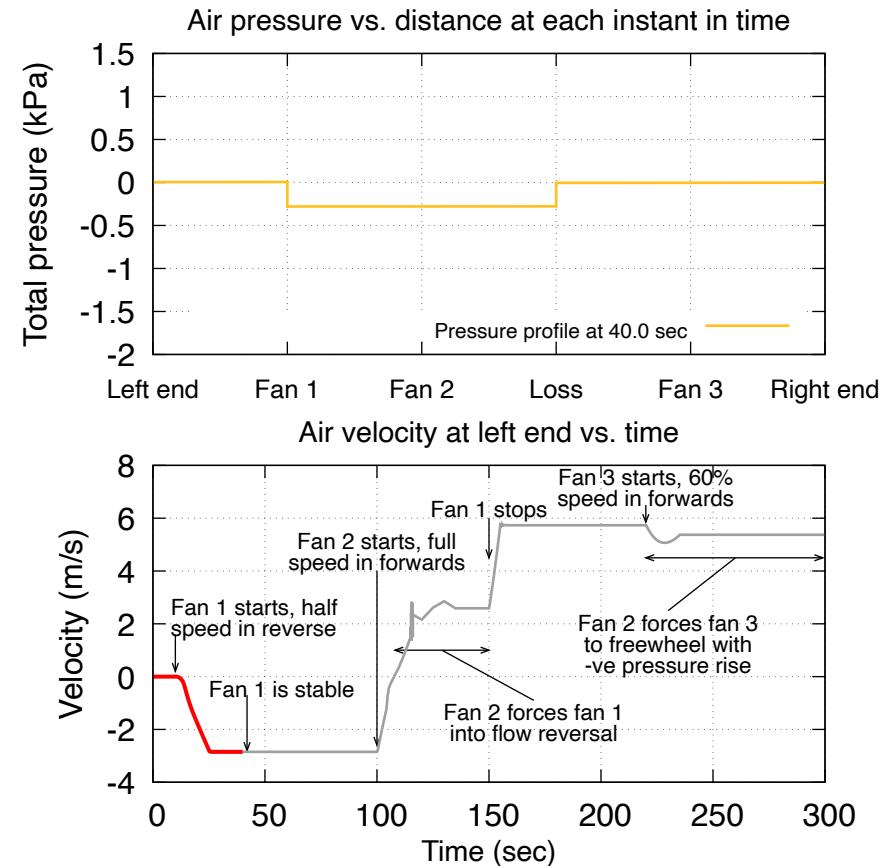
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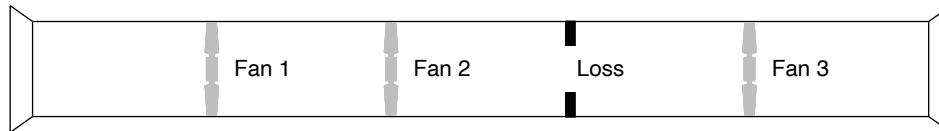
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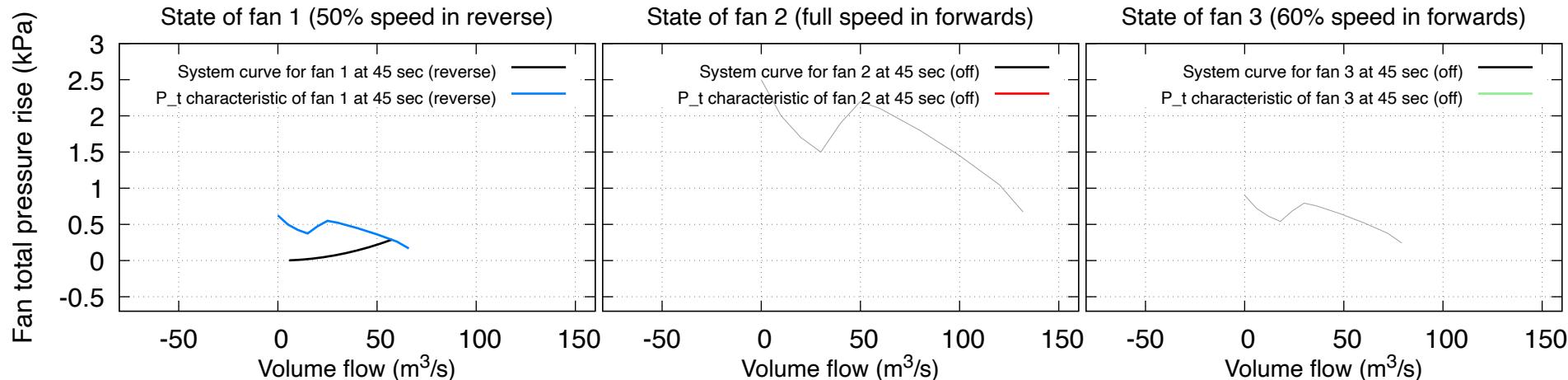
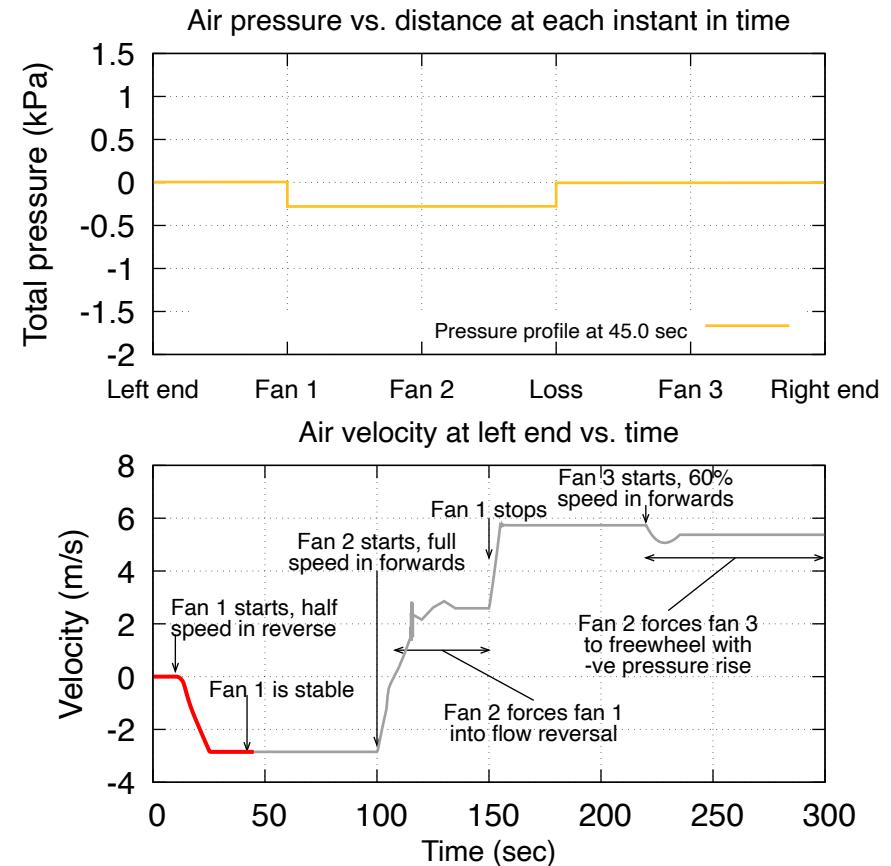
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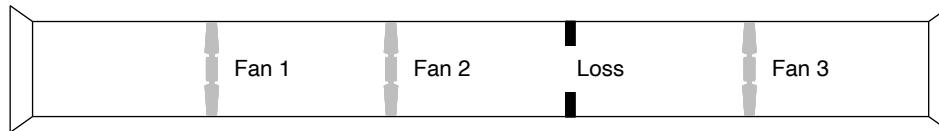
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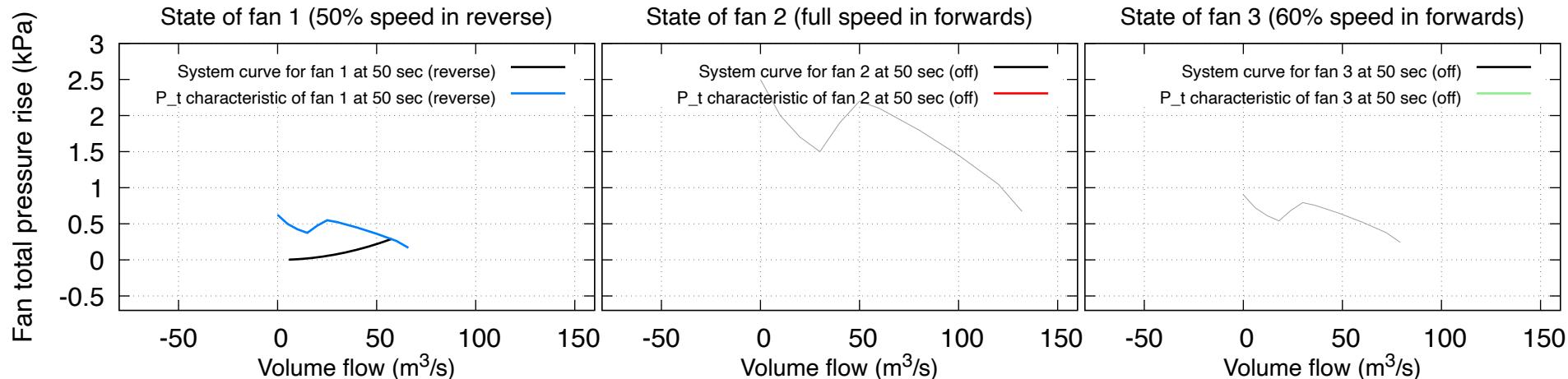
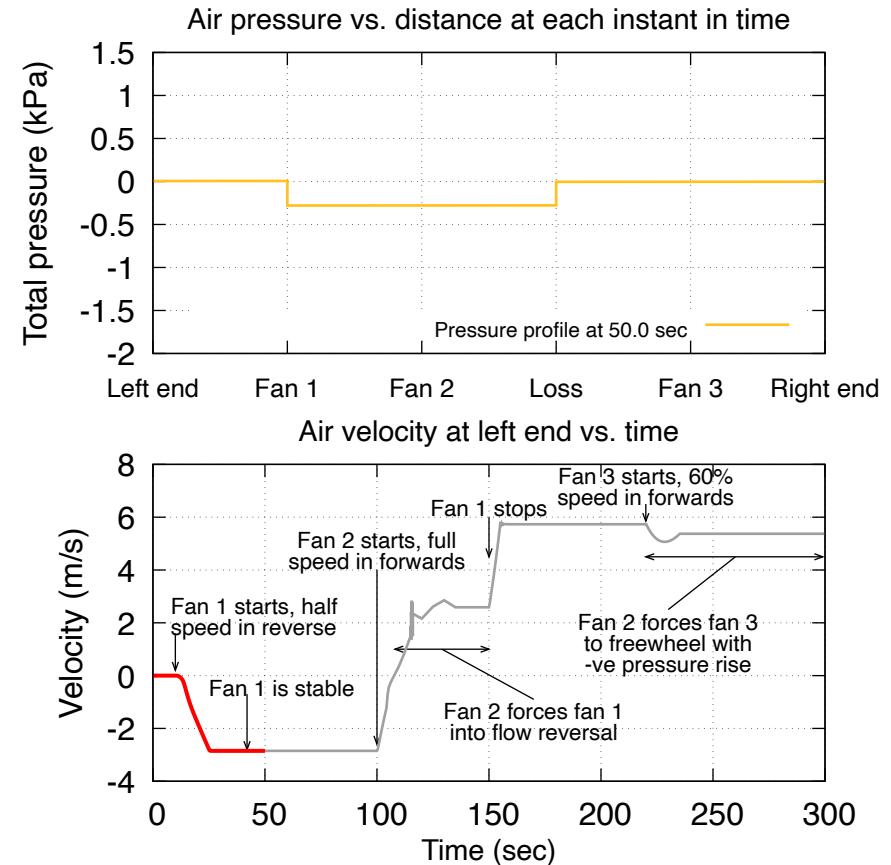
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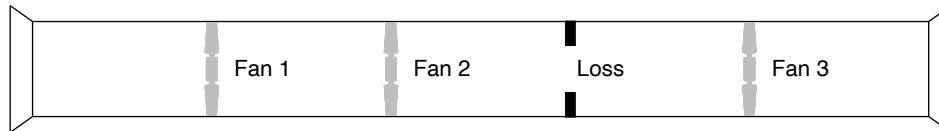
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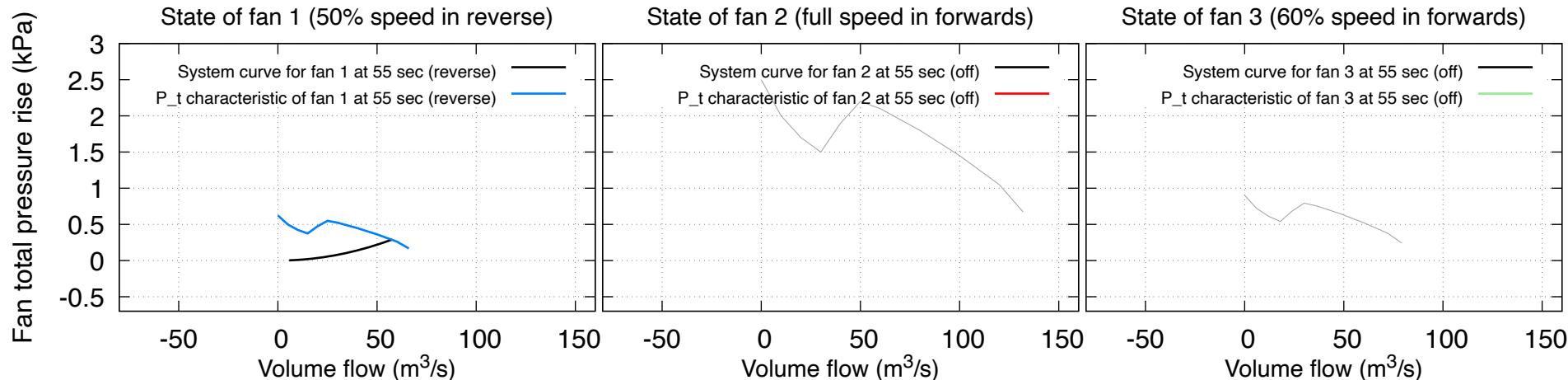
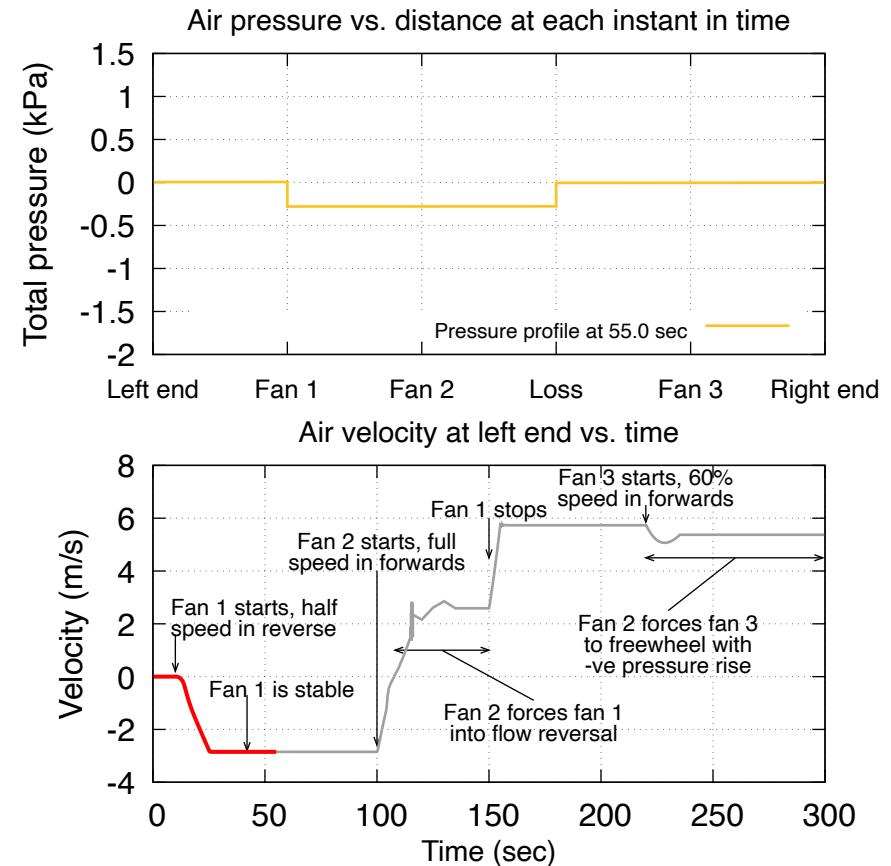
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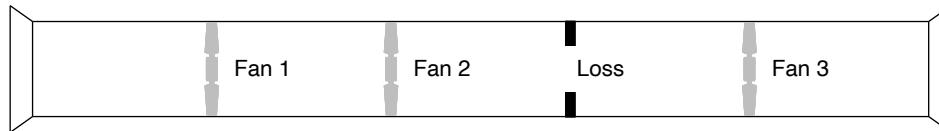
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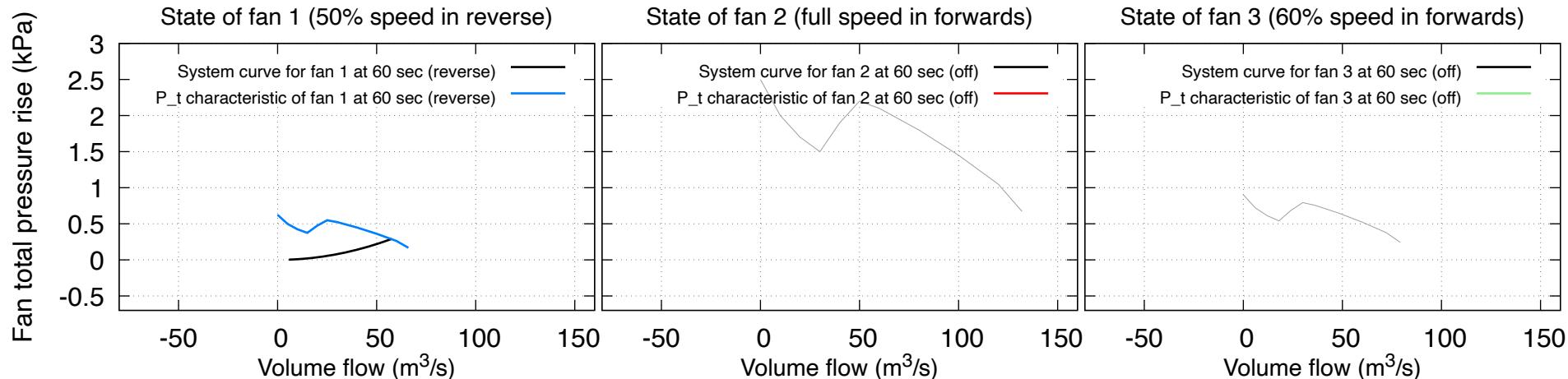
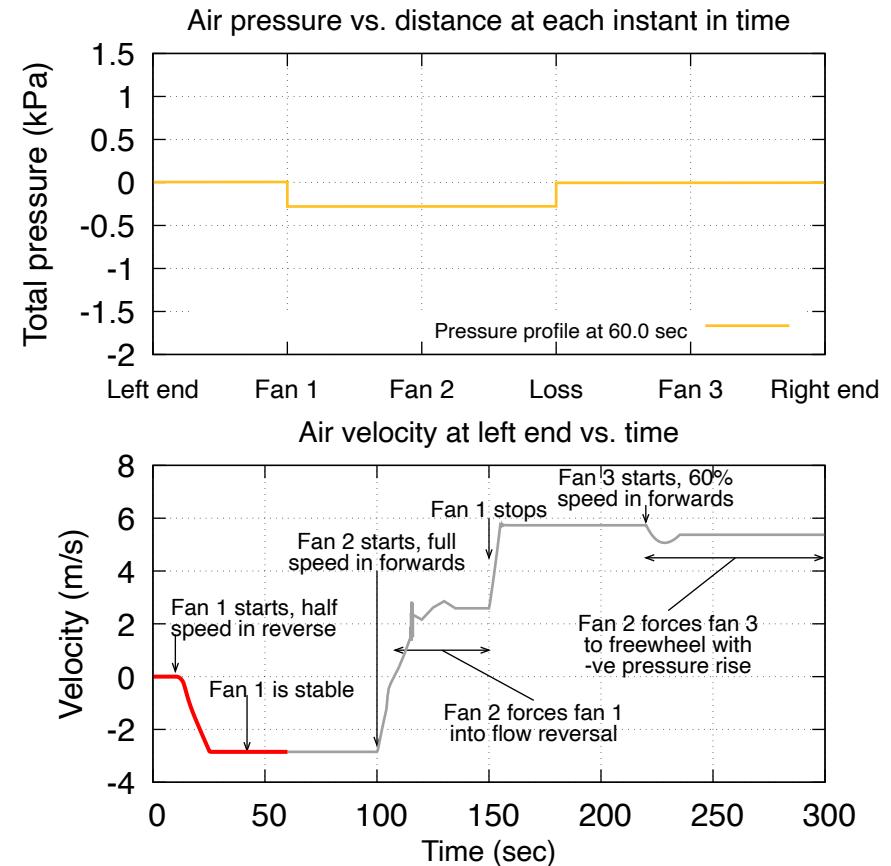
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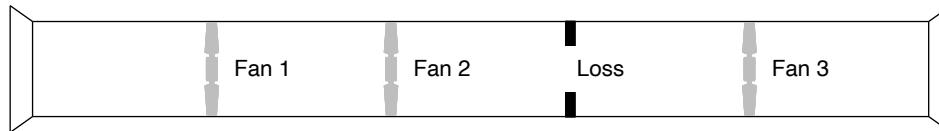
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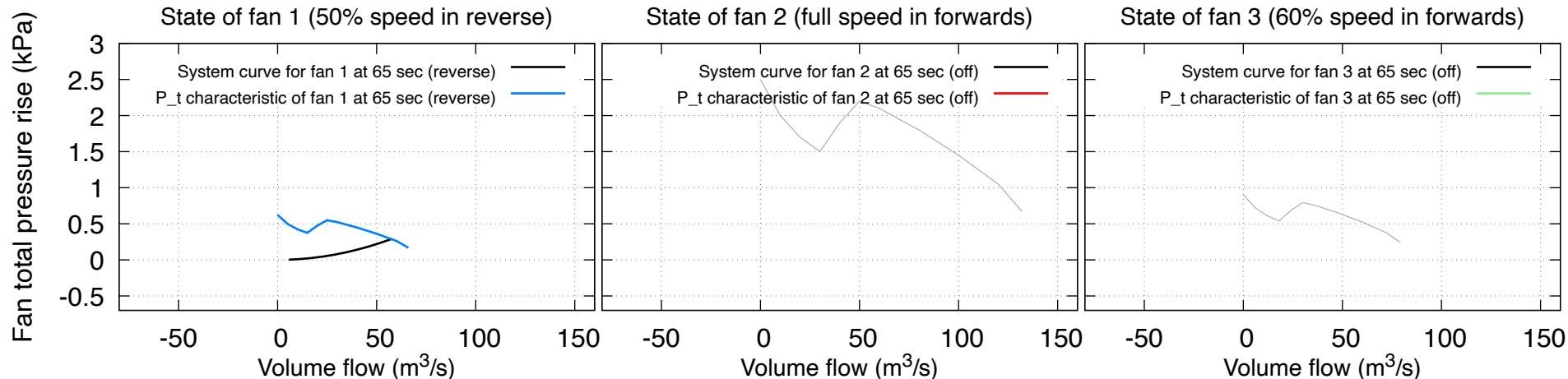
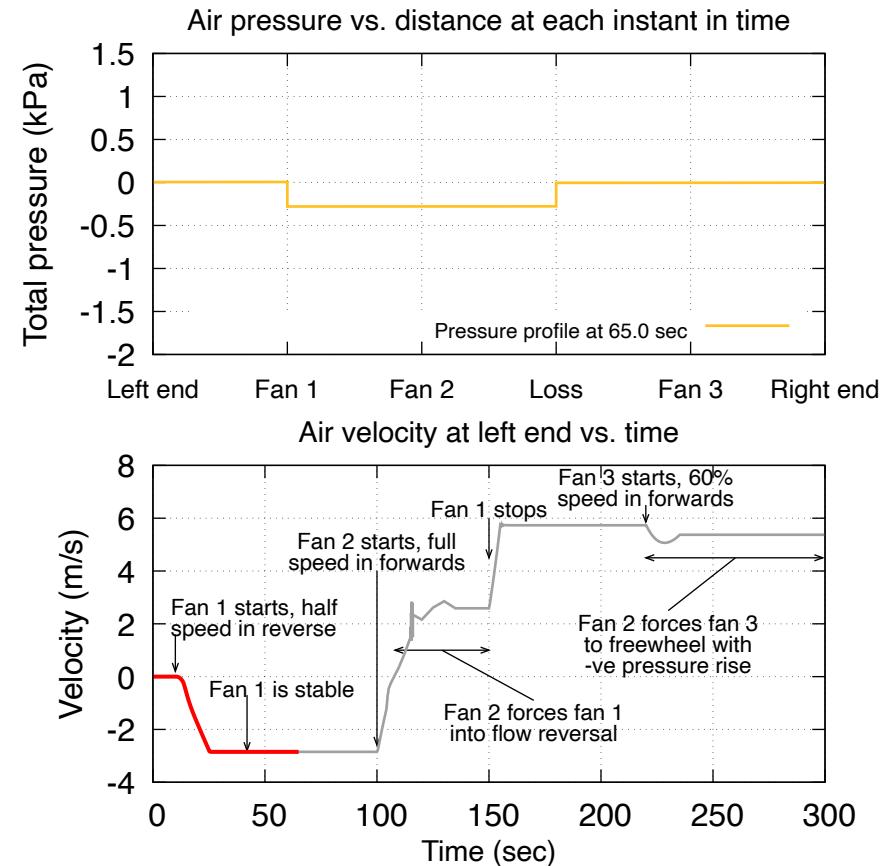
Fan 1 starts in reverse at half speed and ends up at a suitable duty point.

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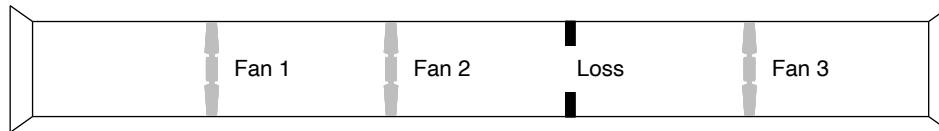
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



# How fans in series interact

This flipbook illustrates how fans interact when they operate in series. Take three identical axial fans and a pressure loss in a 100 m long duct:



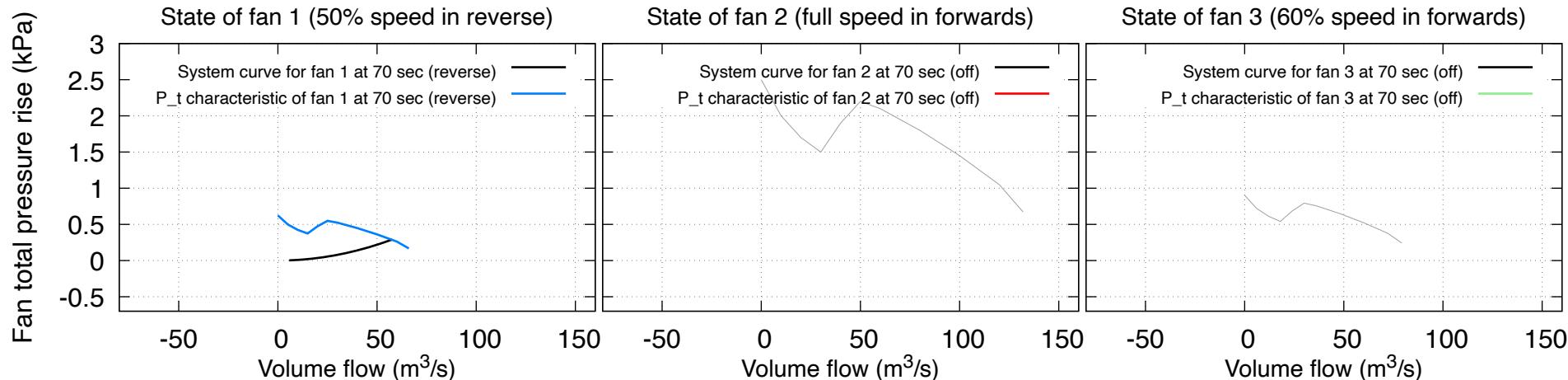
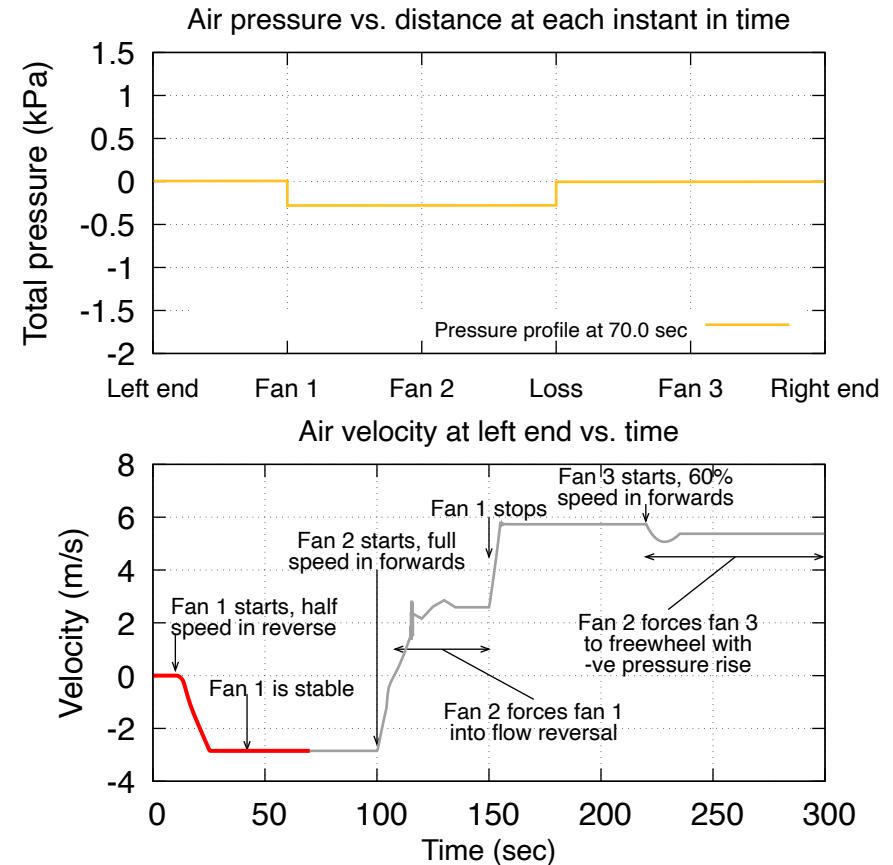
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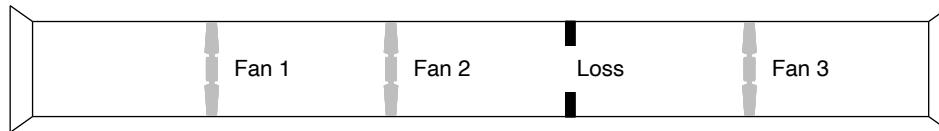
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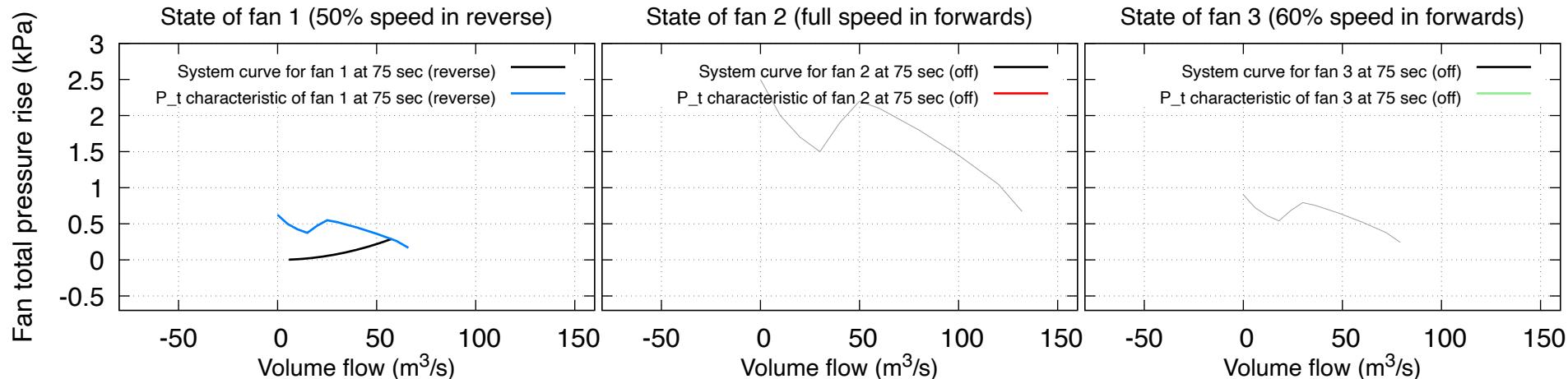
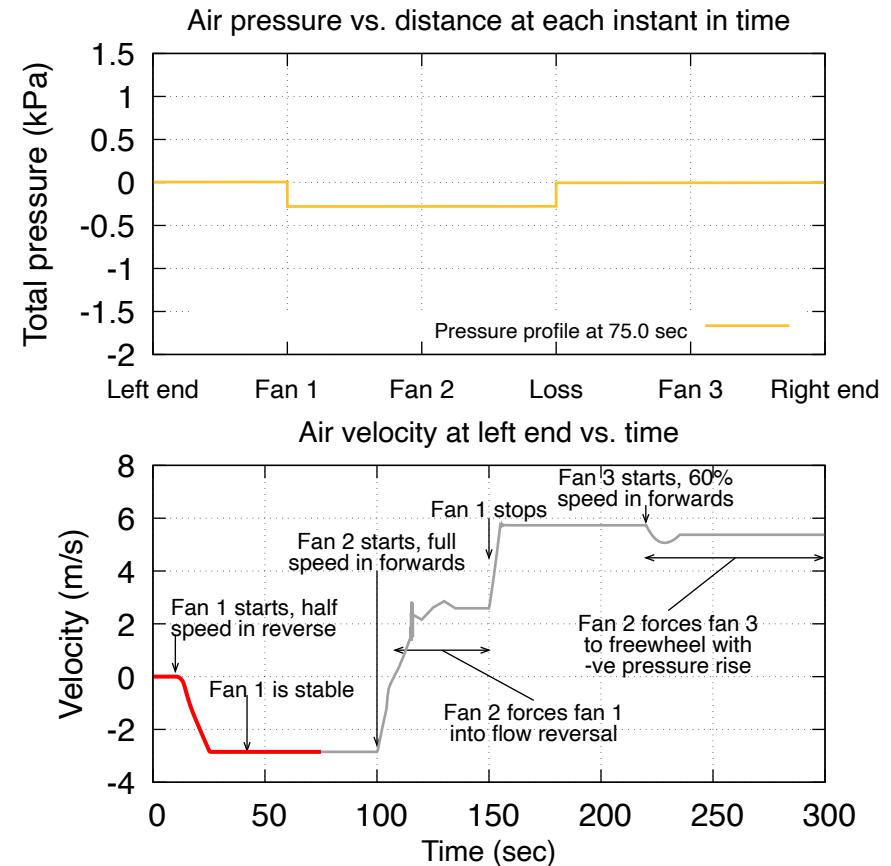
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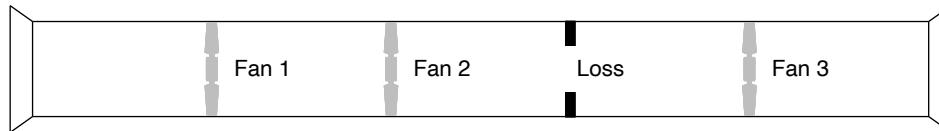
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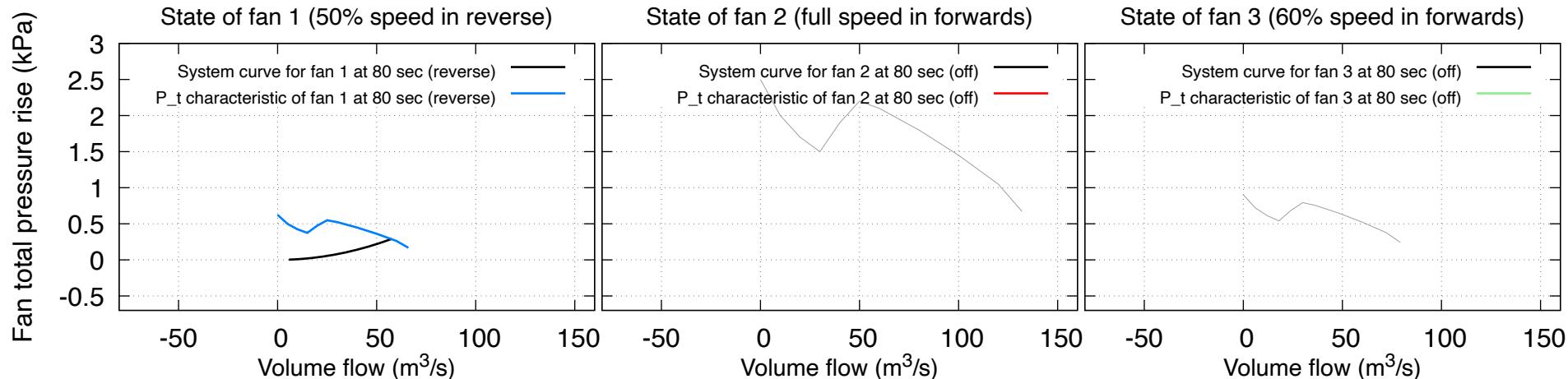
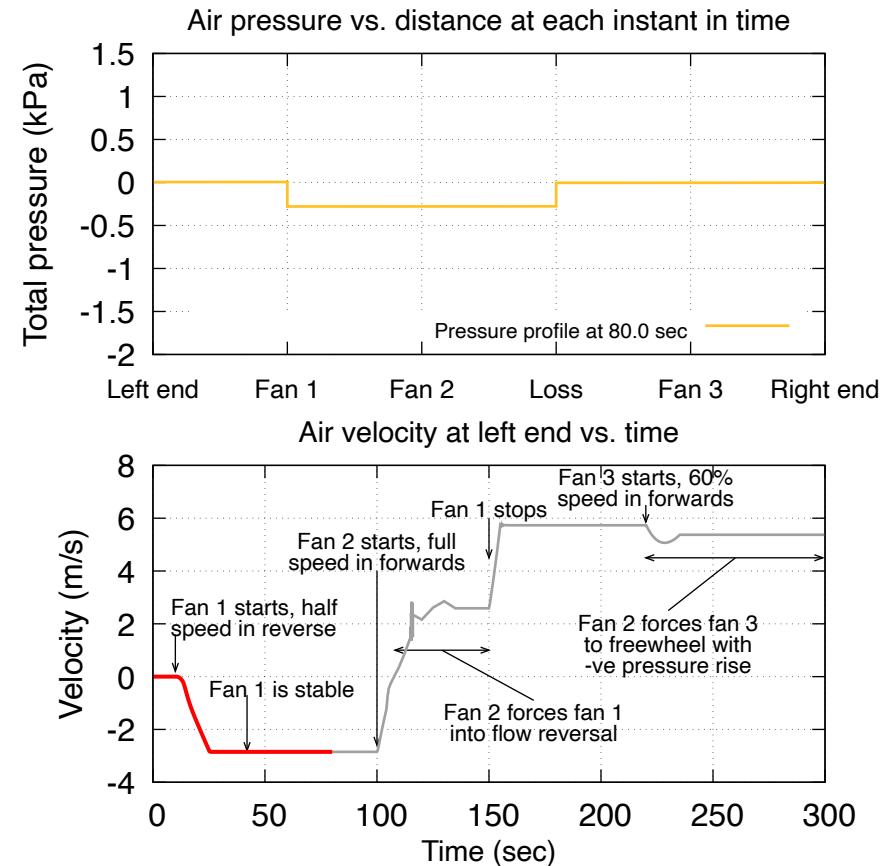
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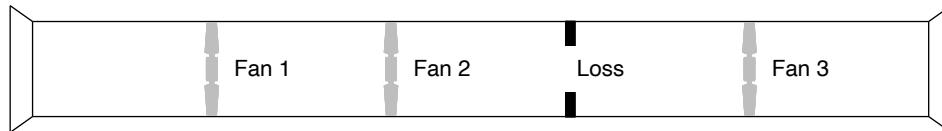
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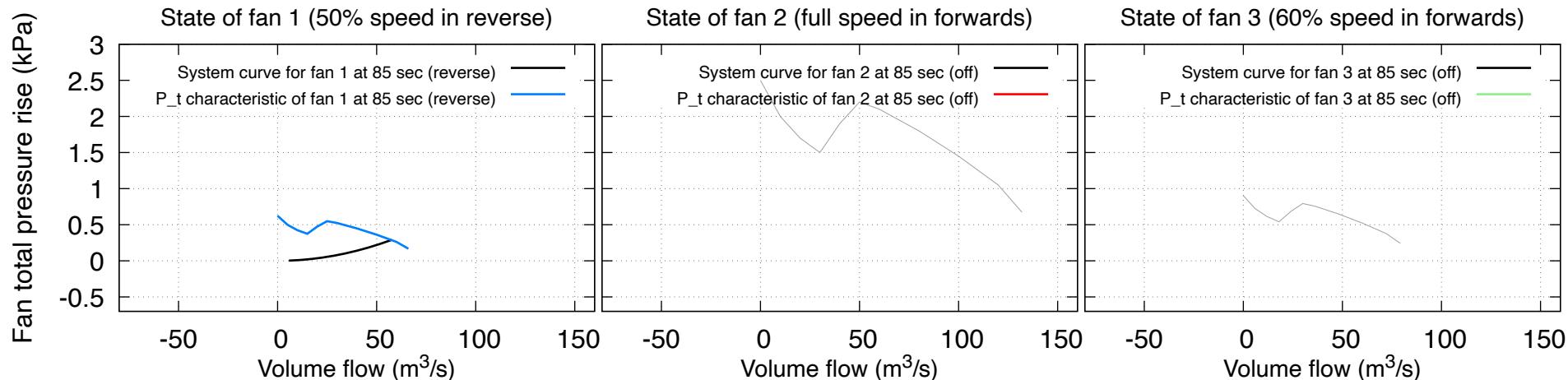
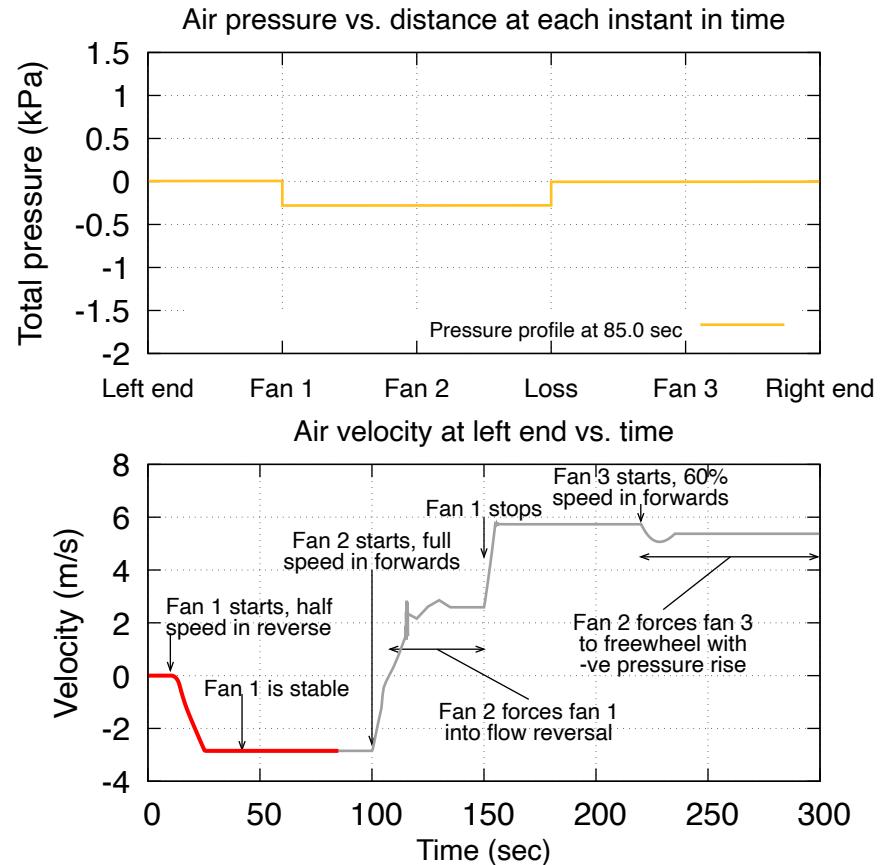
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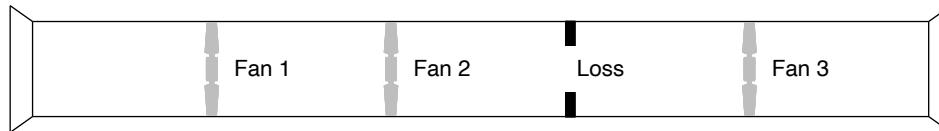
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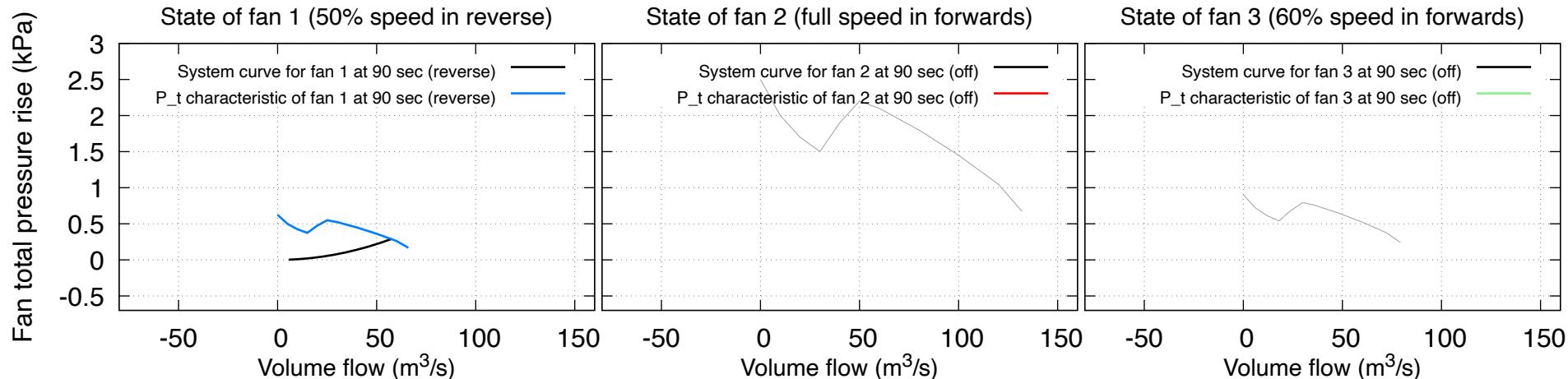
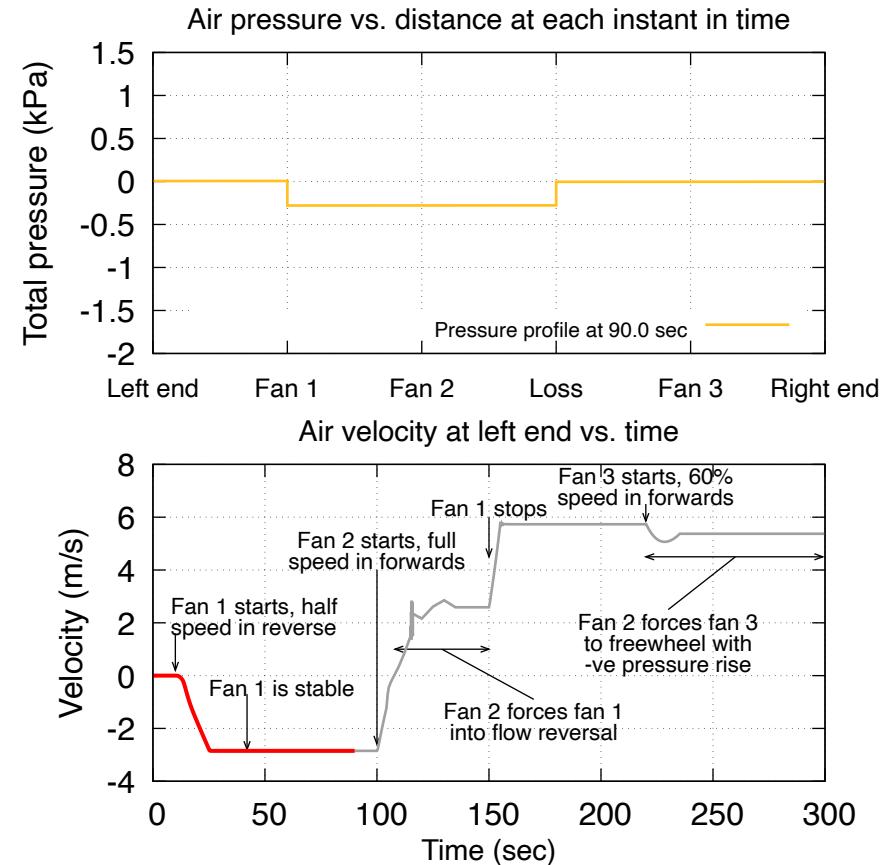
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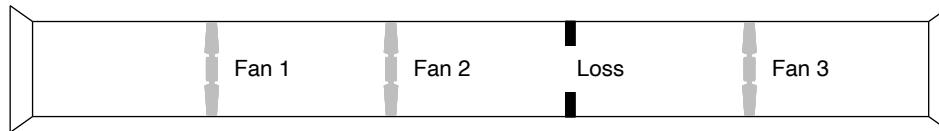
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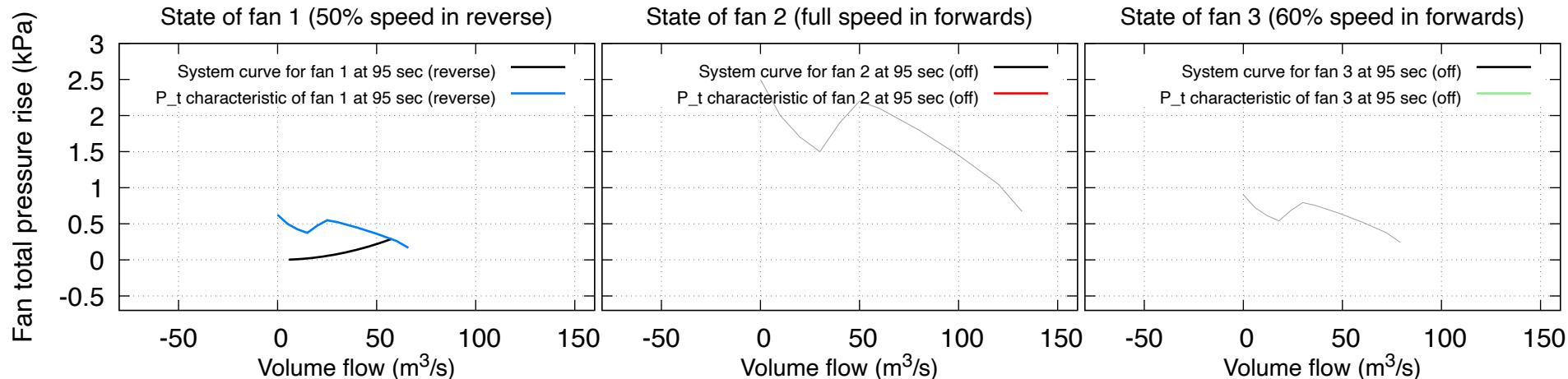
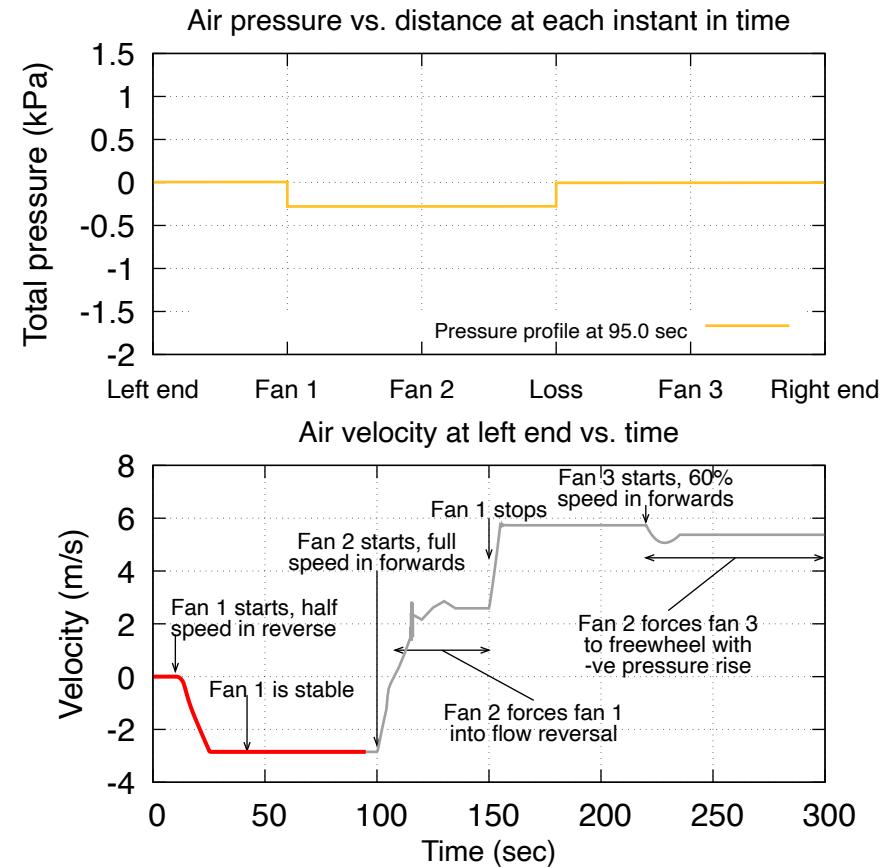
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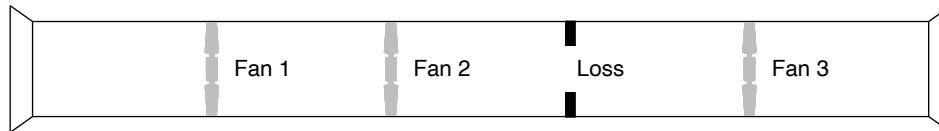
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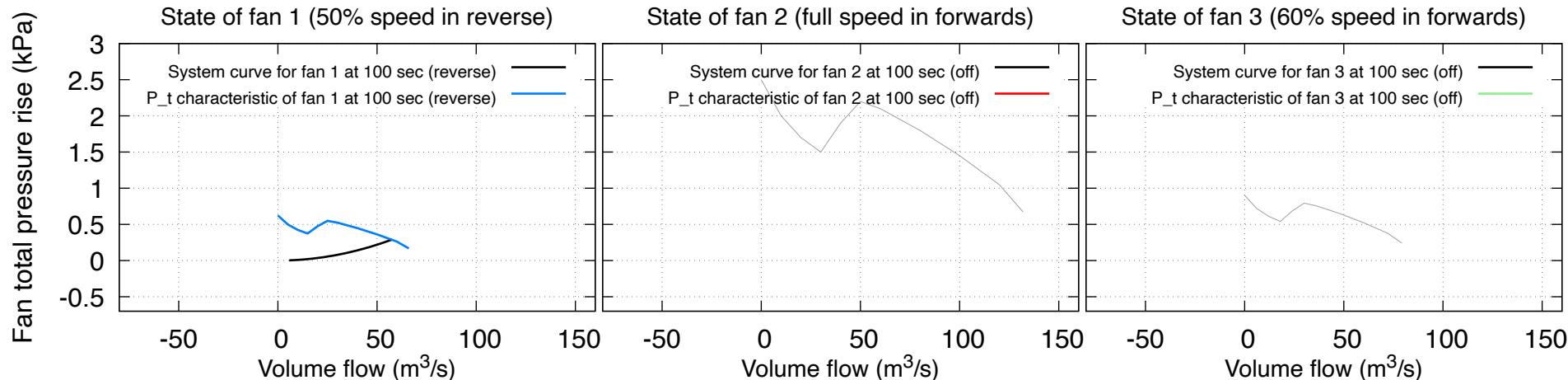
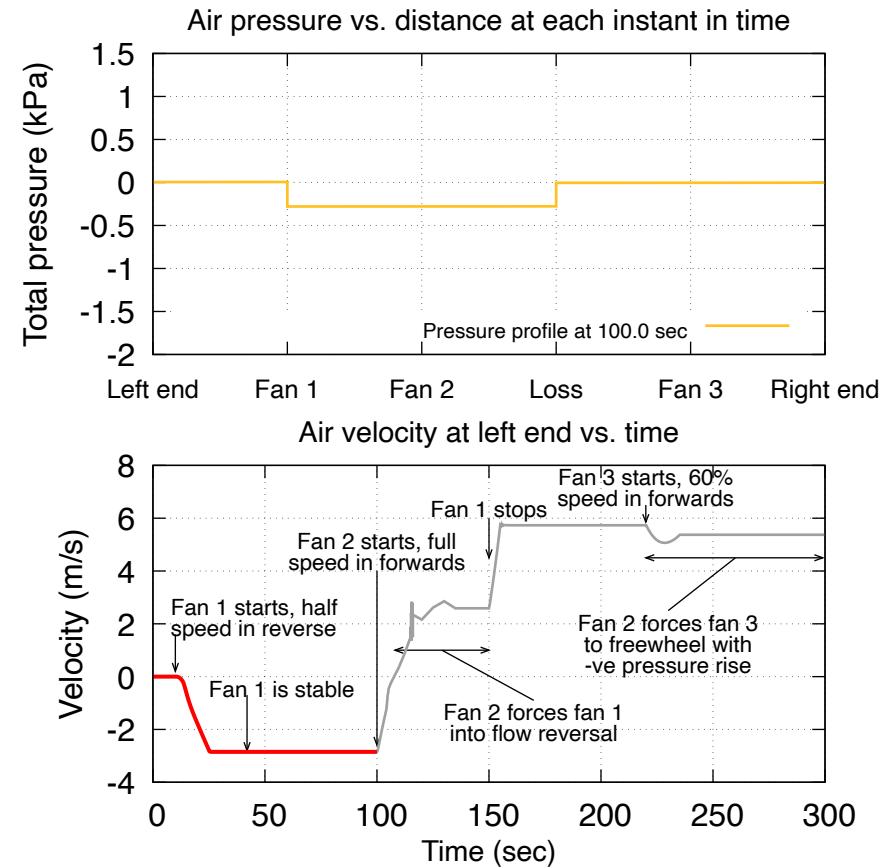
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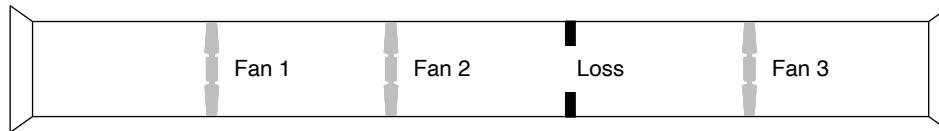
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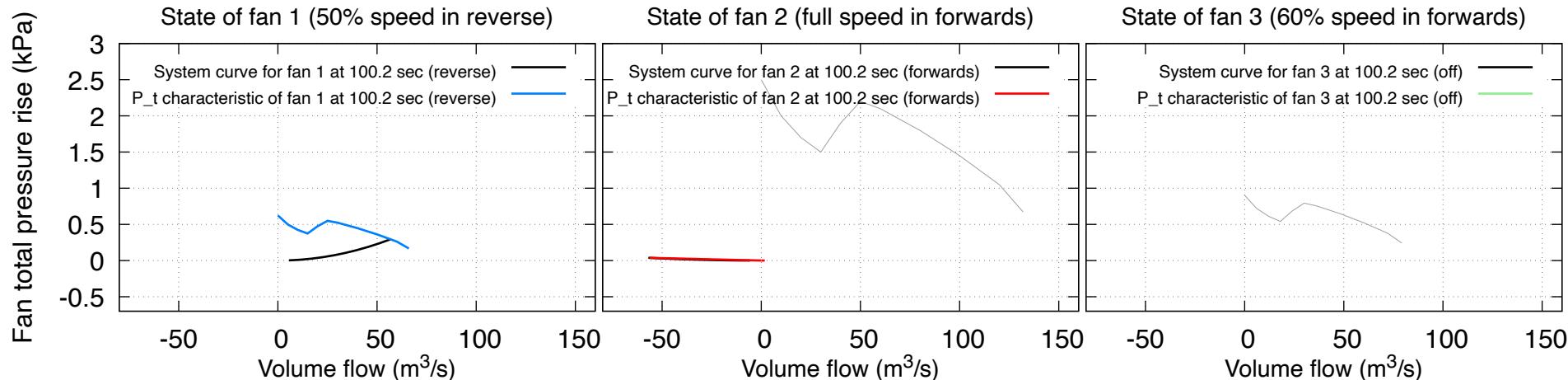
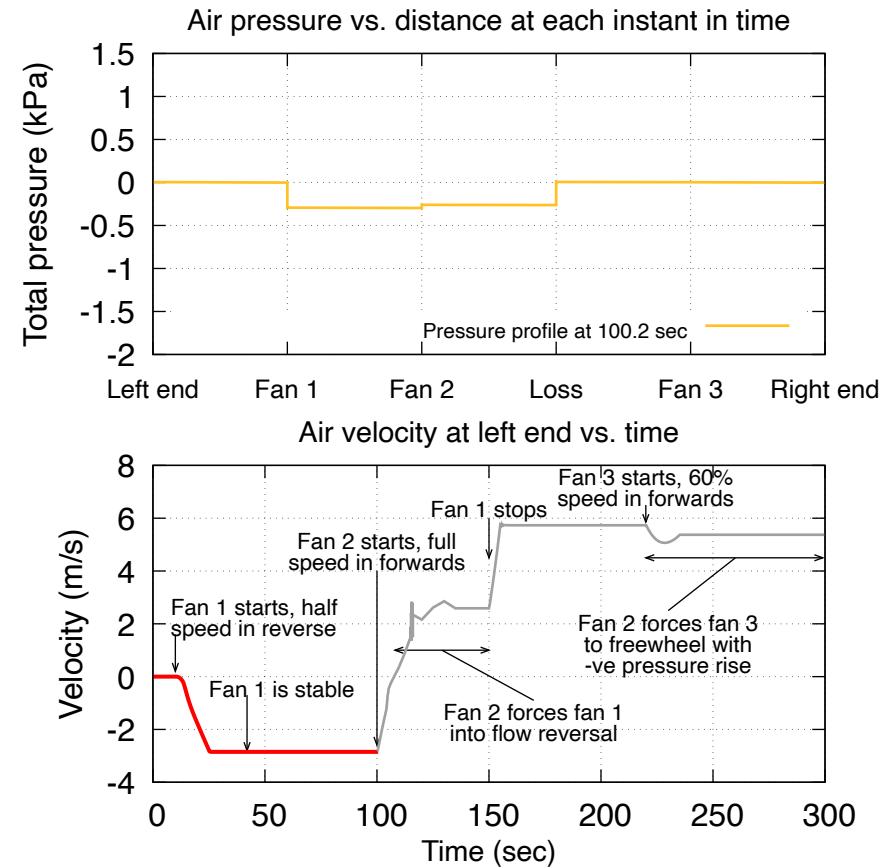
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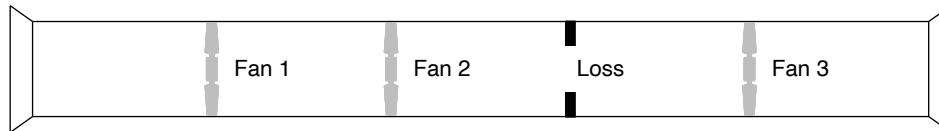
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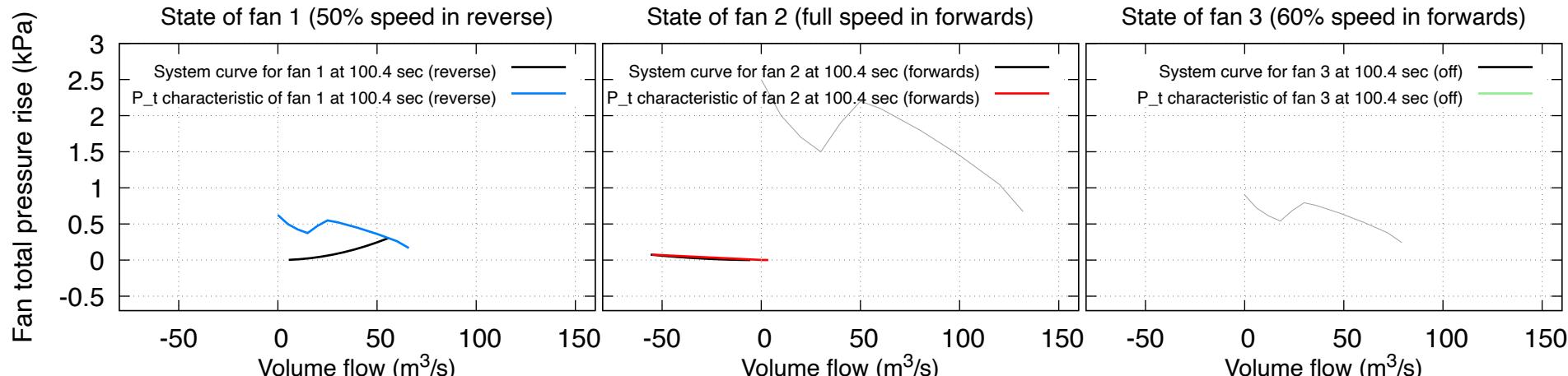
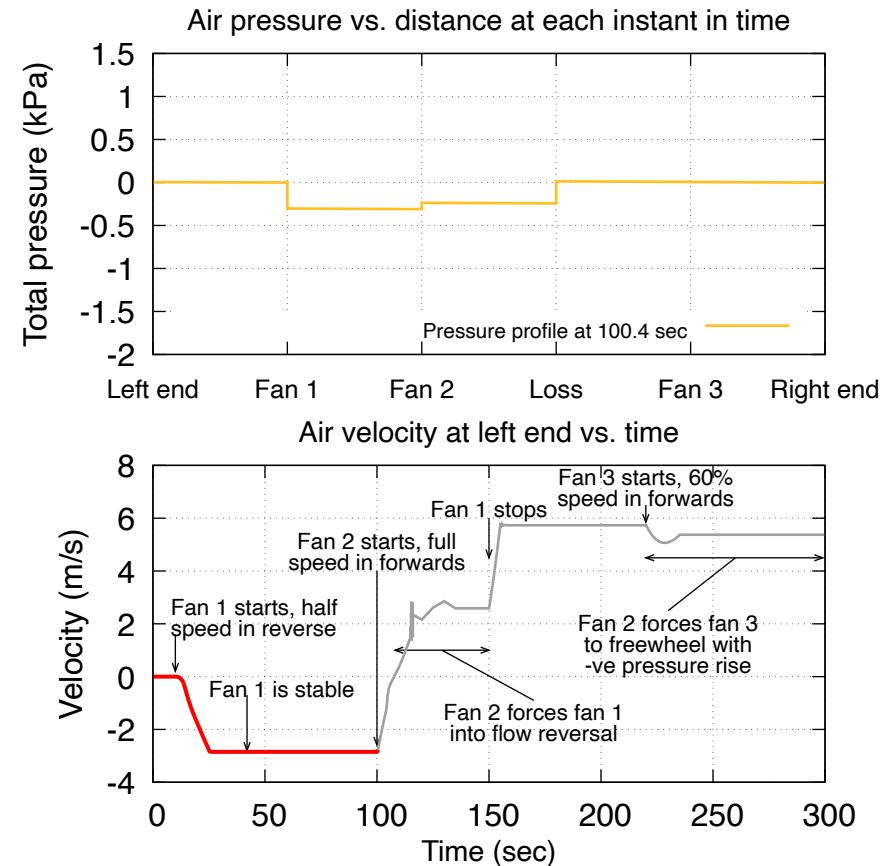
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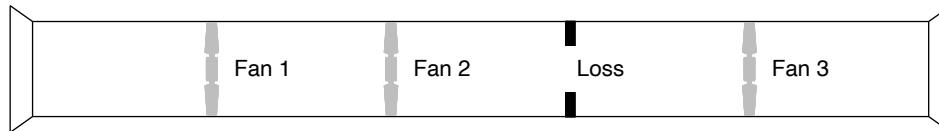
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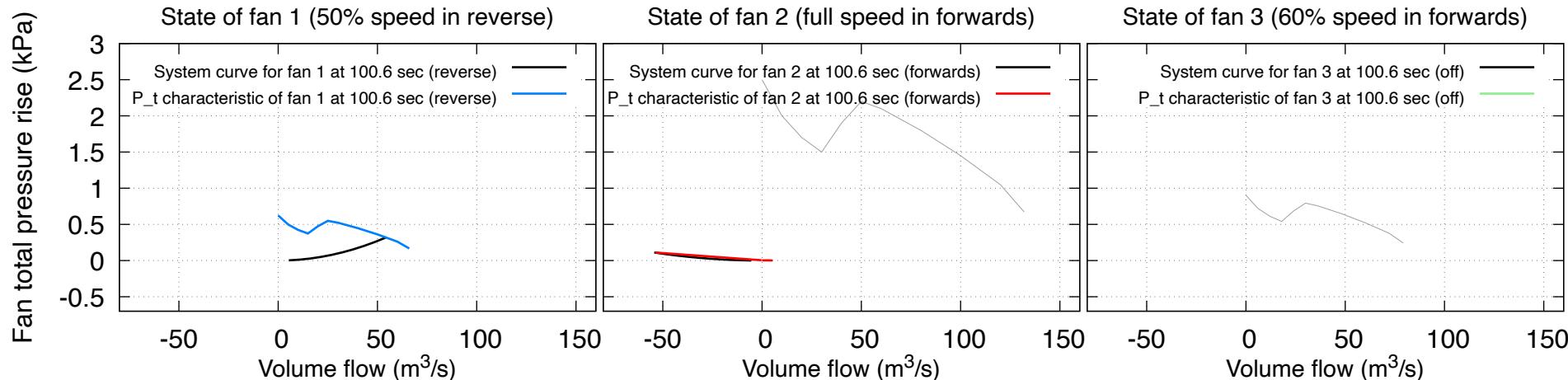
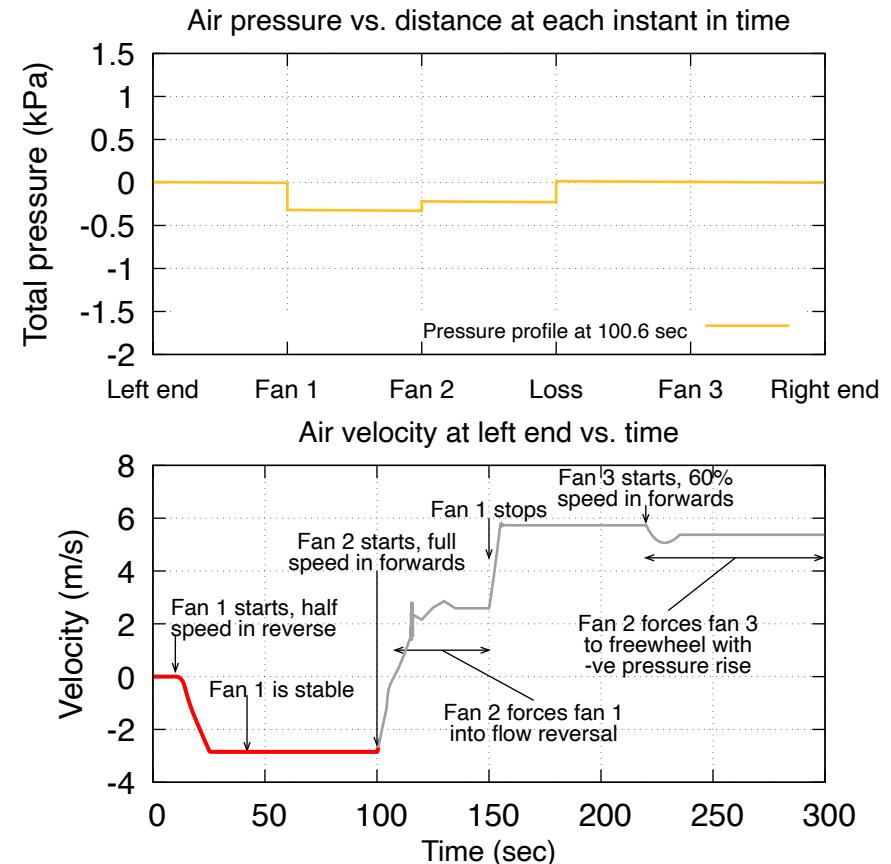
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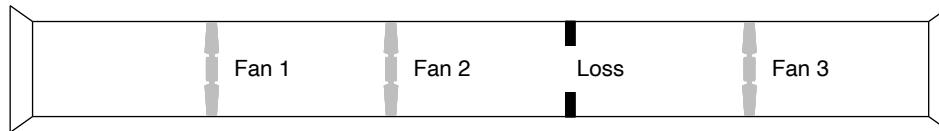
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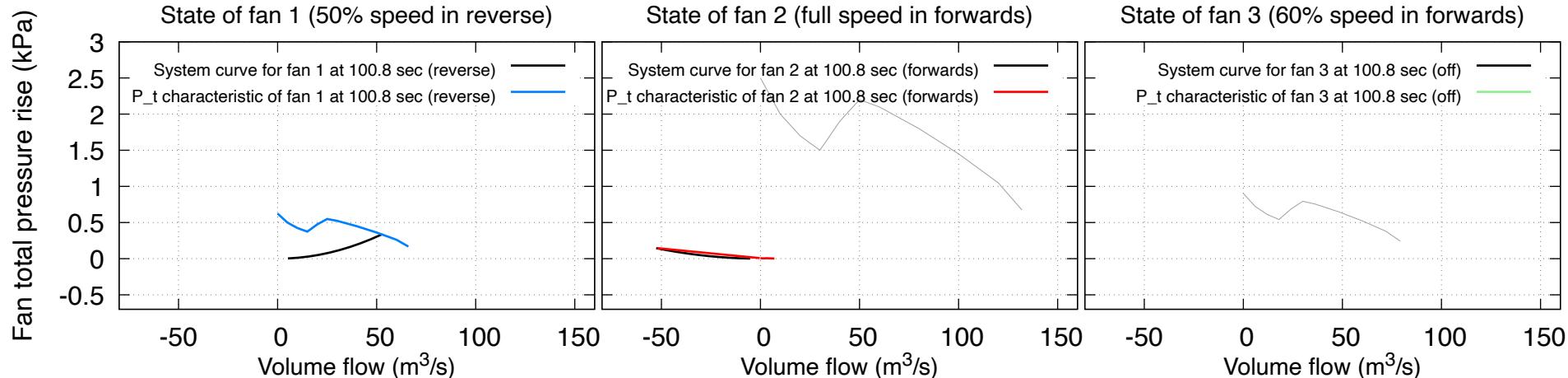
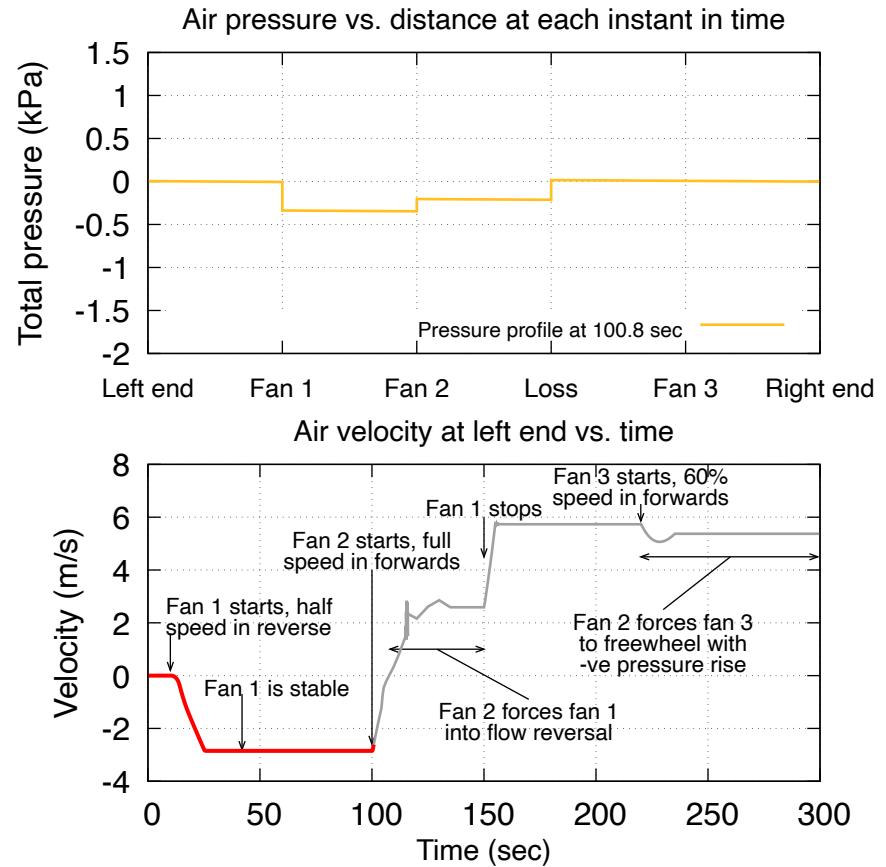
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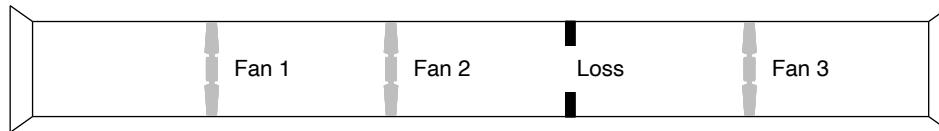
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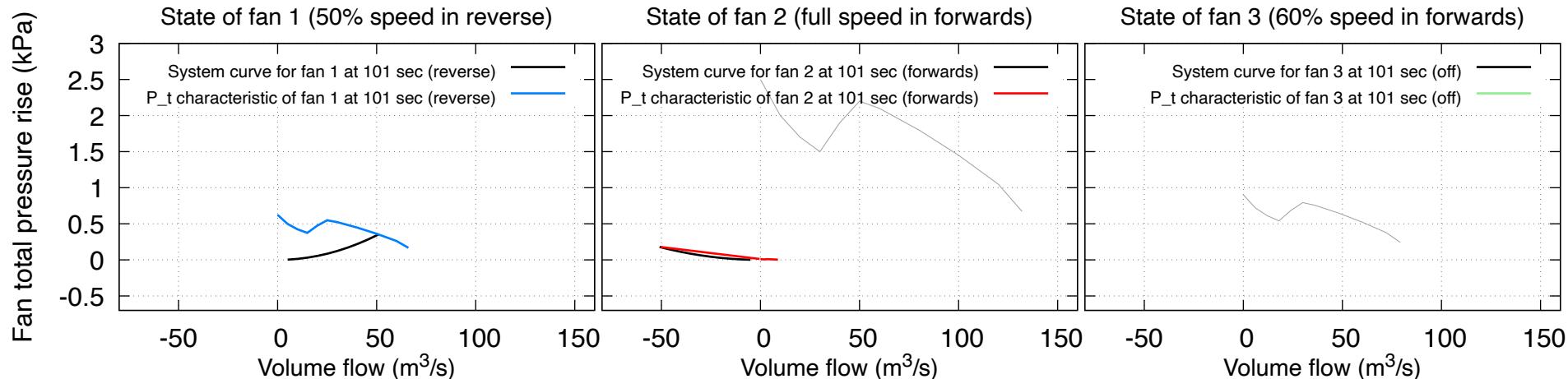
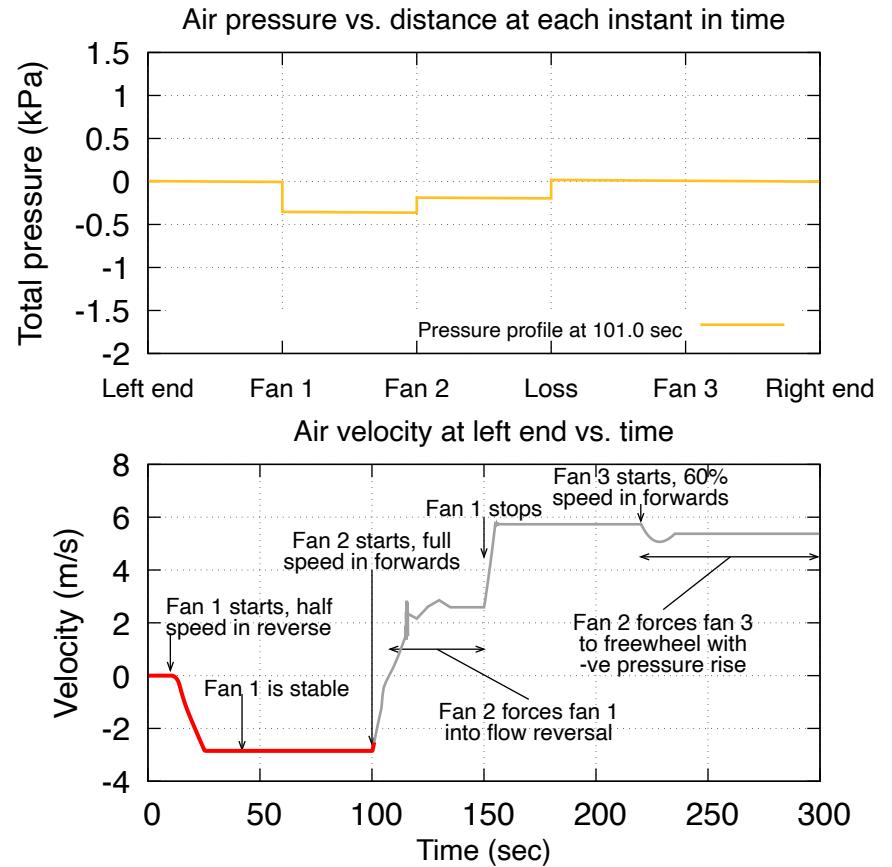
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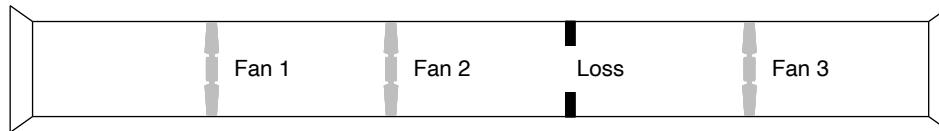
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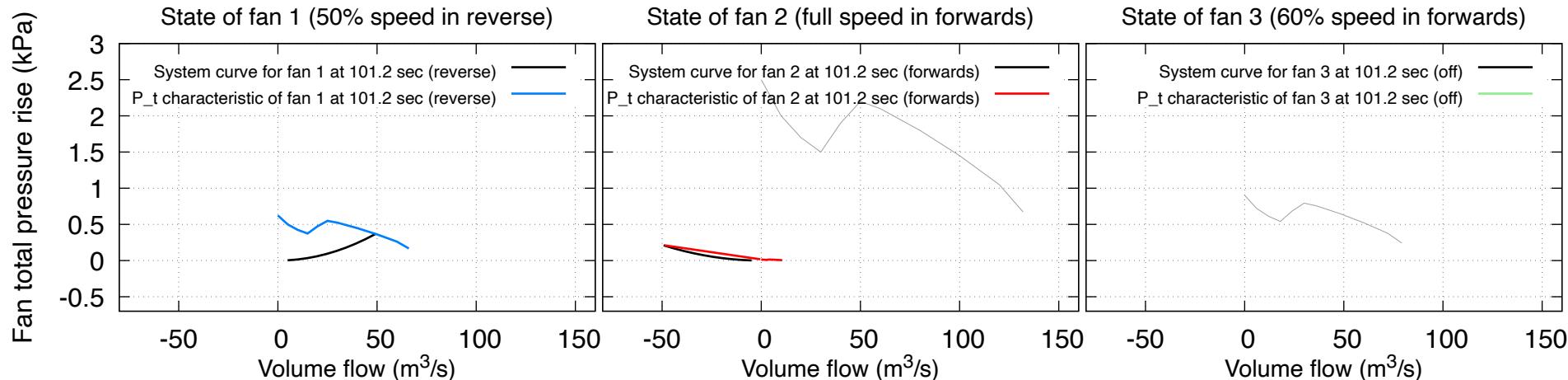
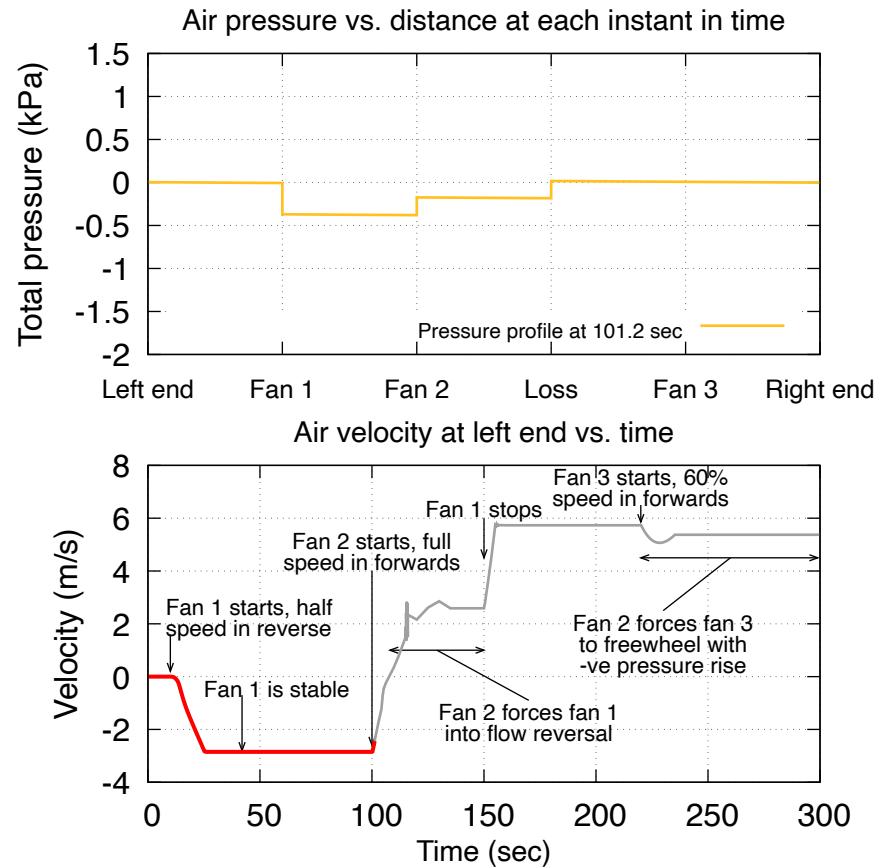
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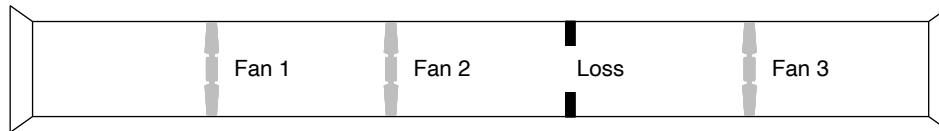
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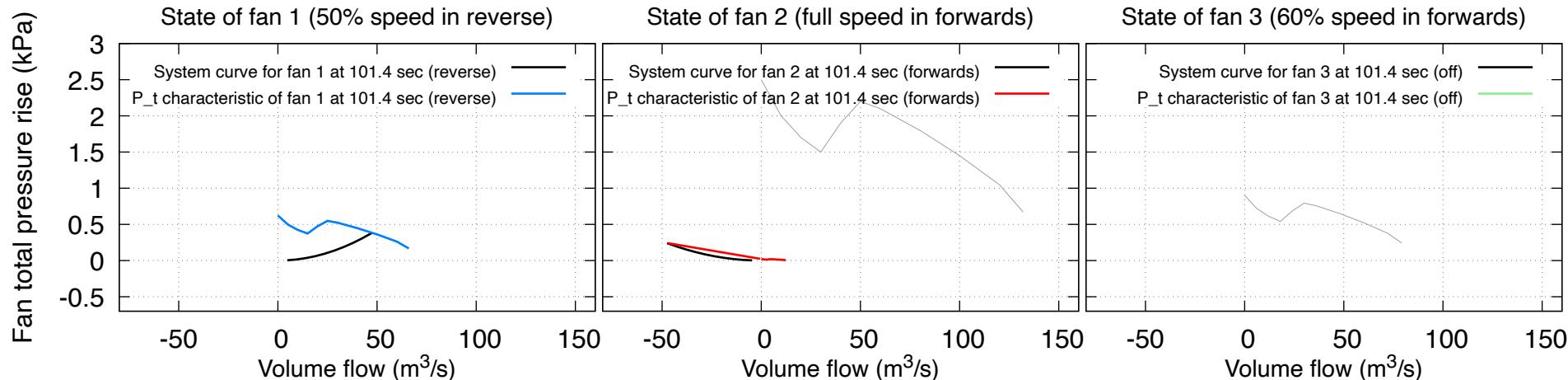
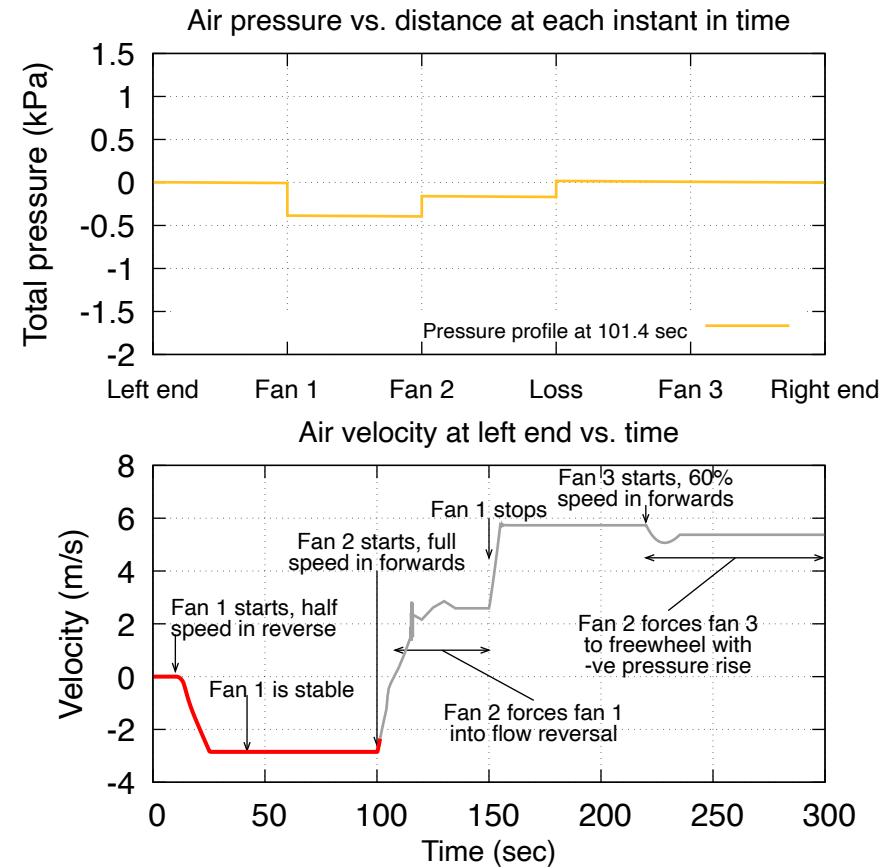
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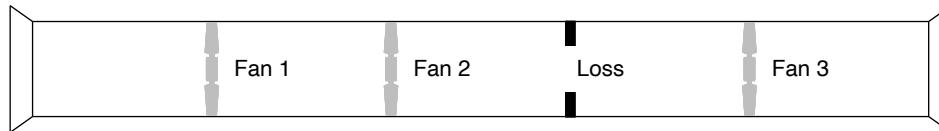
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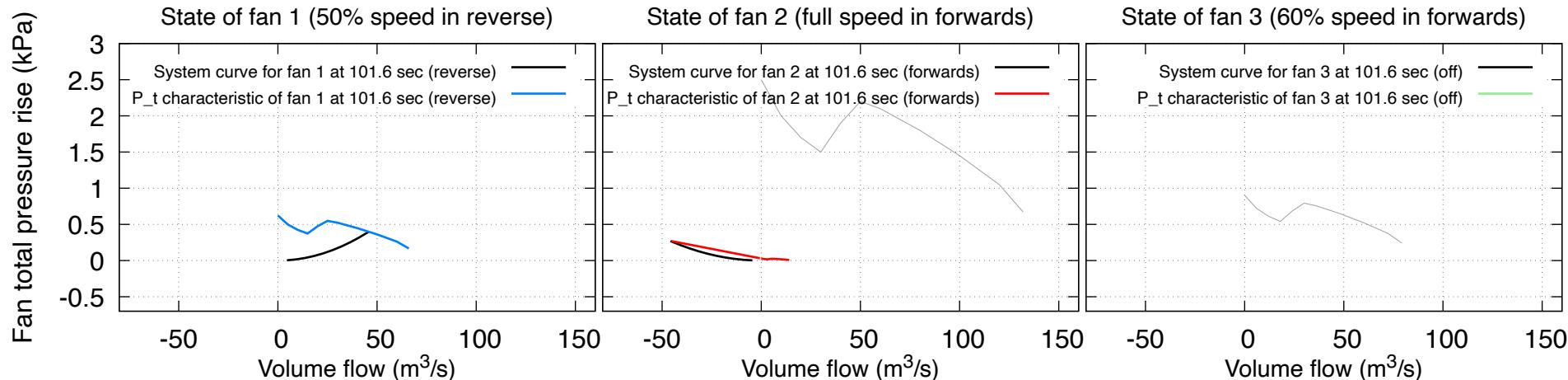
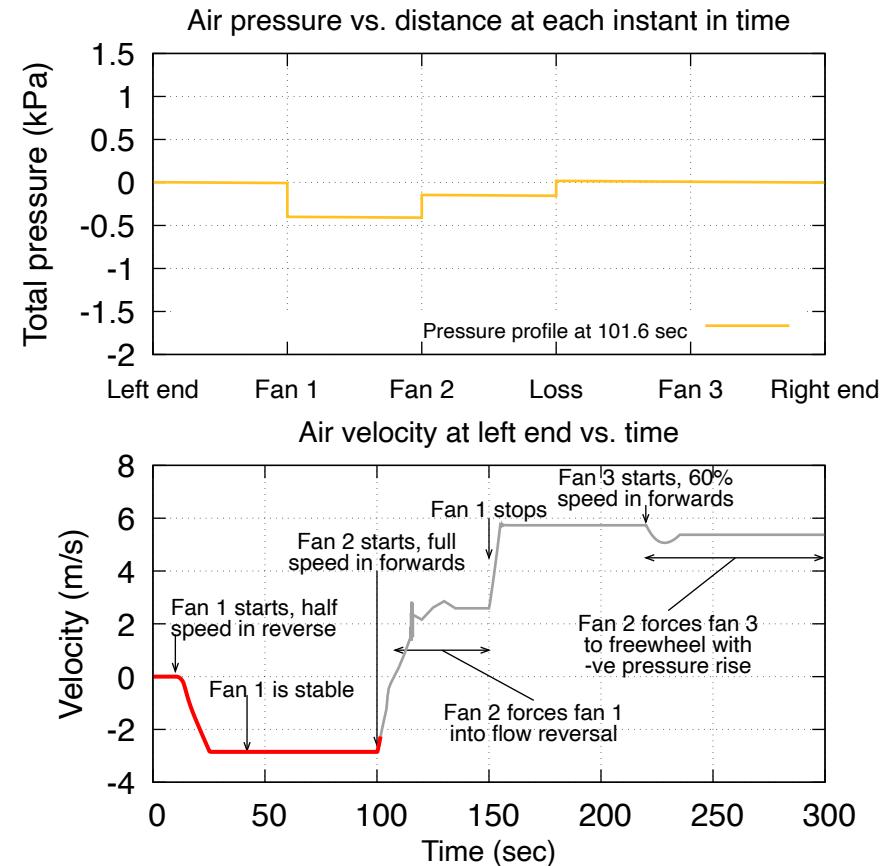
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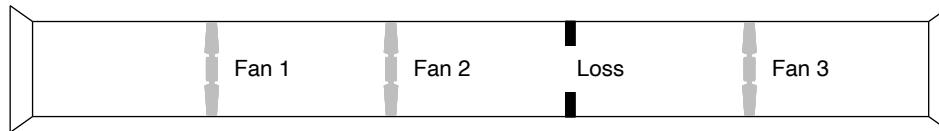
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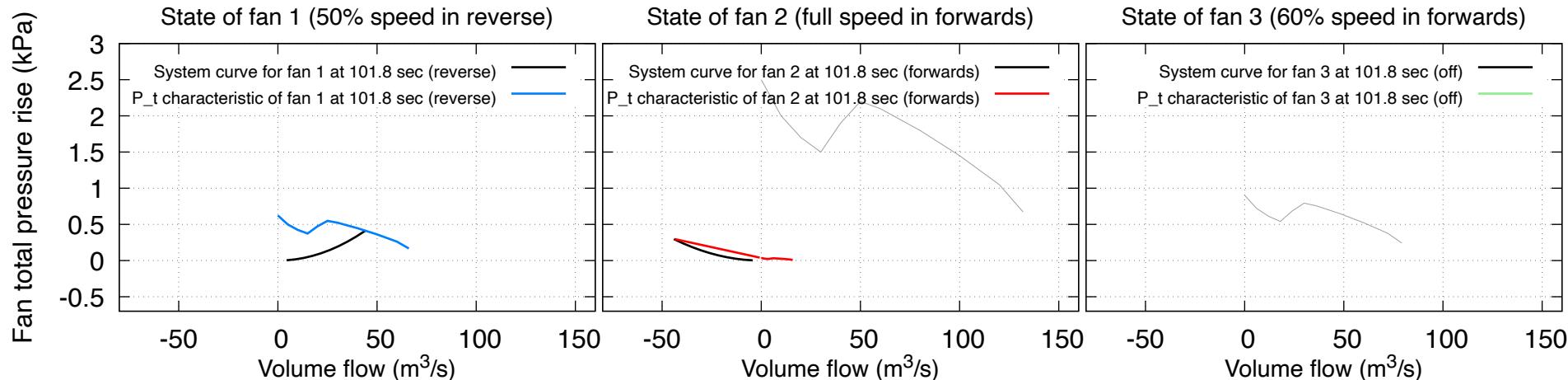
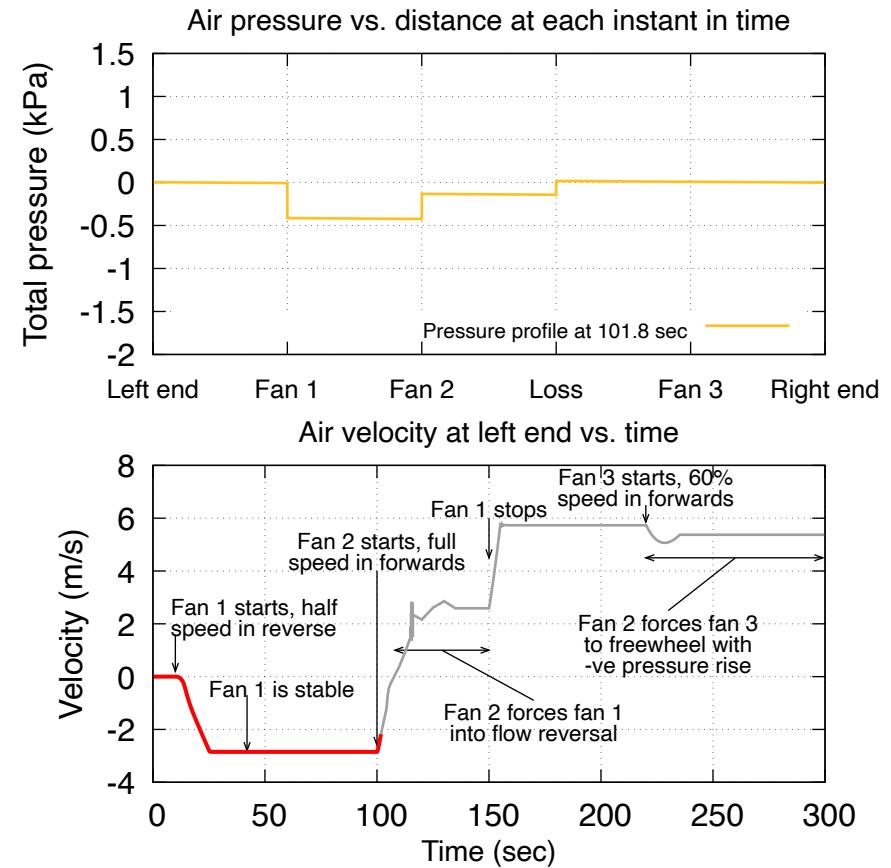
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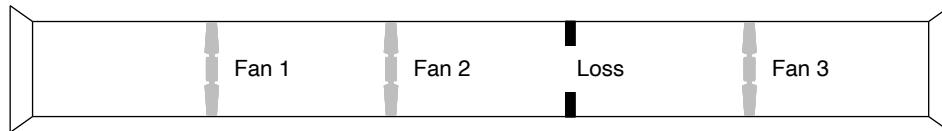
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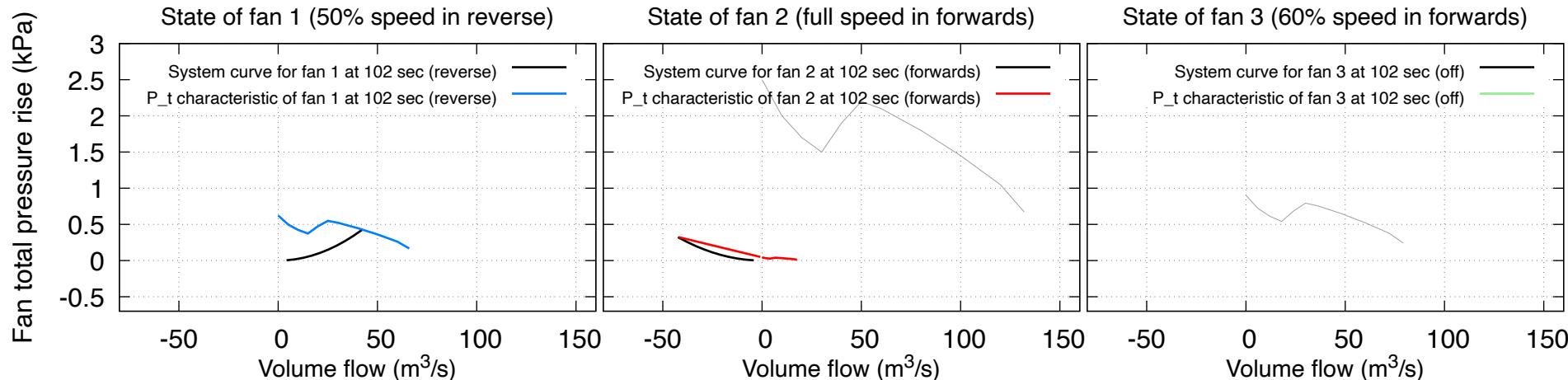
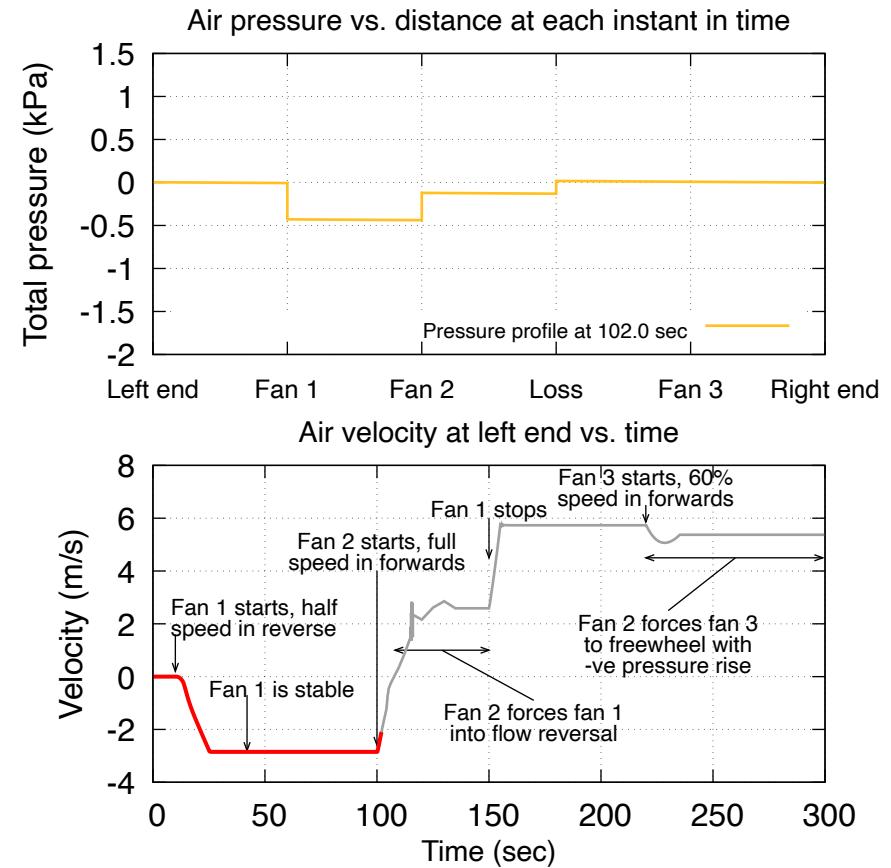
Fan 1 starts in reverse at half speed and ends up at a suitable duty point.

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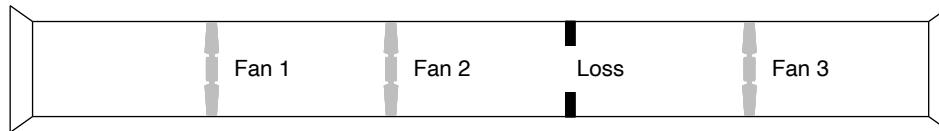
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



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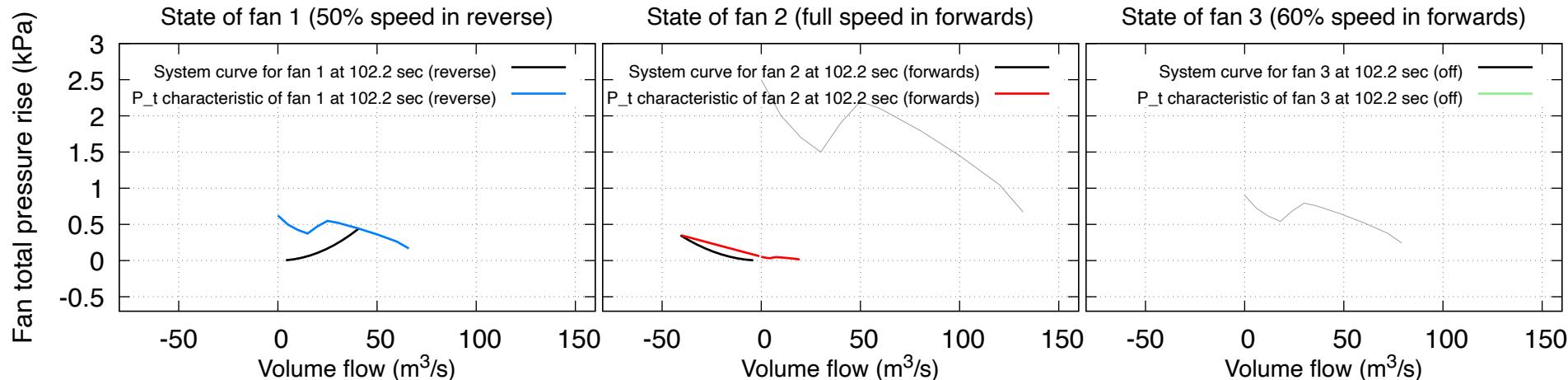
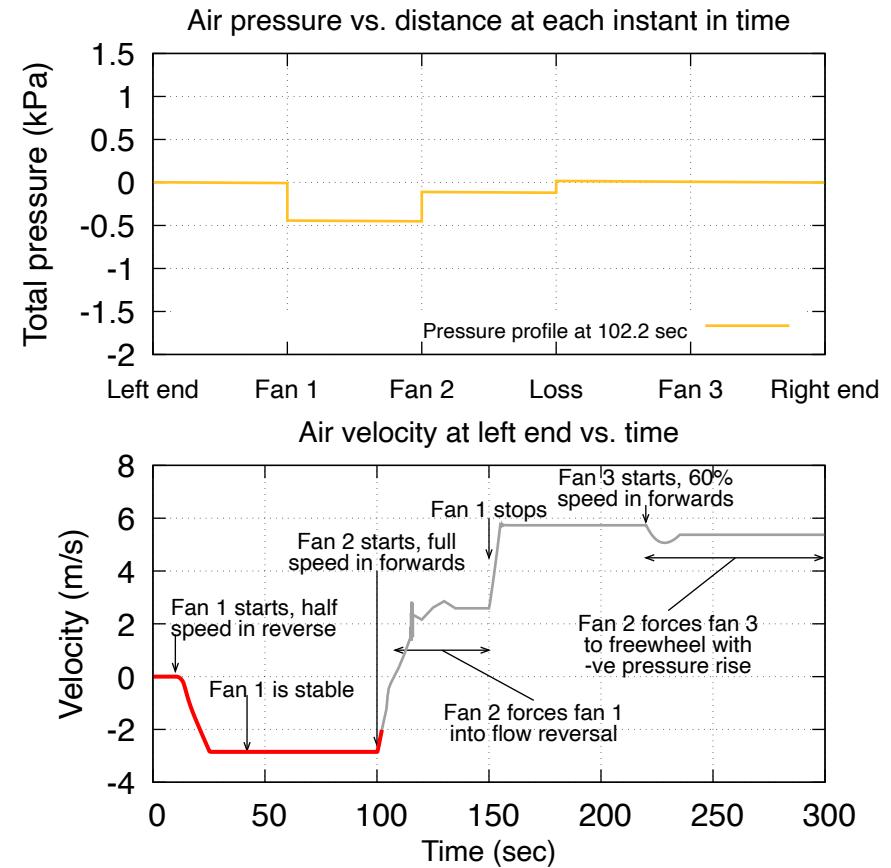
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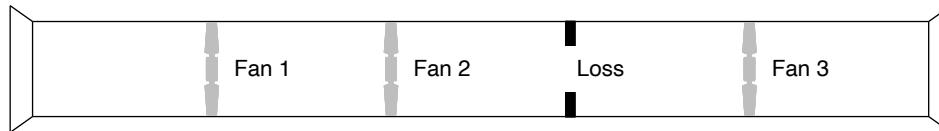
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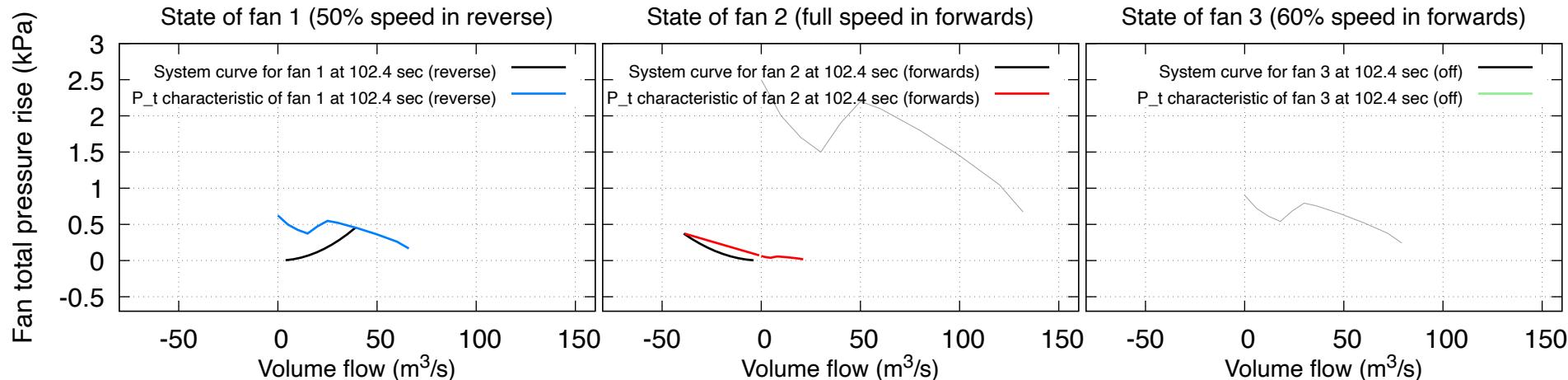
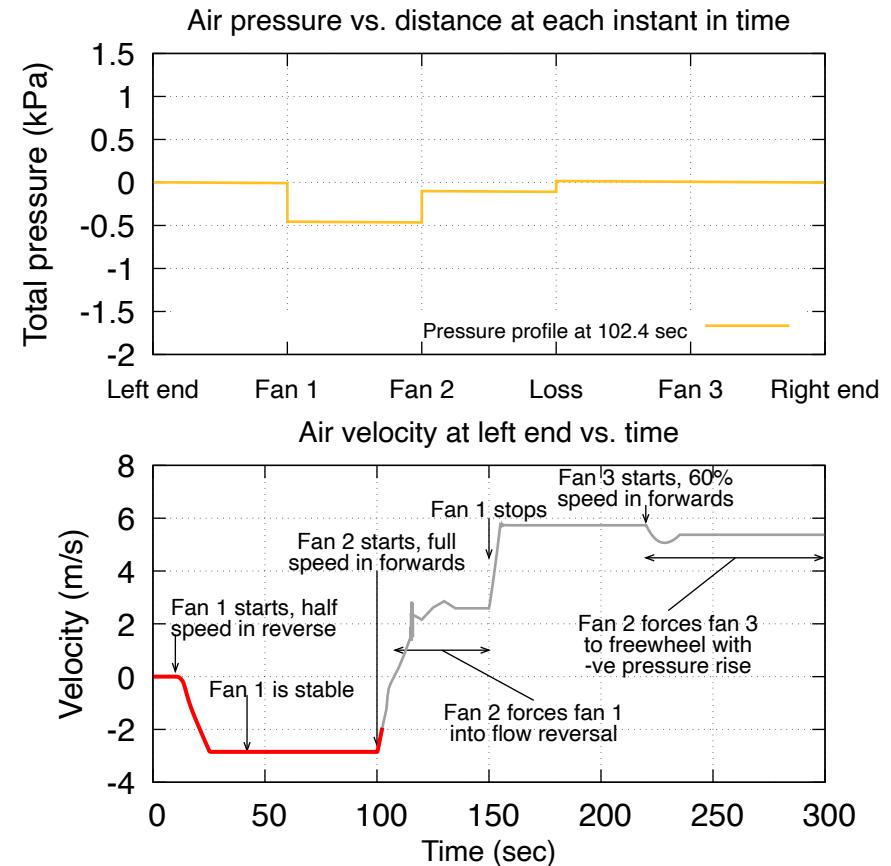
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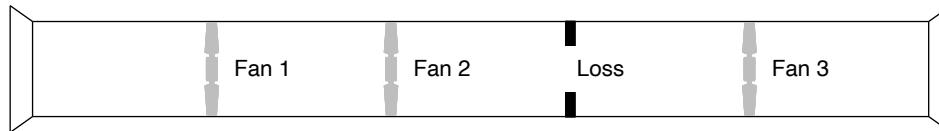
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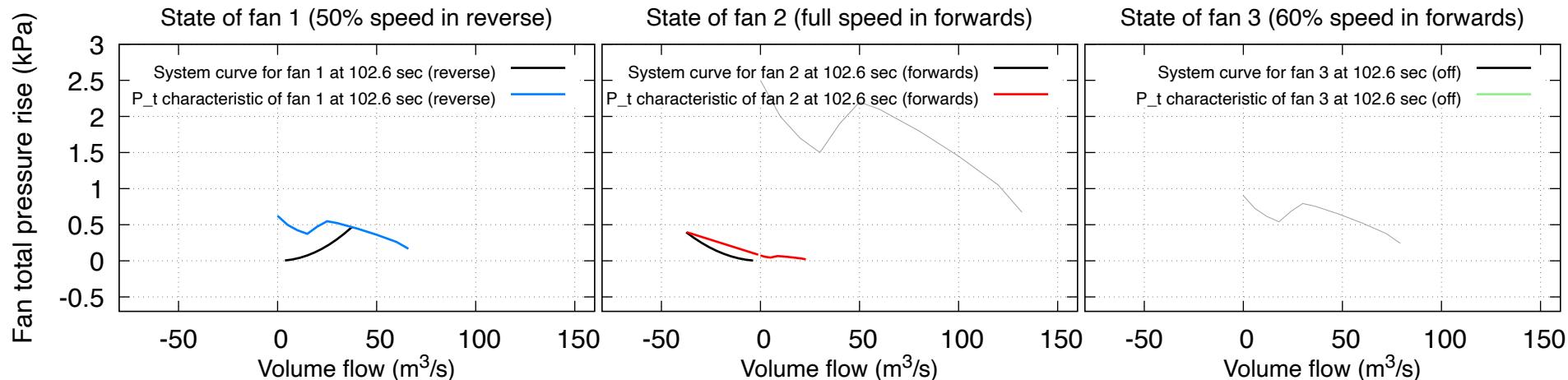
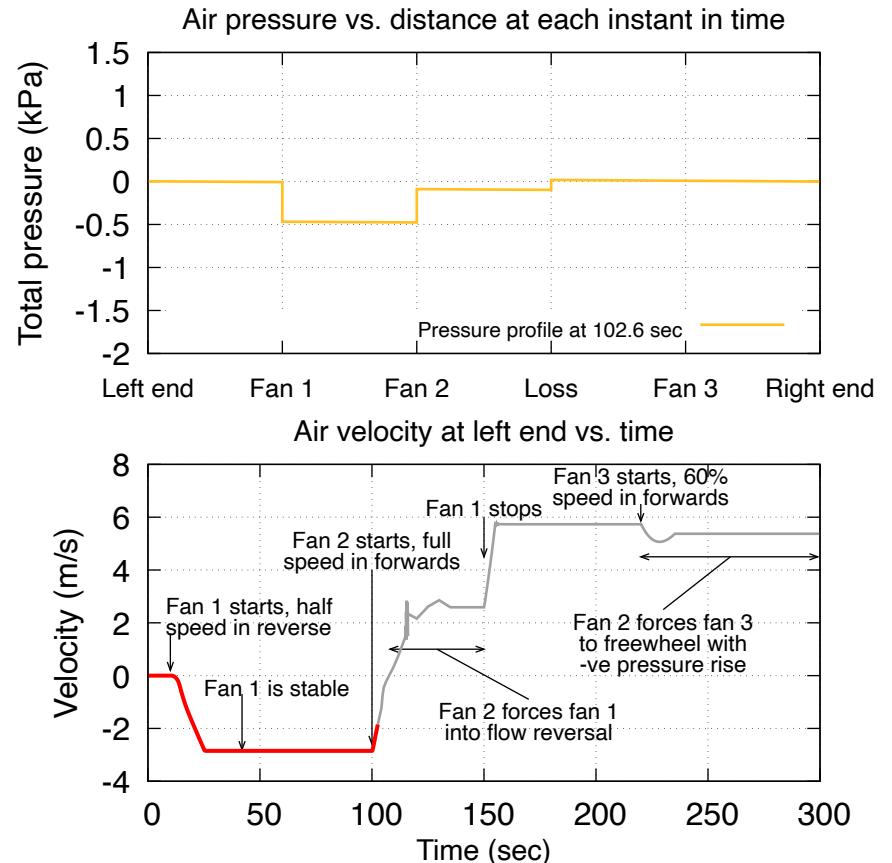
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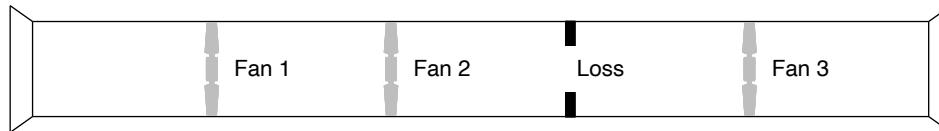
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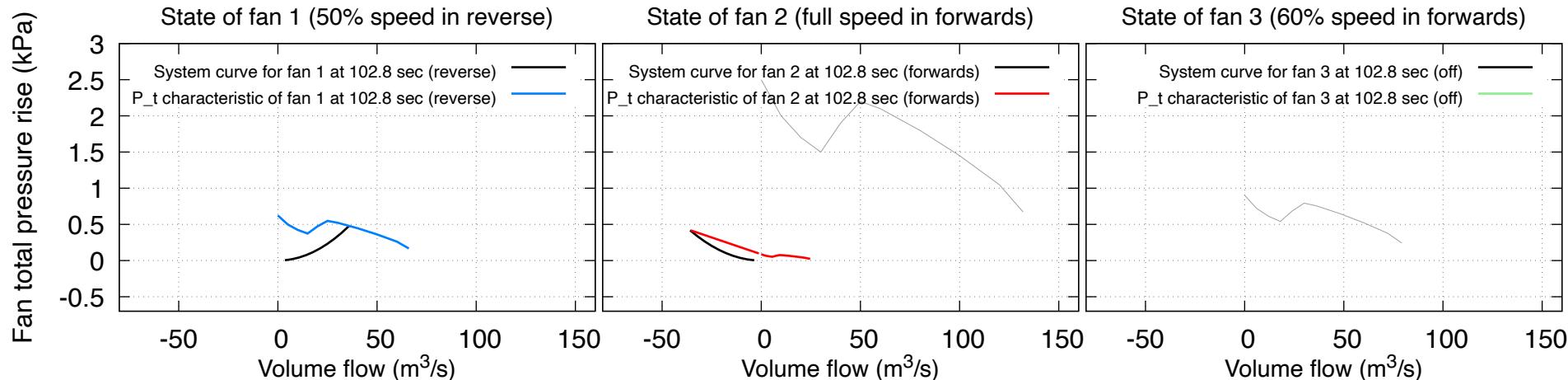
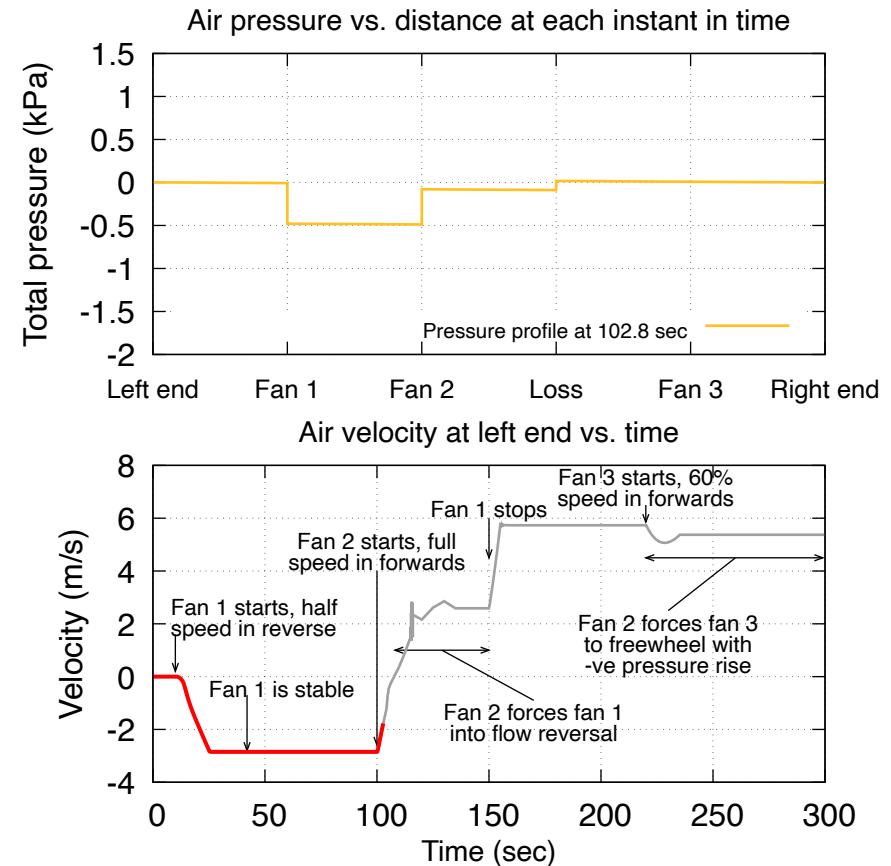
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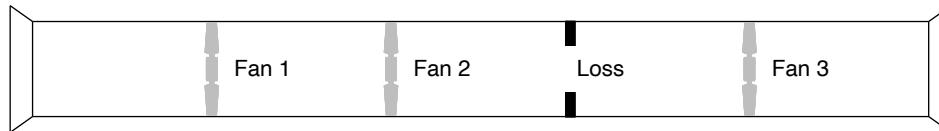
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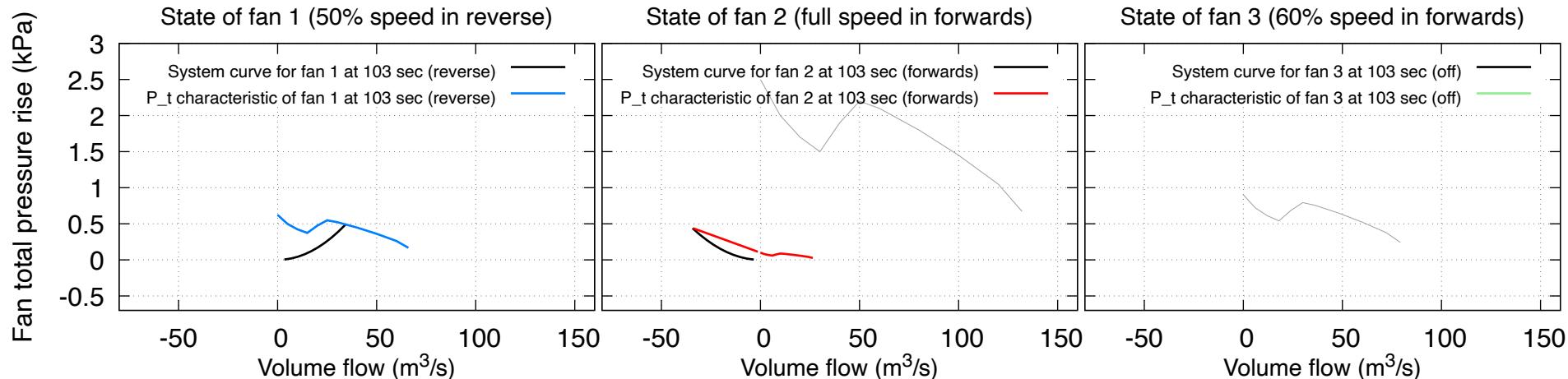
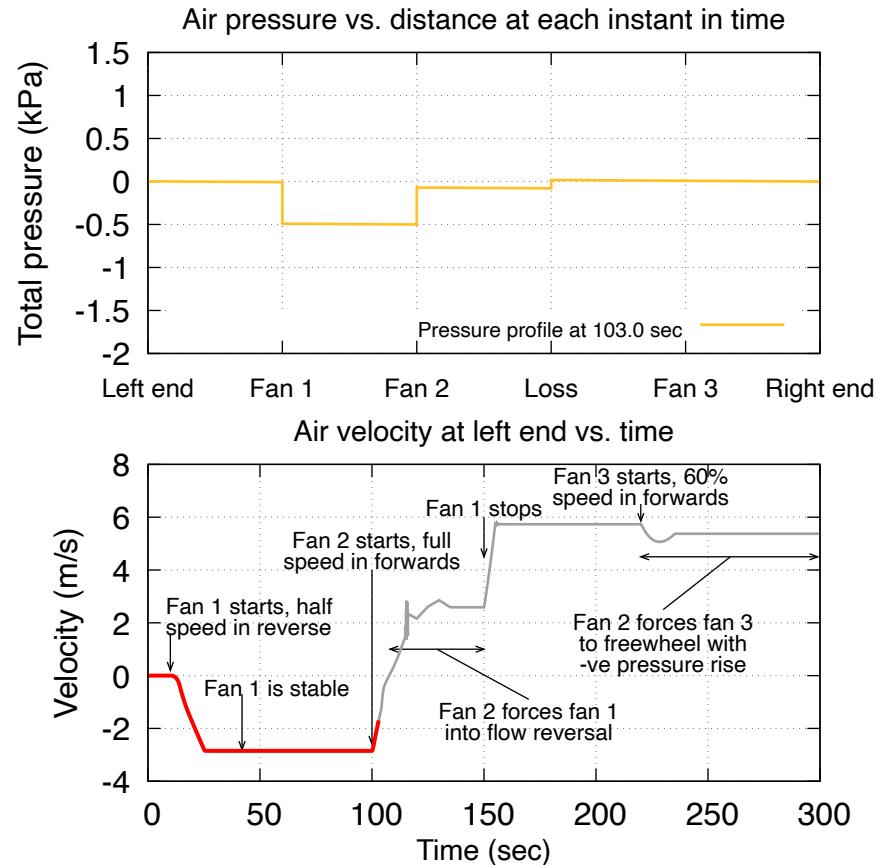
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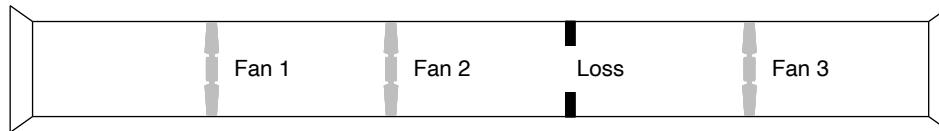
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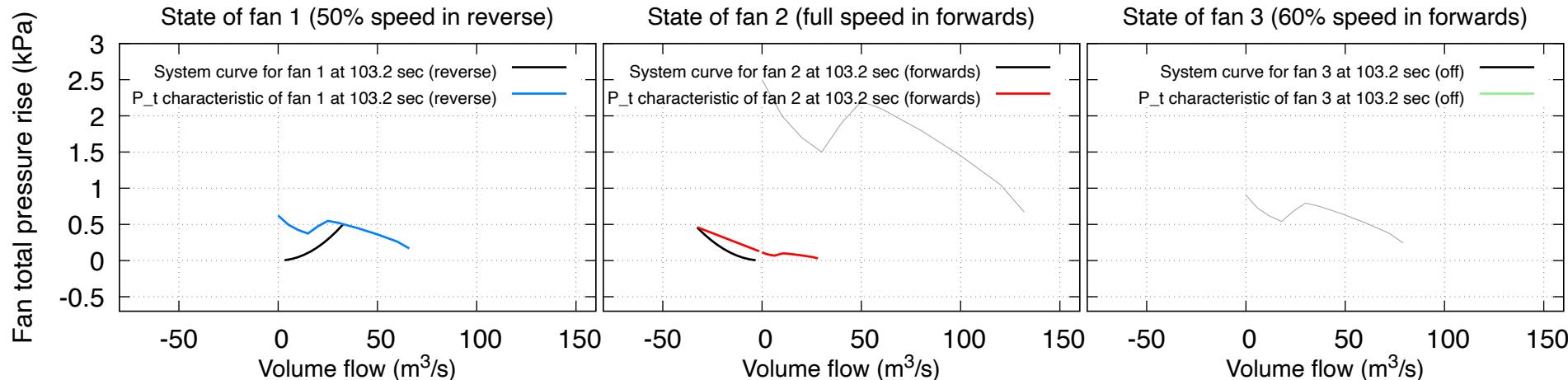
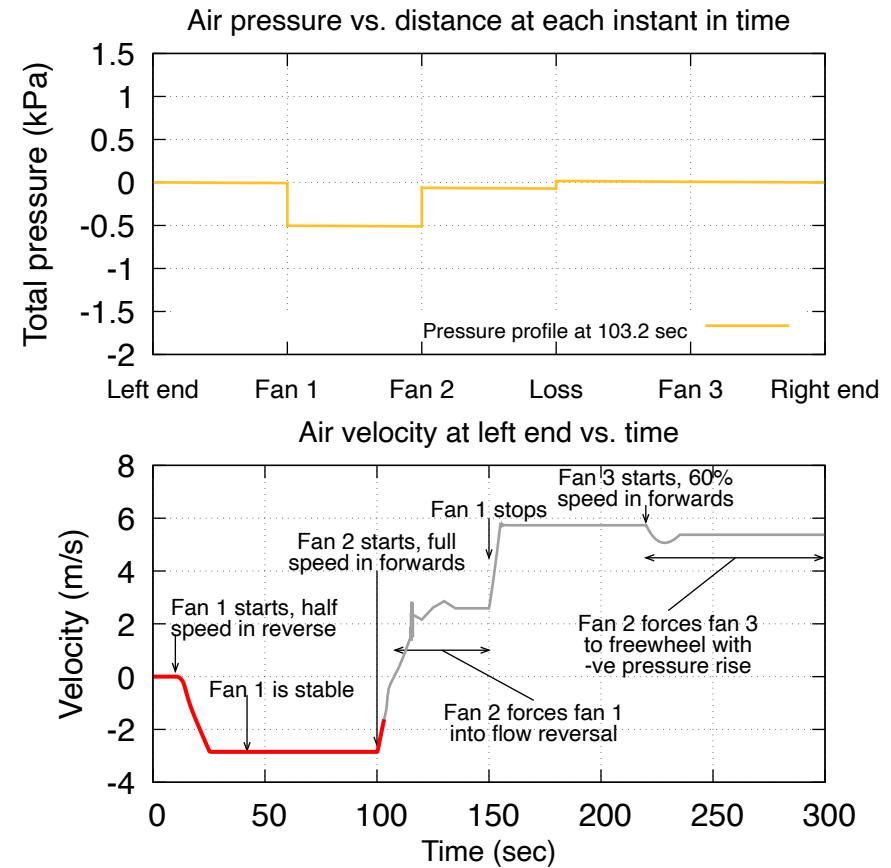
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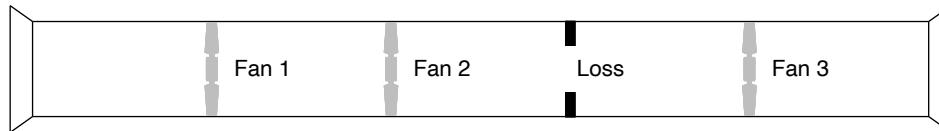
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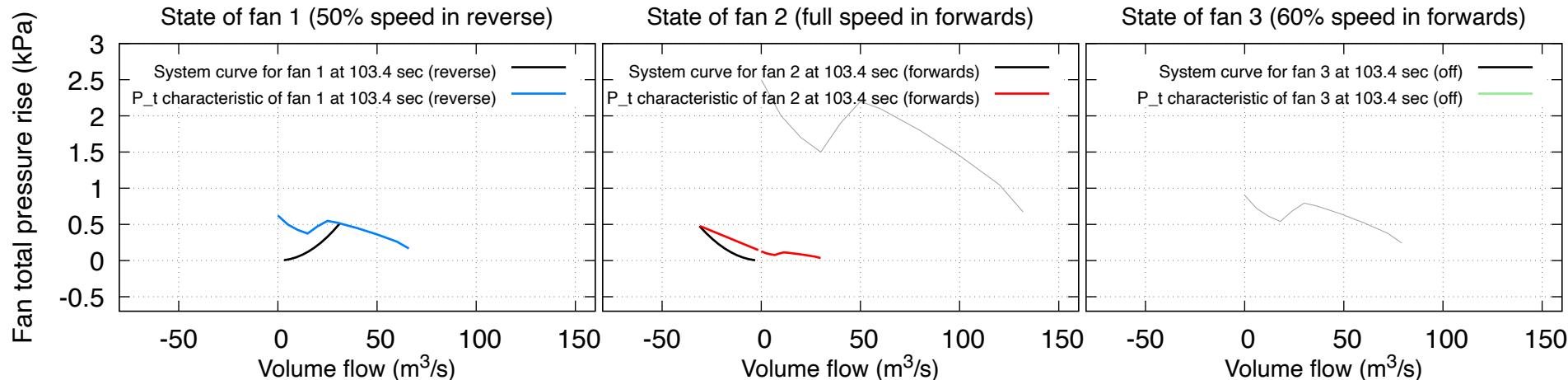
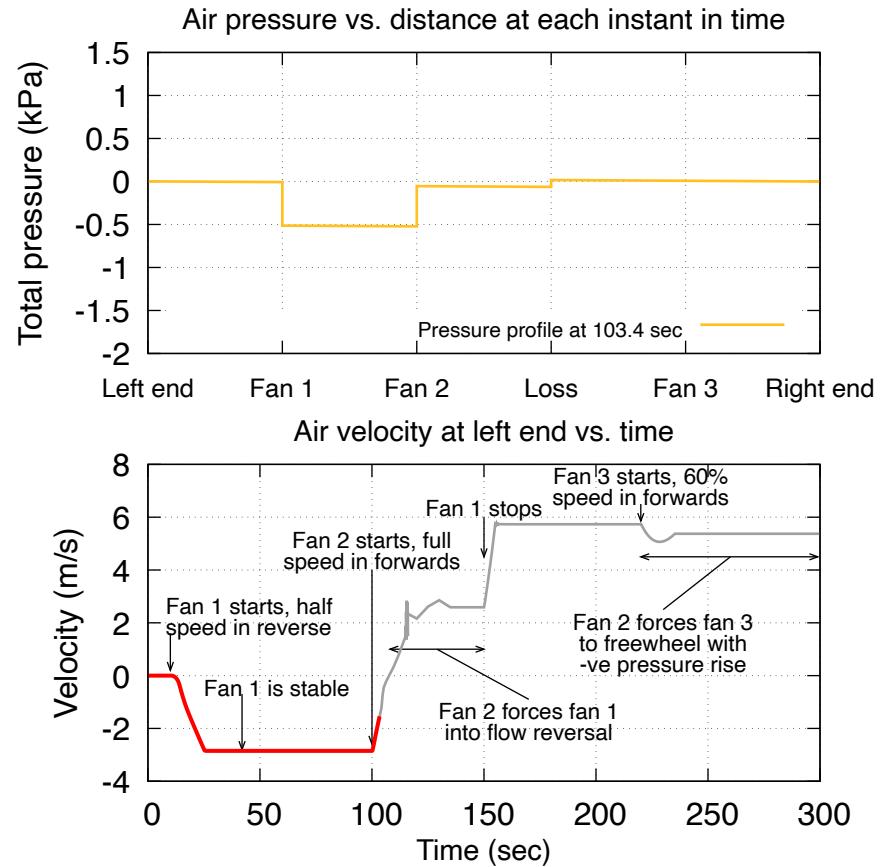
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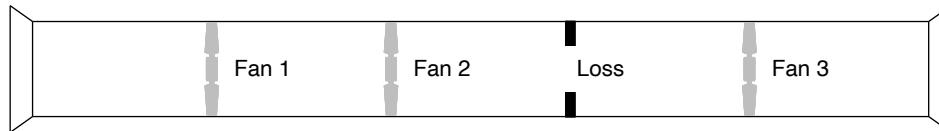
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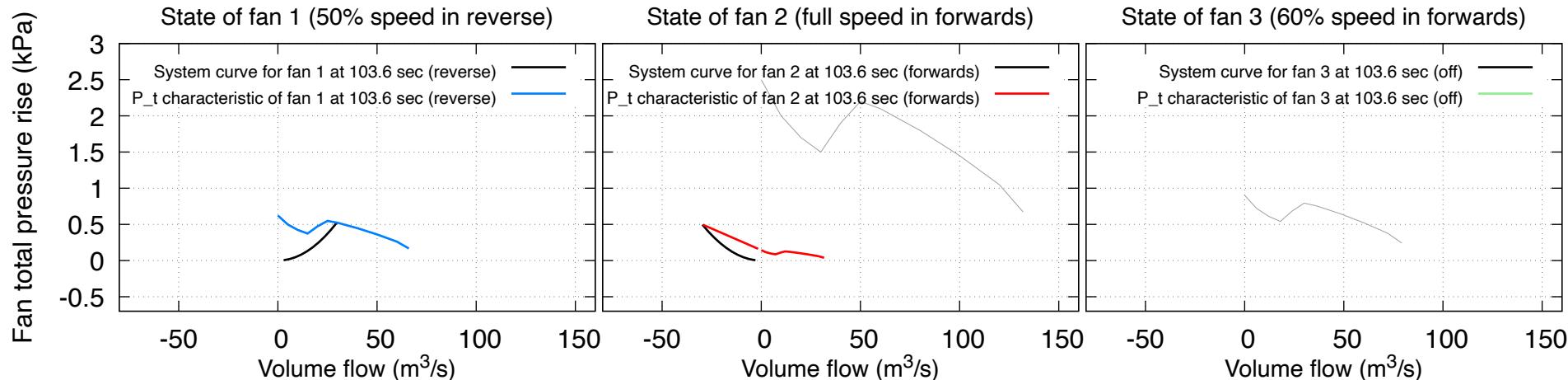
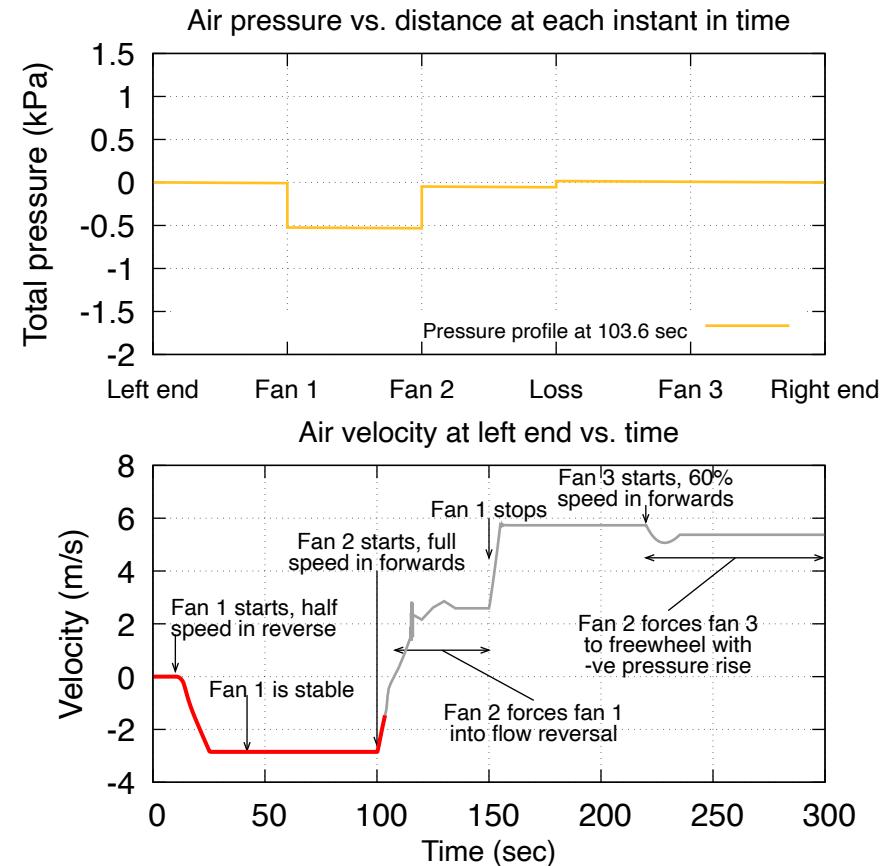
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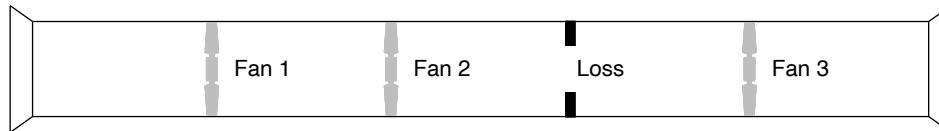
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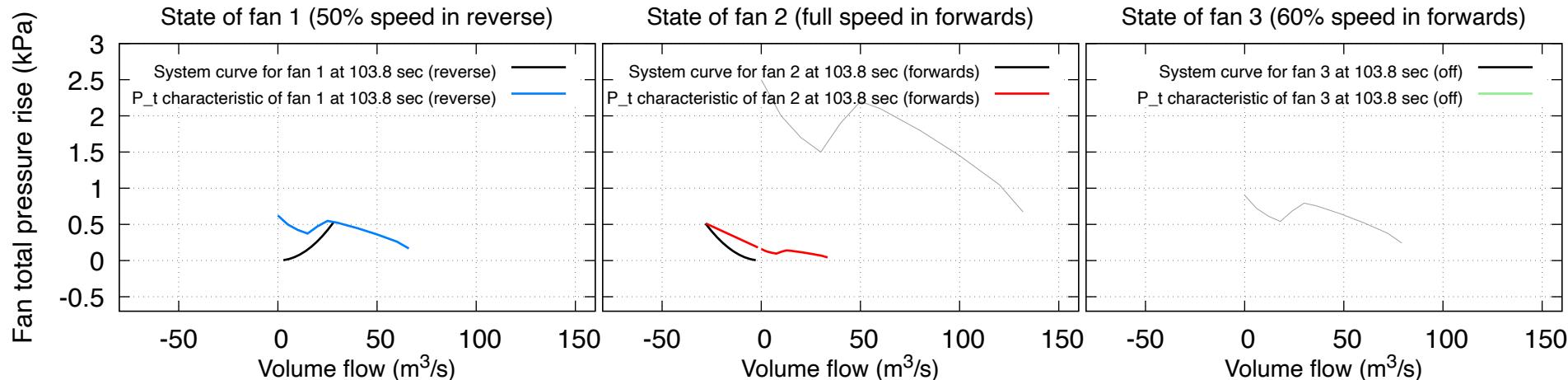
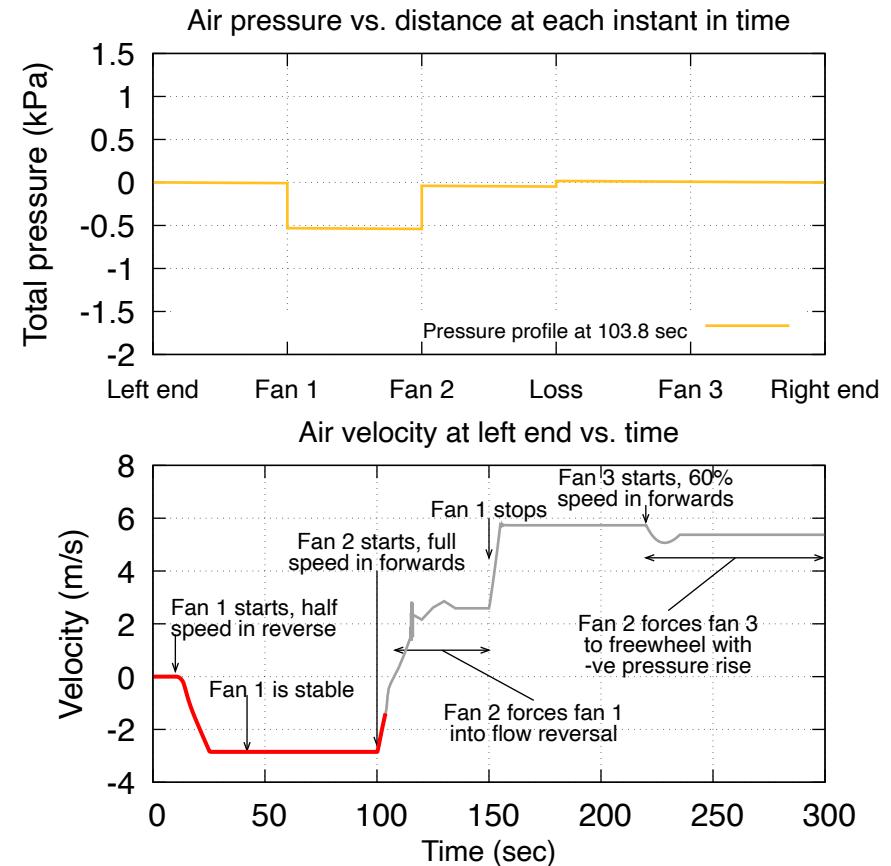
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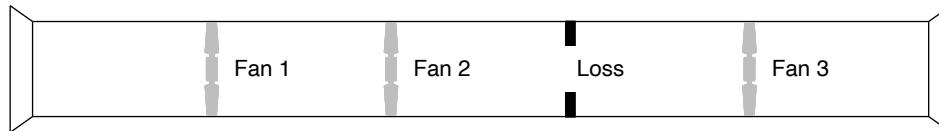
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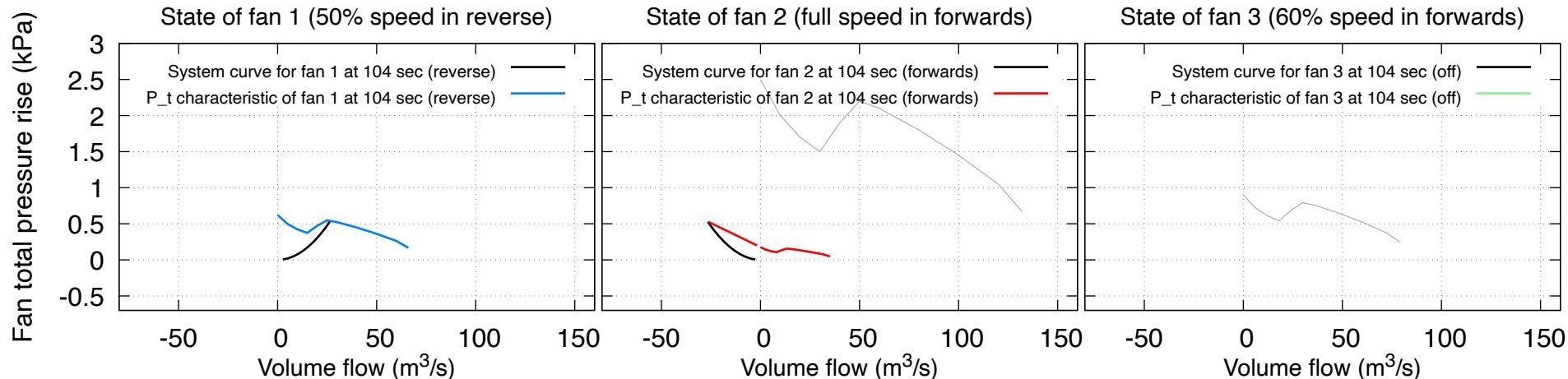
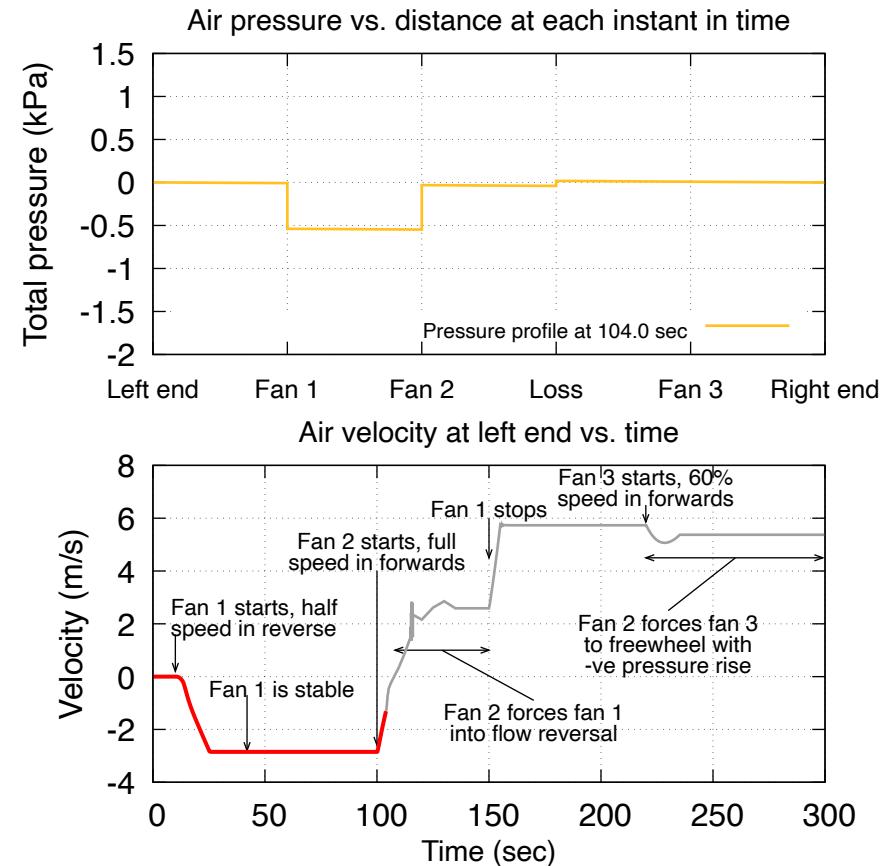
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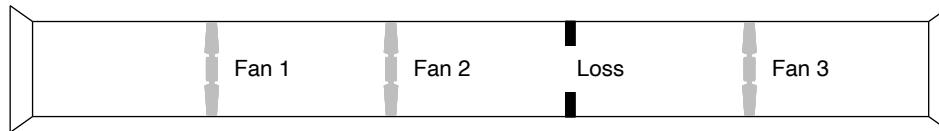
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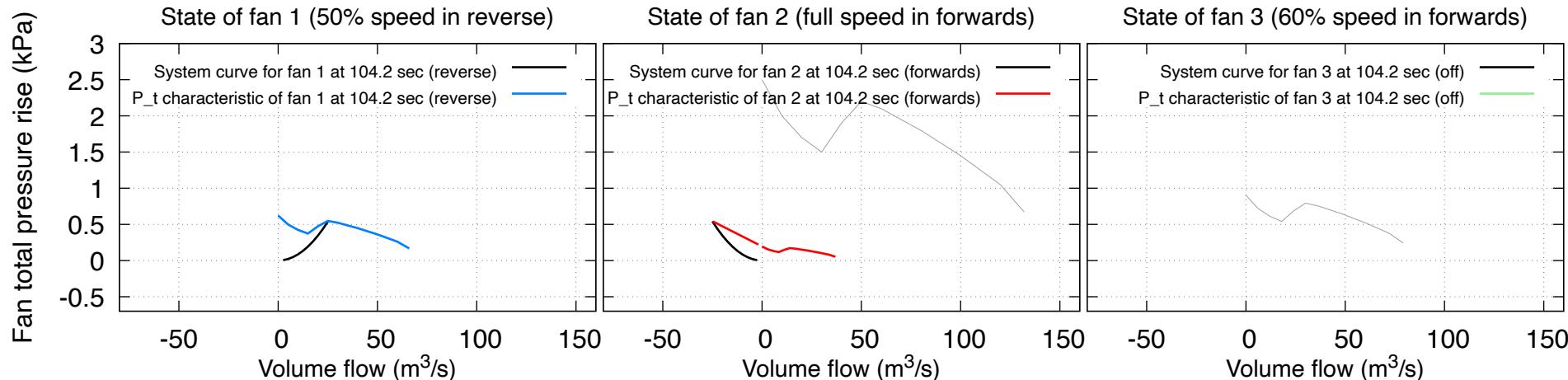
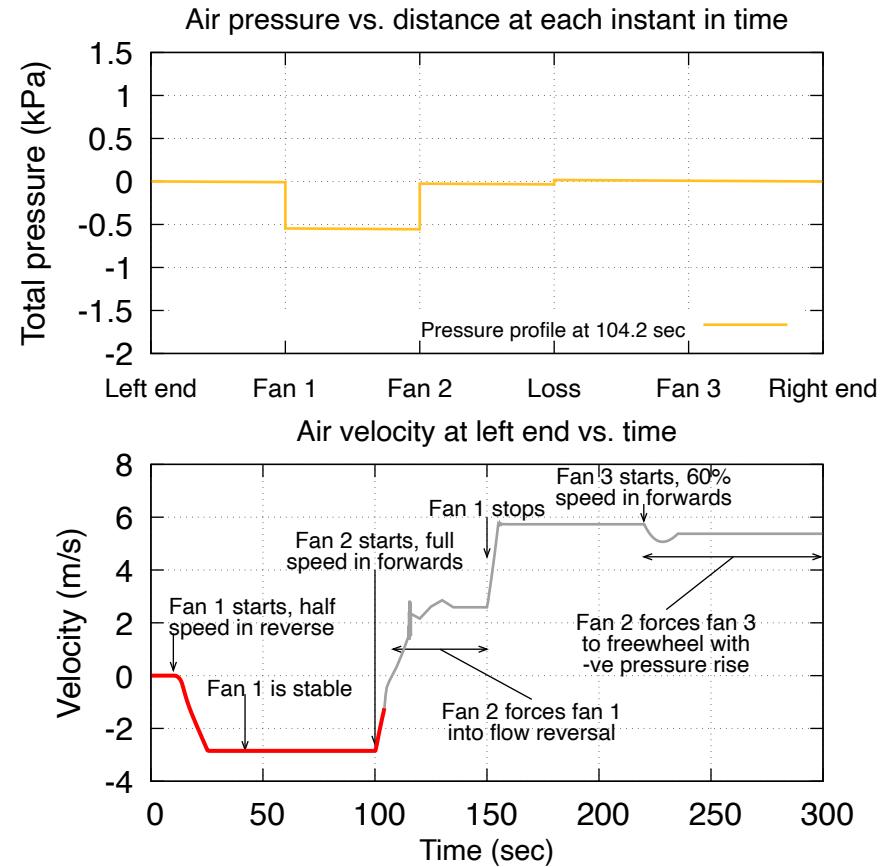
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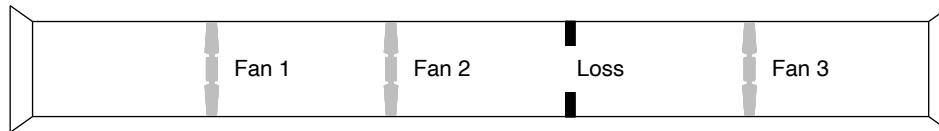
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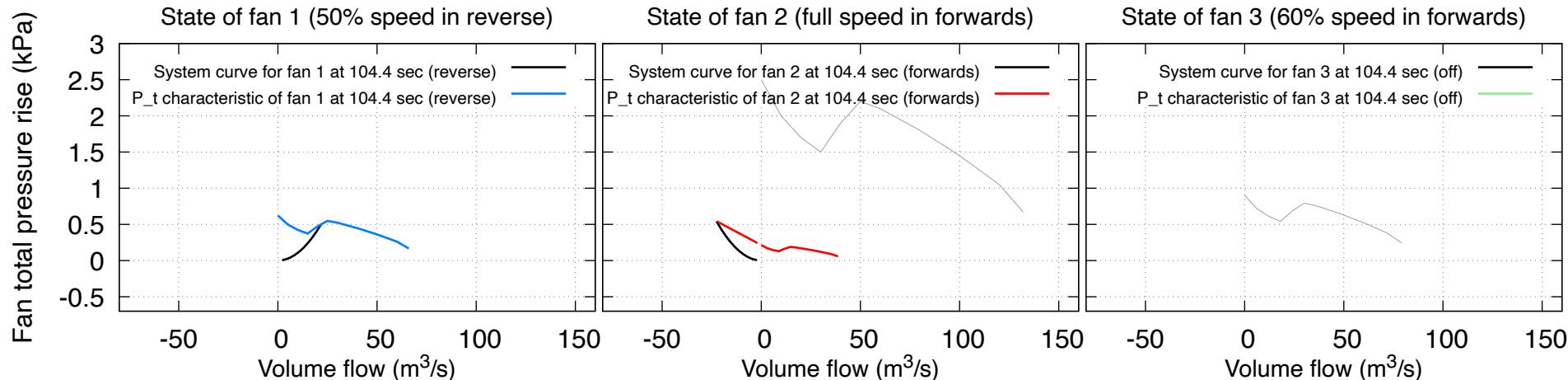
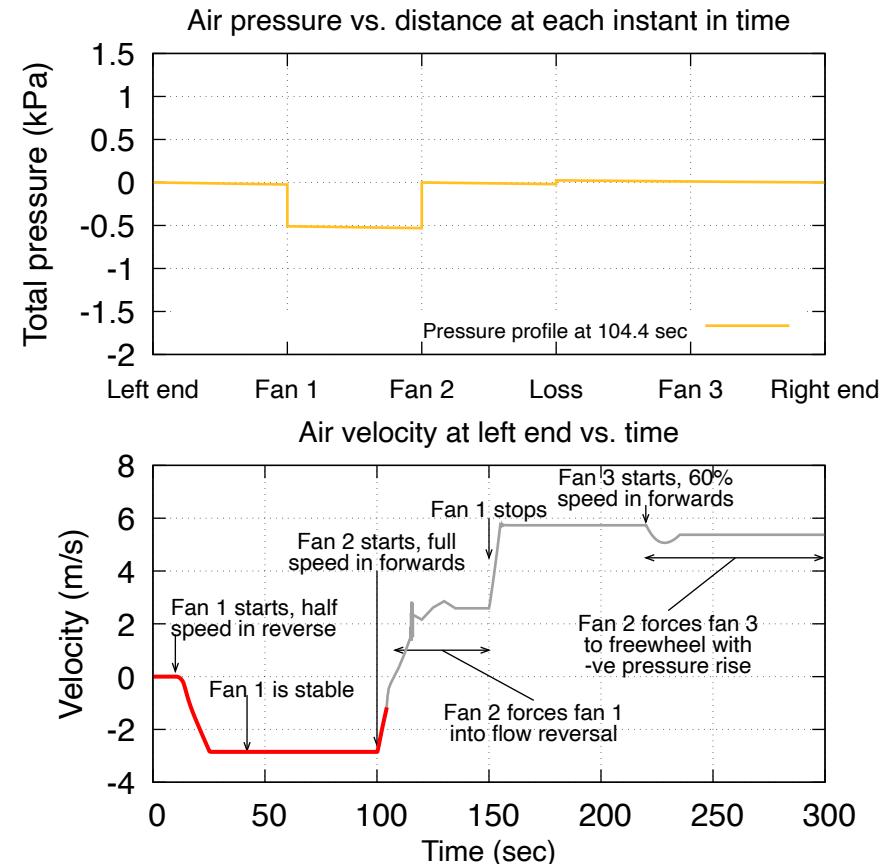
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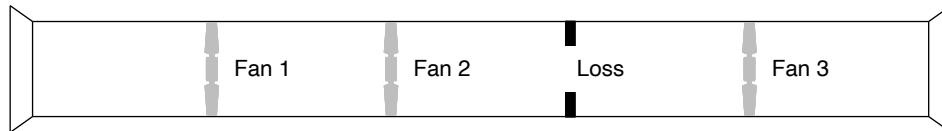
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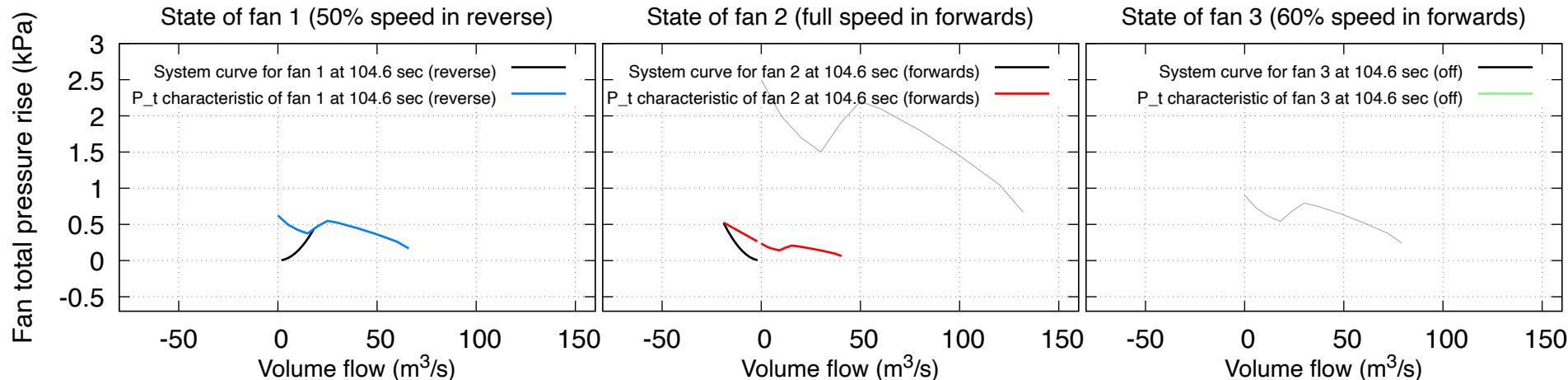
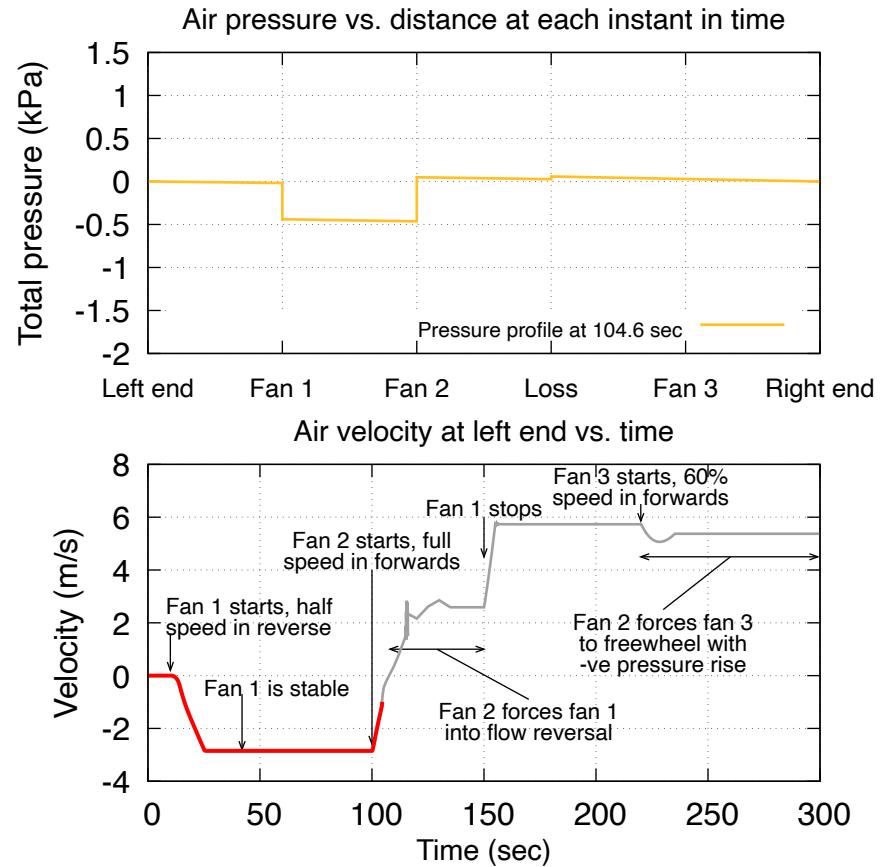
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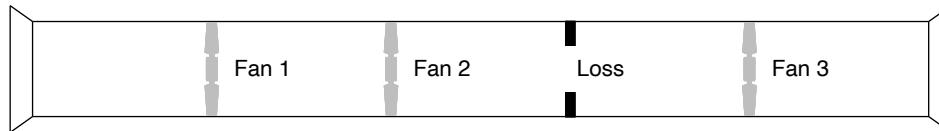
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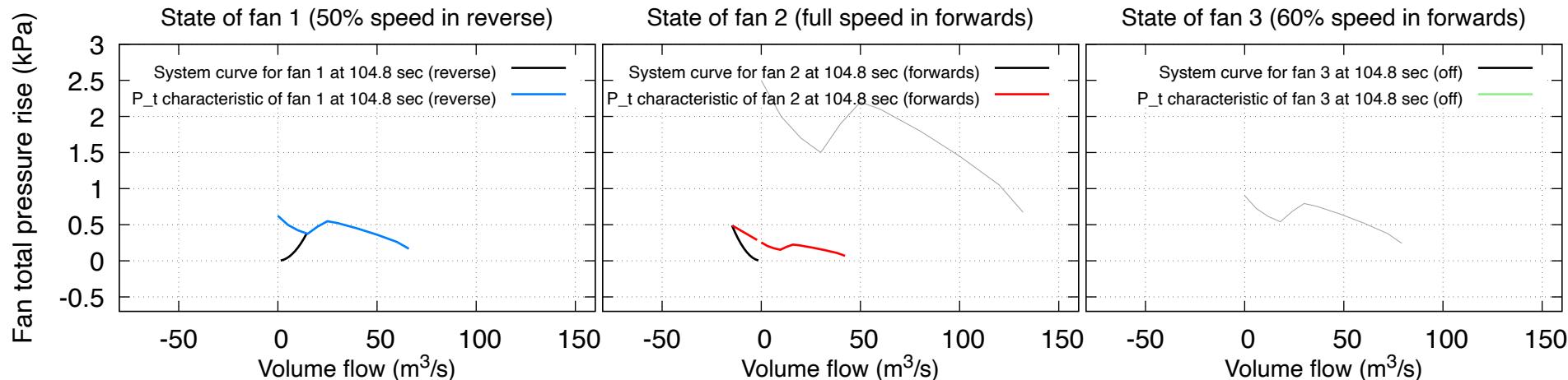
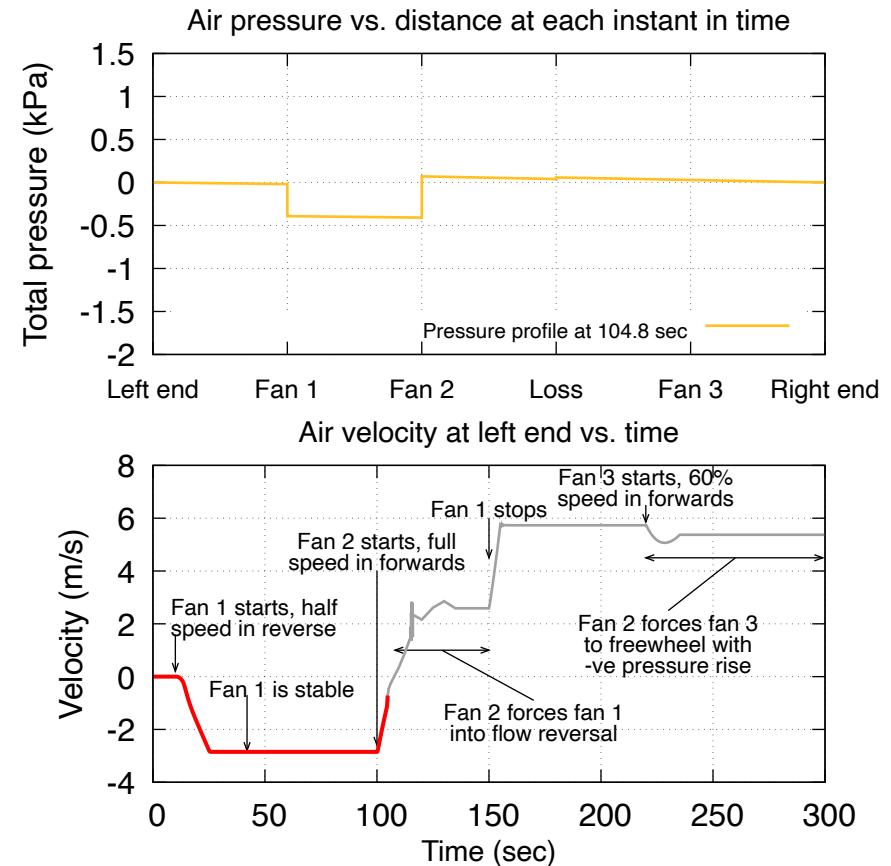
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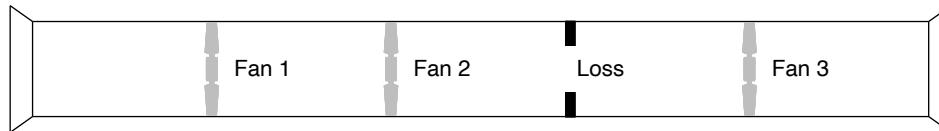
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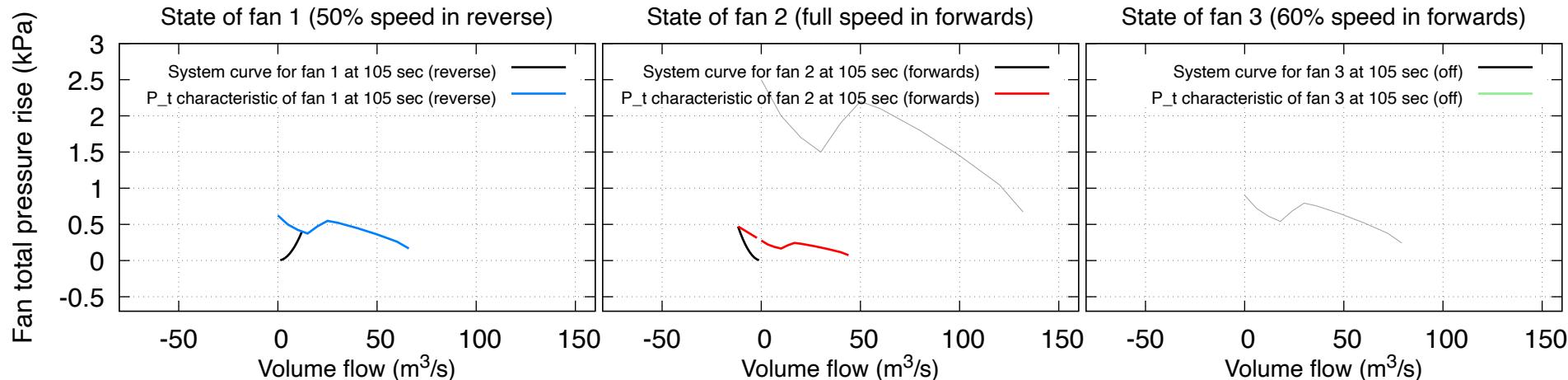
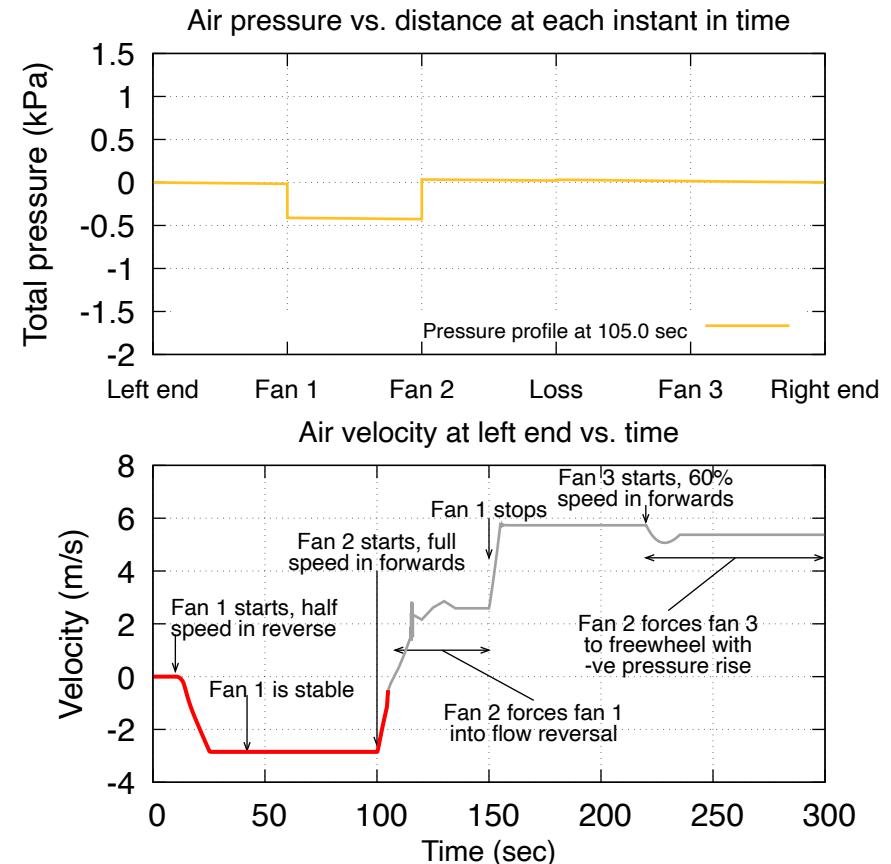
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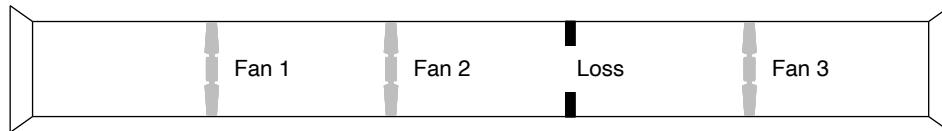
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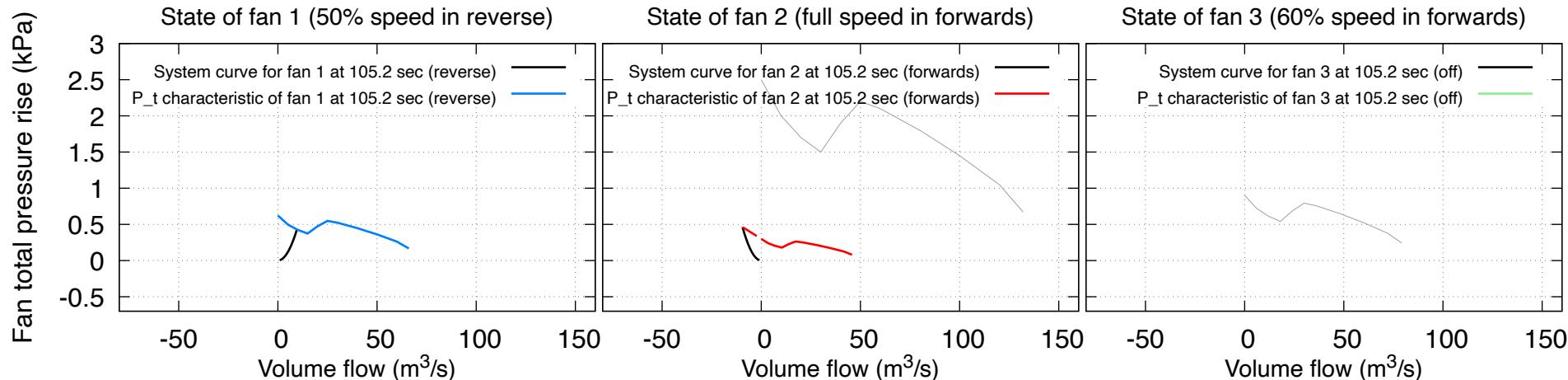
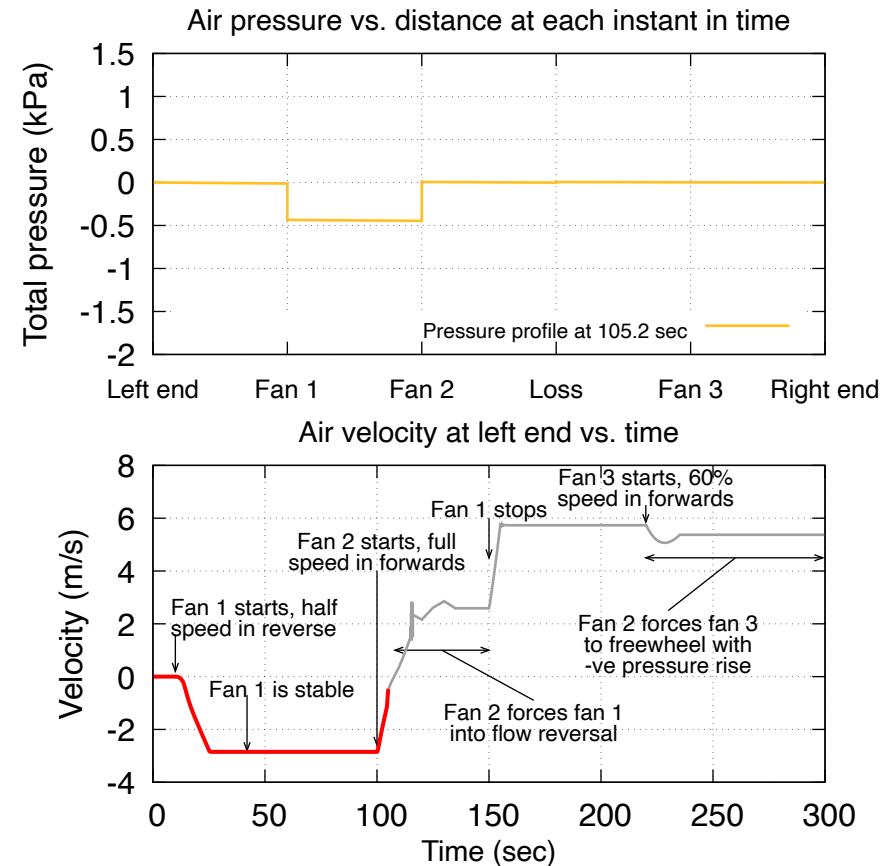
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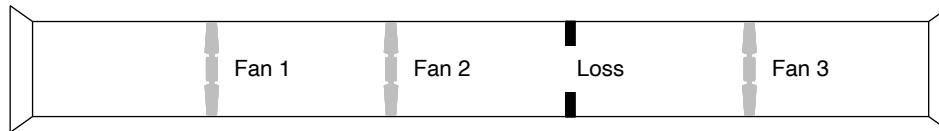
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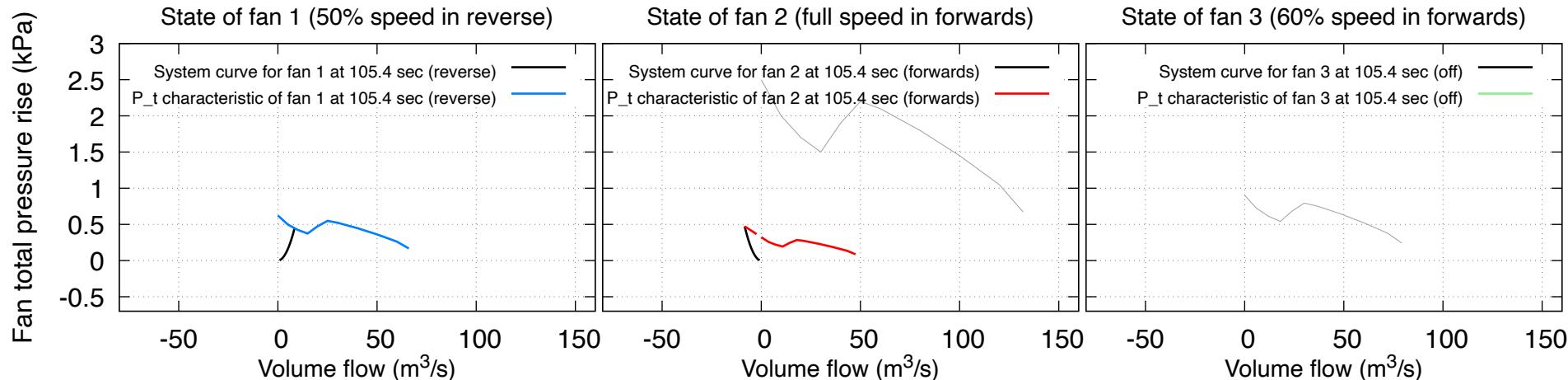
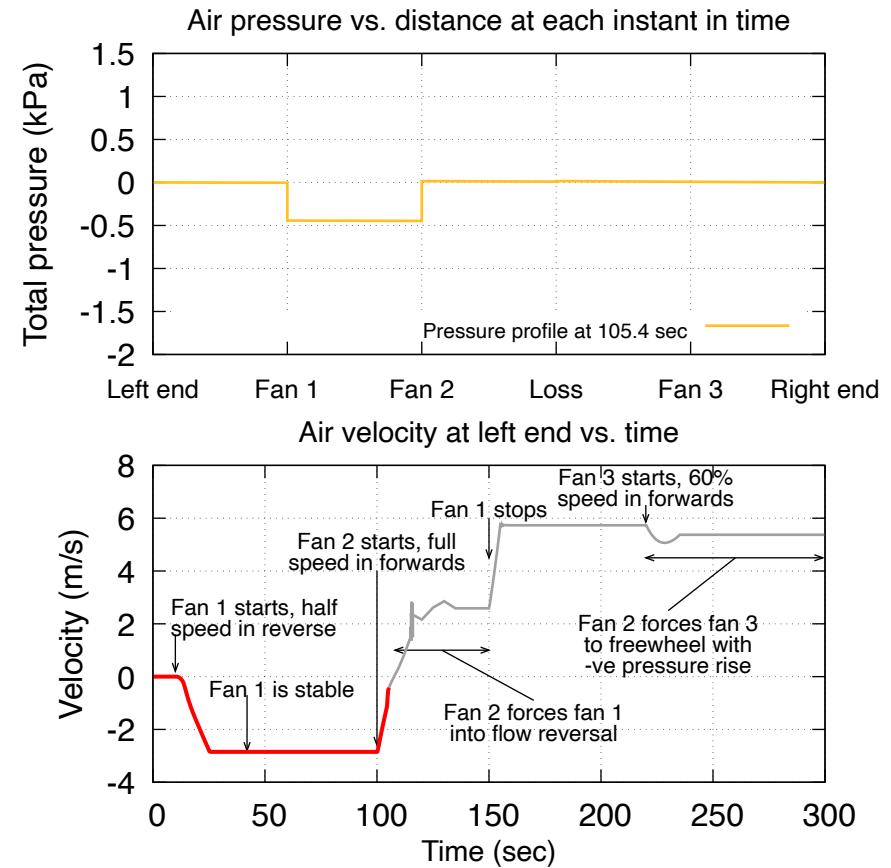
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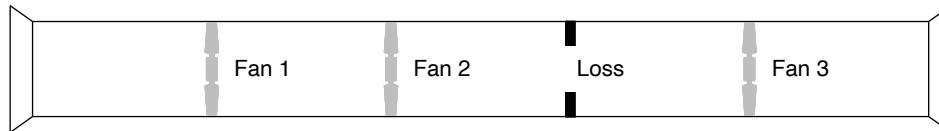
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

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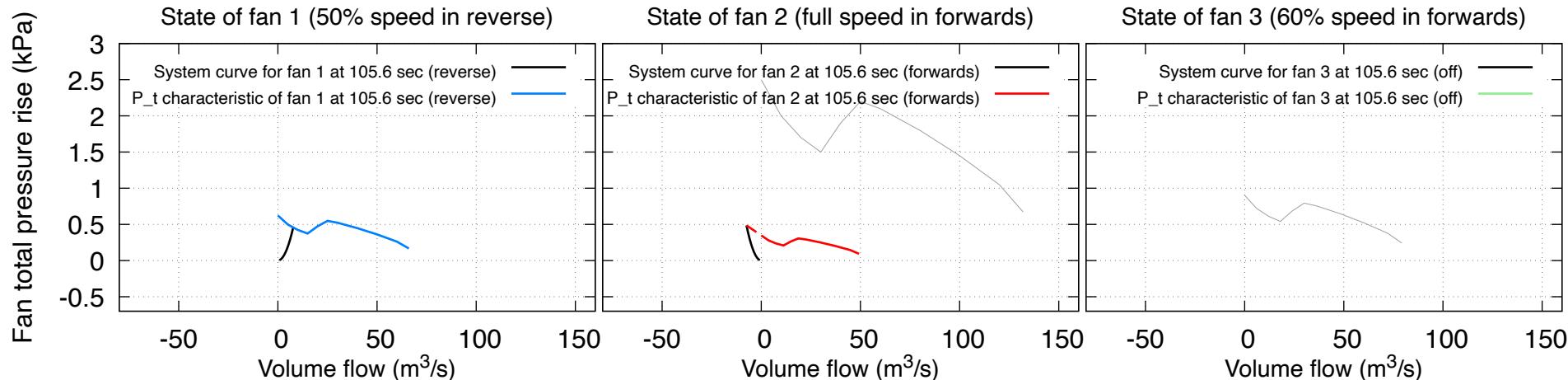
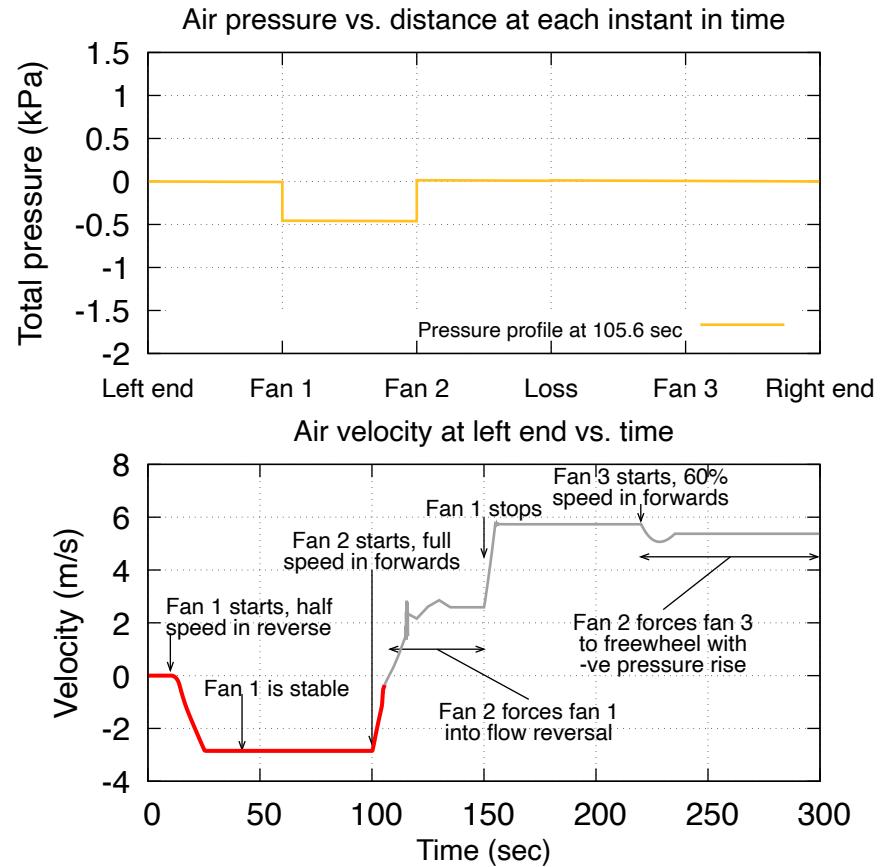
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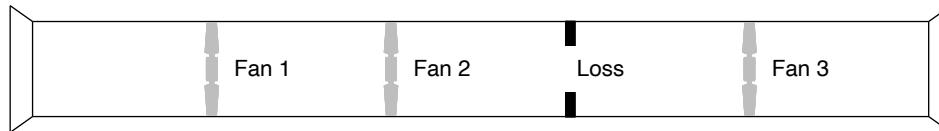
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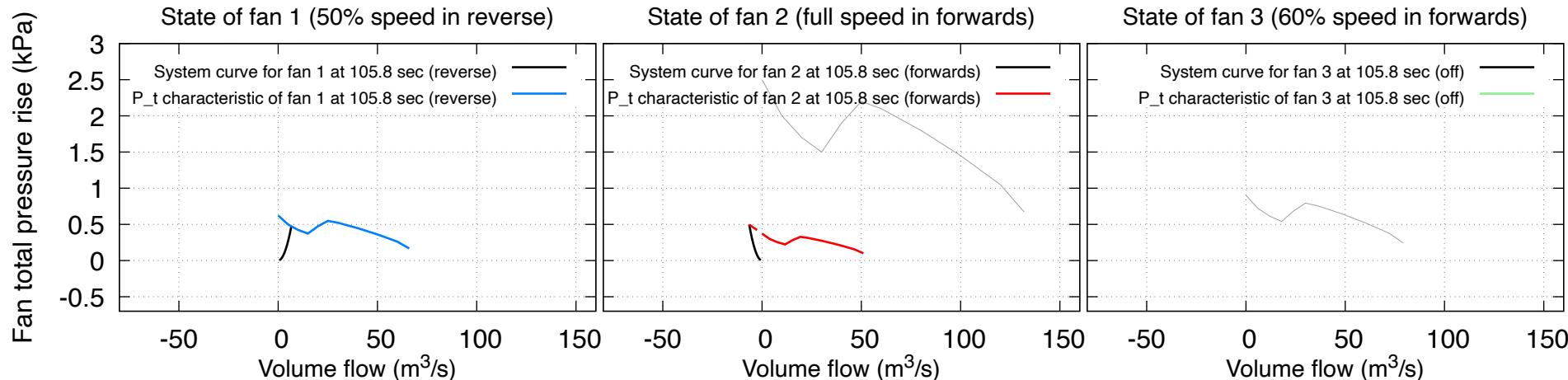
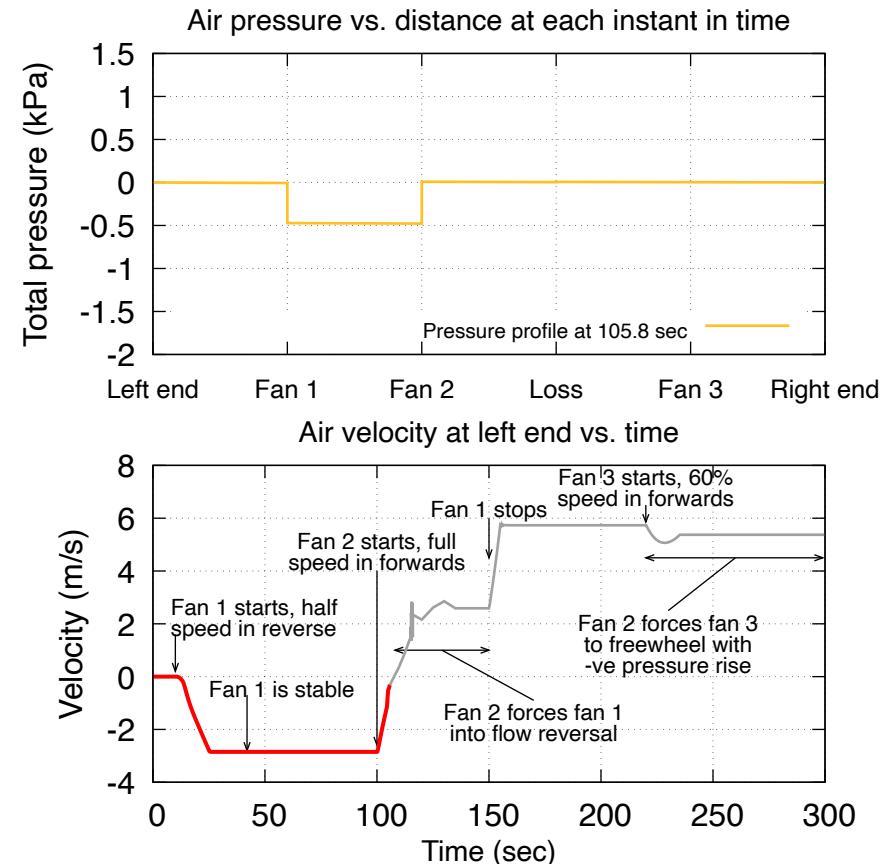
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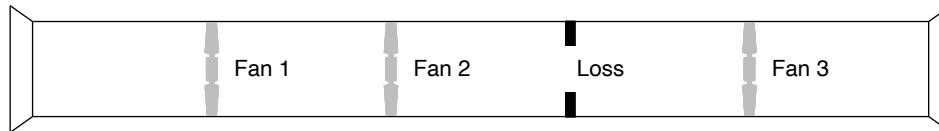
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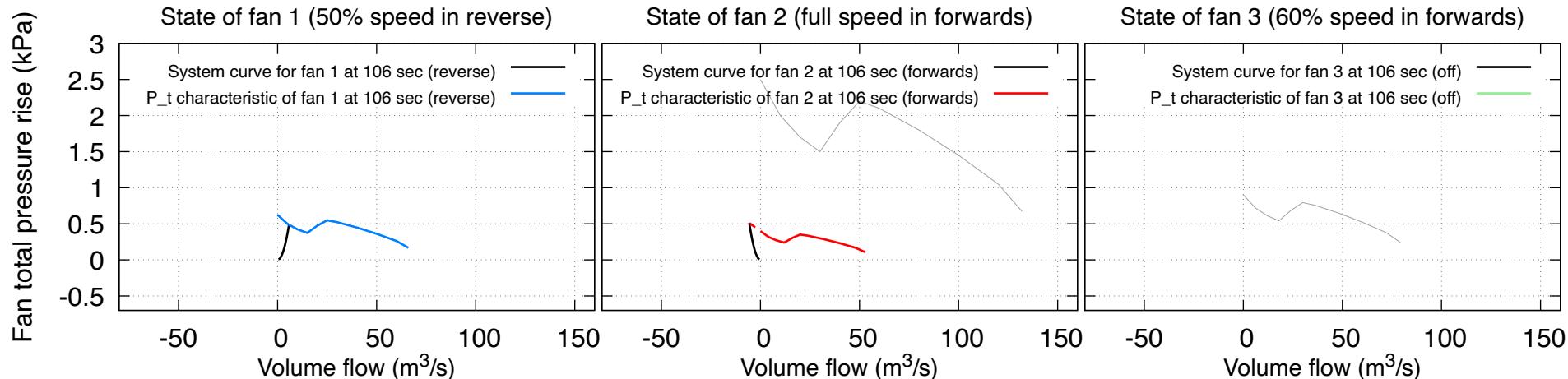
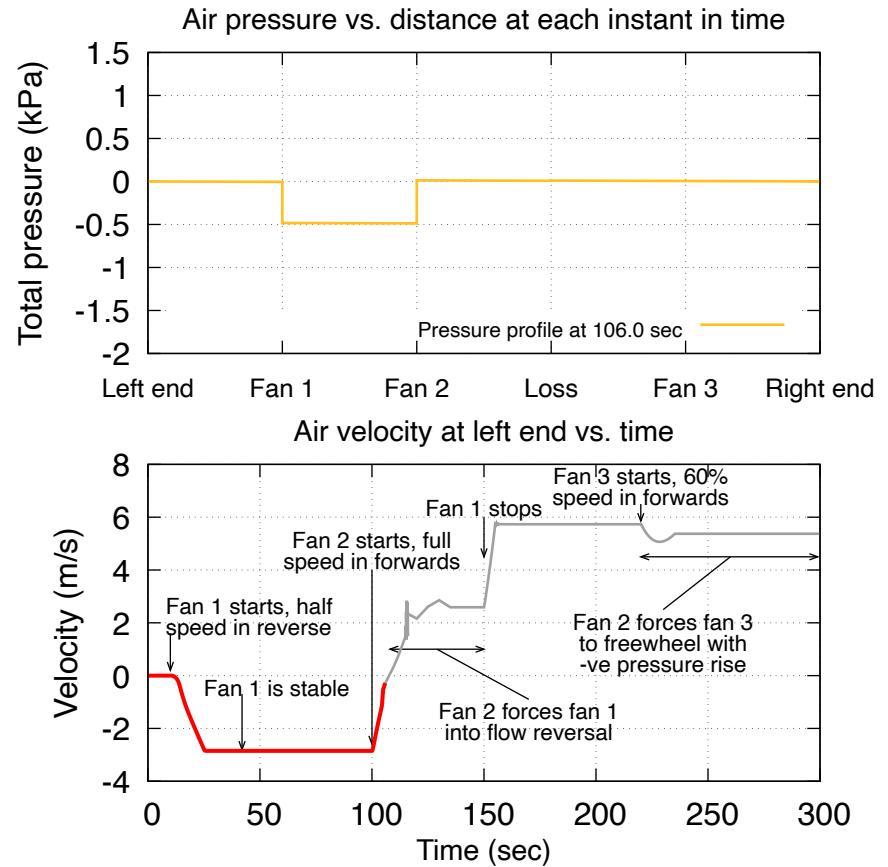
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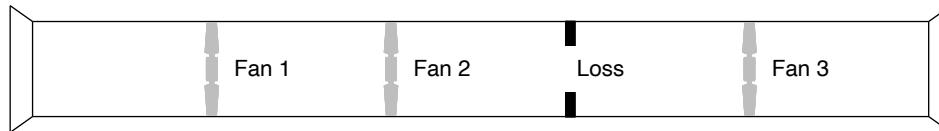
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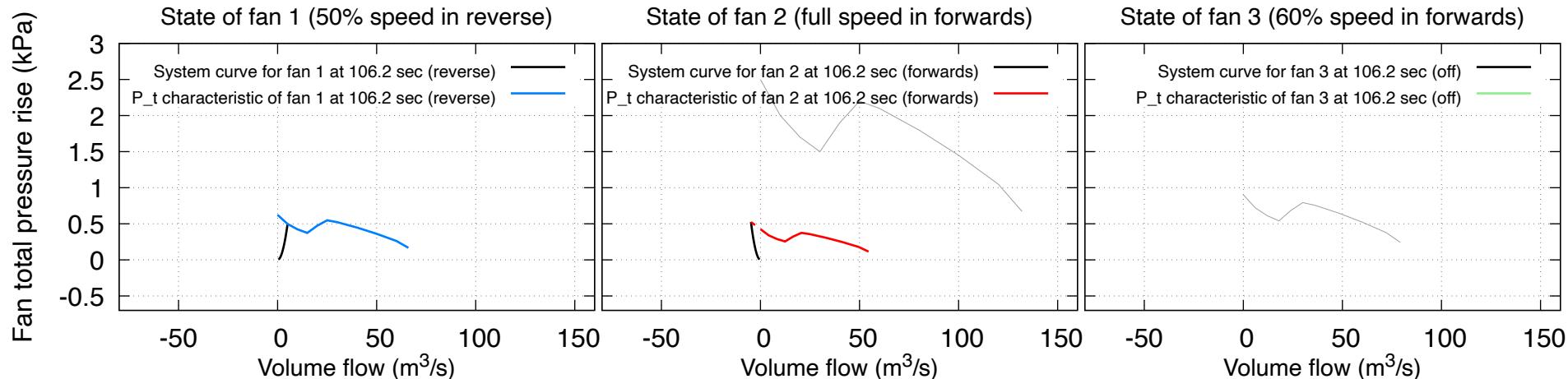
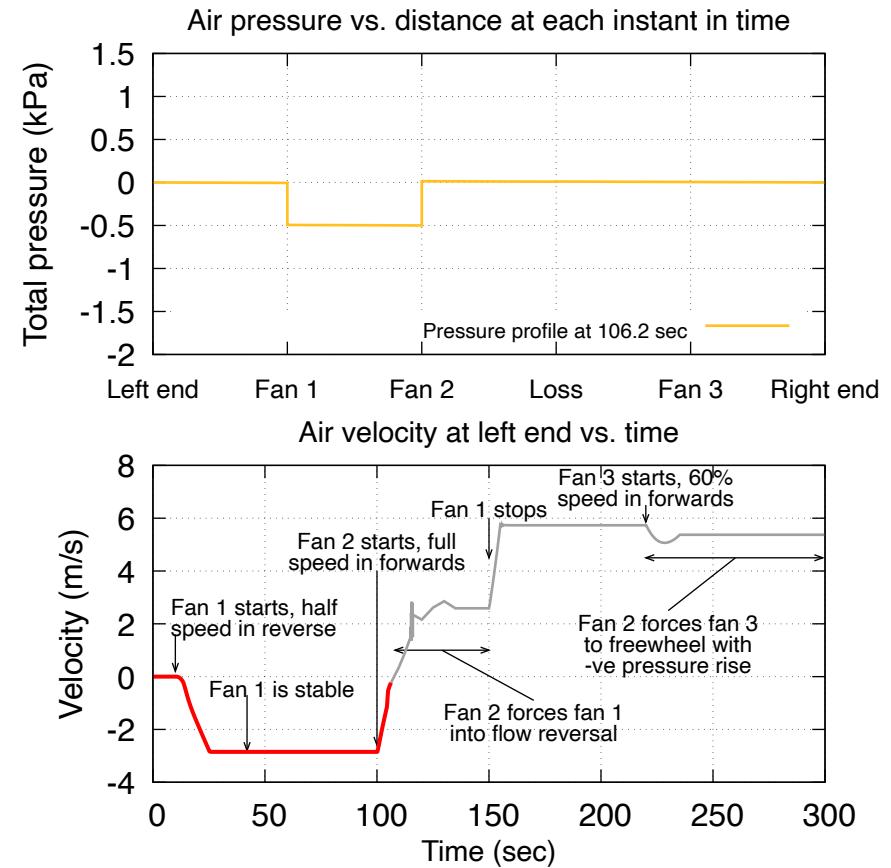
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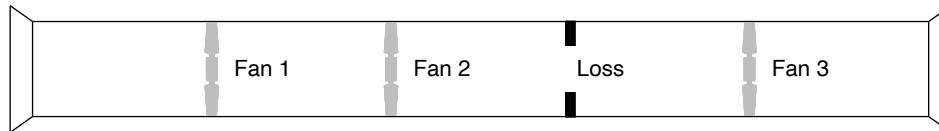
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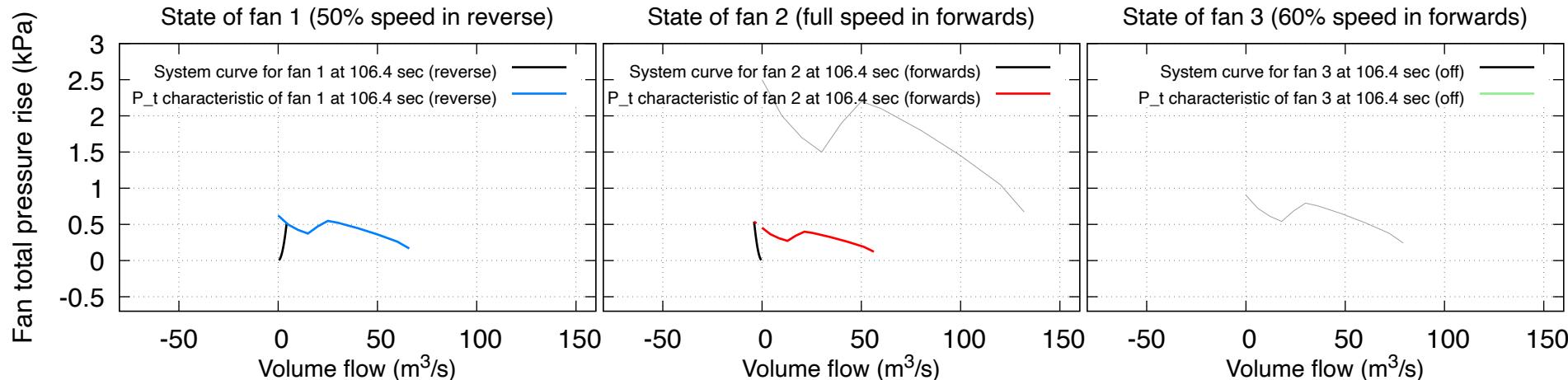
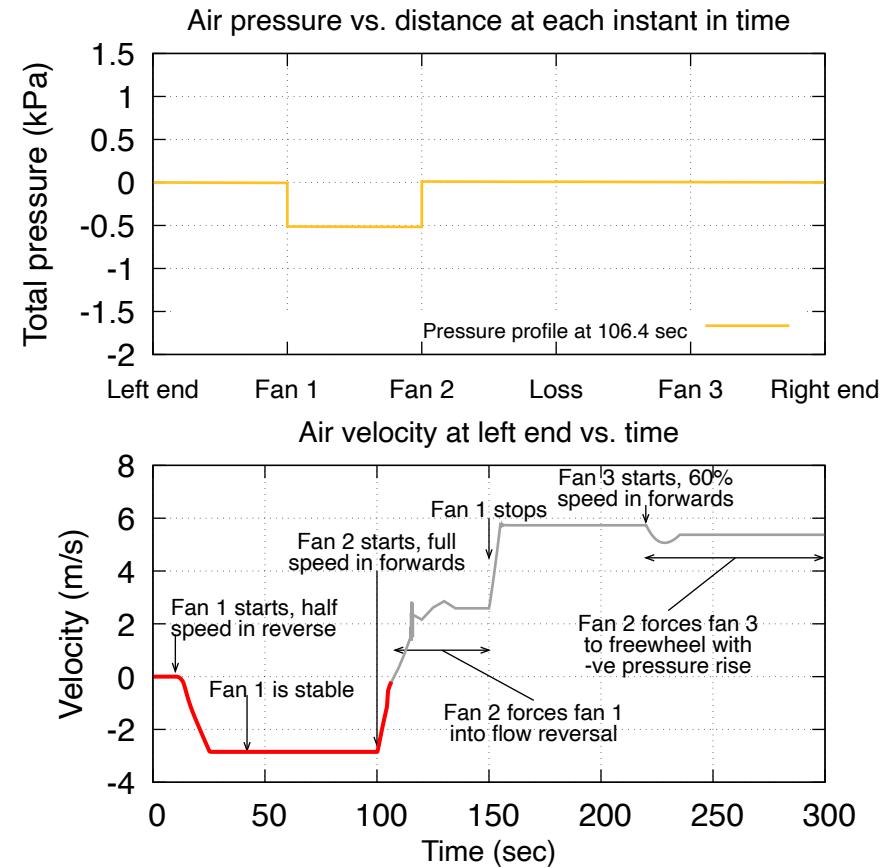
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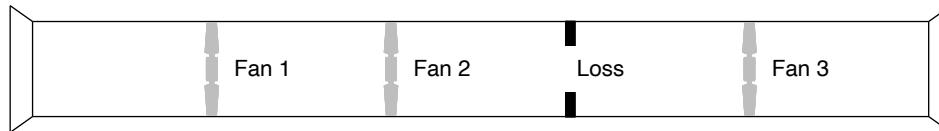
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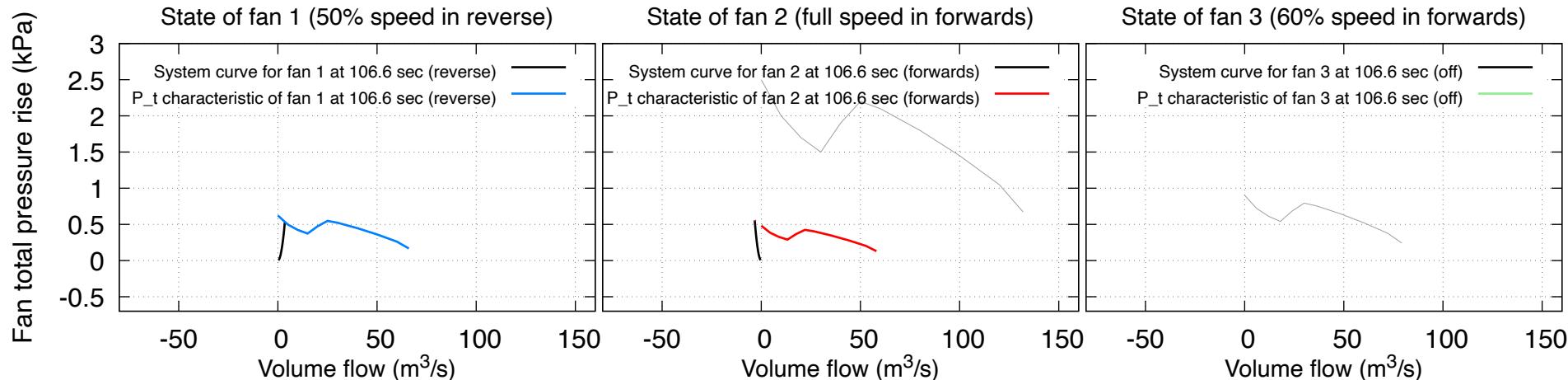
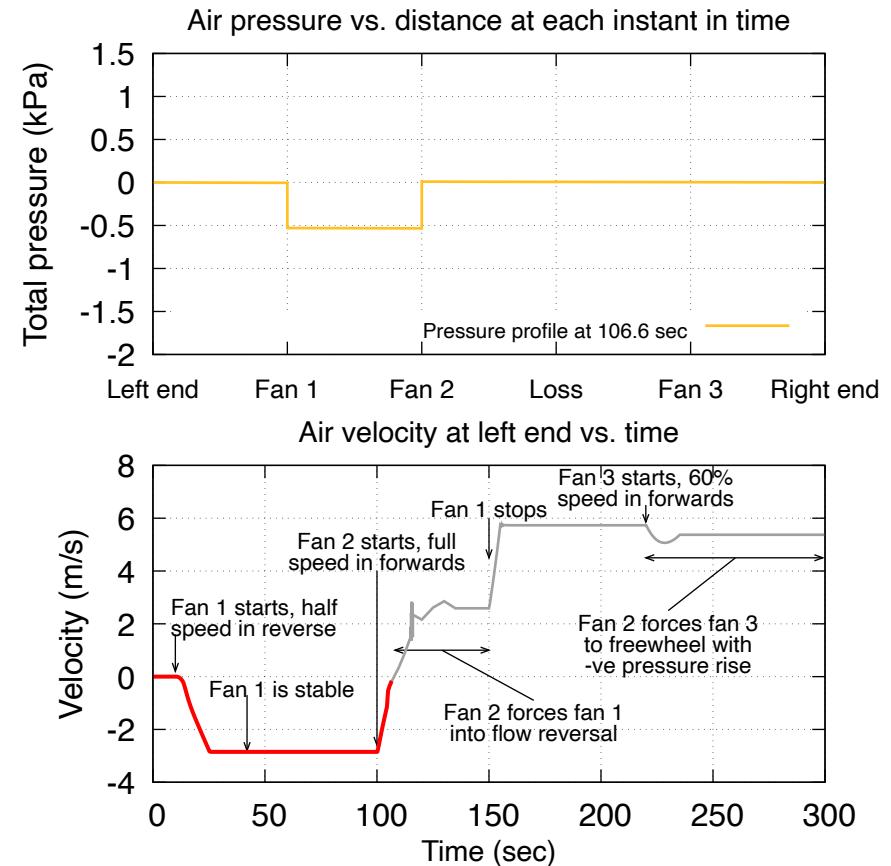
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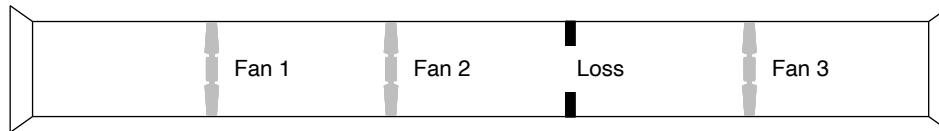
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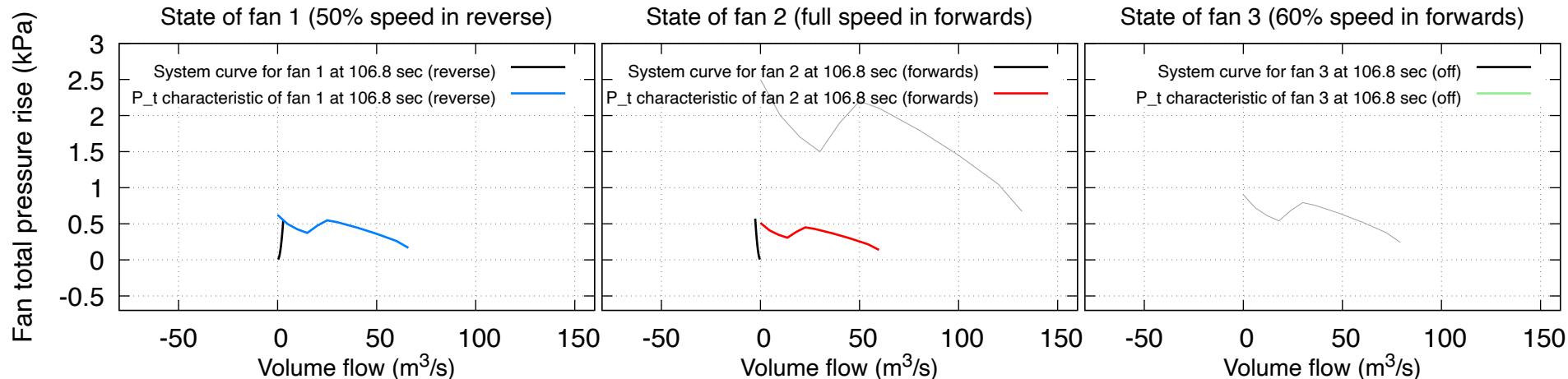
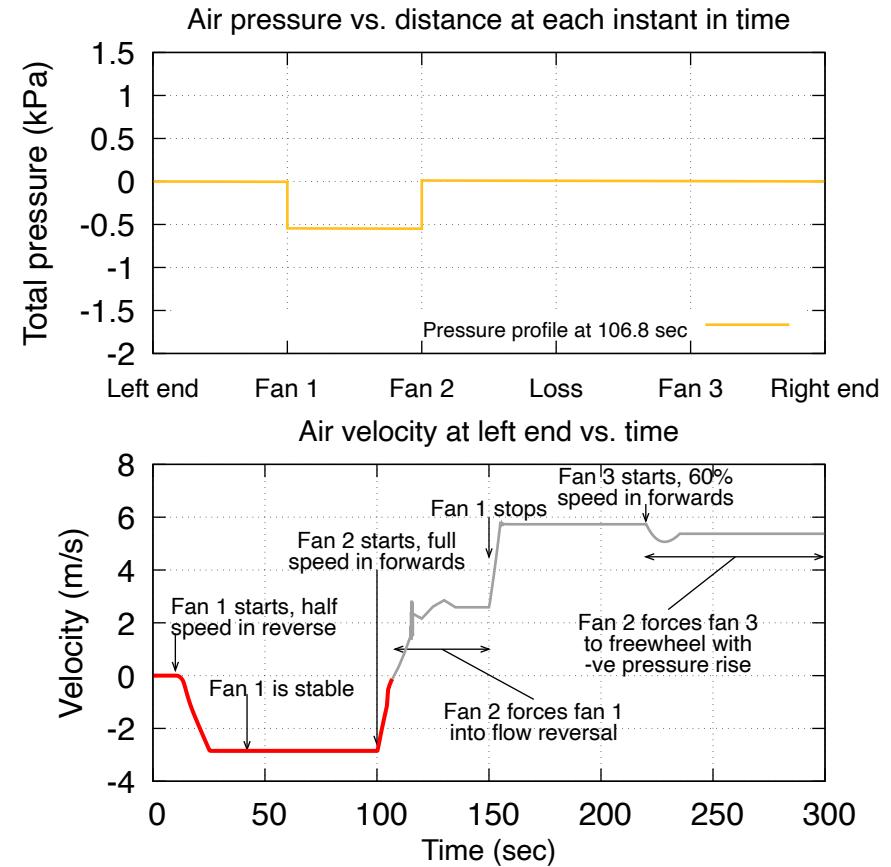
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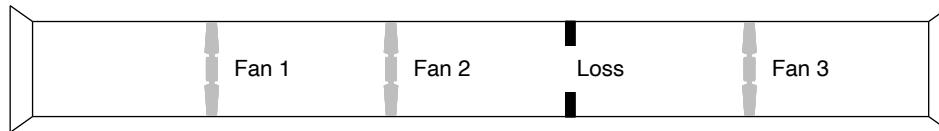
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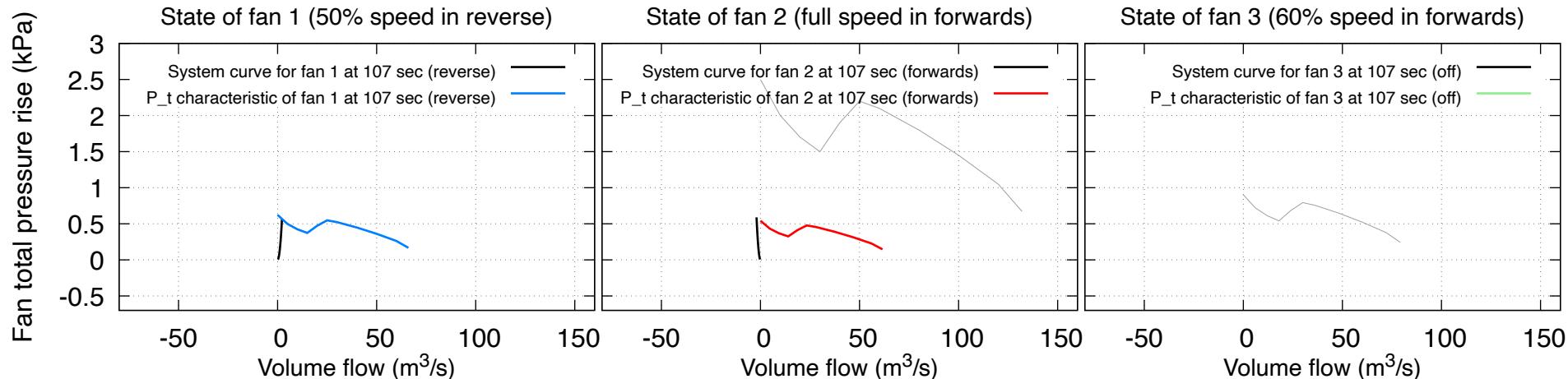
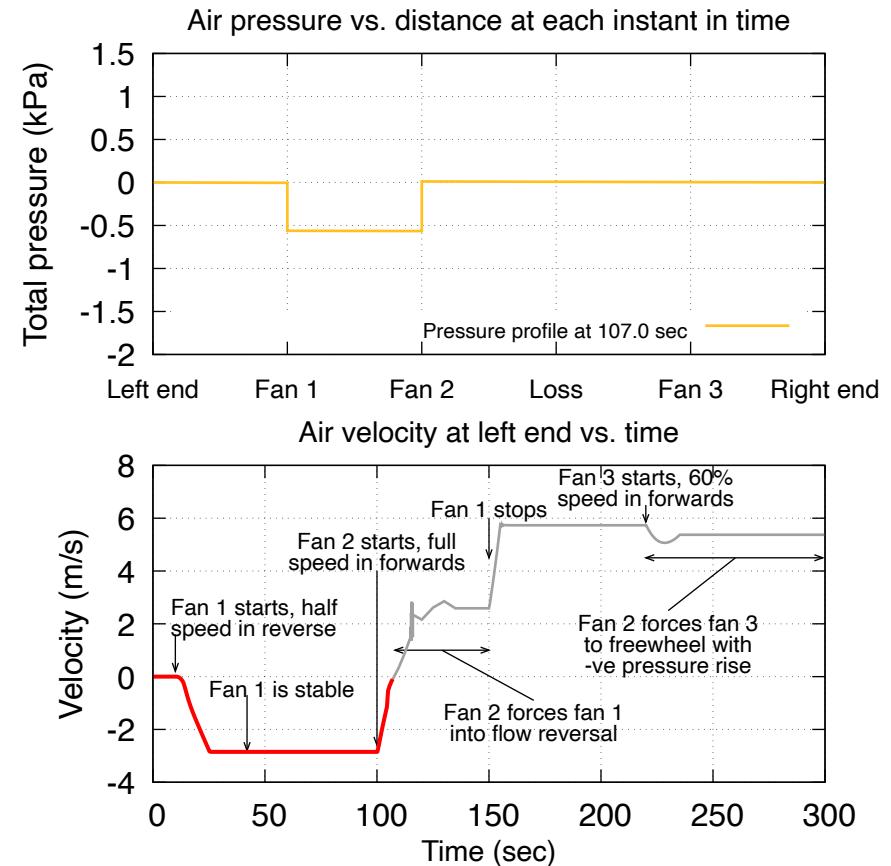
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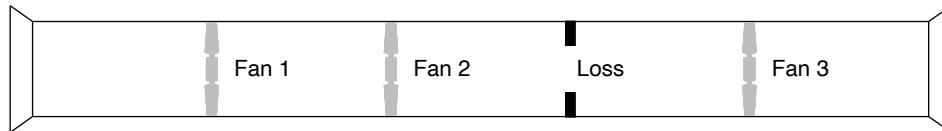
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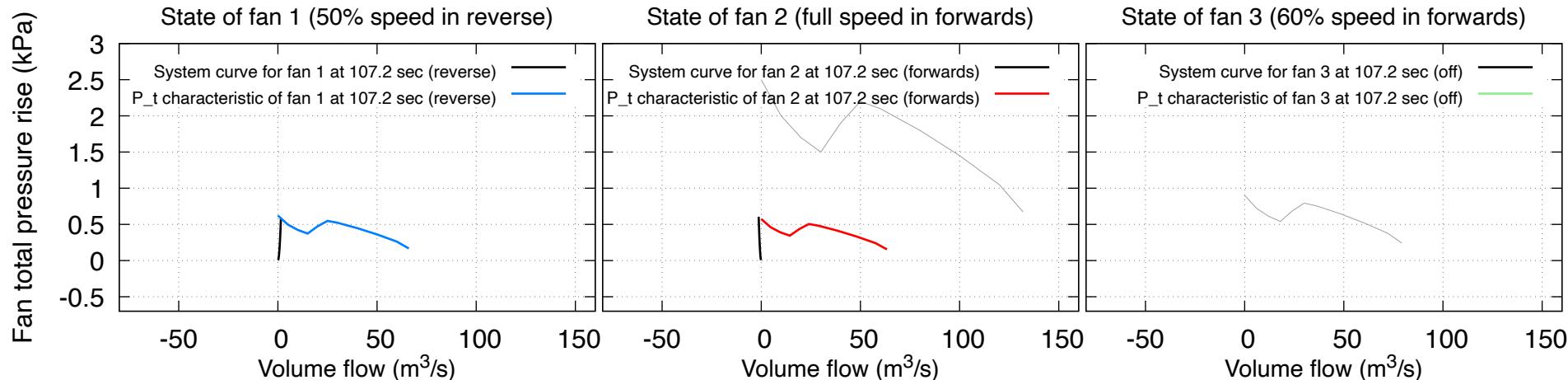
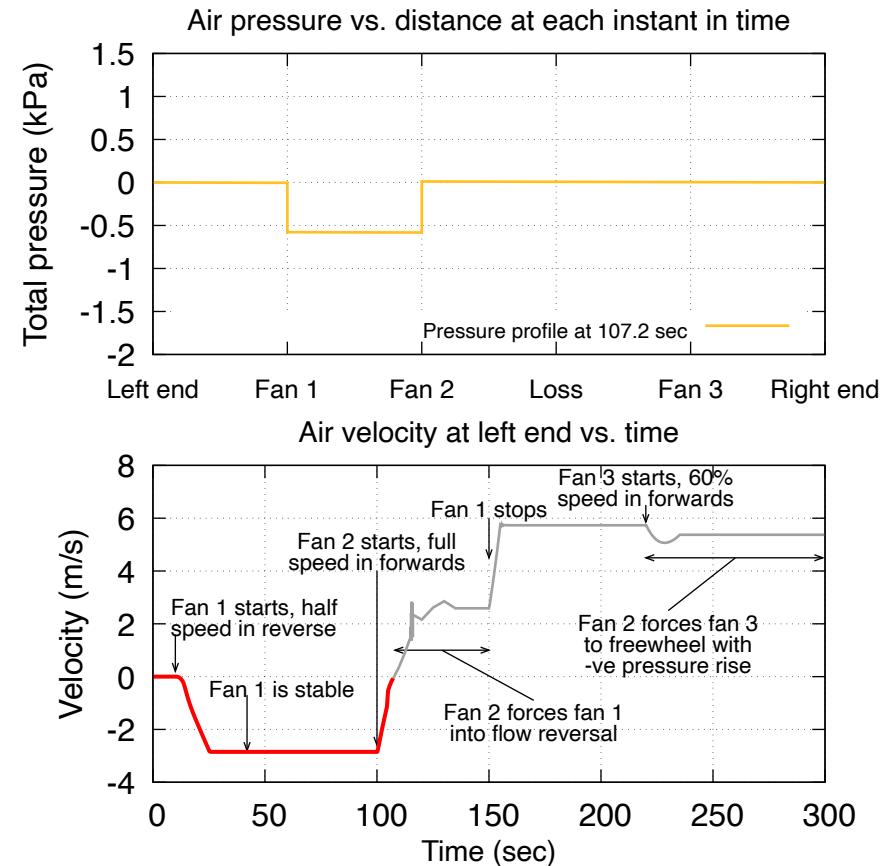
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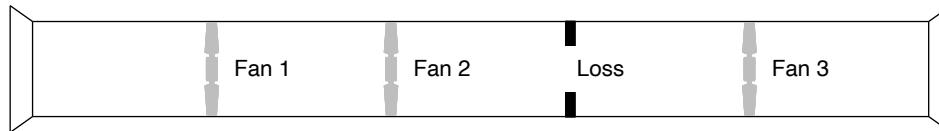
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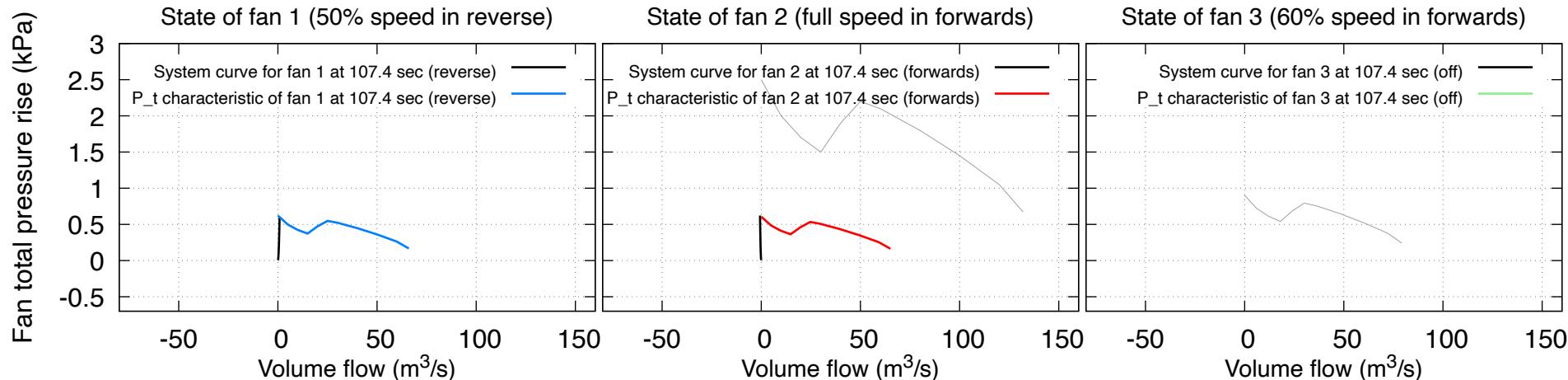
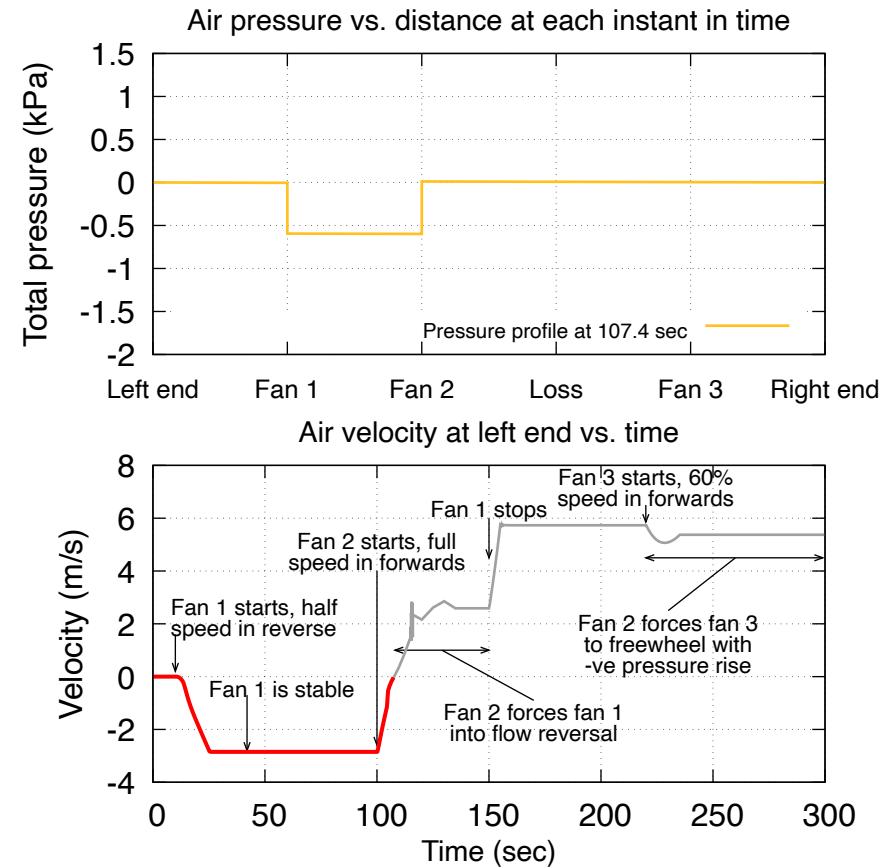
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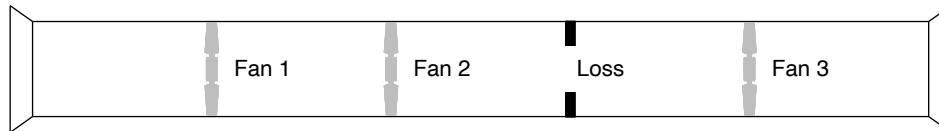
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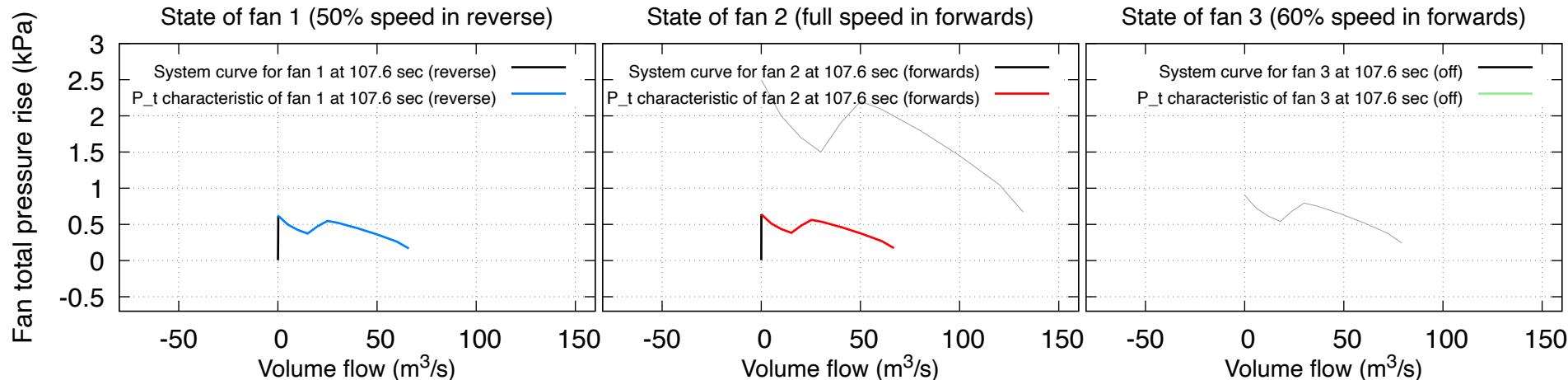
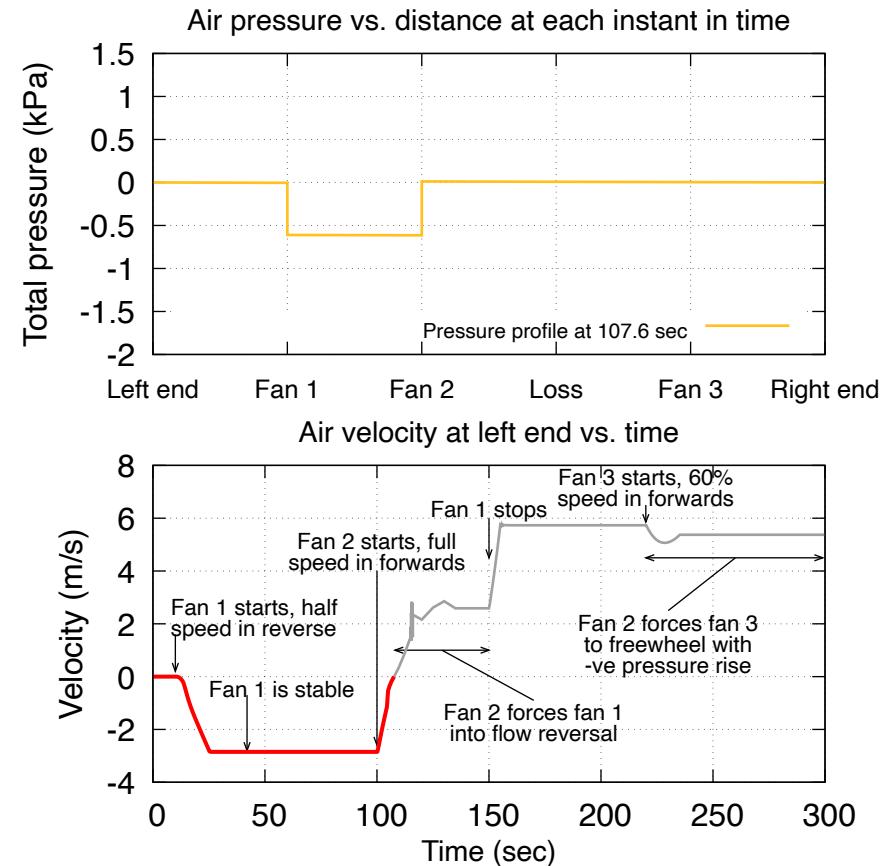
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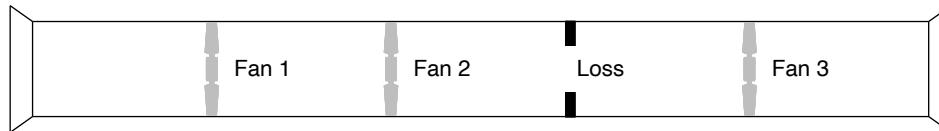
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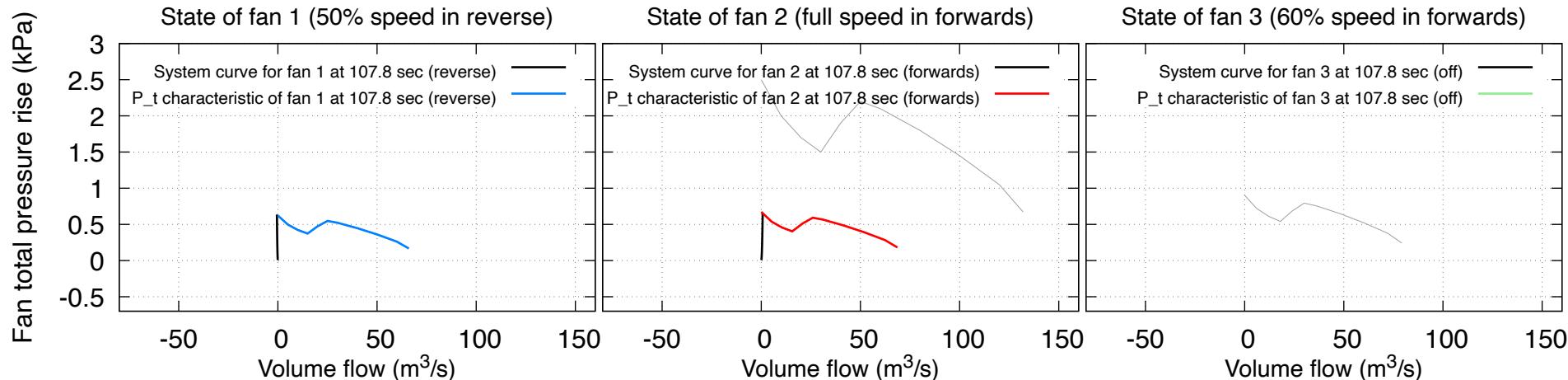
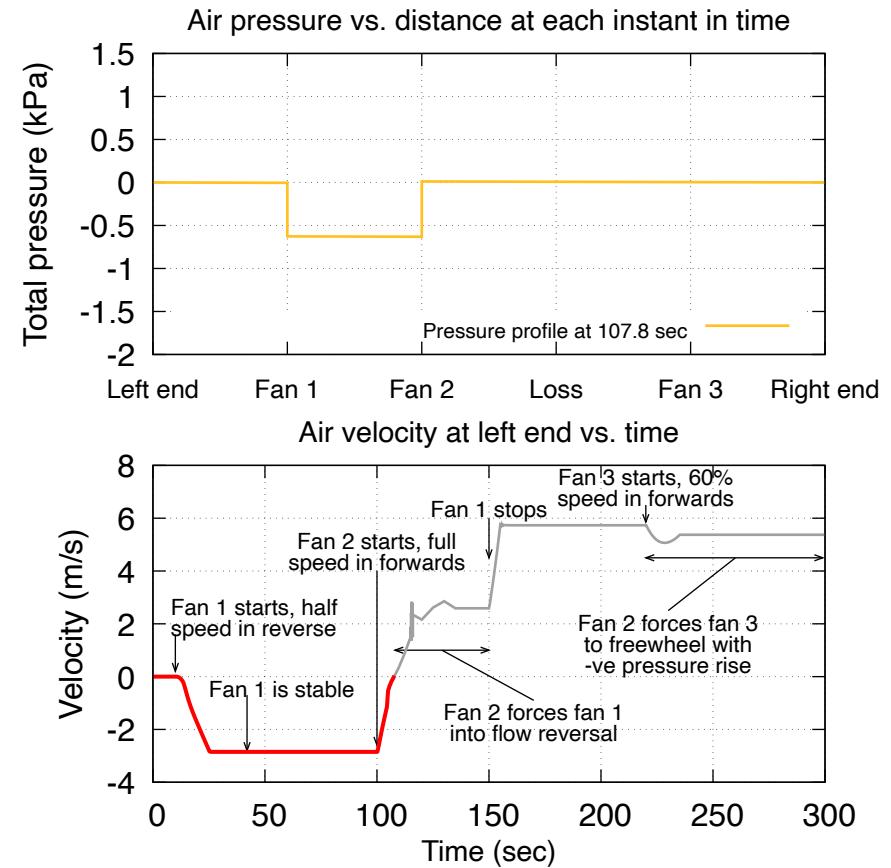
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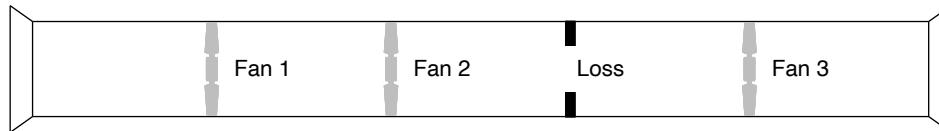
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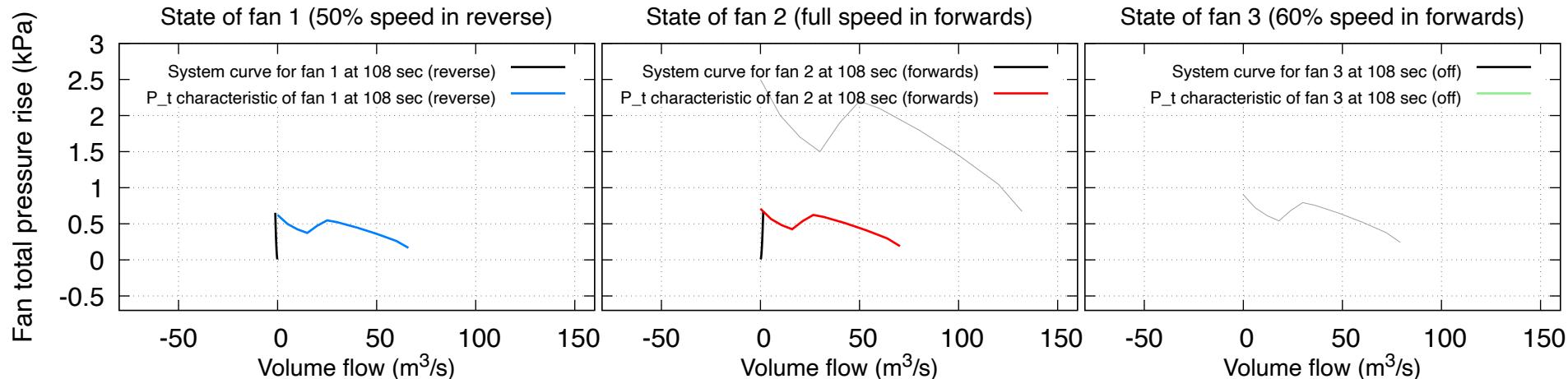
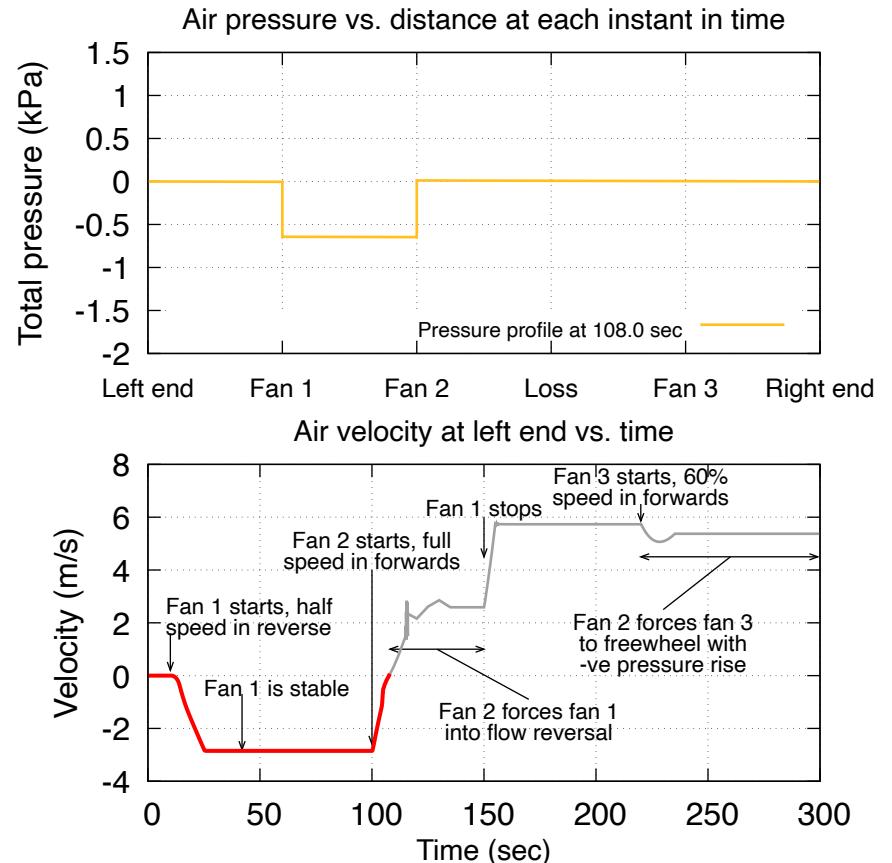
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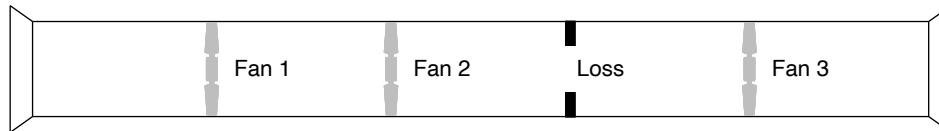
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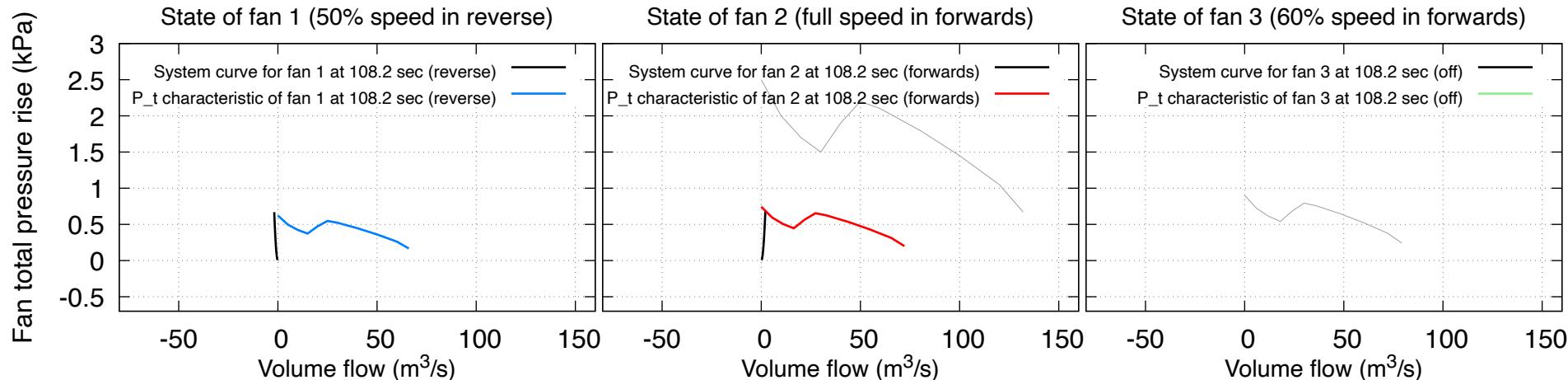
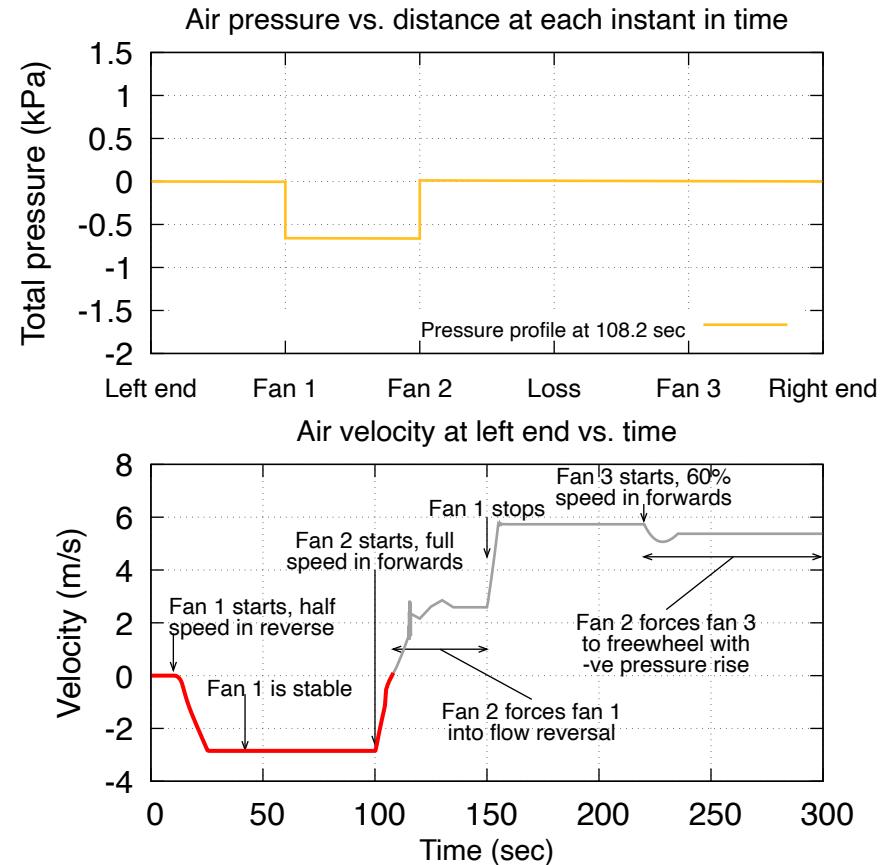
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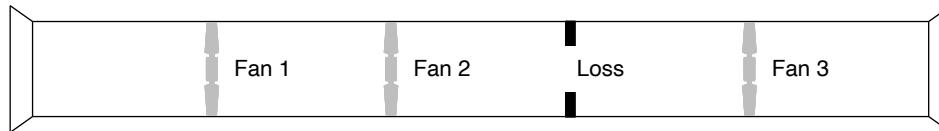
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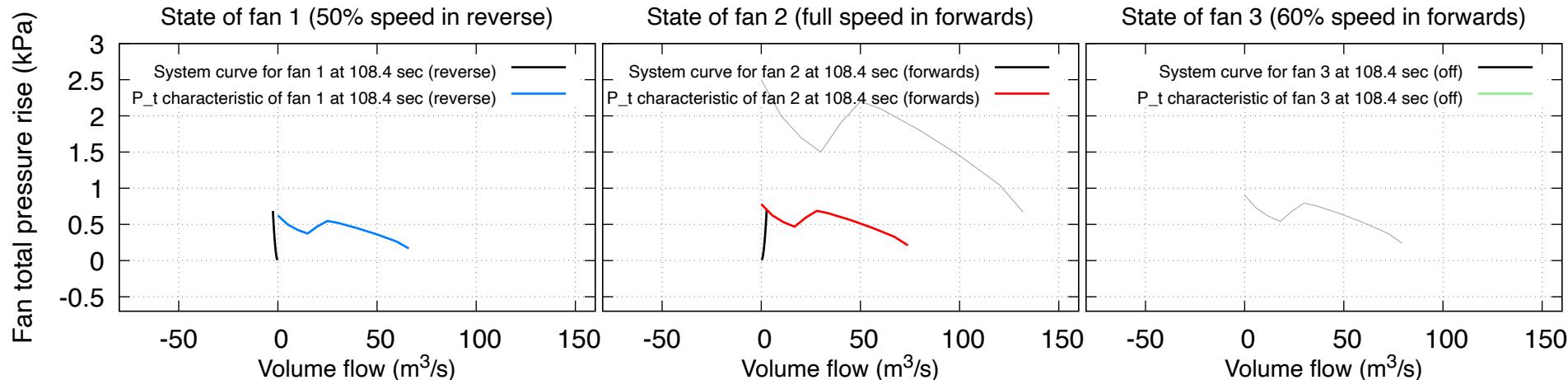
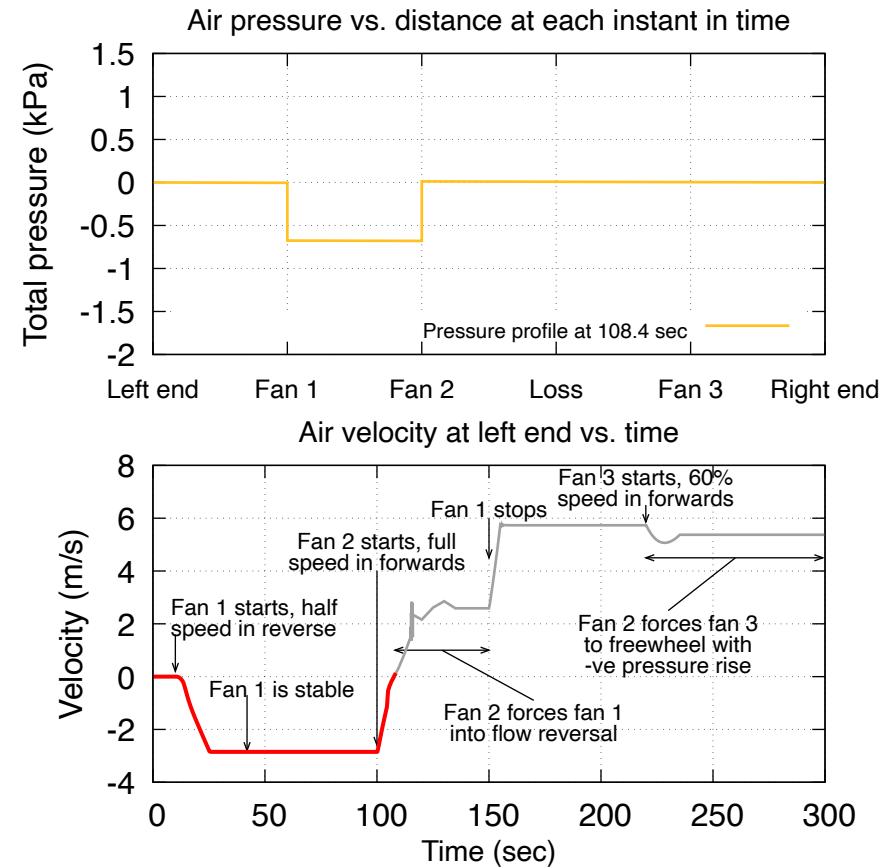
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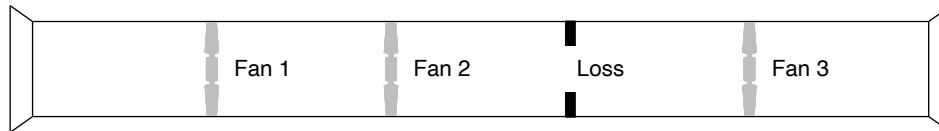
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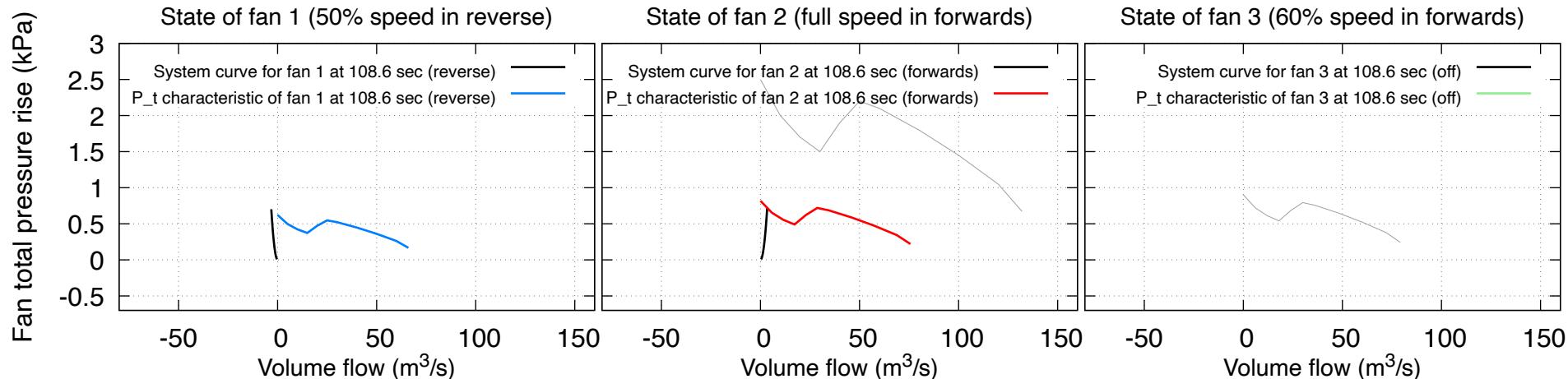
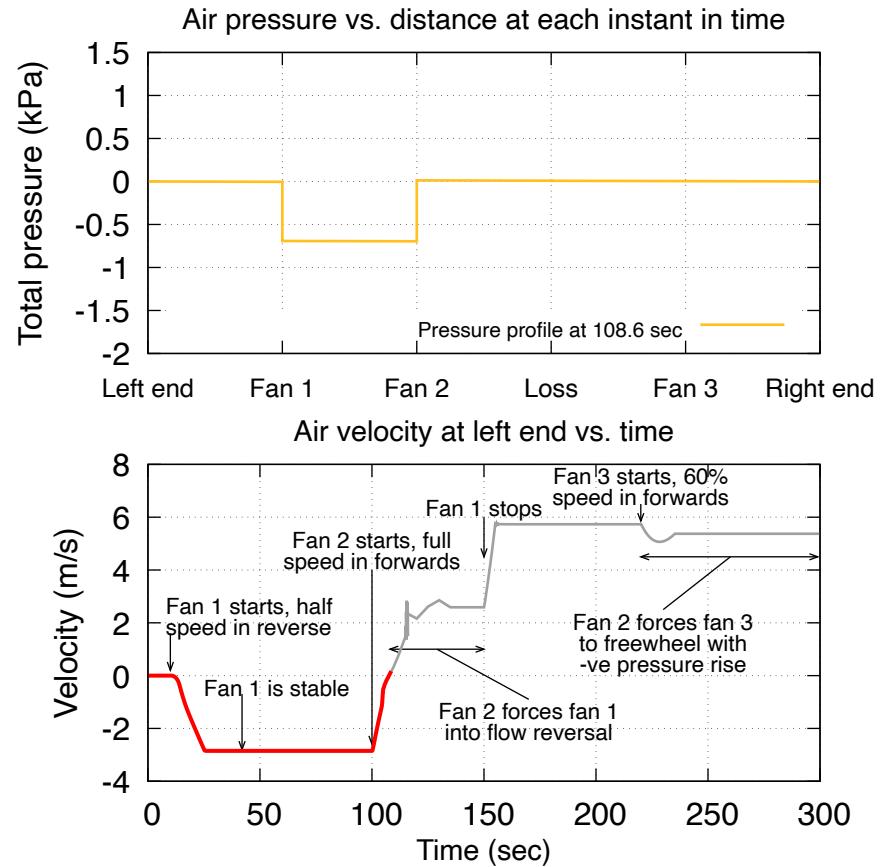
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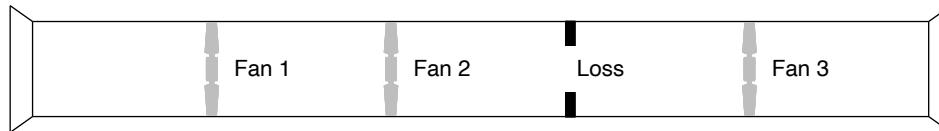
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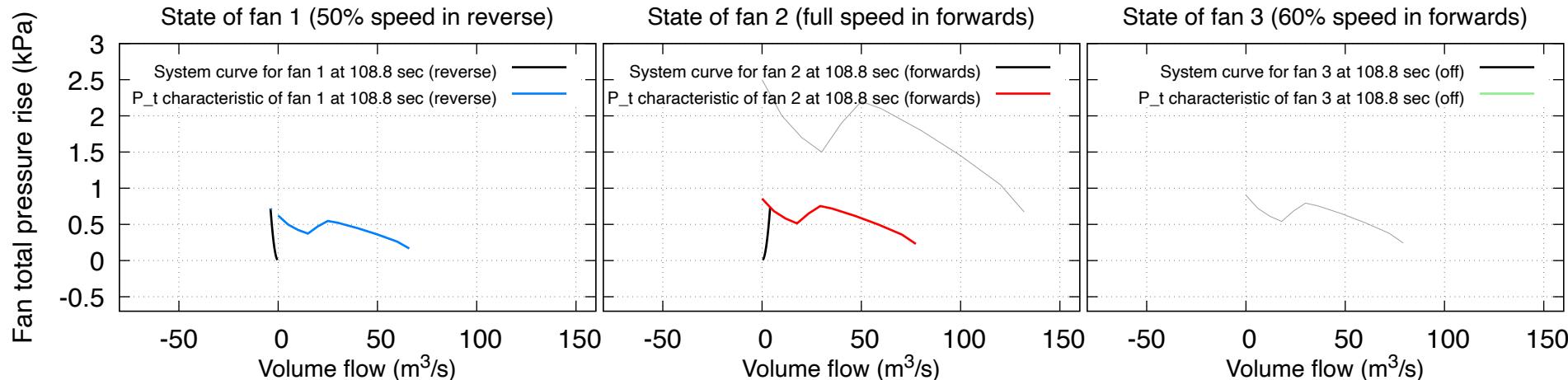
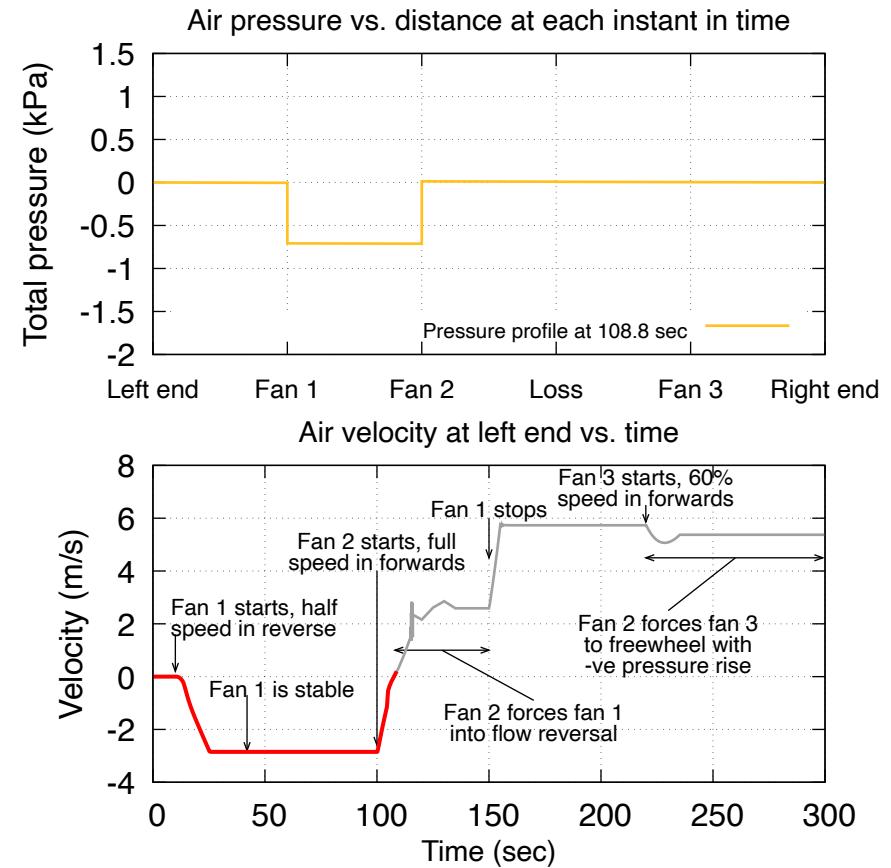
Fan 1 starts in reverse at half speed and ends up at a suitable duty point.

Then Fan 2 starts in forwards mode at full speed. It forces fan 1 into the reverse flow quadrant of its fan characteristic. The fan characteristic is not defined there, so the calculation extrapolates from the first two points on the fan curve.

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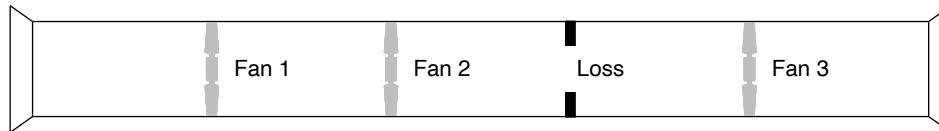
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



# How fans in series interact

This flipbook illustrates how fans interact when they operate in series. Take three identical axial fans and a pressure loss in a 100 m long duct:



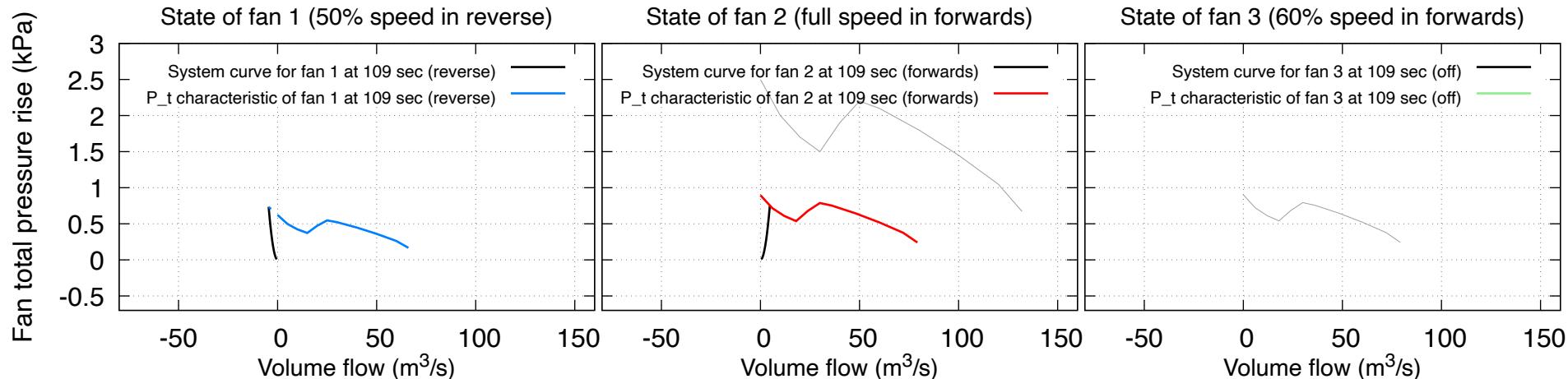
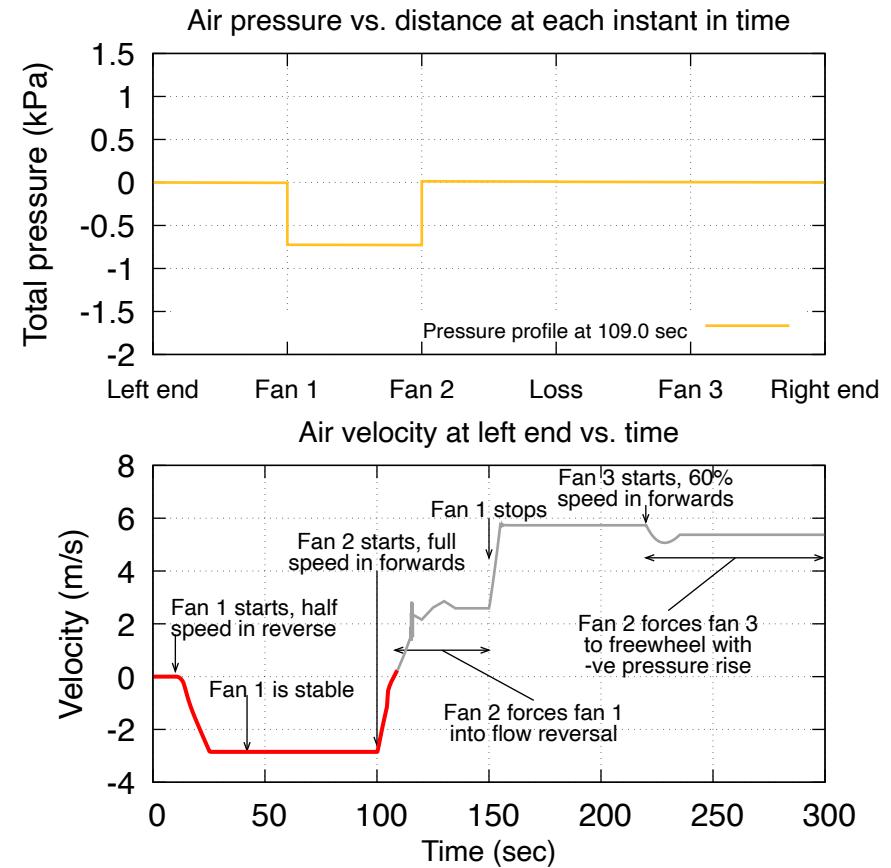
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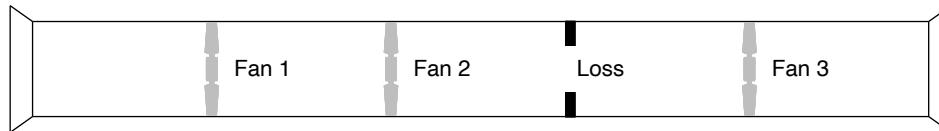
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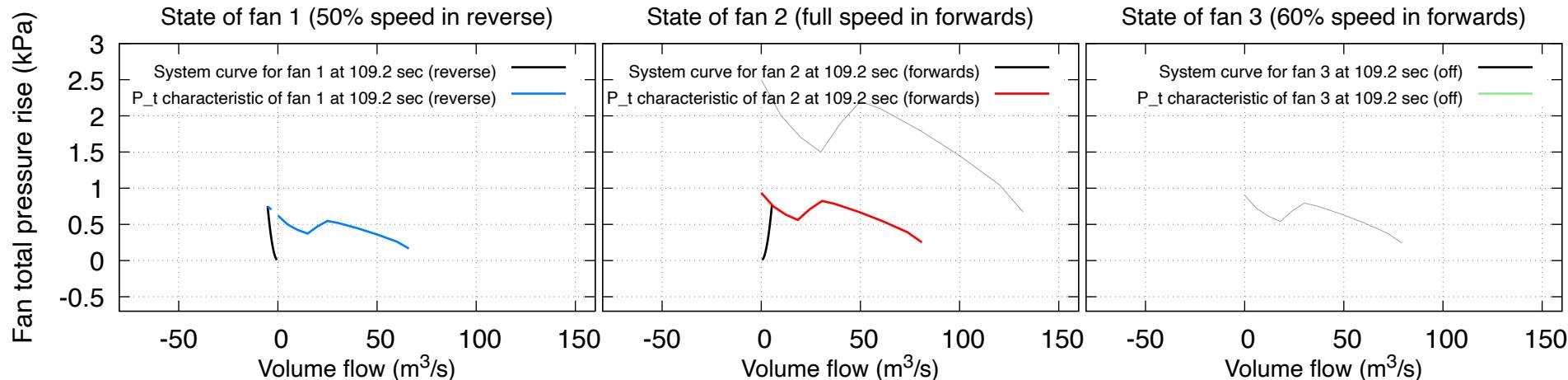
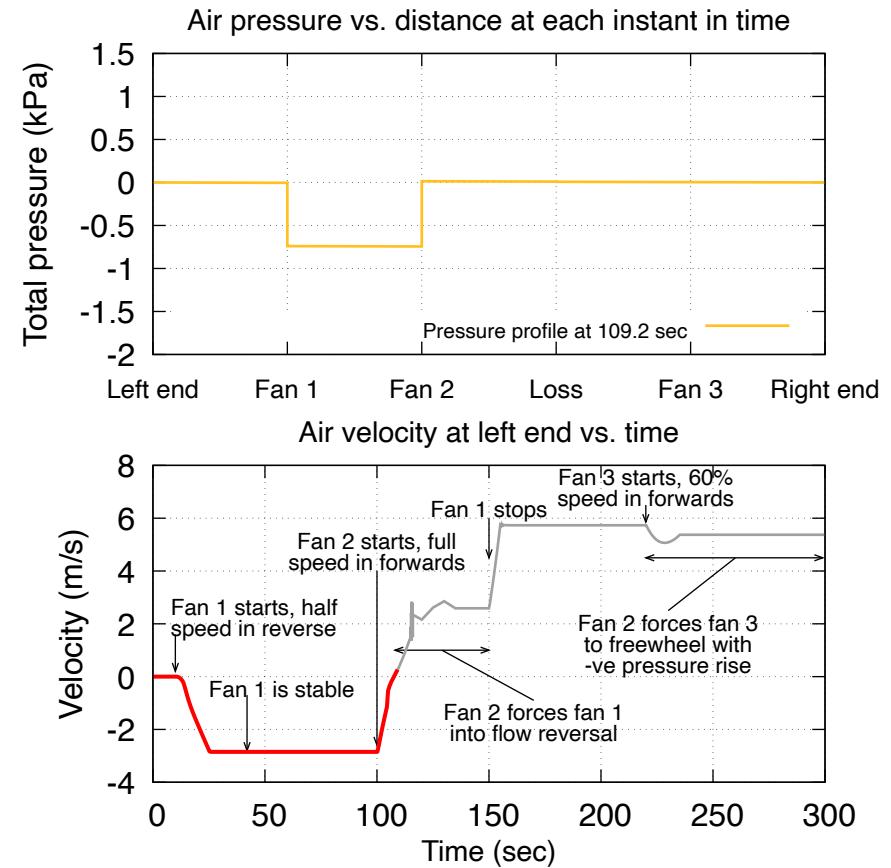
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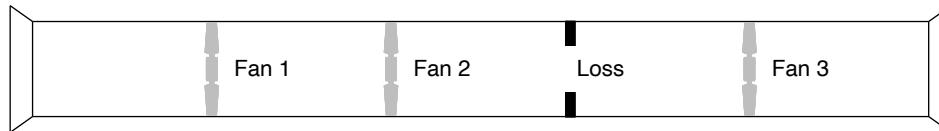
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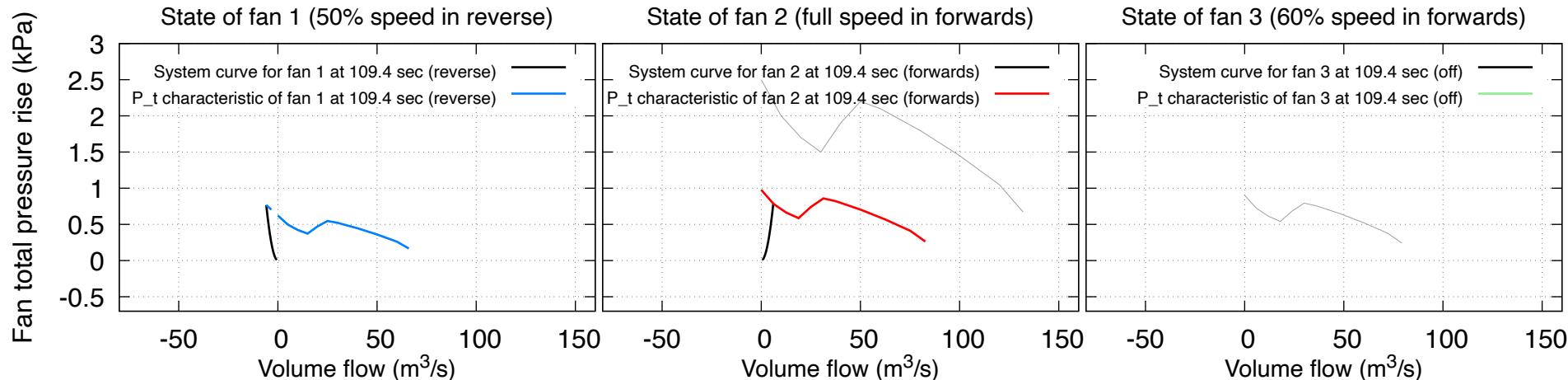
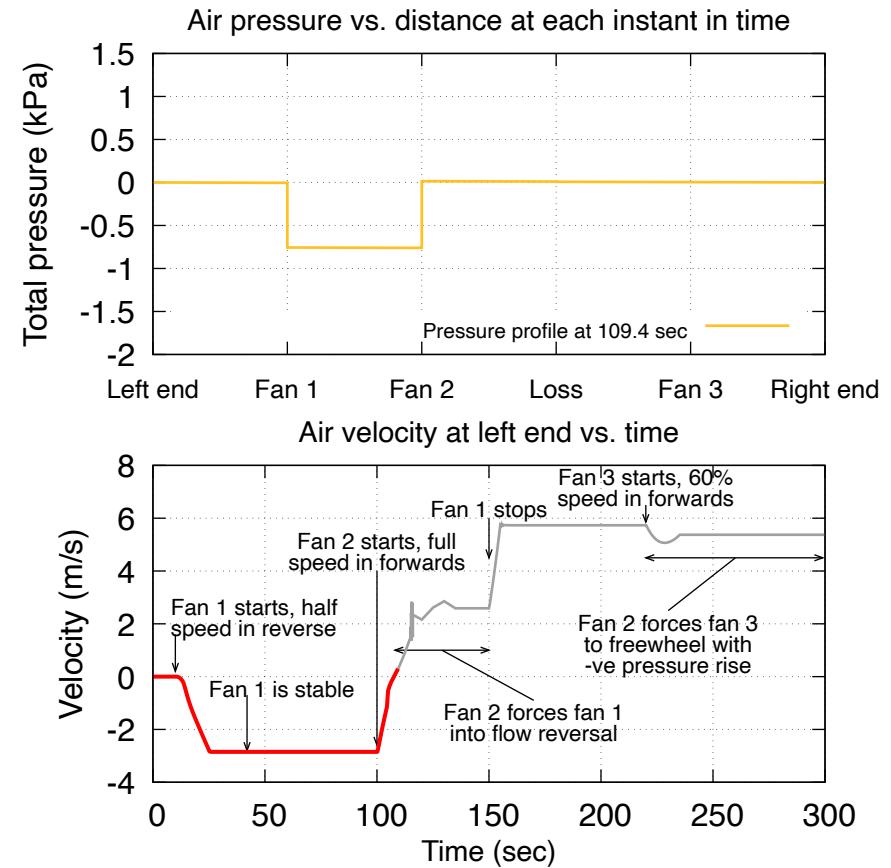
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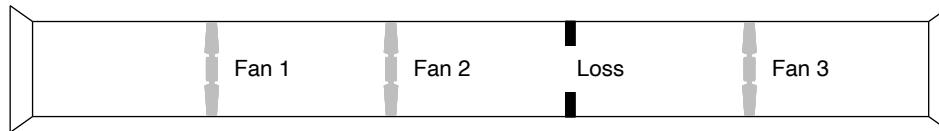
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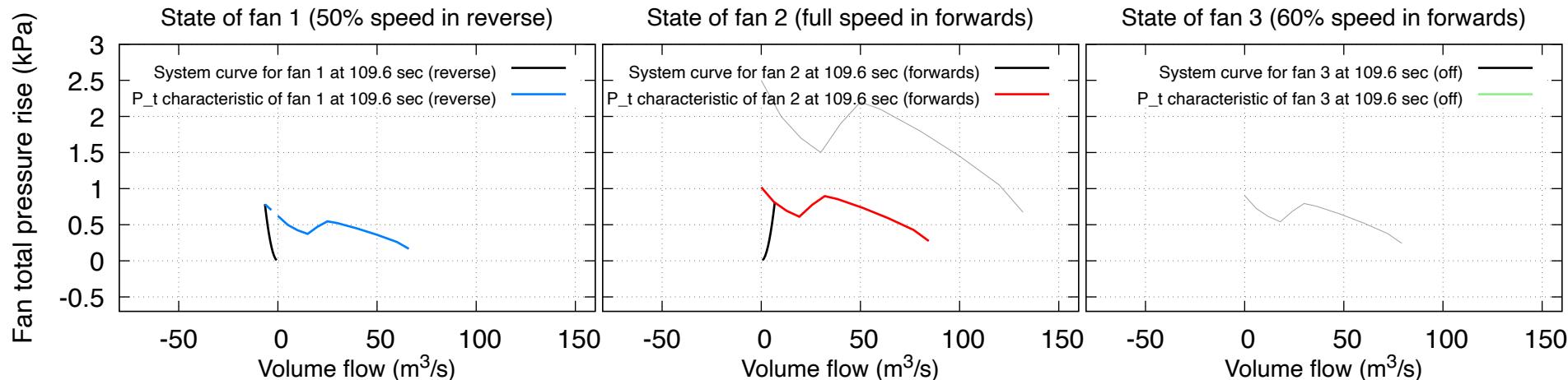
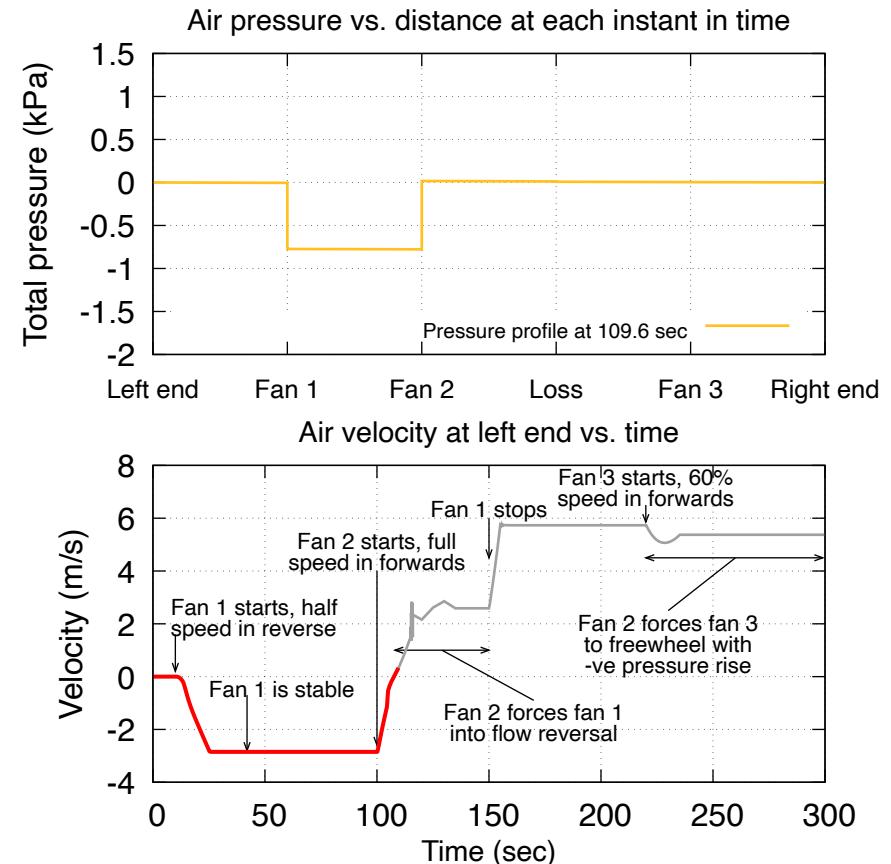
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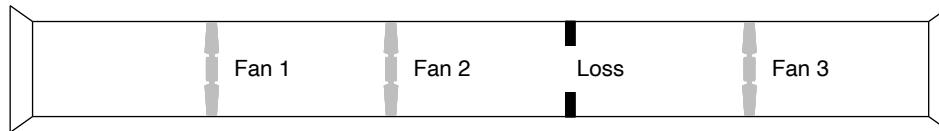
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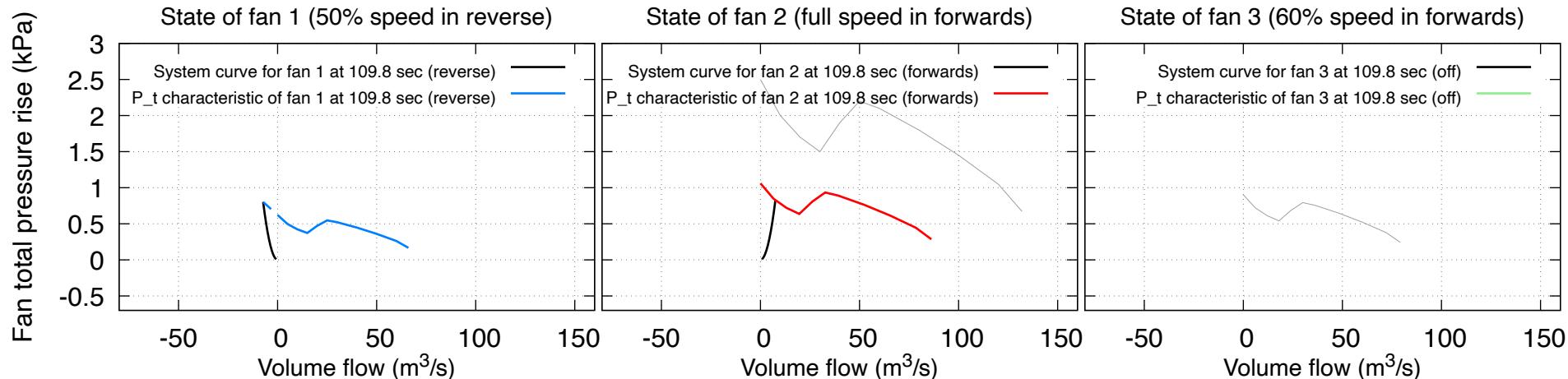
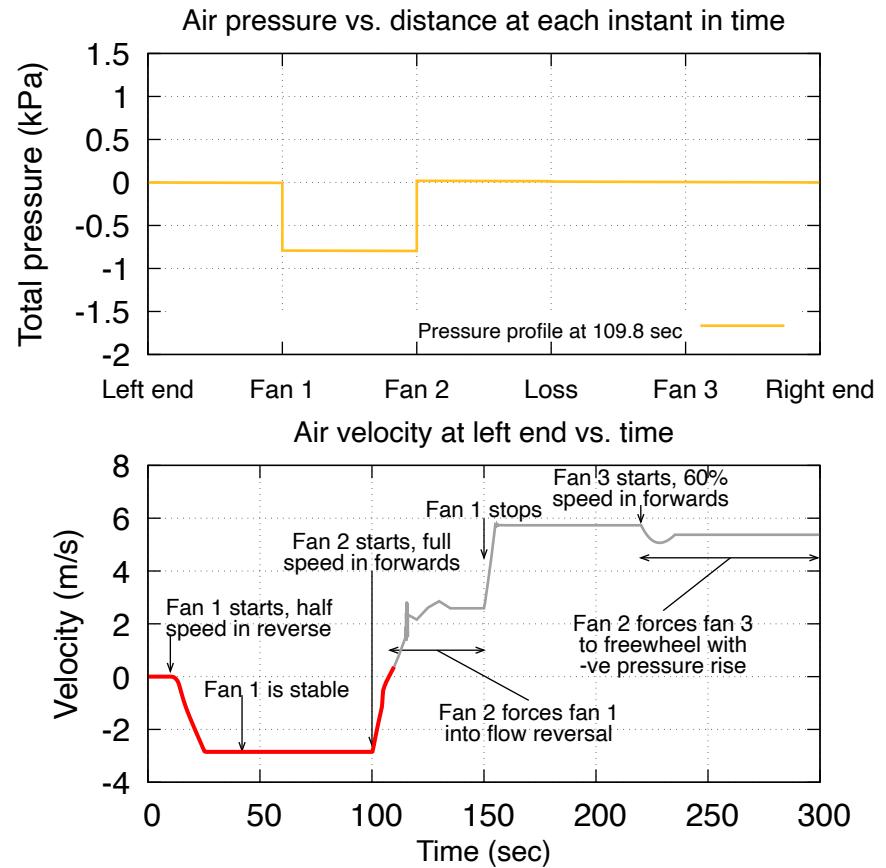
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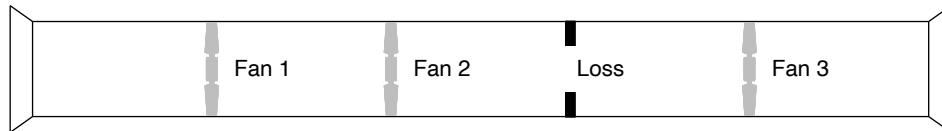
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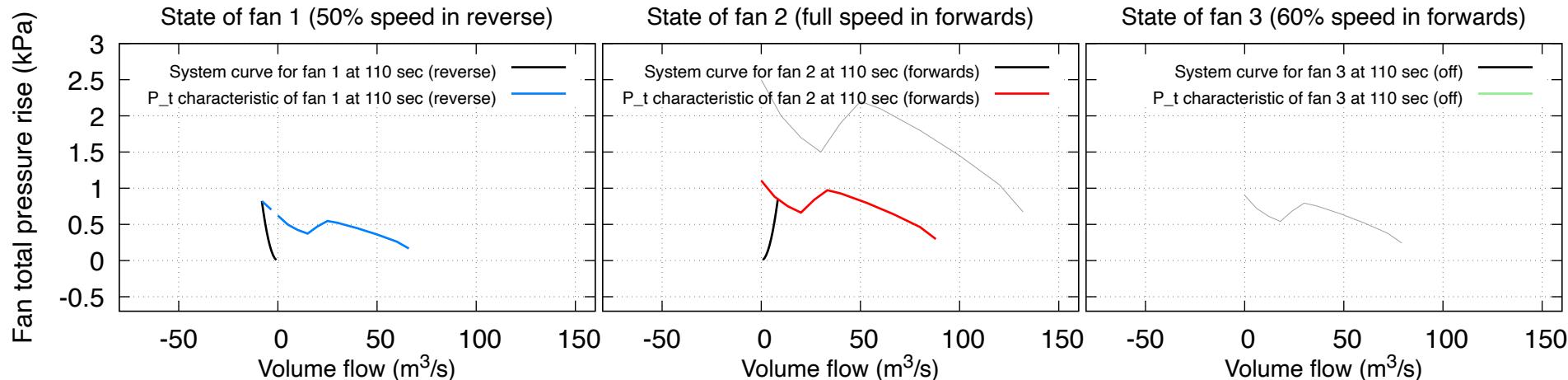
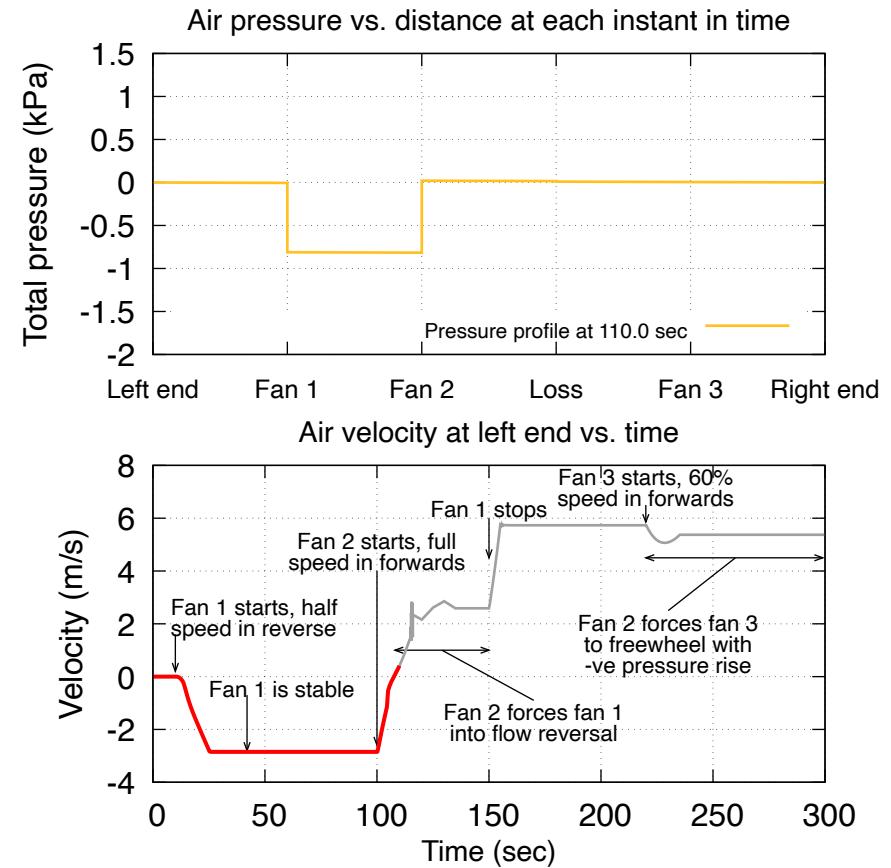
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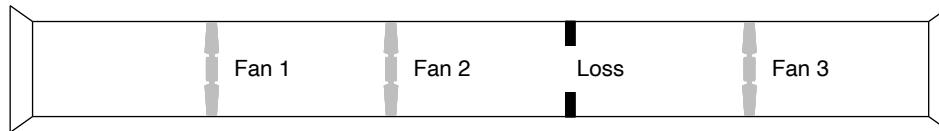
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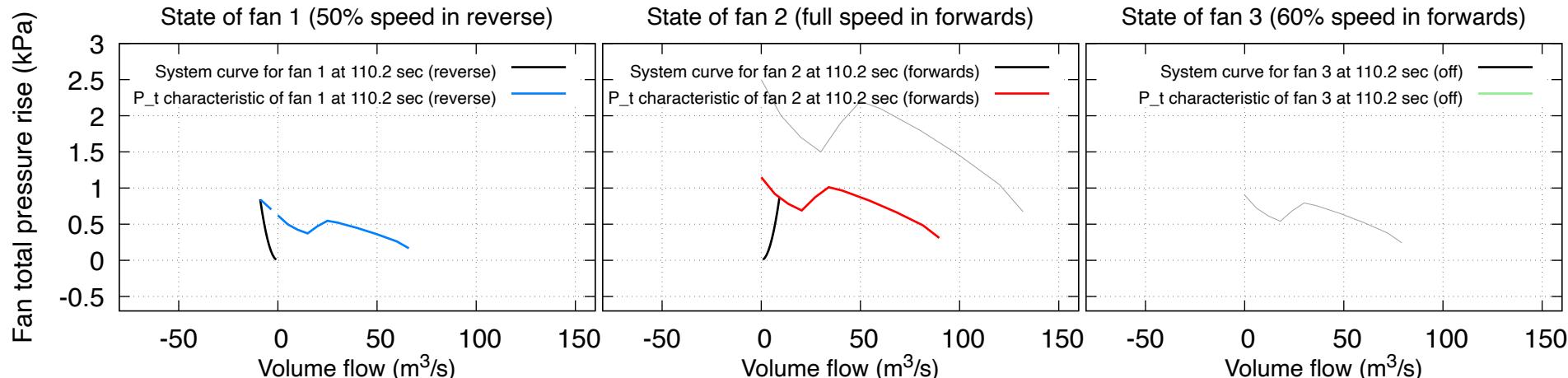
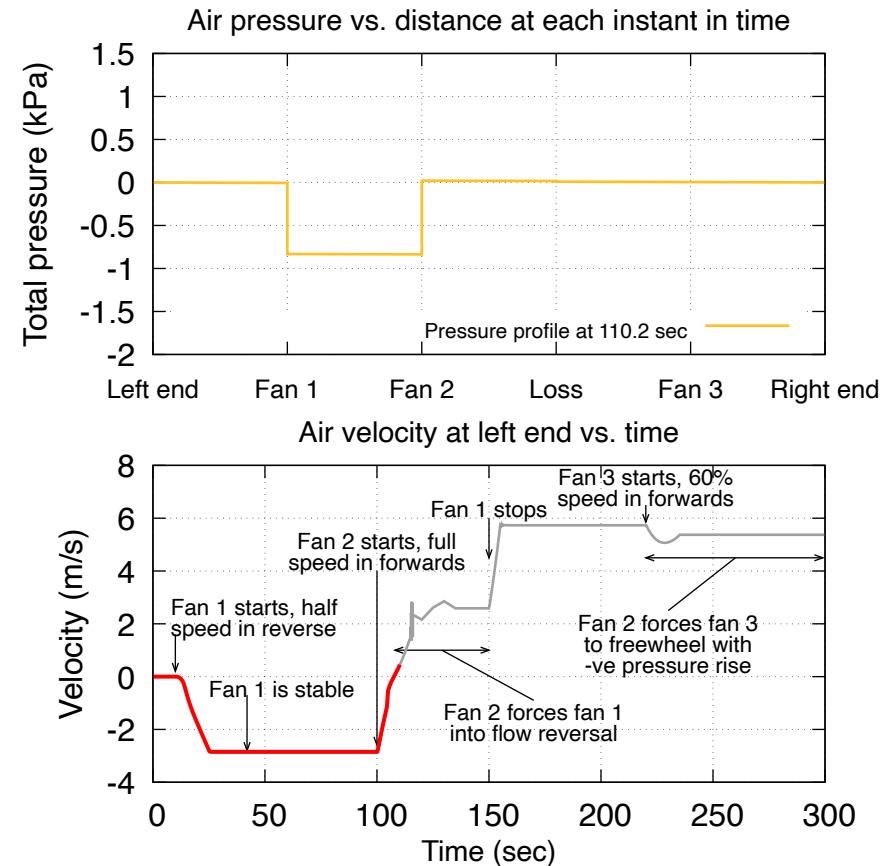
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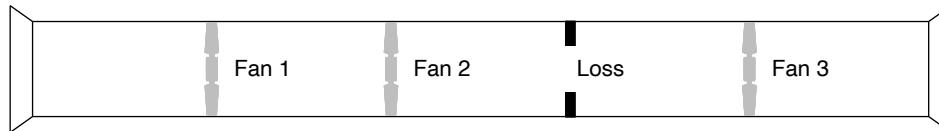
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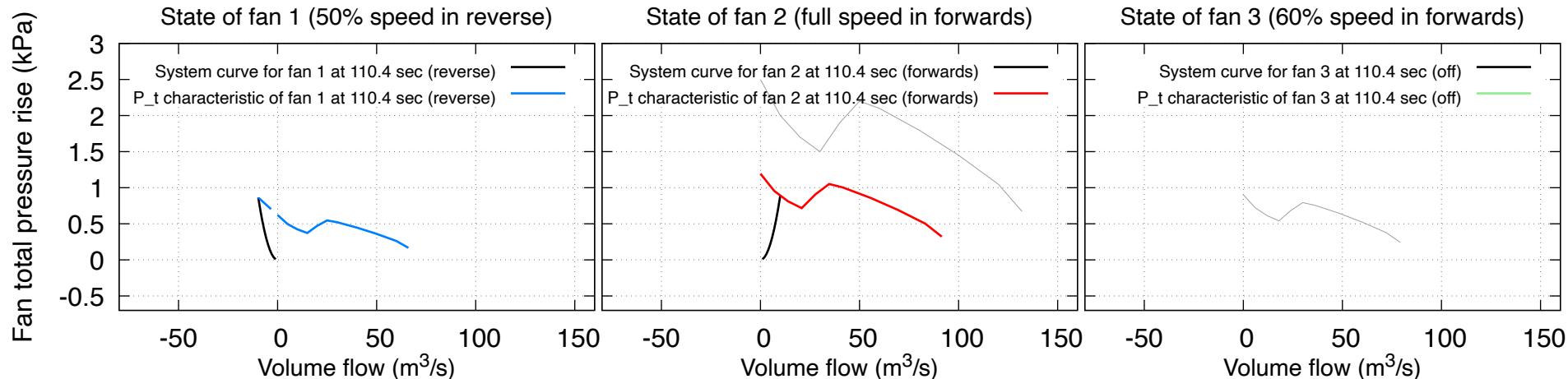
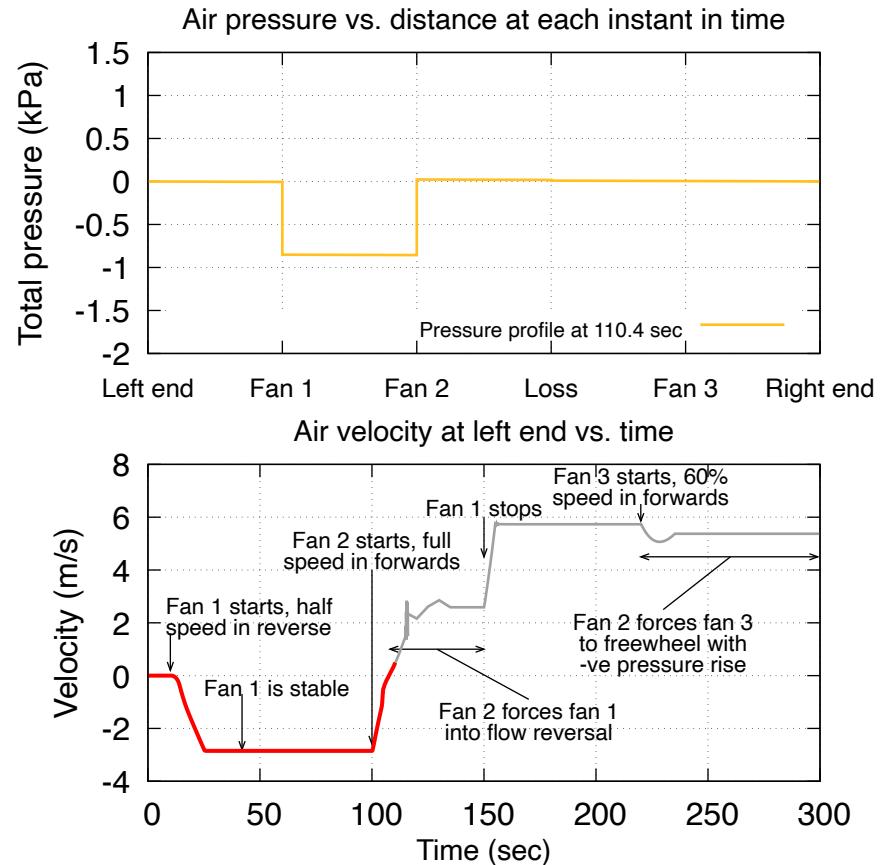
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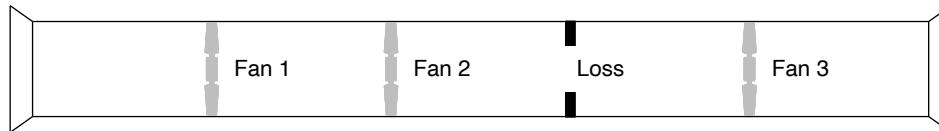
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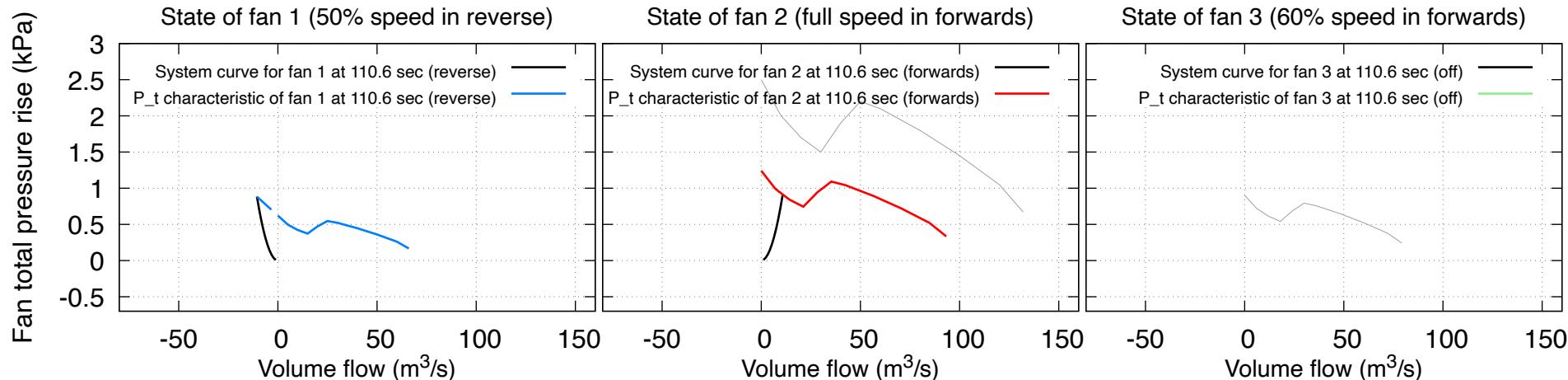
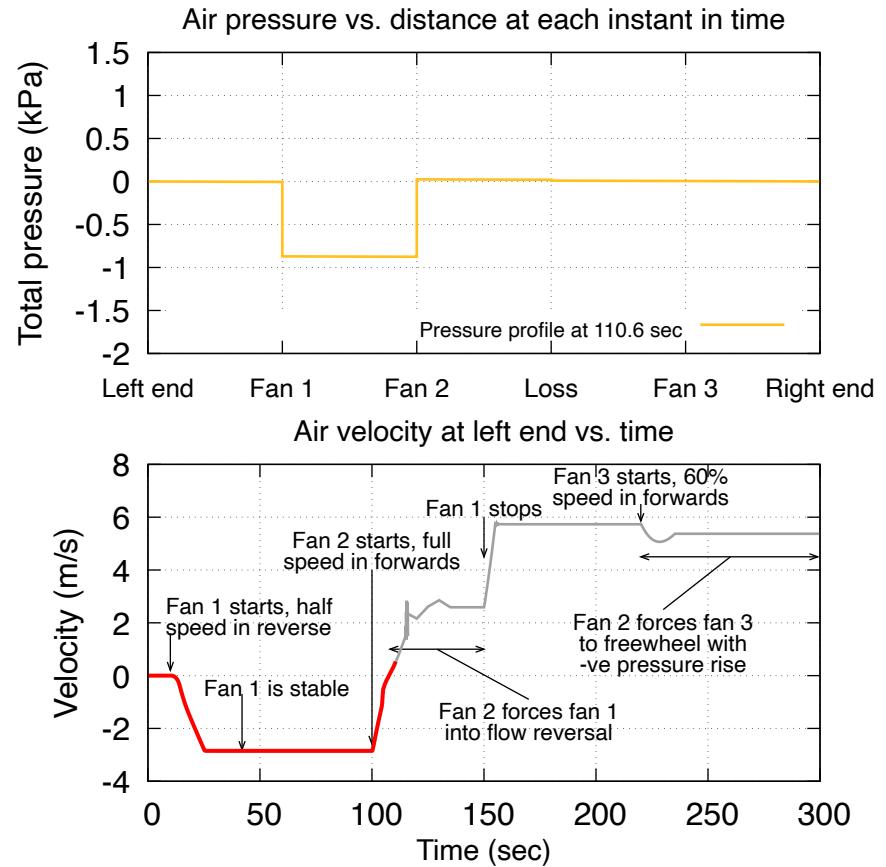
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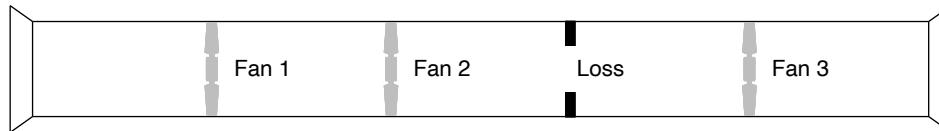
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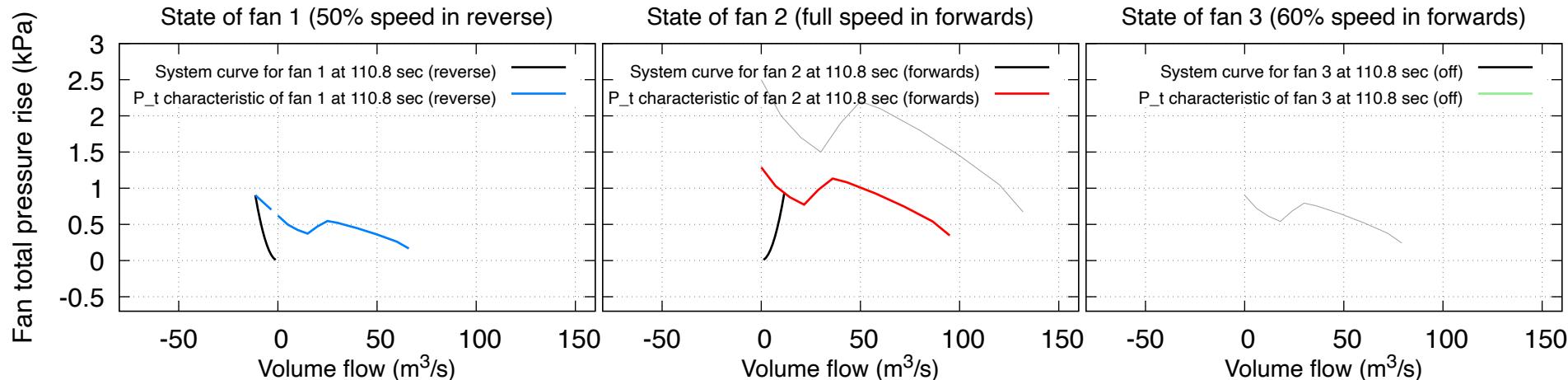
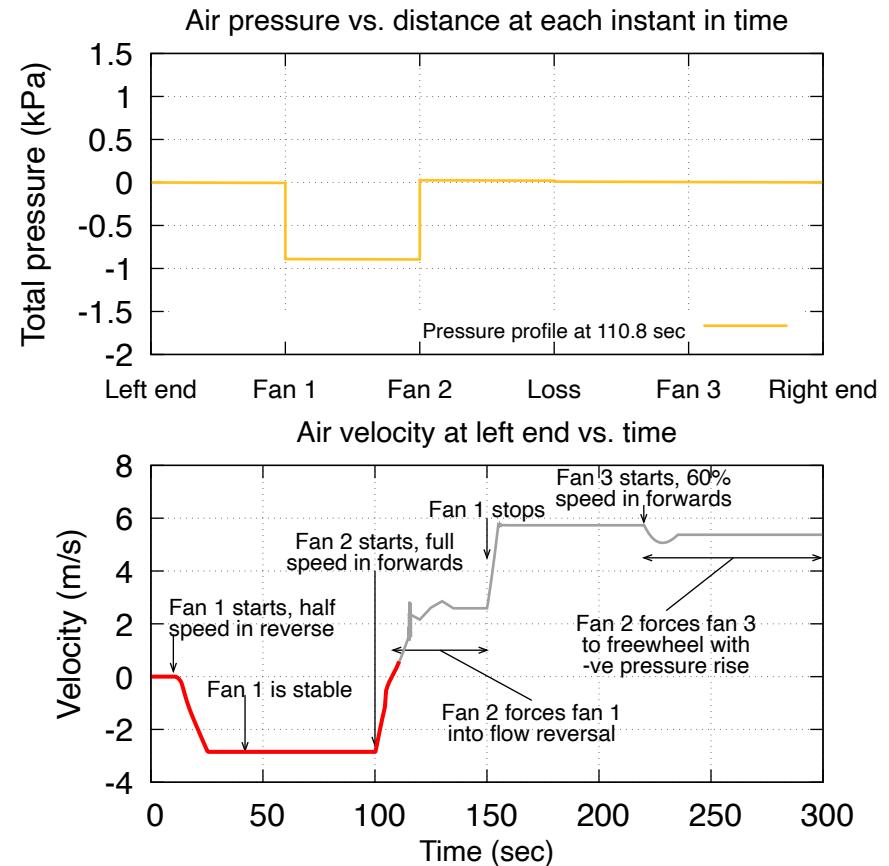
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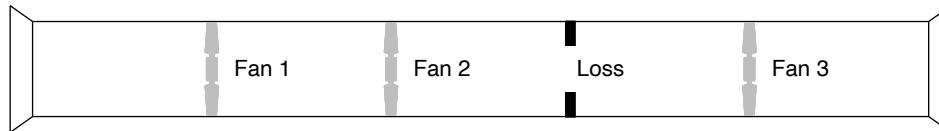
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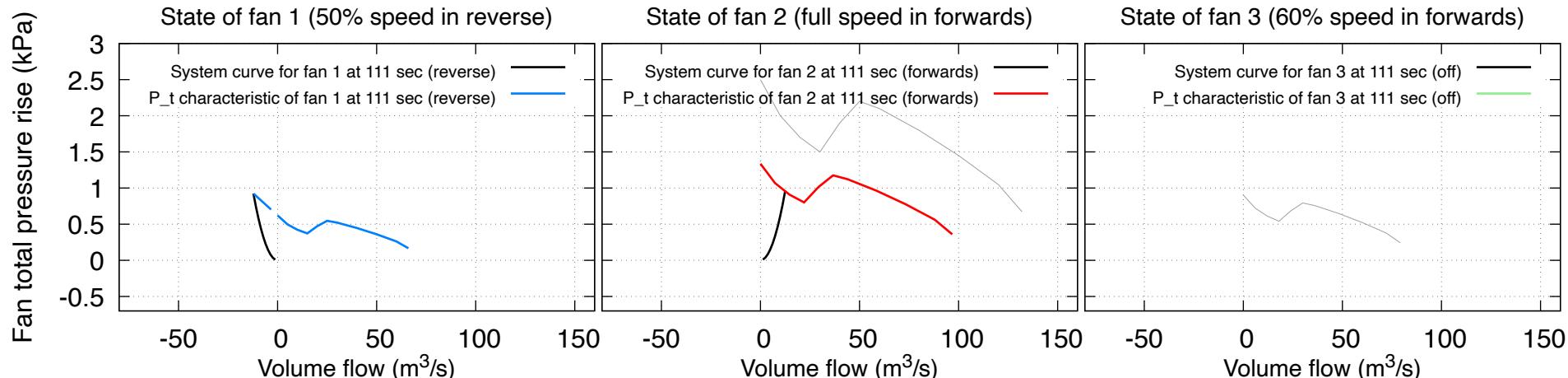
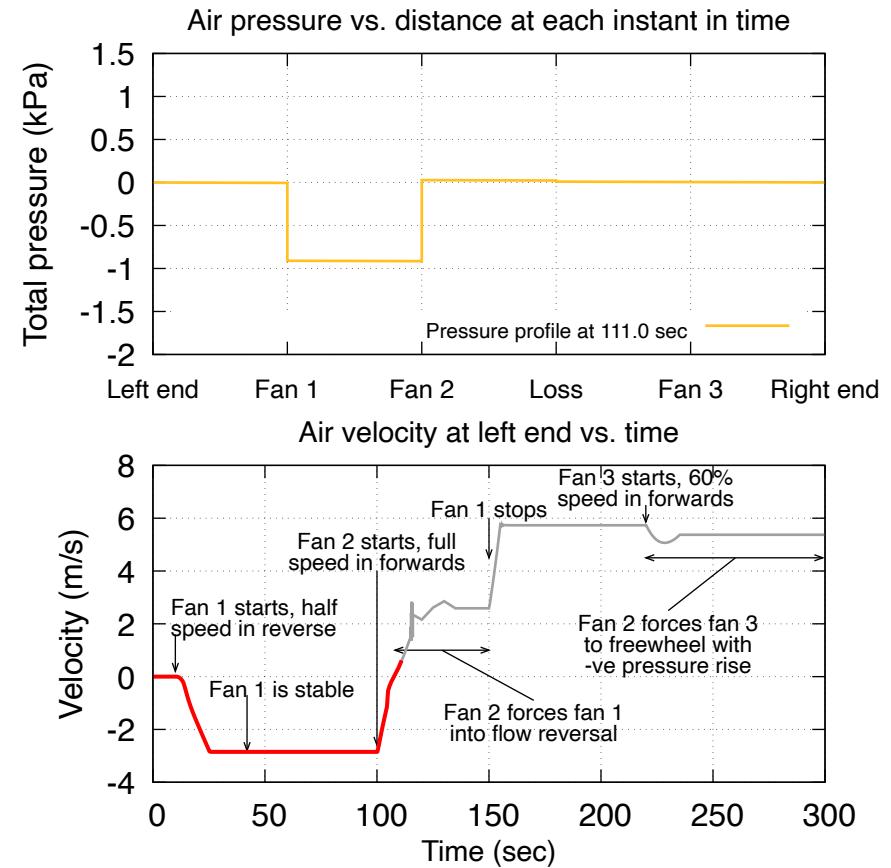
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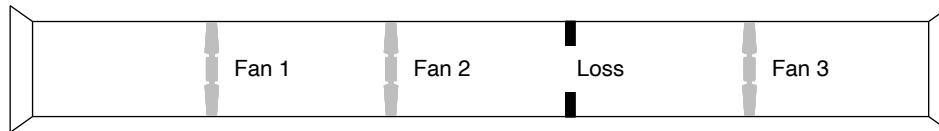
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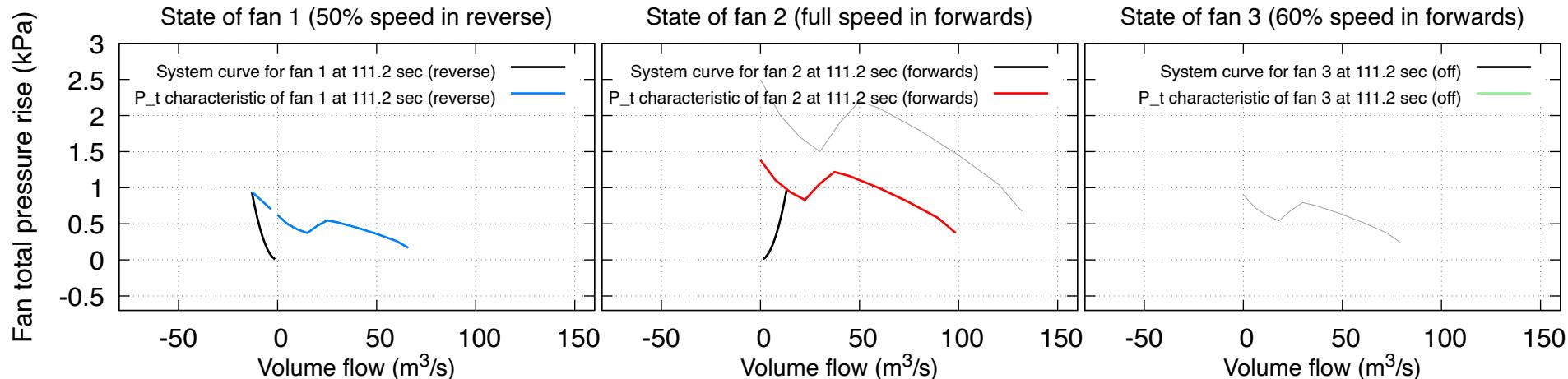
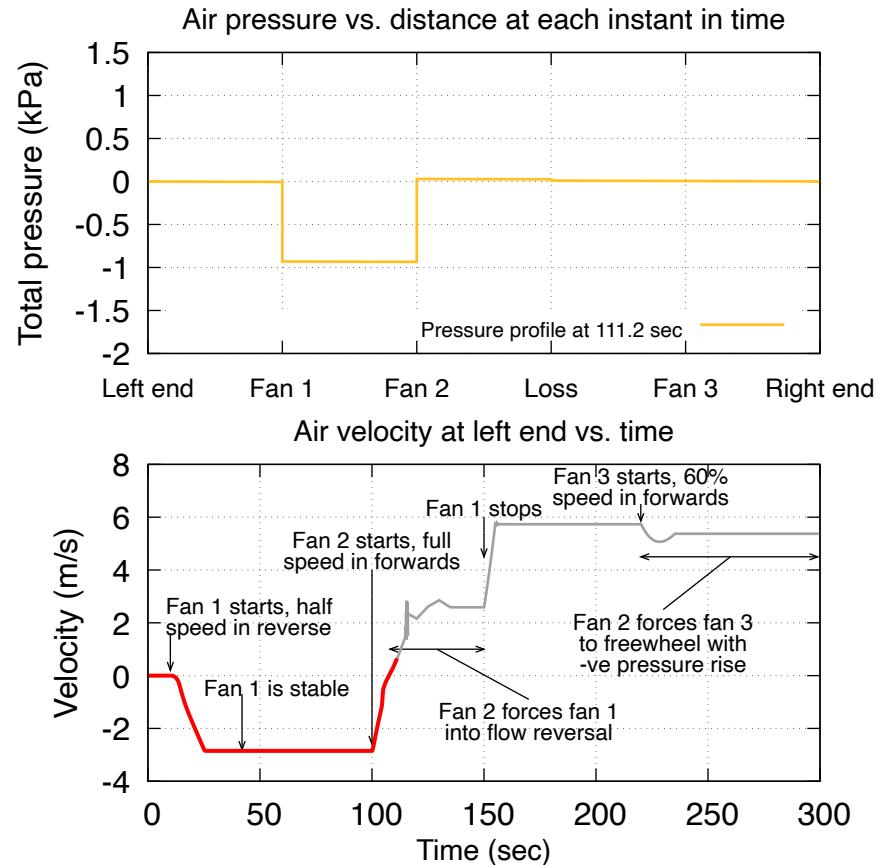
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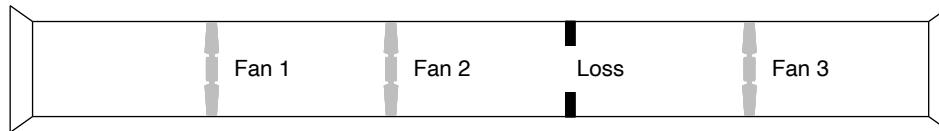
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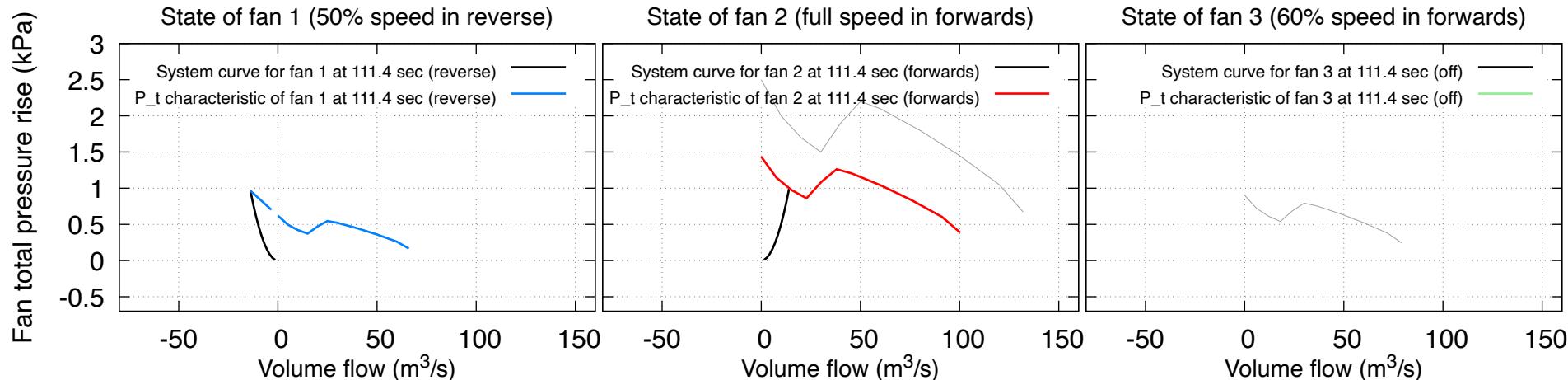
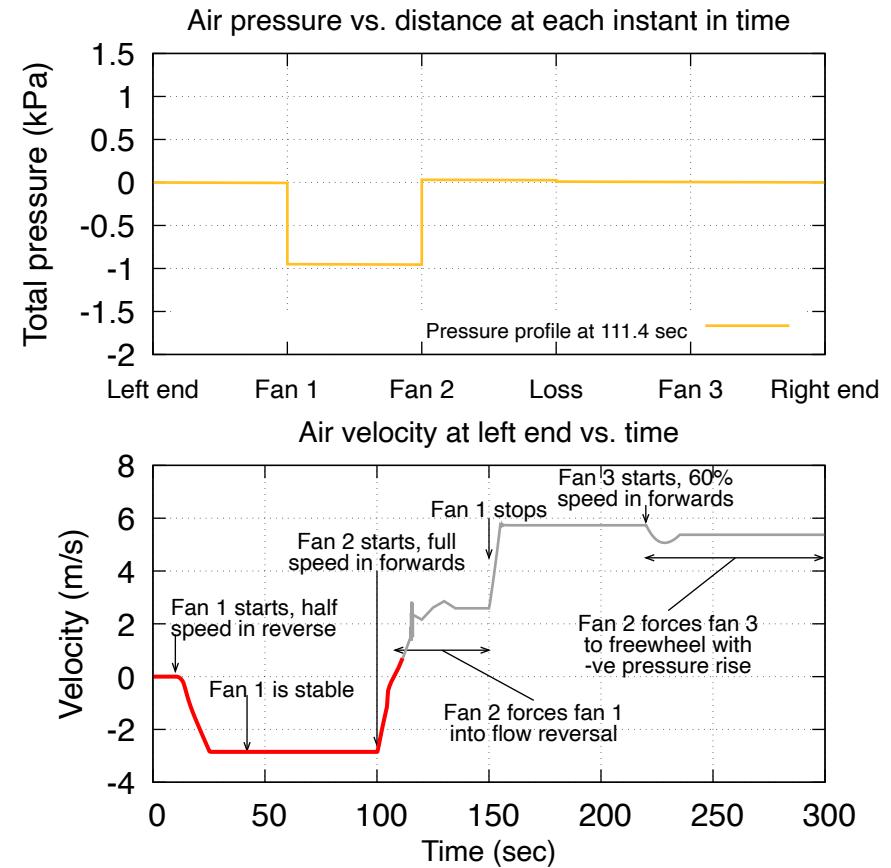
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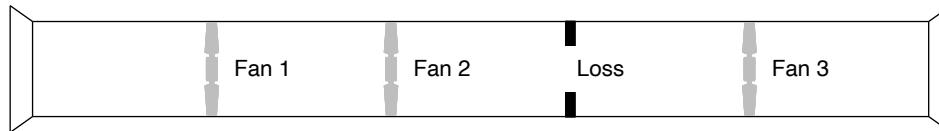
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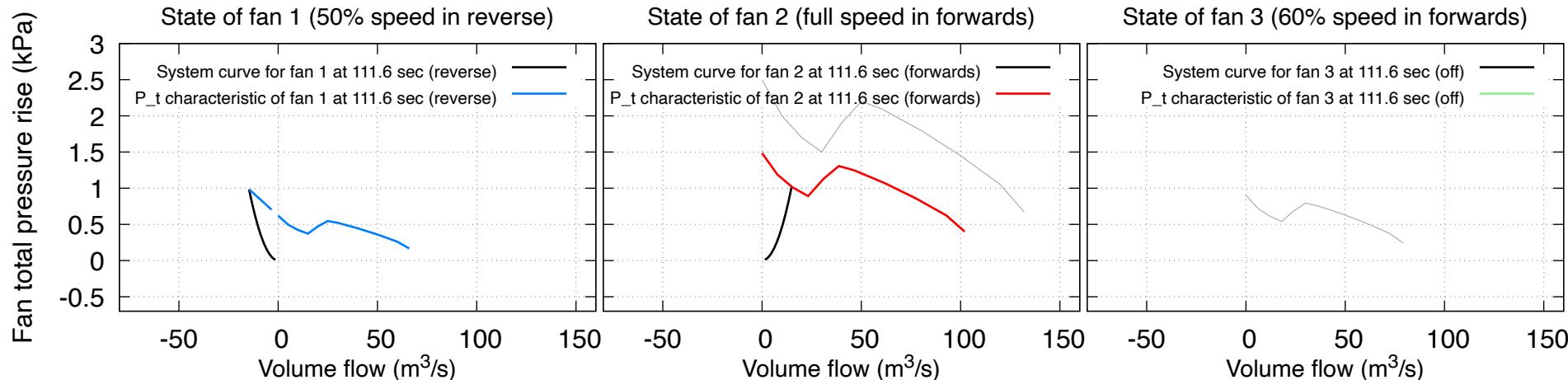
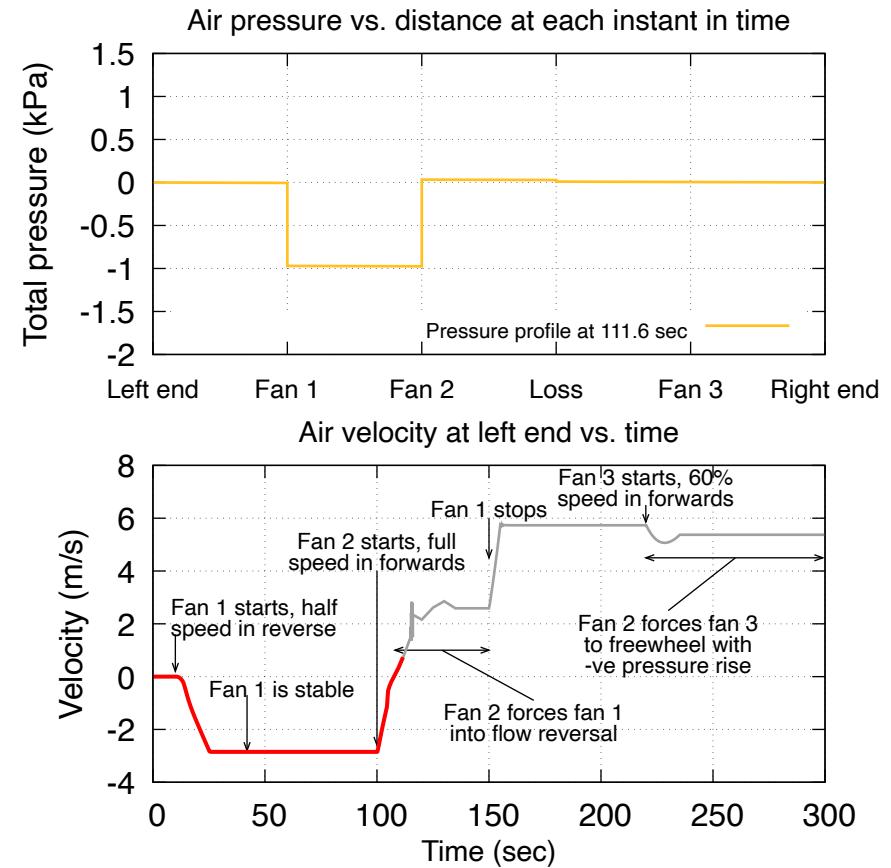
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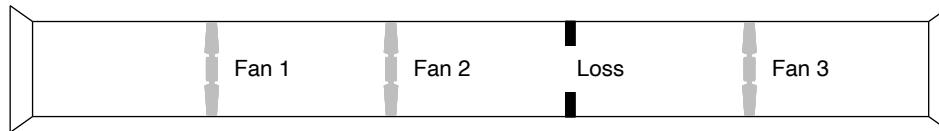
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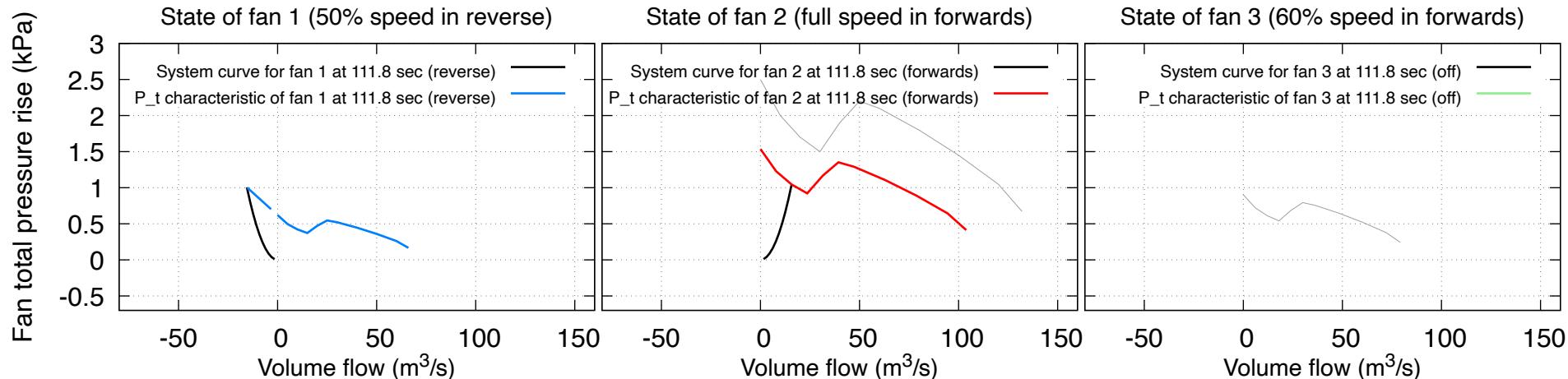
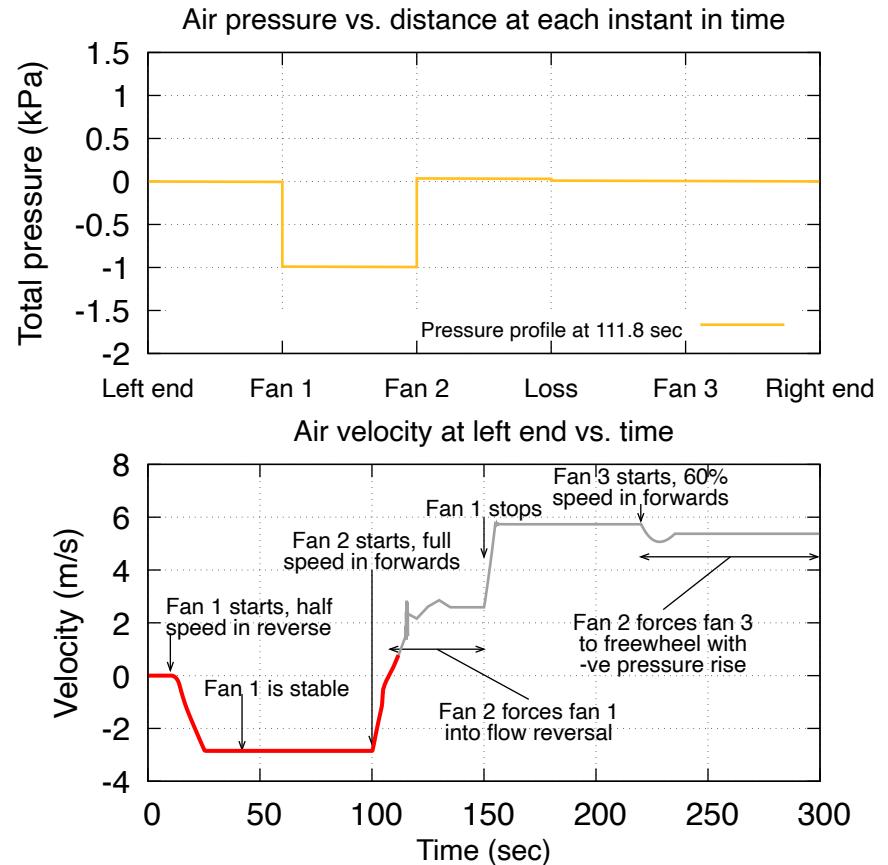
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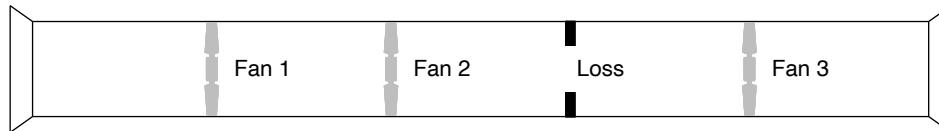
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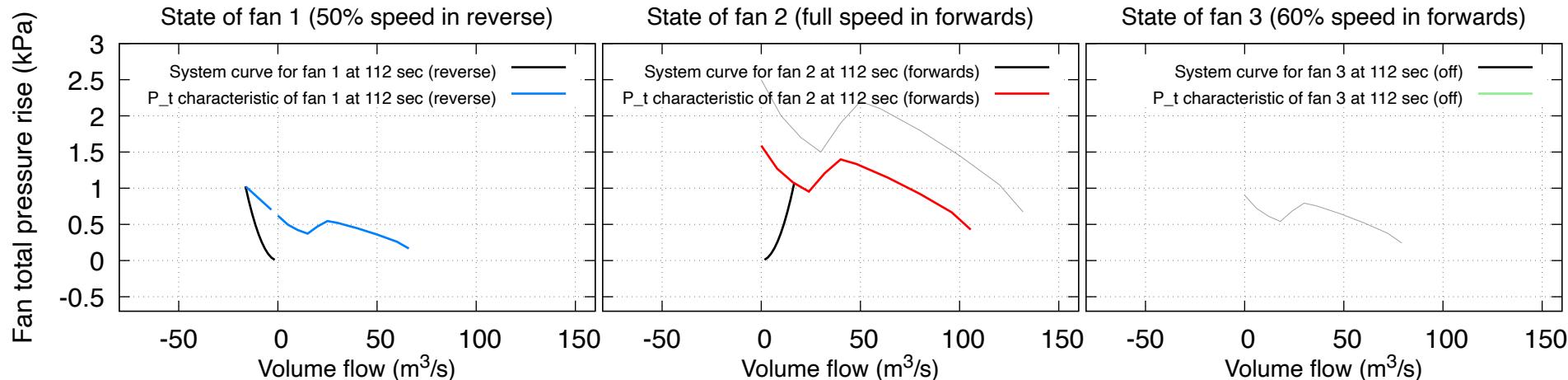
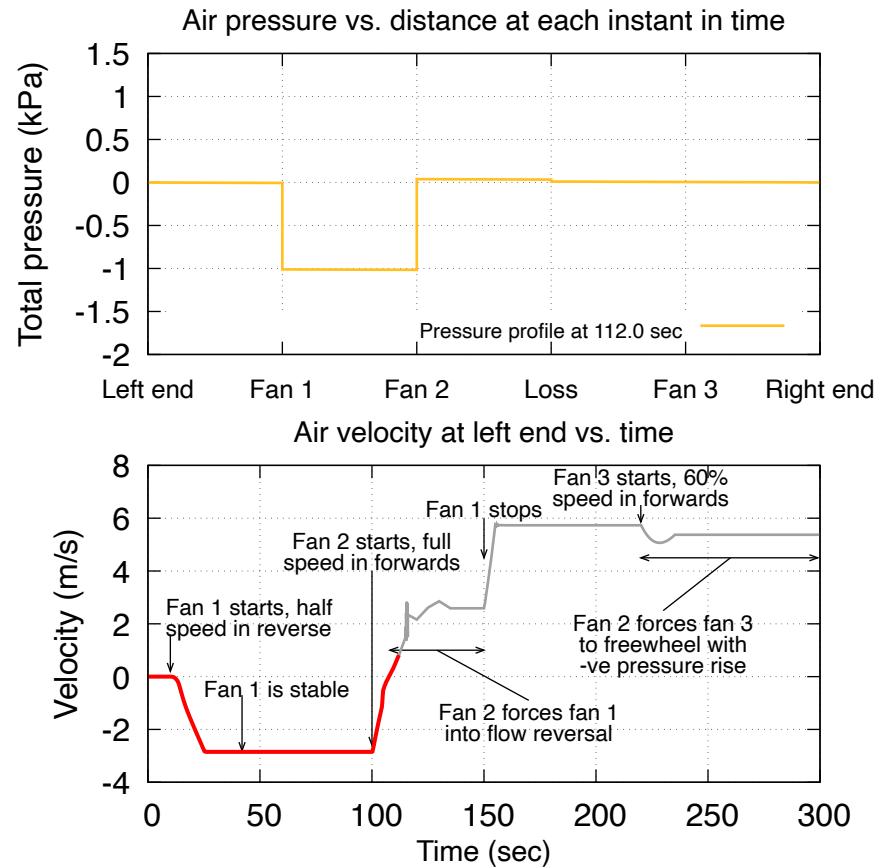
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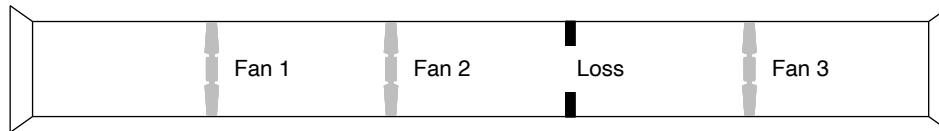
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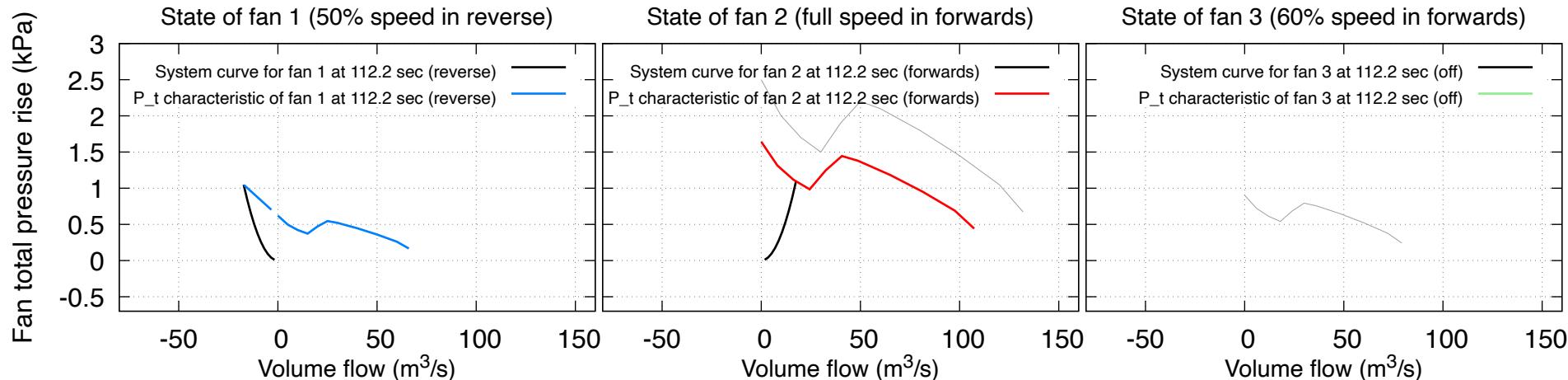
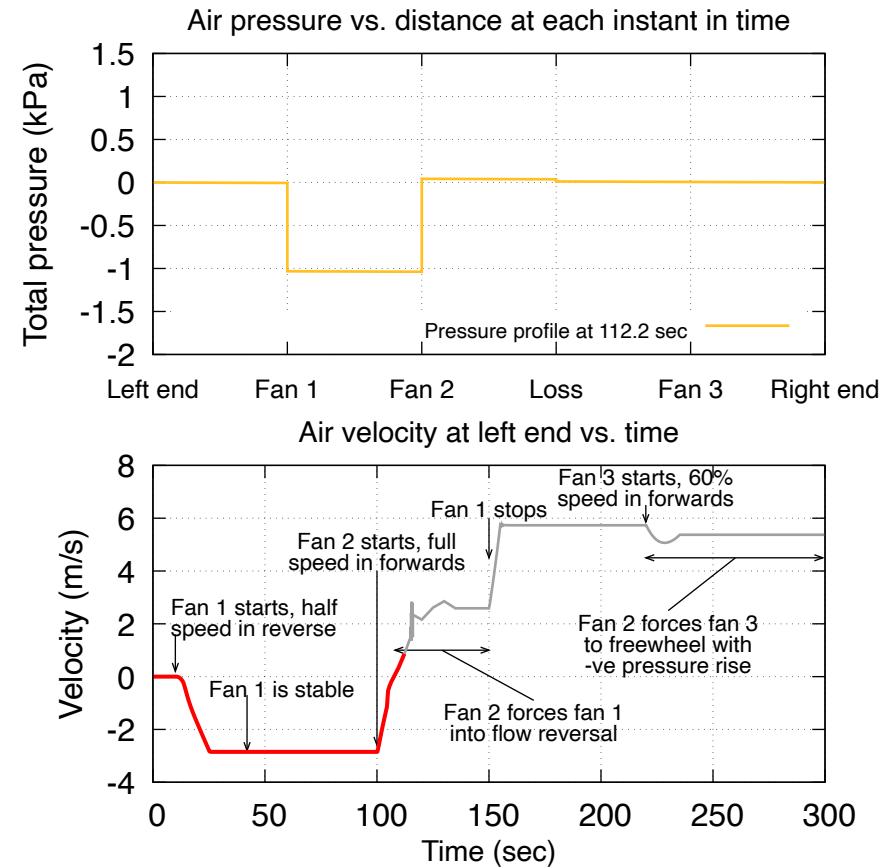
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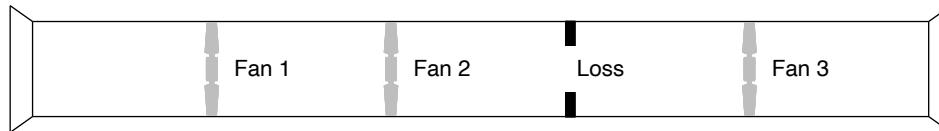
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



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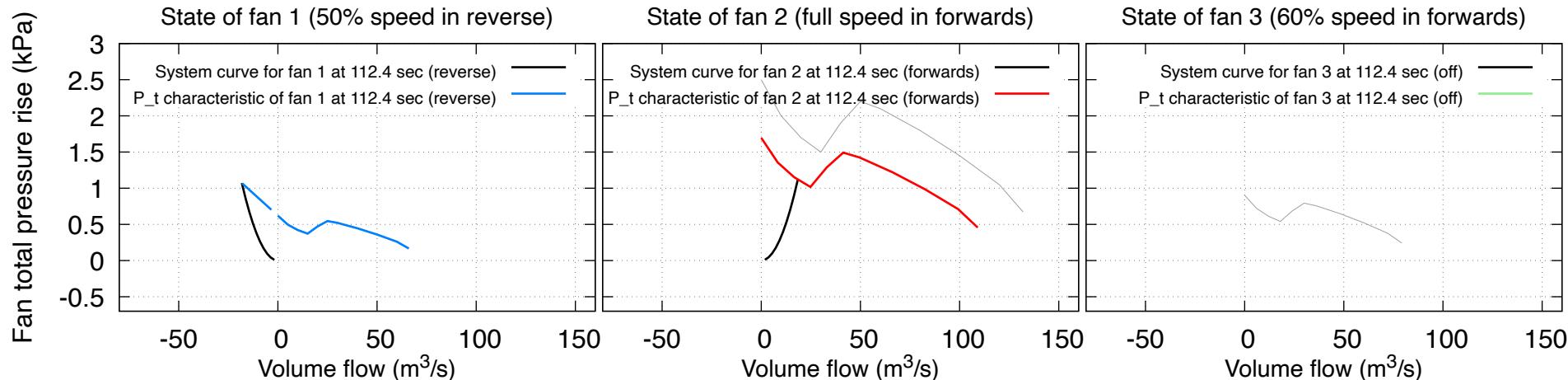
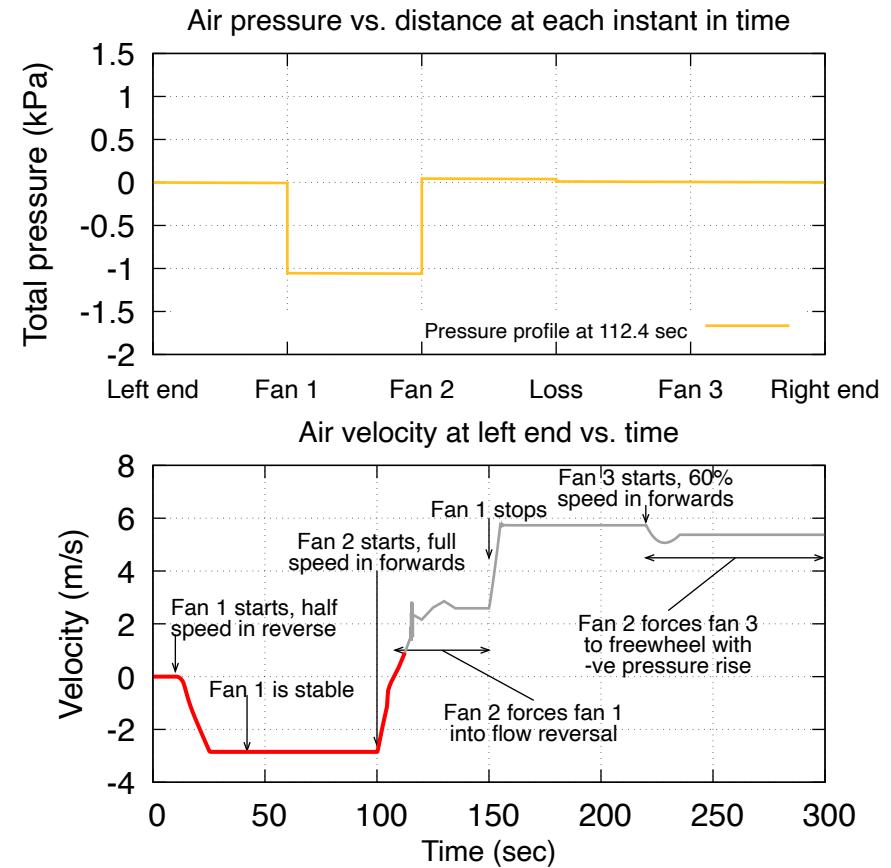
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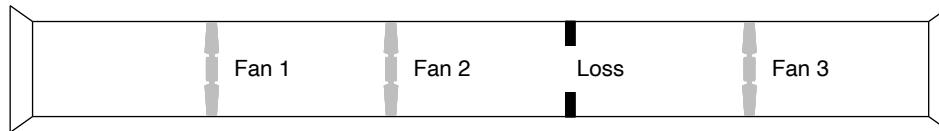
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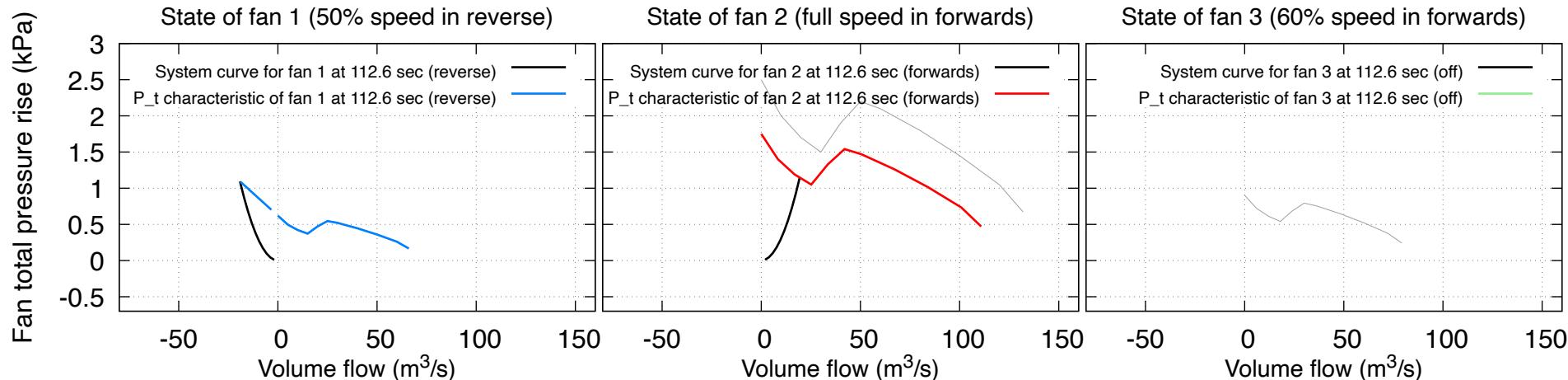
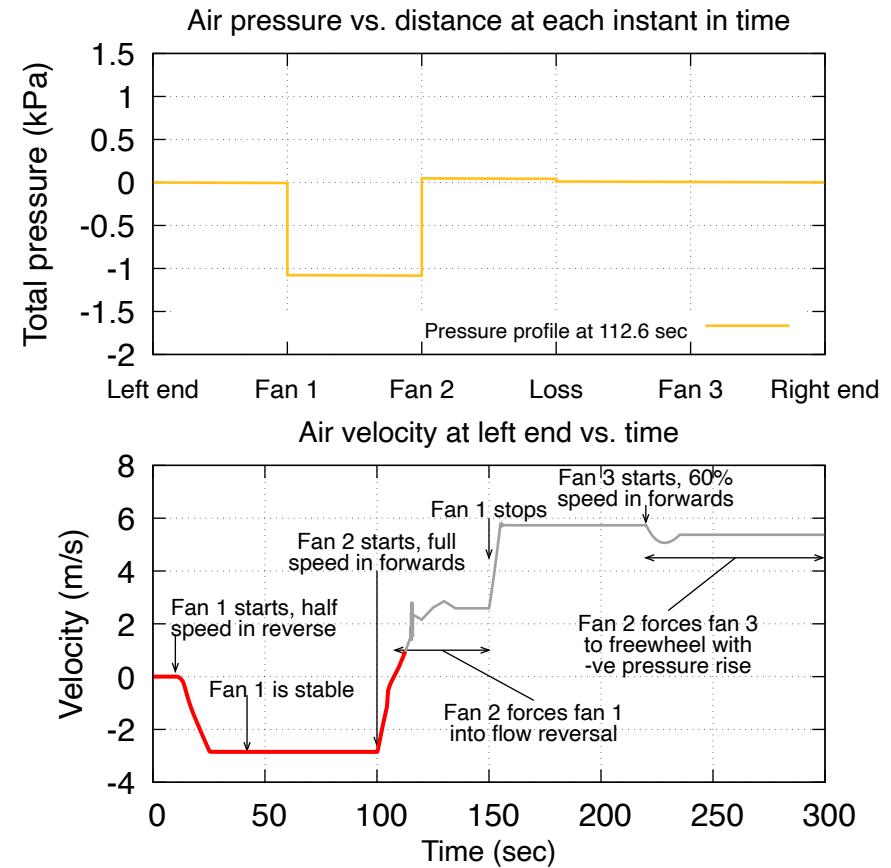
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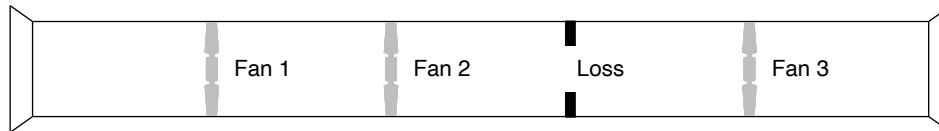
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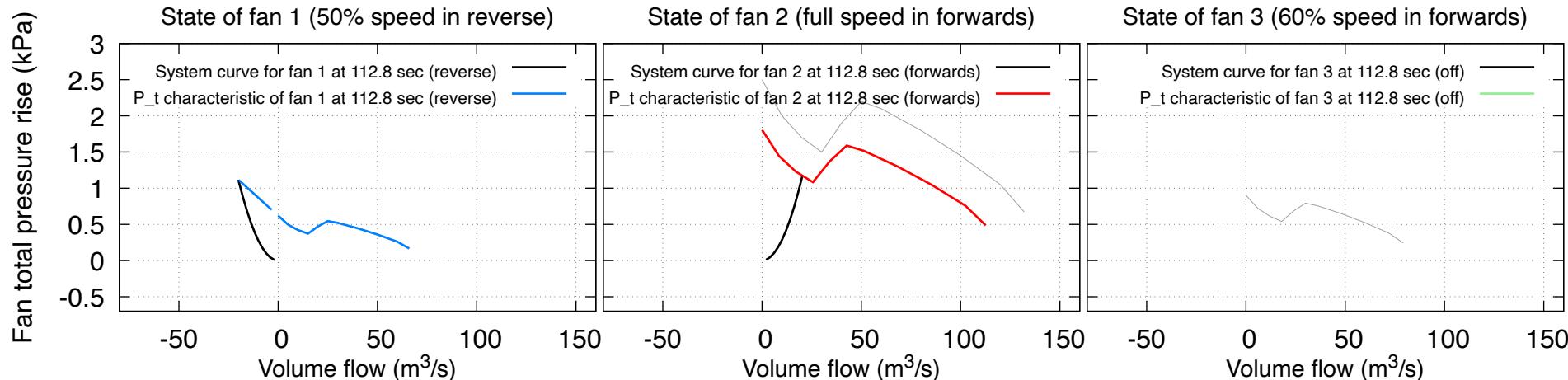
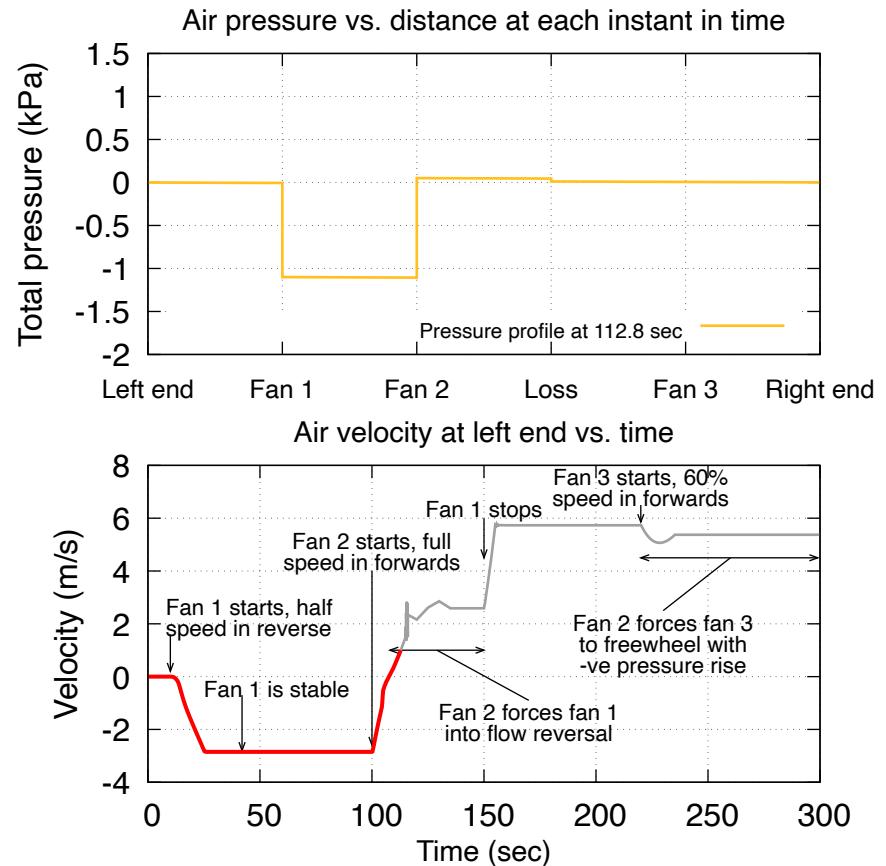
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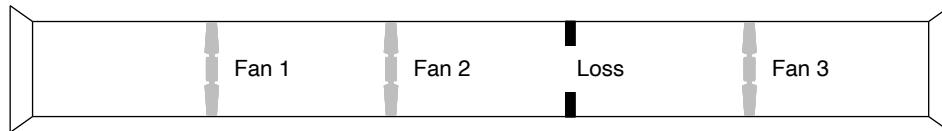
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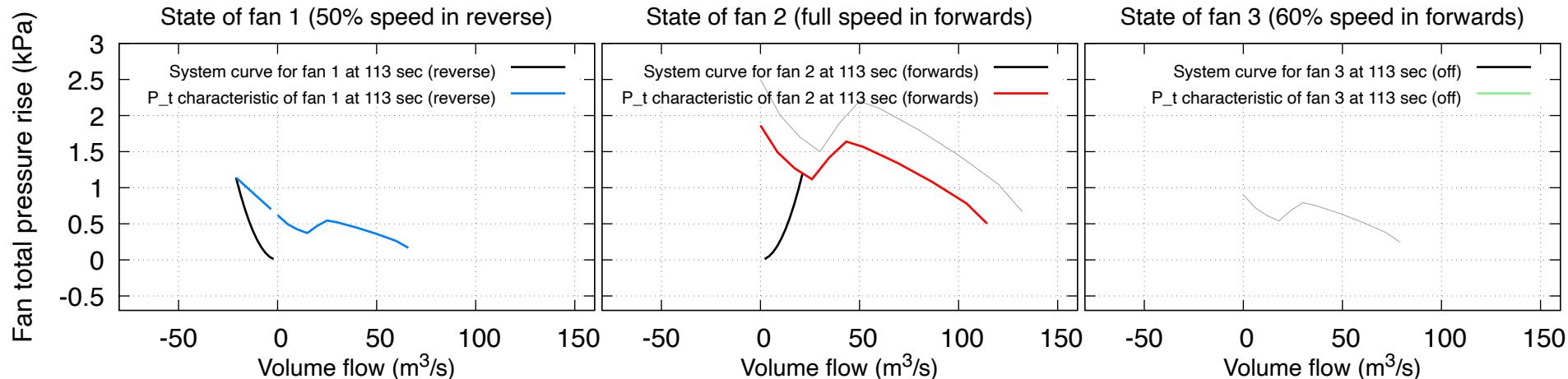
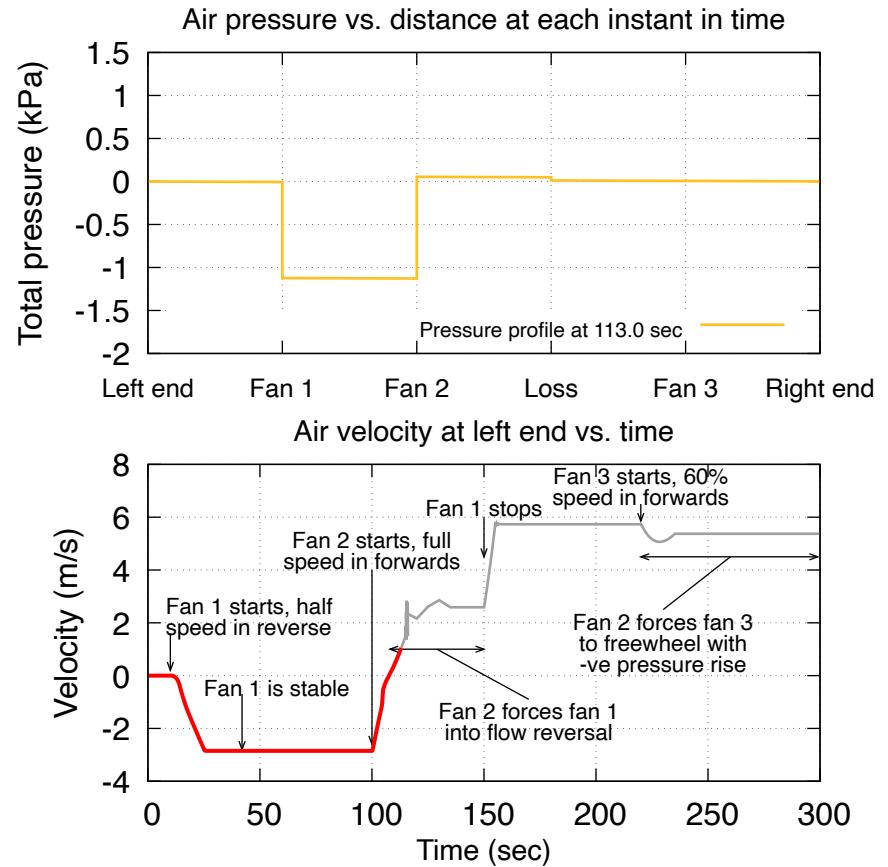
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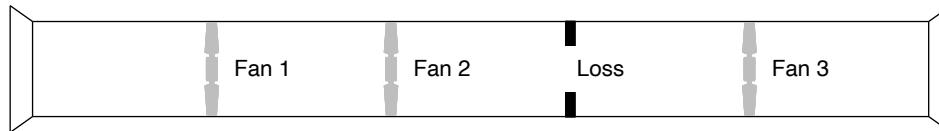
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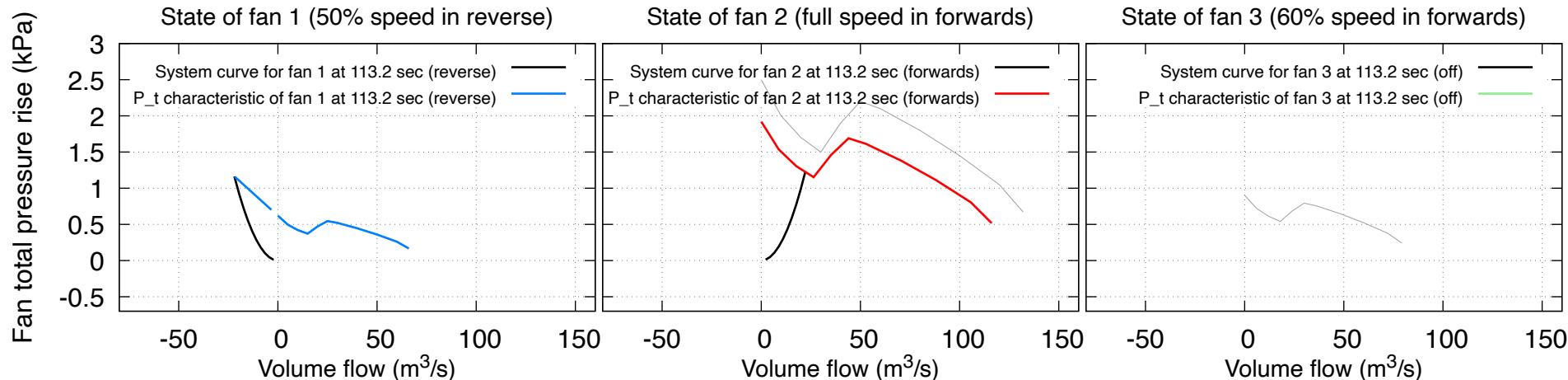
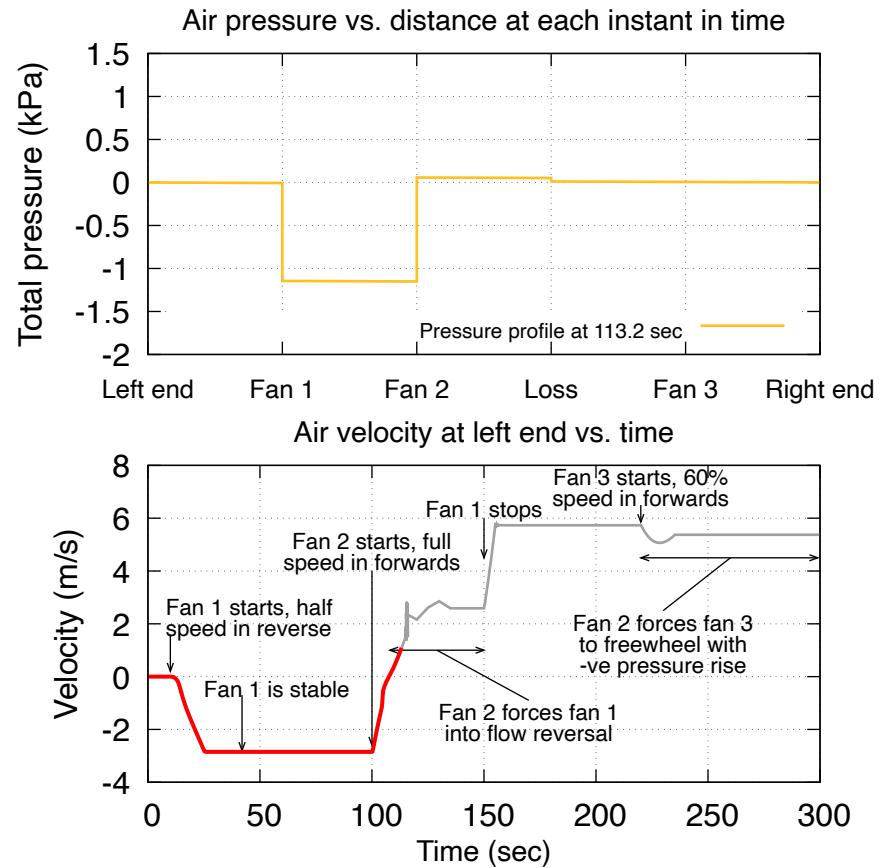
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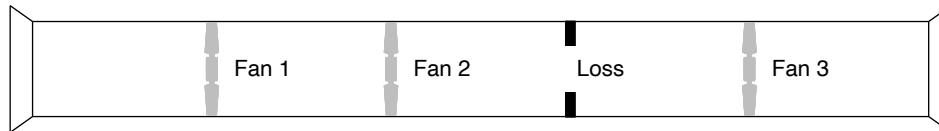
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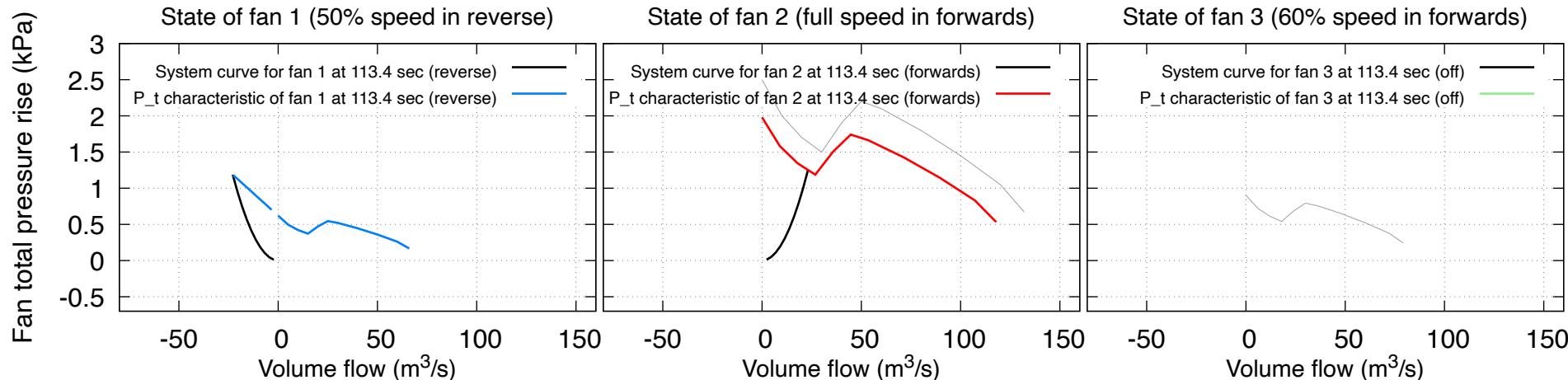
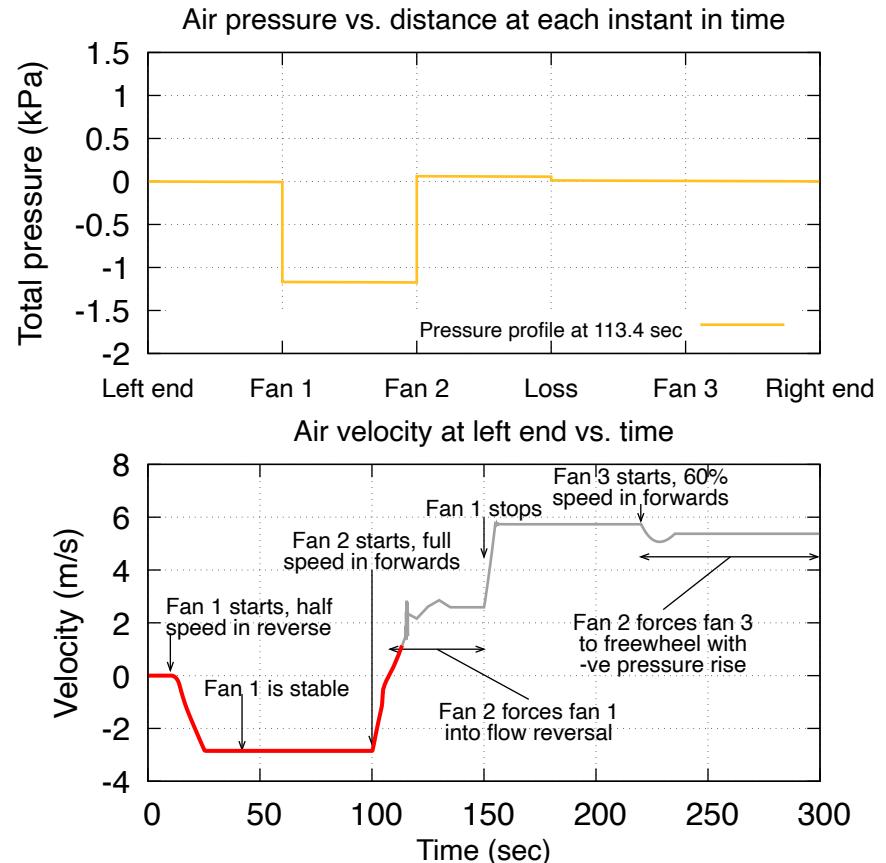
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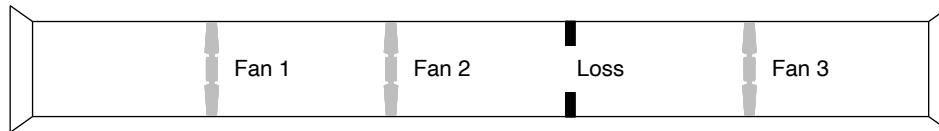
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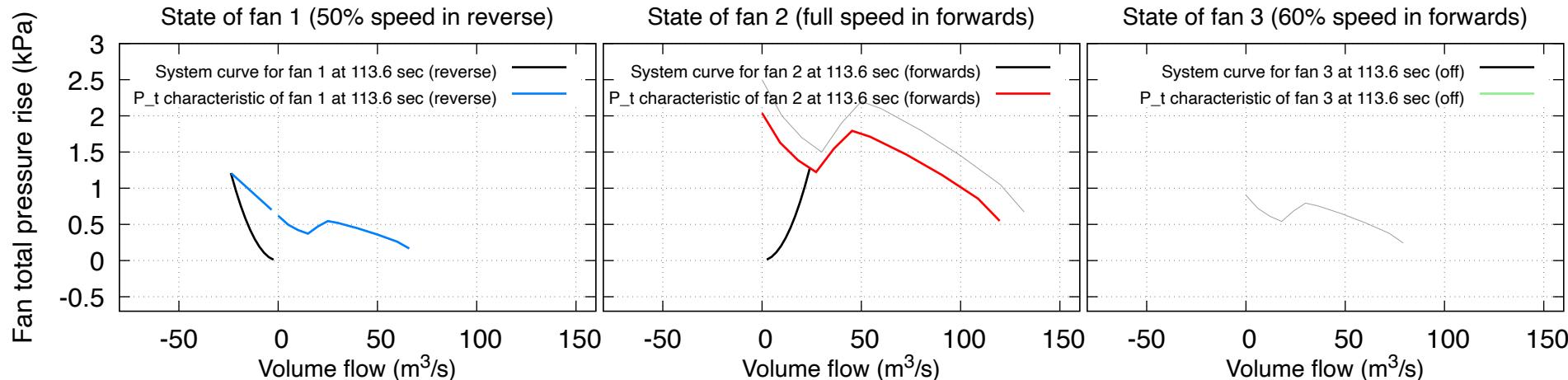
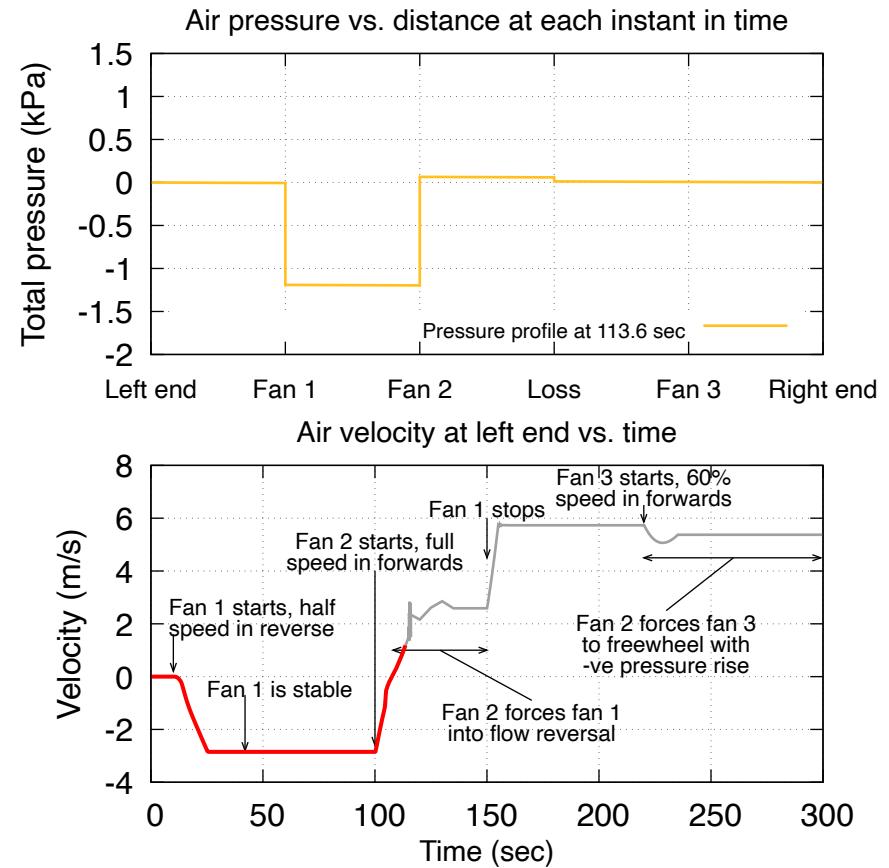
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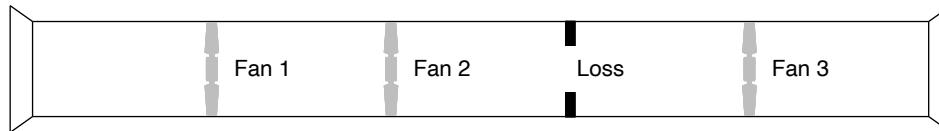
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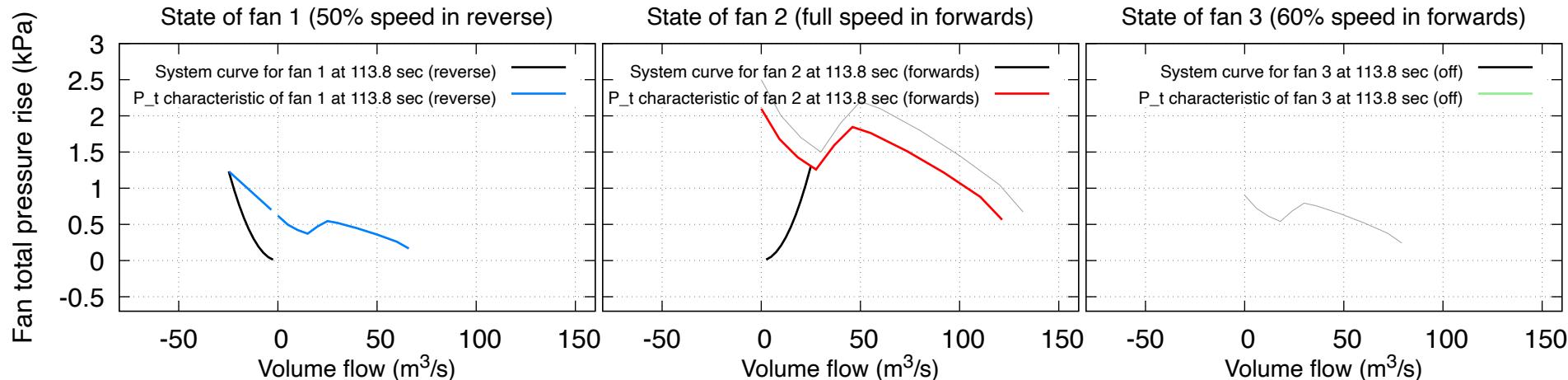
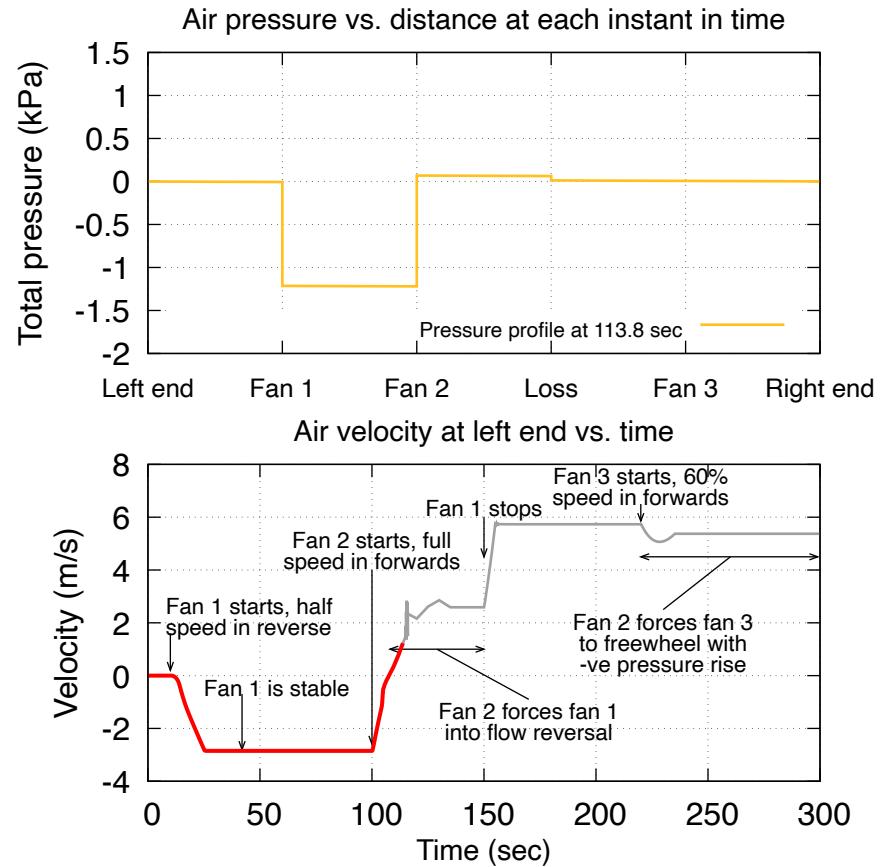
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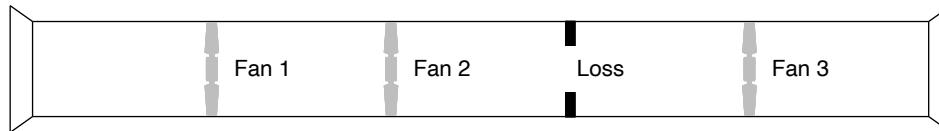
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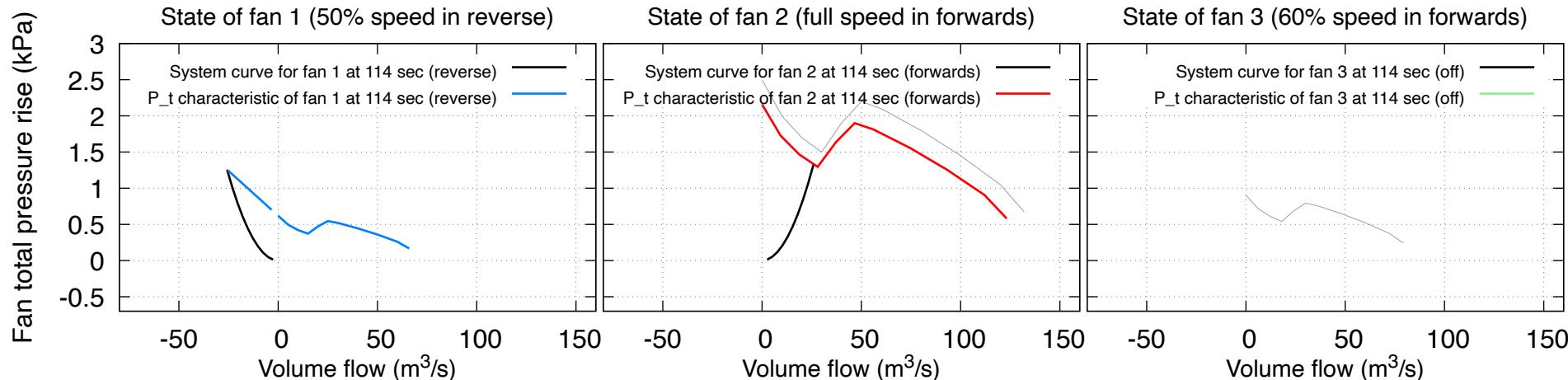
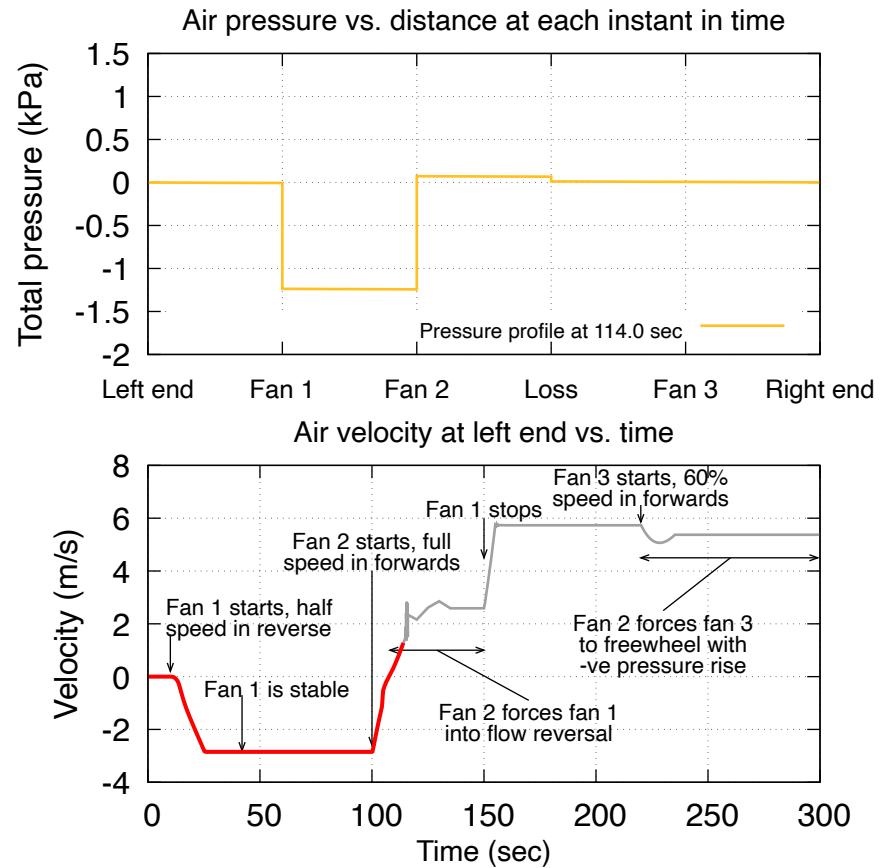
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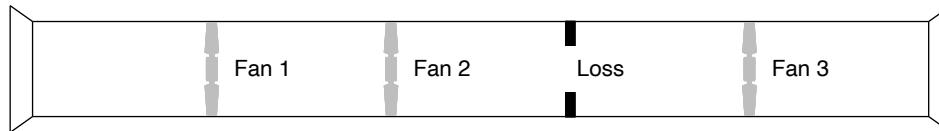
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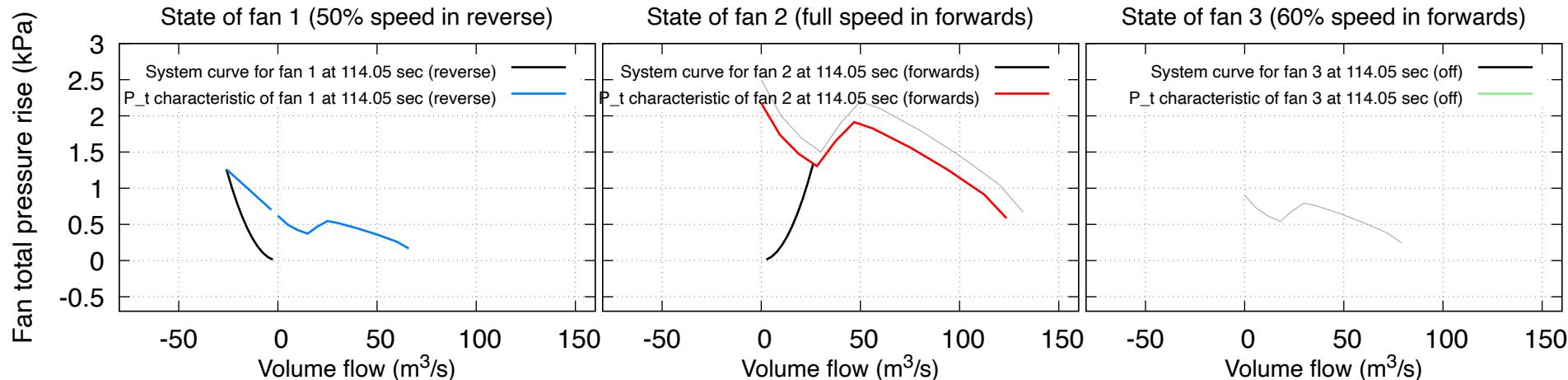
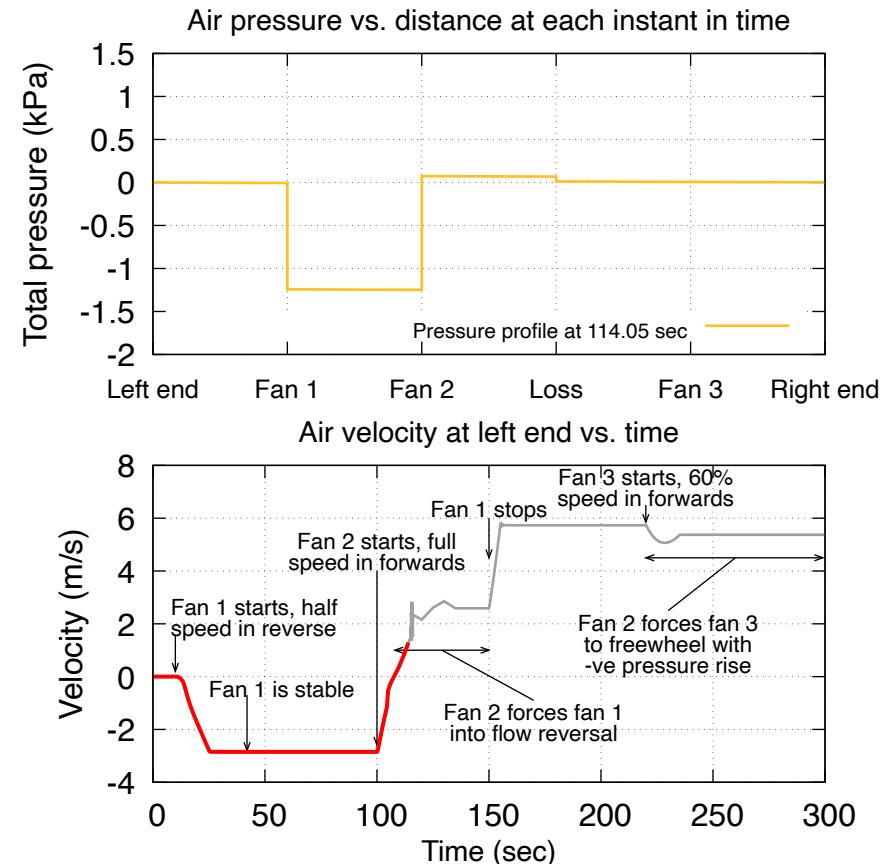
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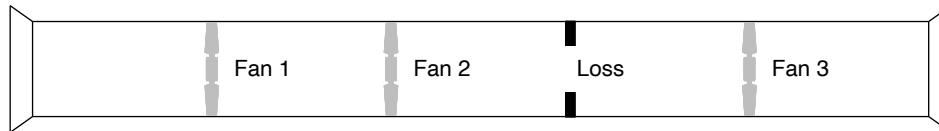
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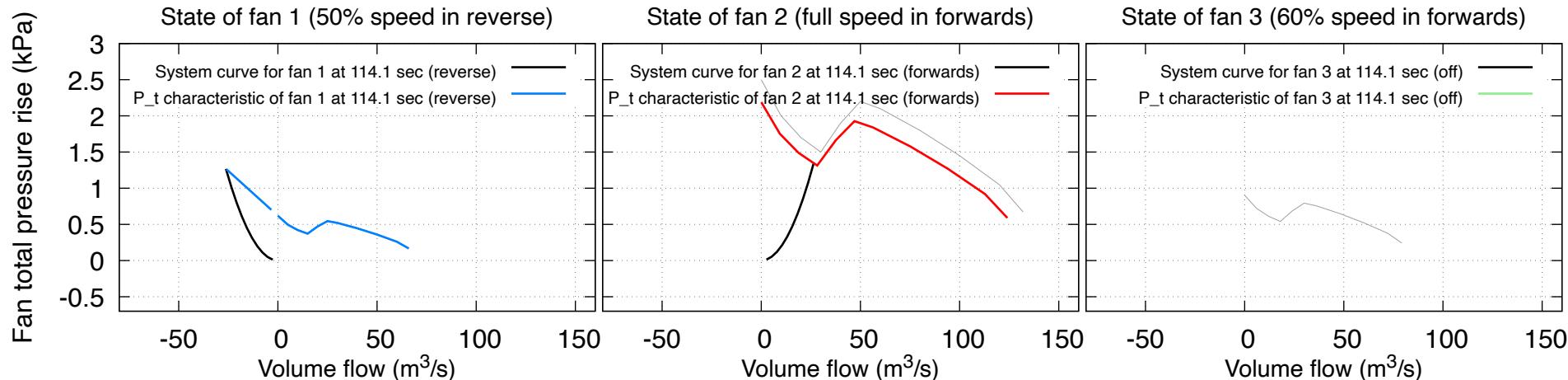
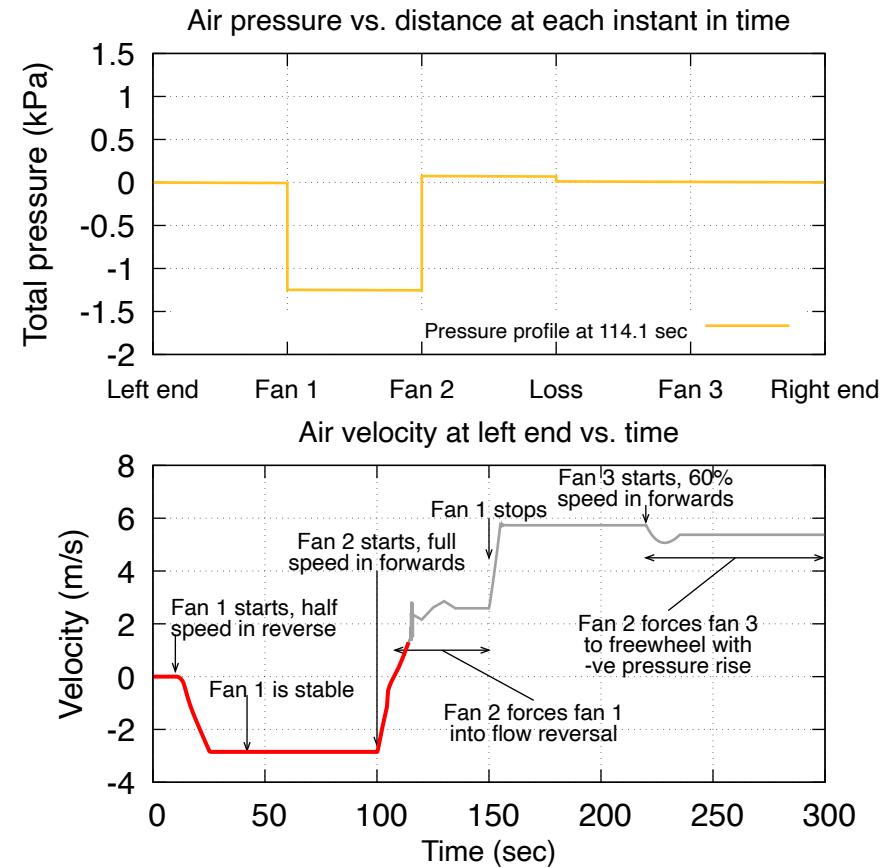
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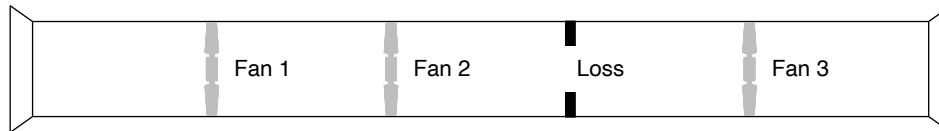
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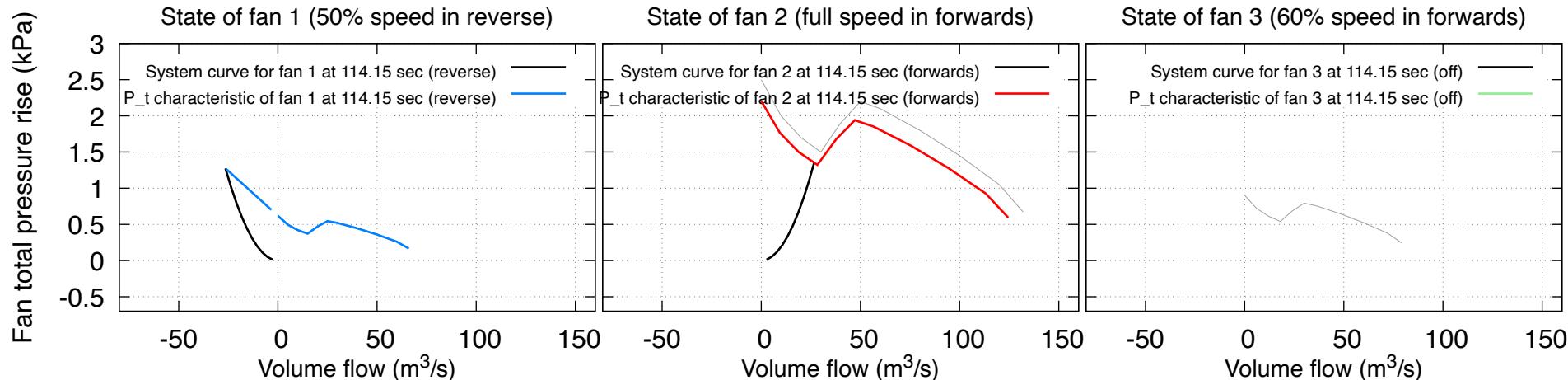
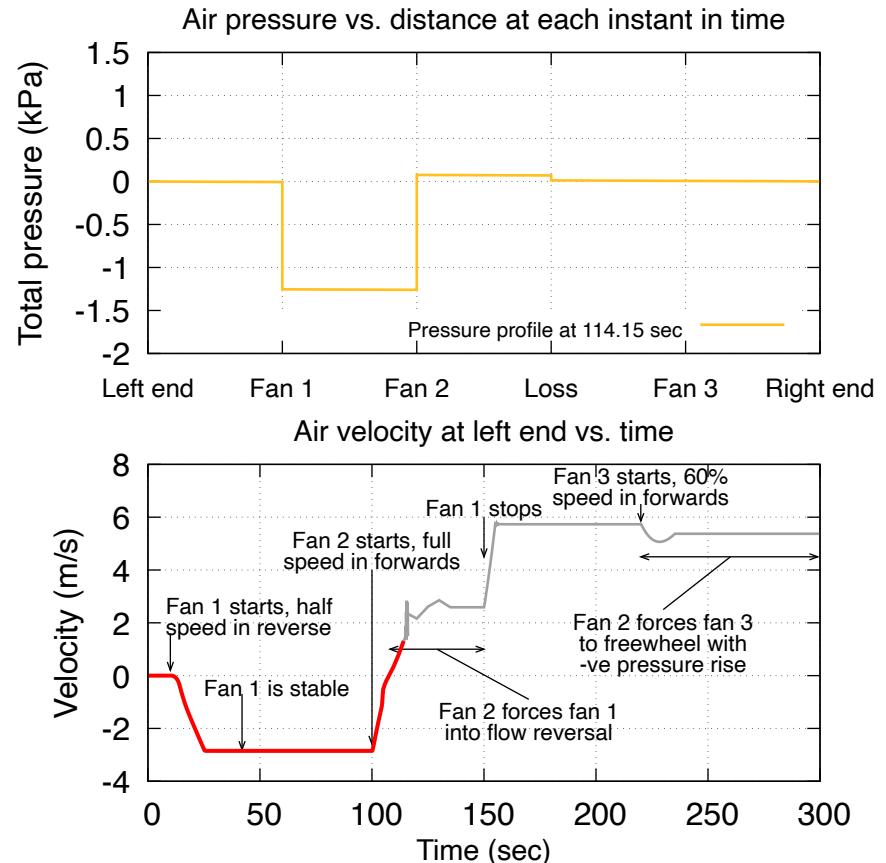
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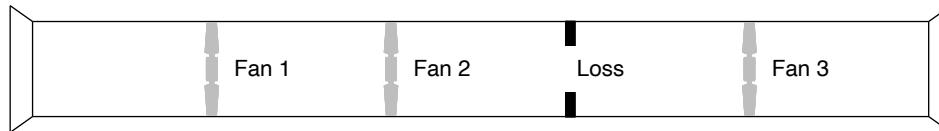
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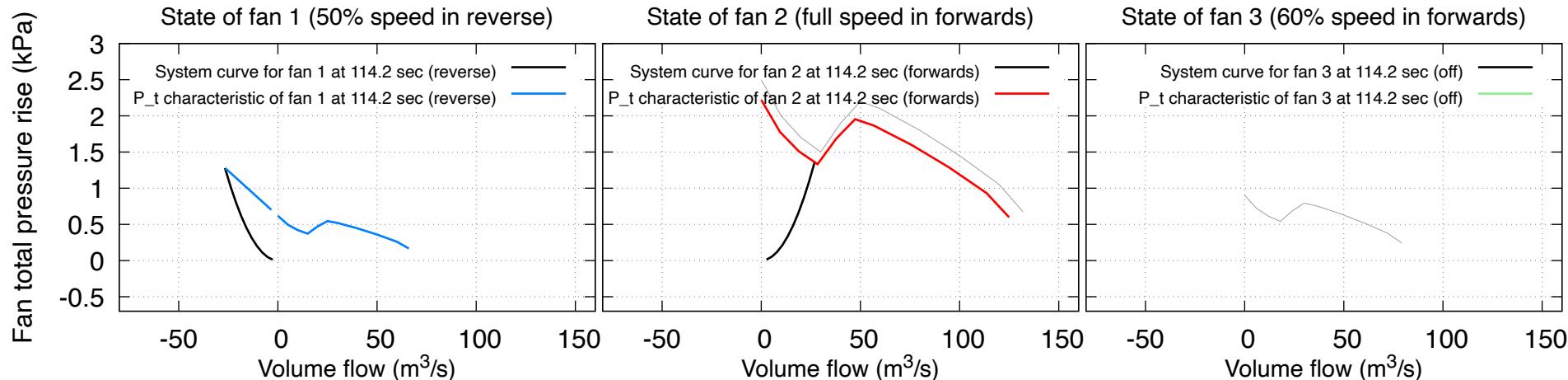
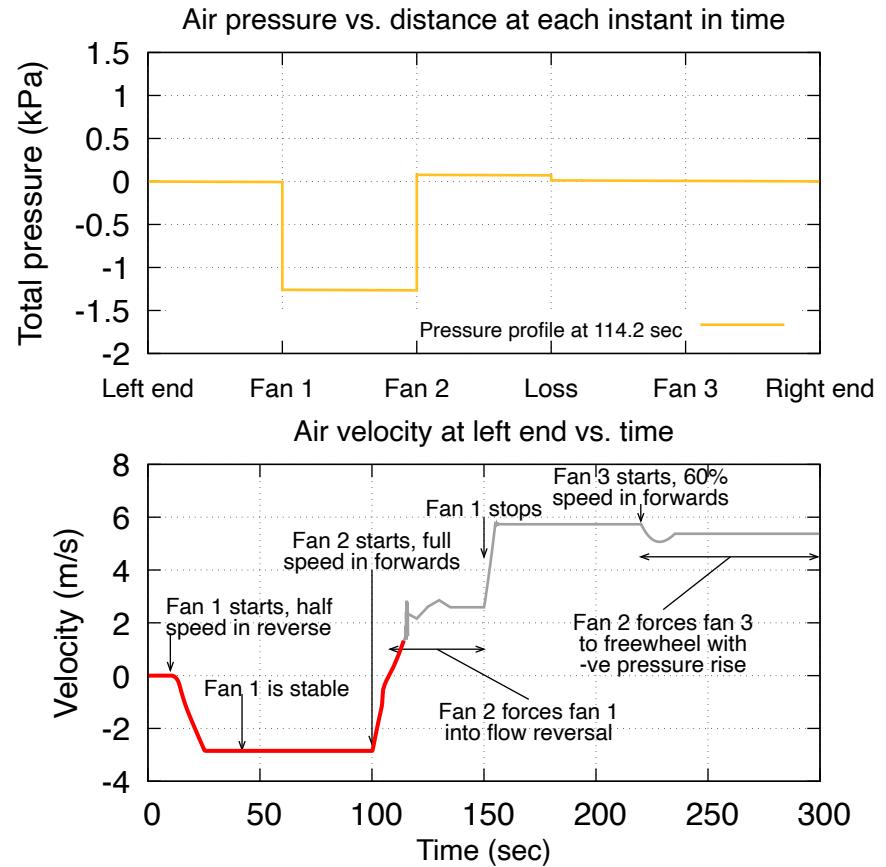
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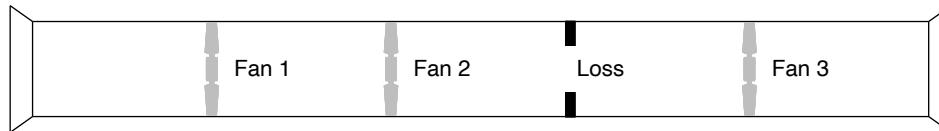
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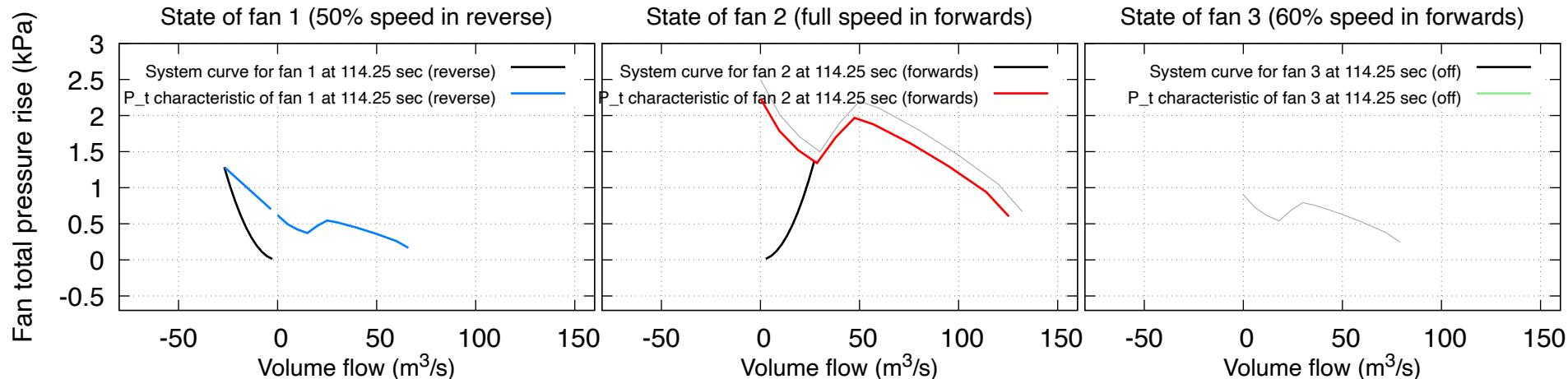
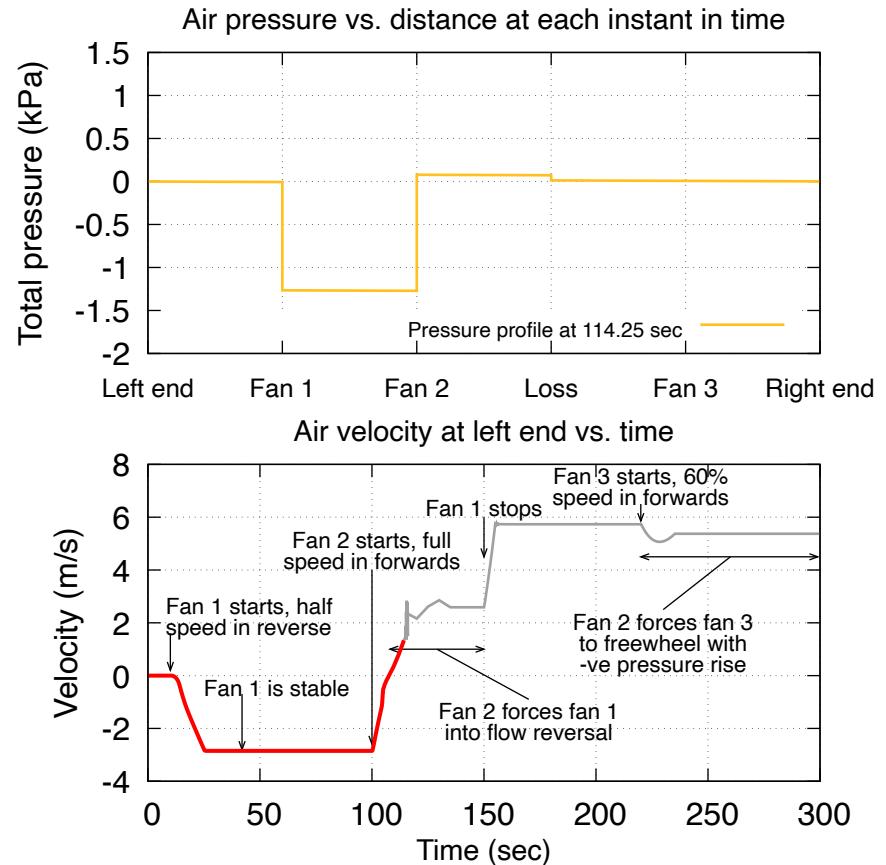
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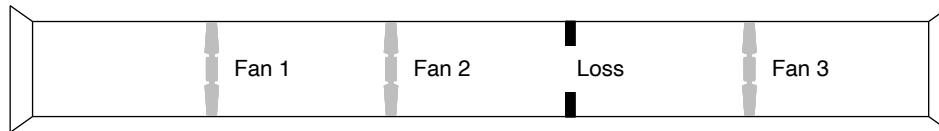
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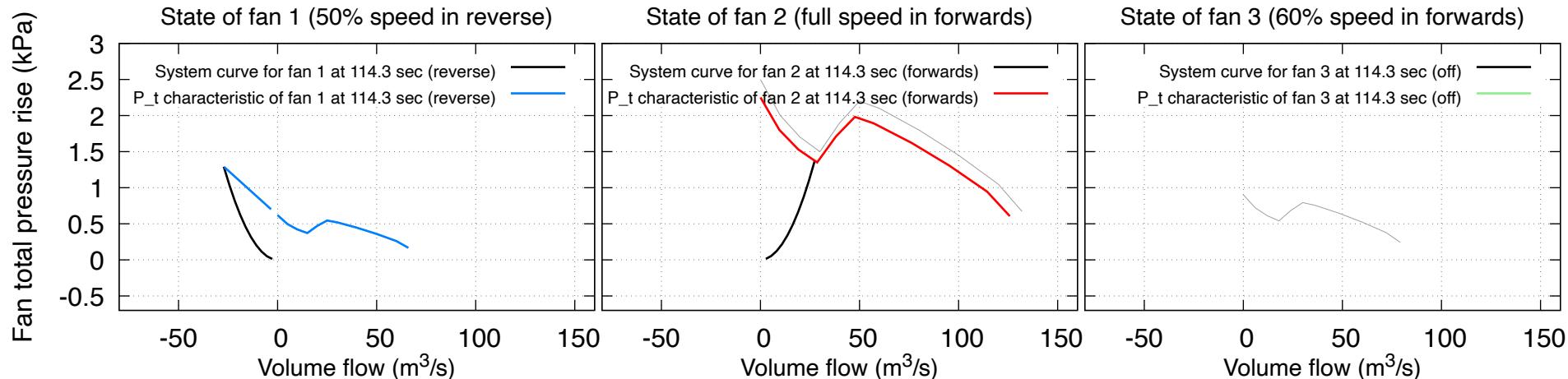
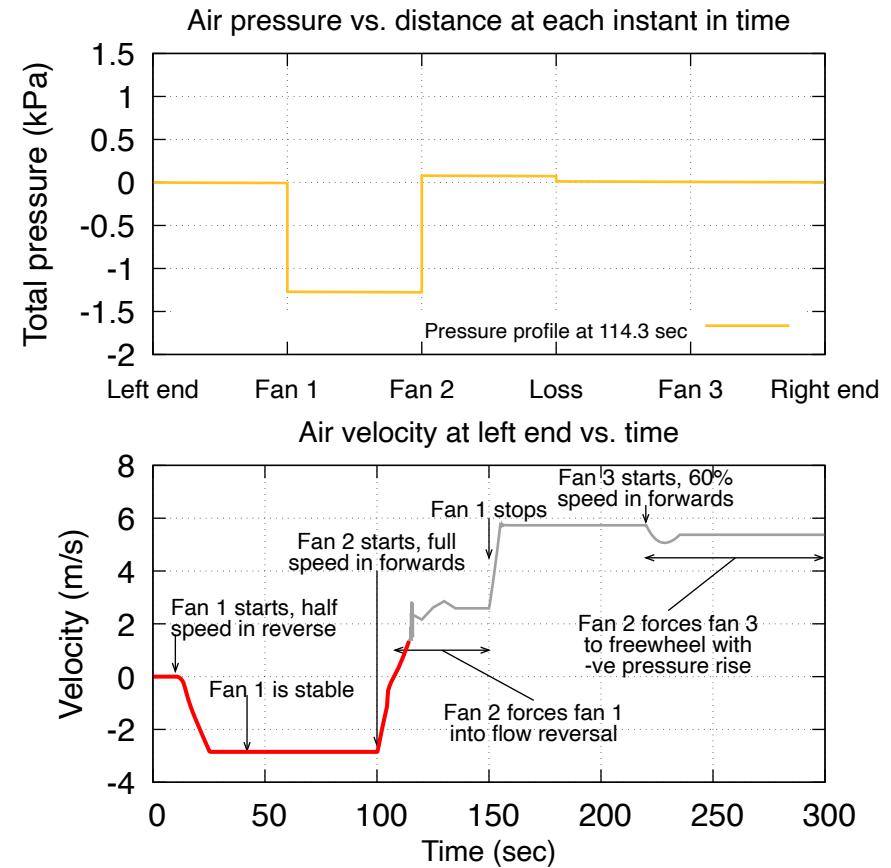
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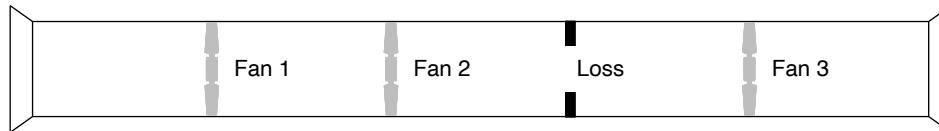
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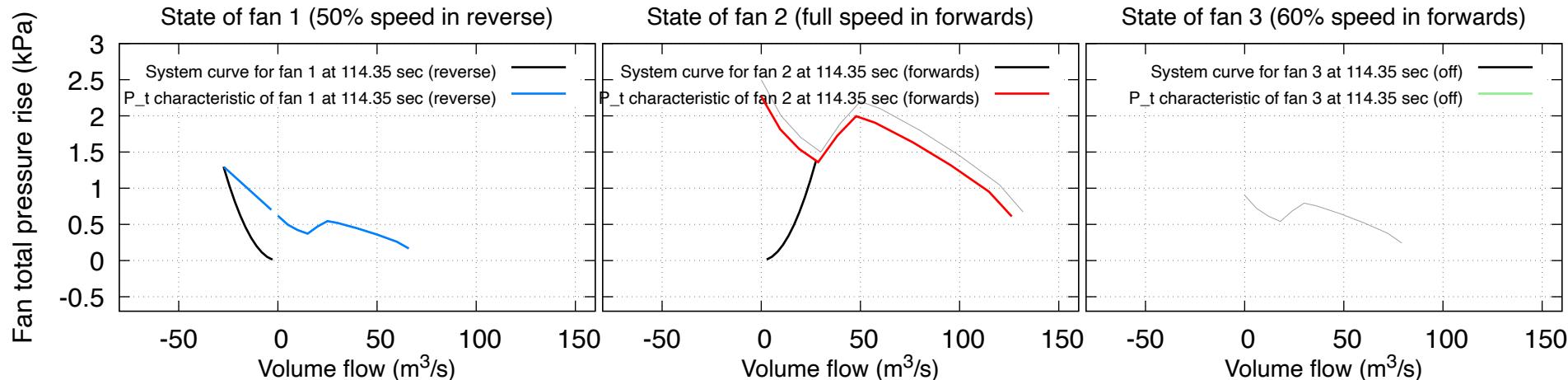
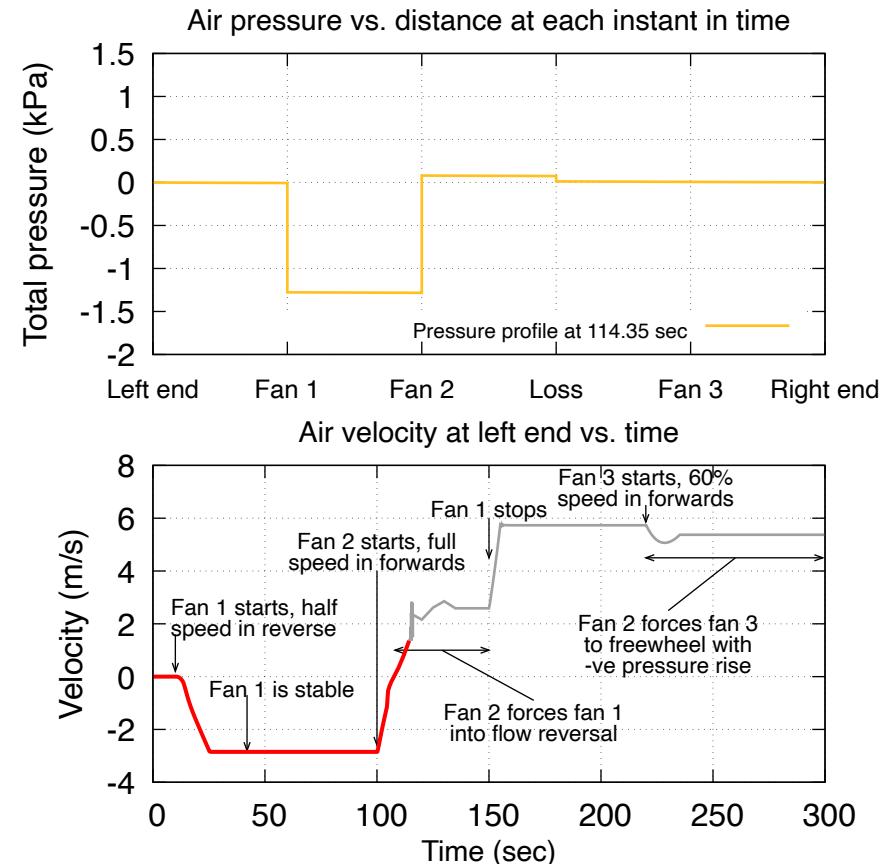
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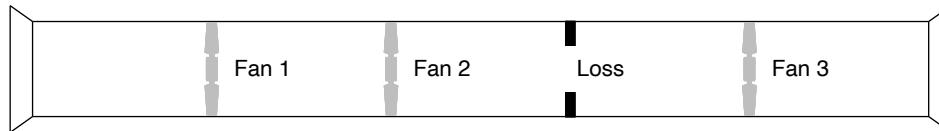
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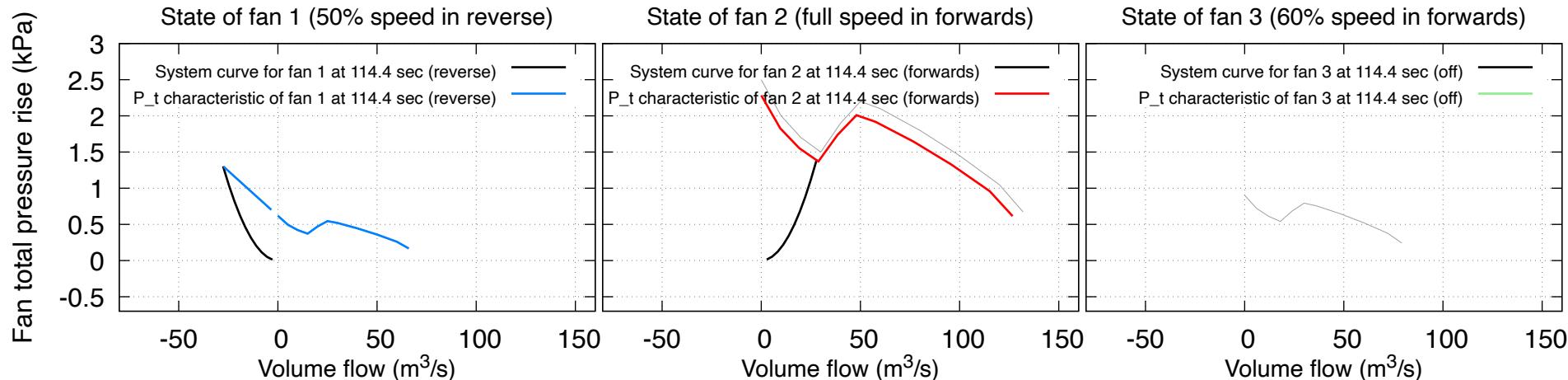
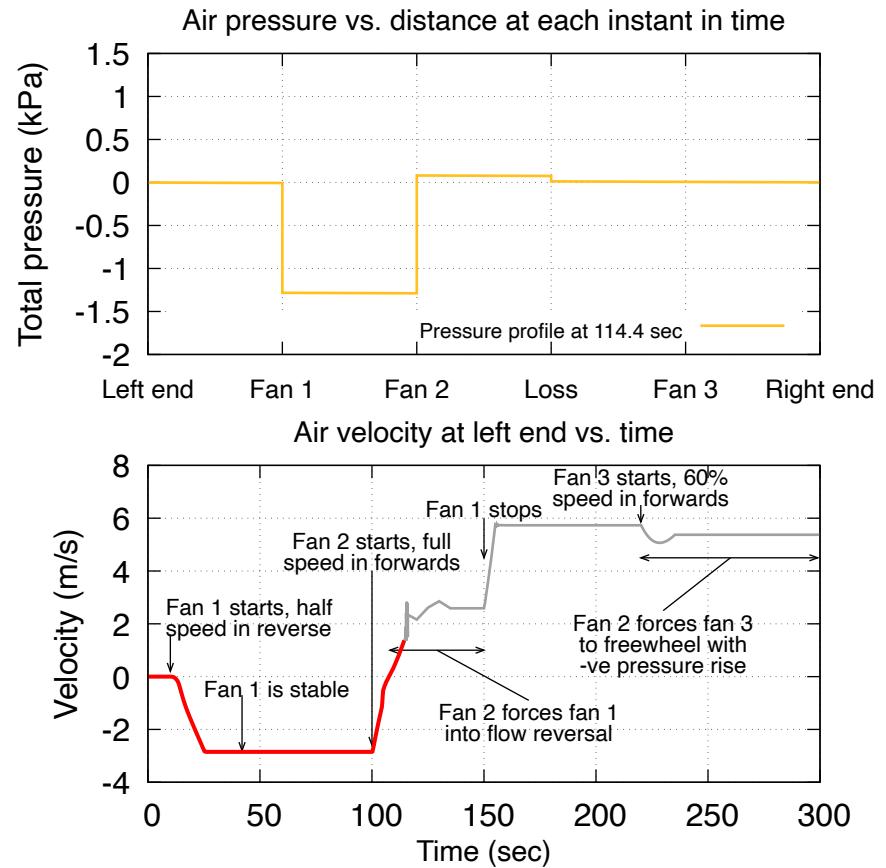
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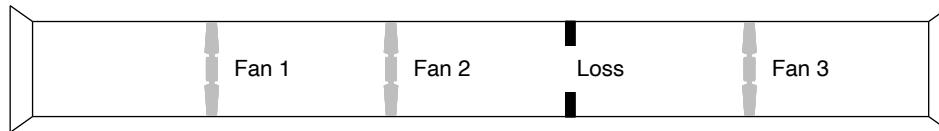
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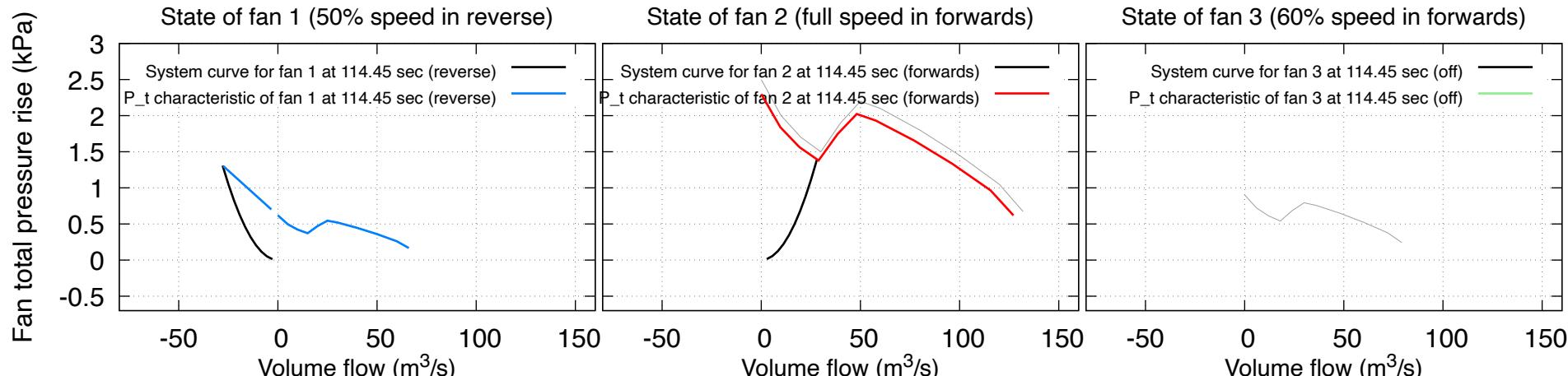
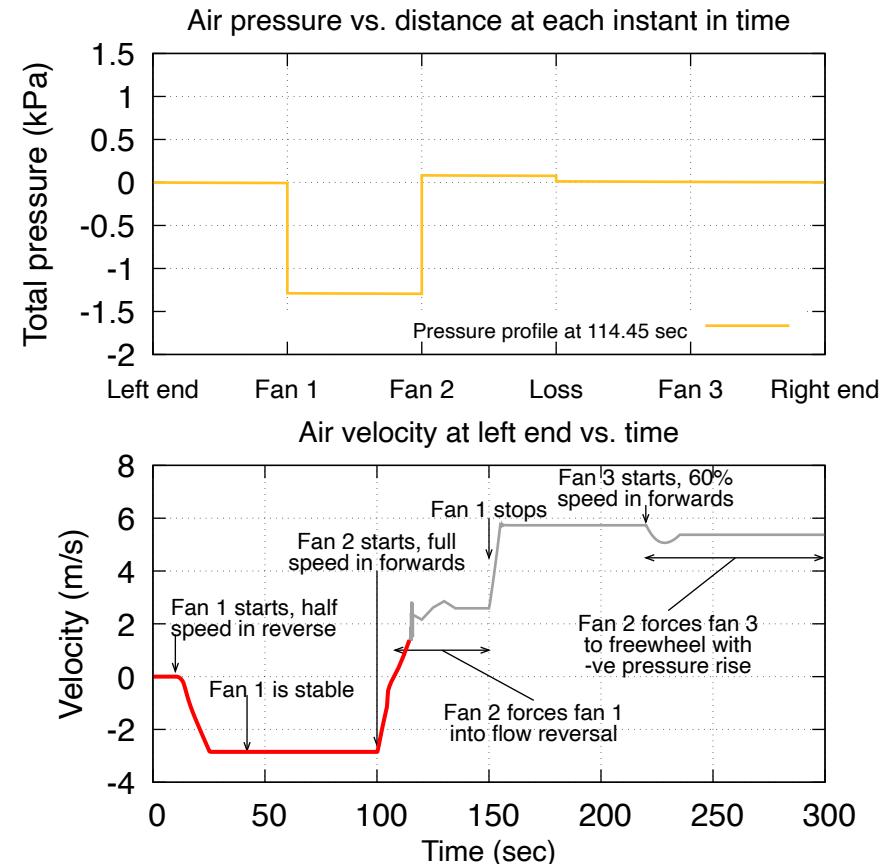
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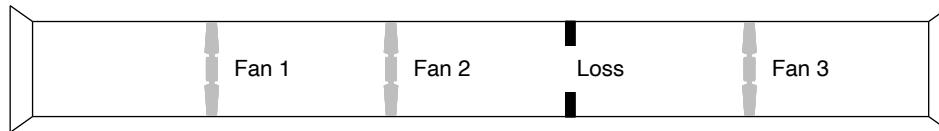
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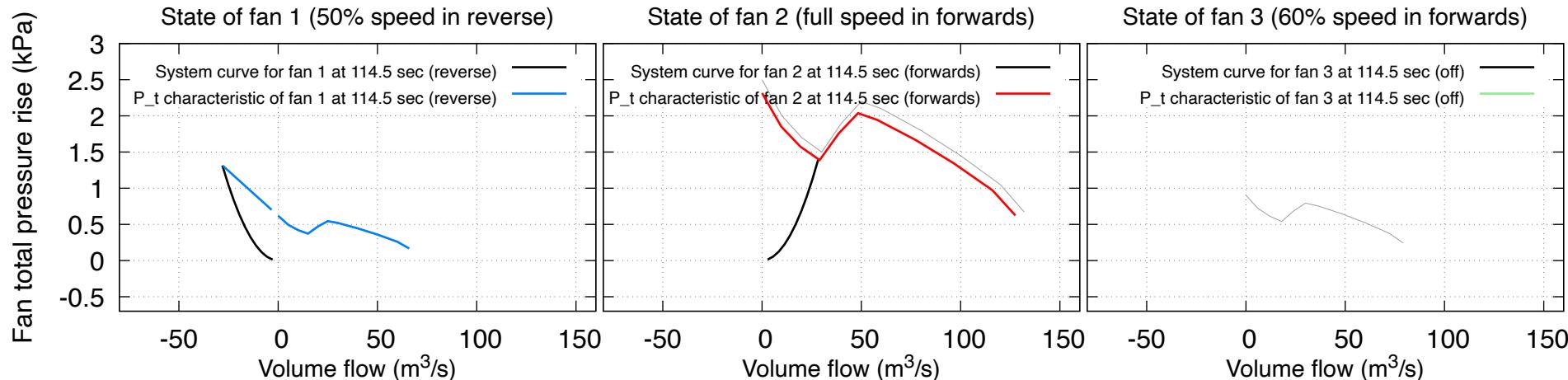
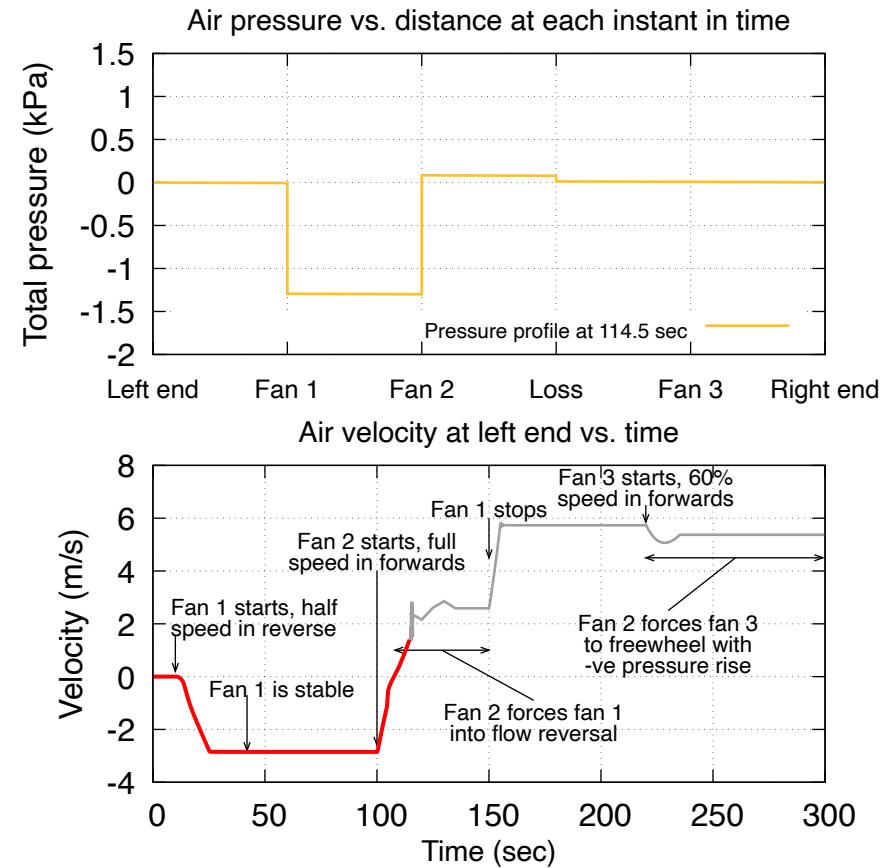
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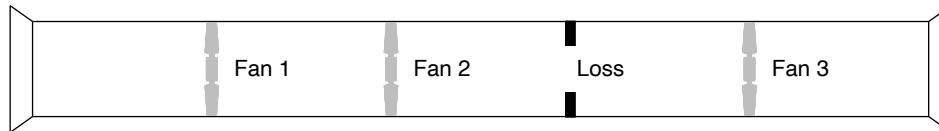
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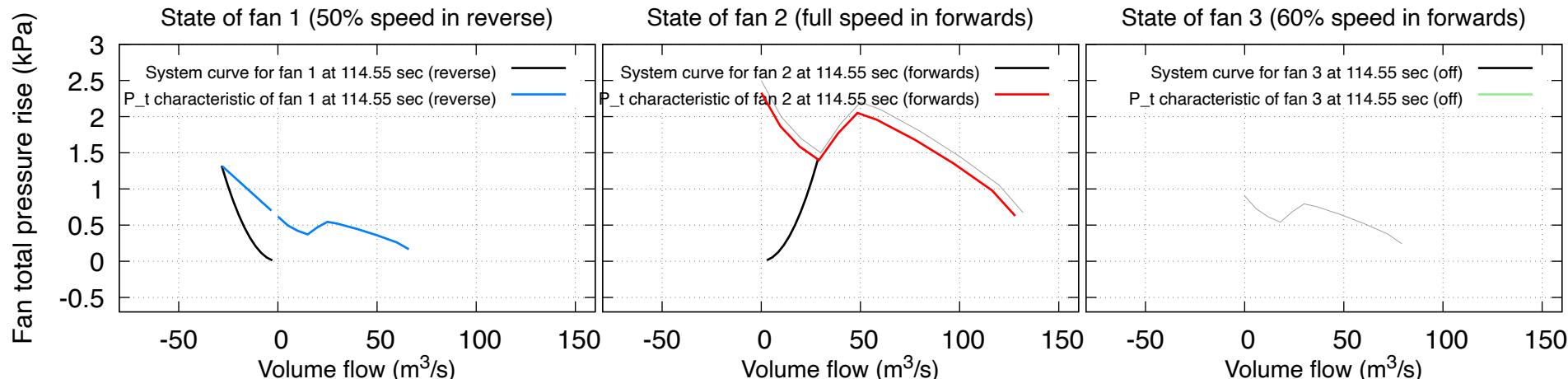
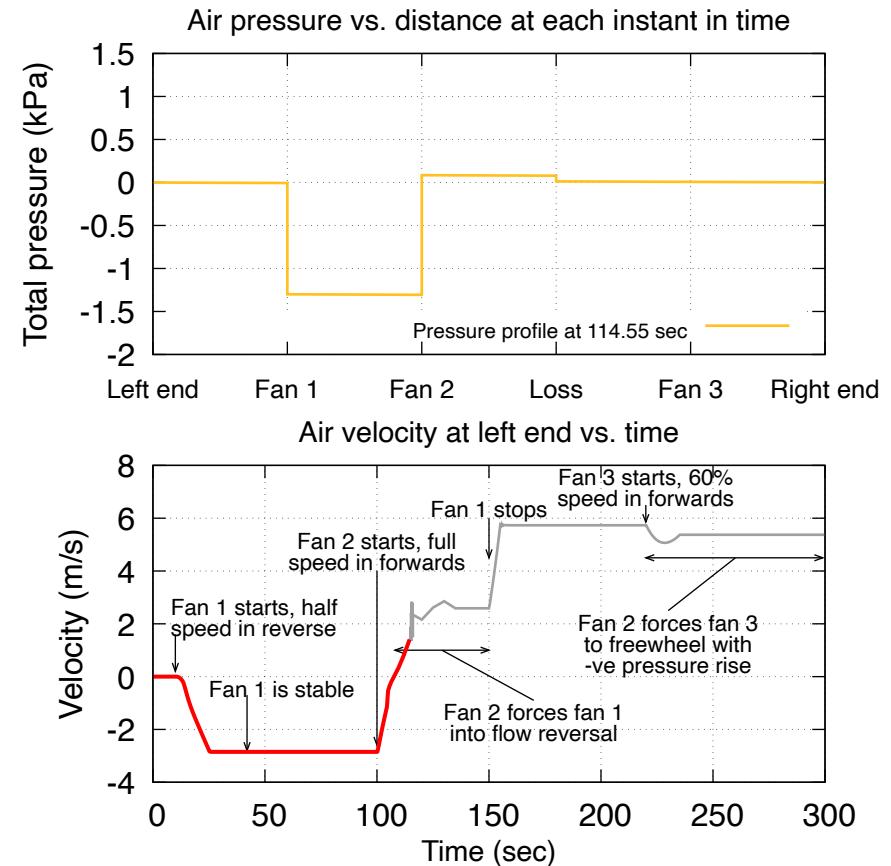
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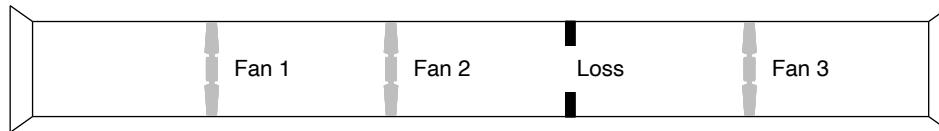
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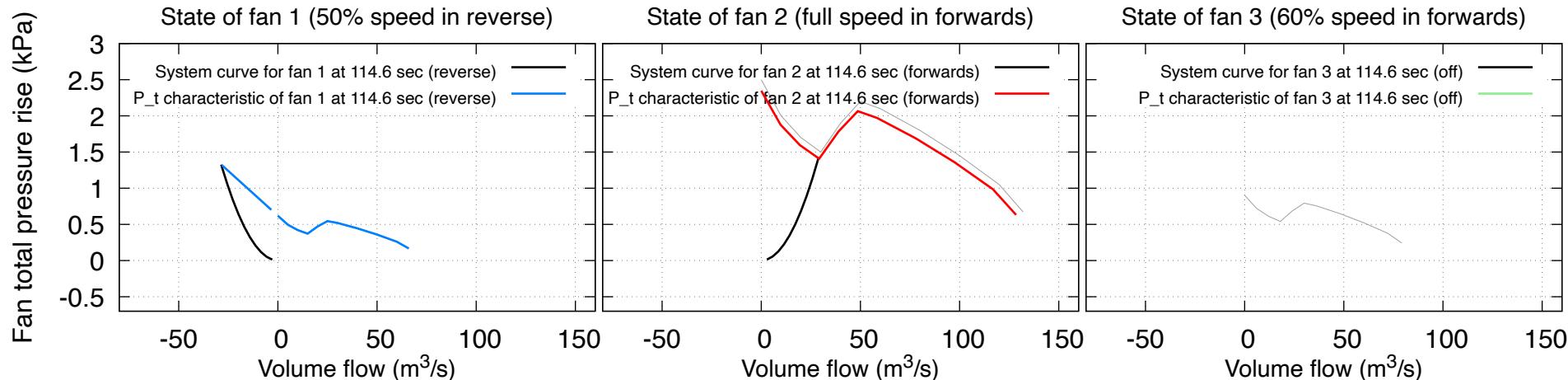
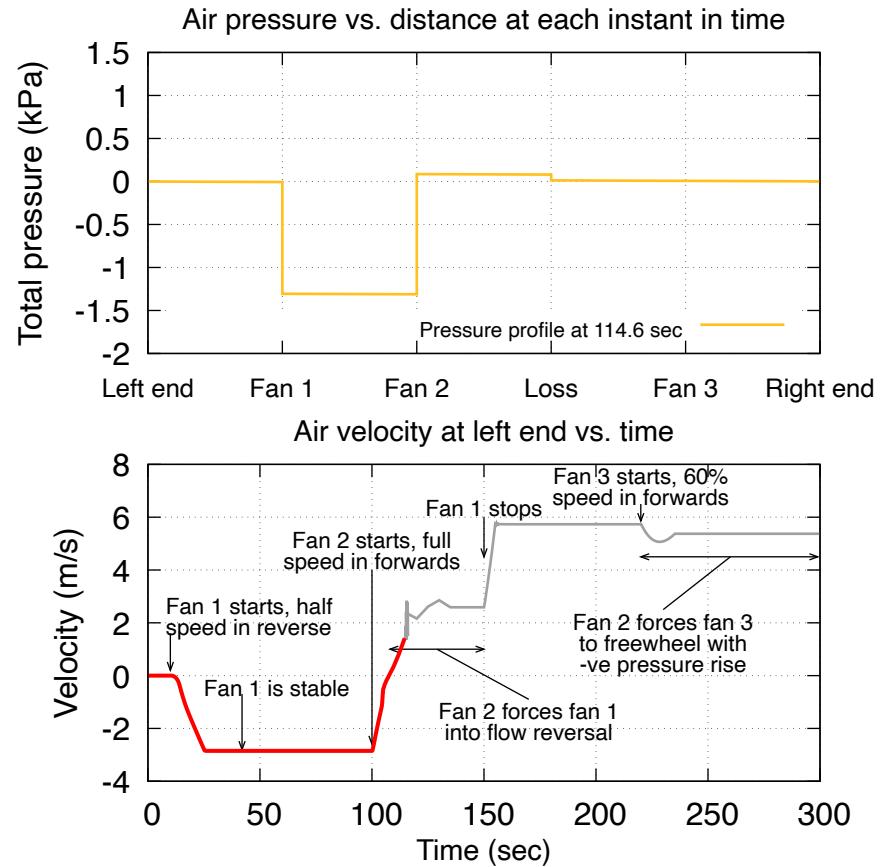
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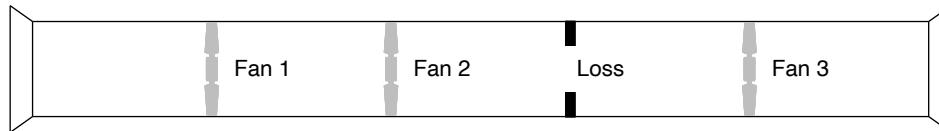
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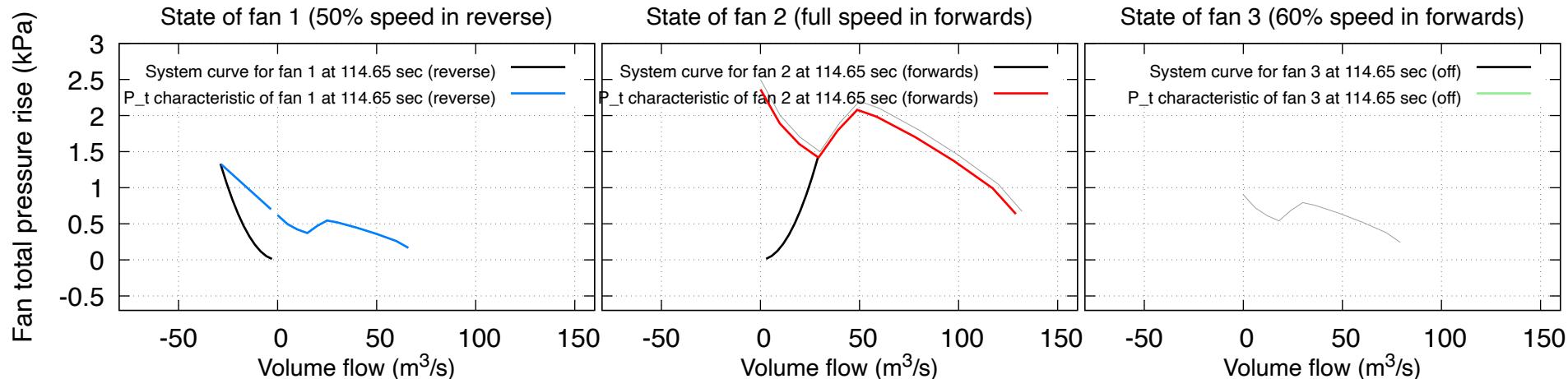
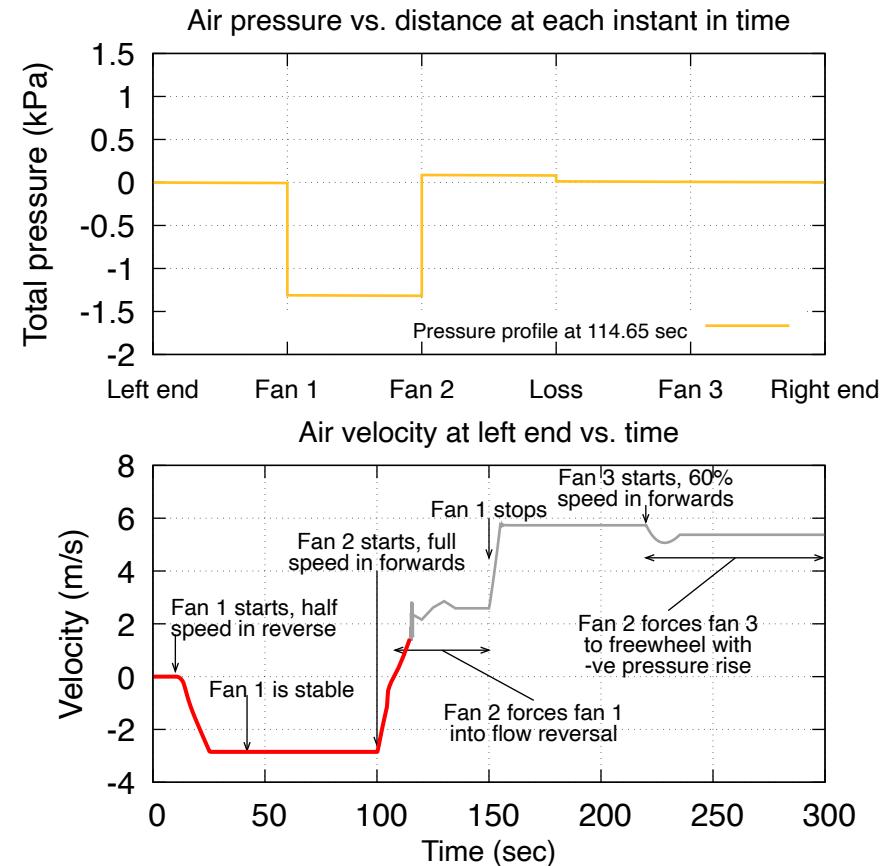
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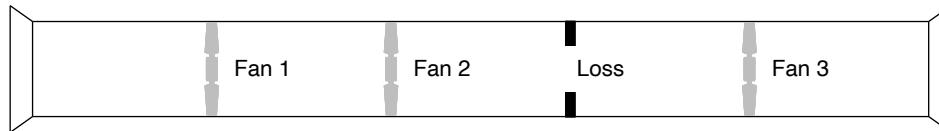
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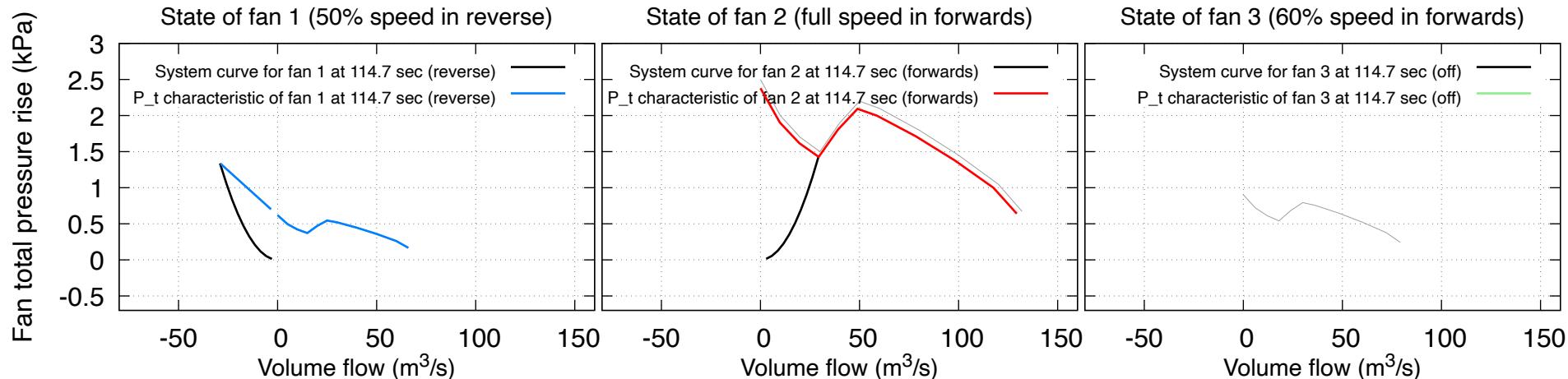
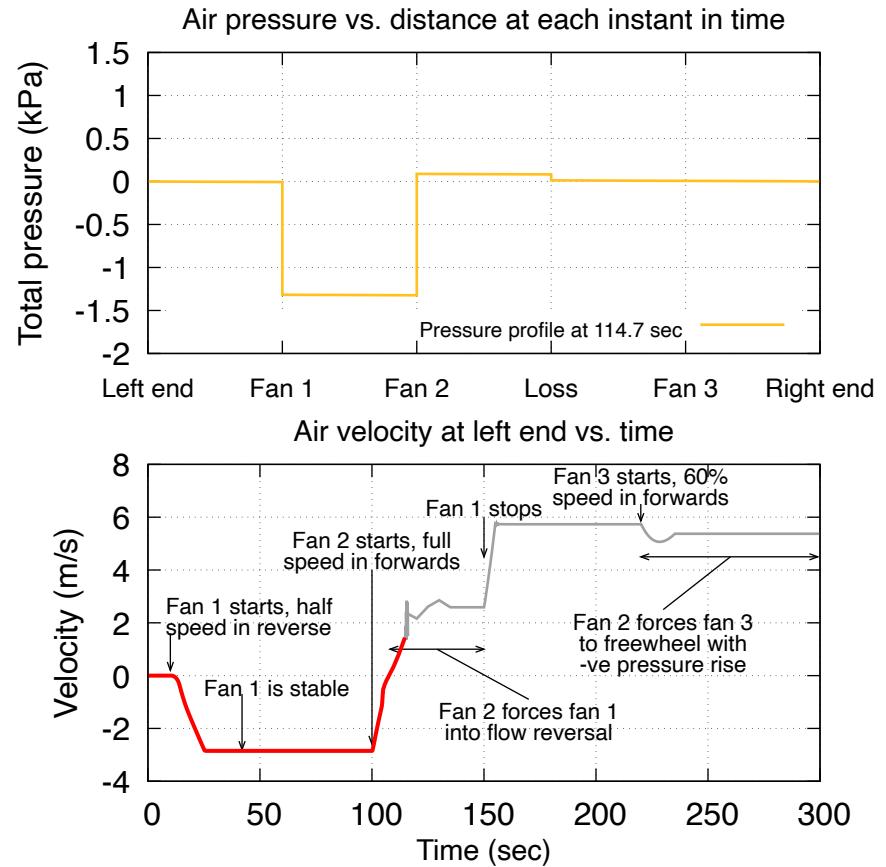
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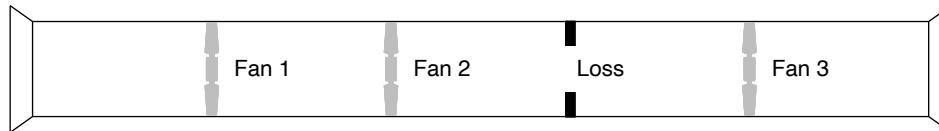
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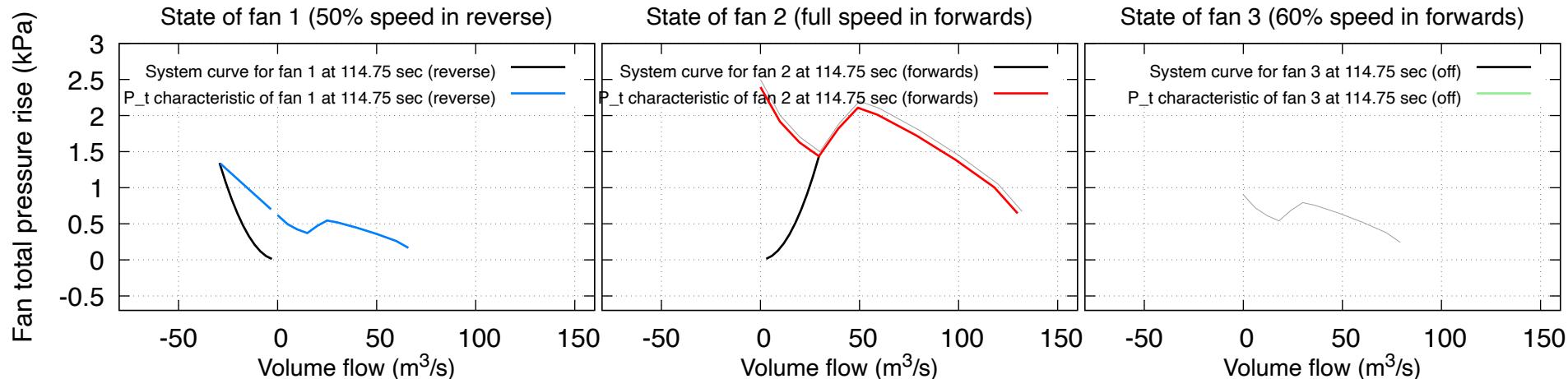
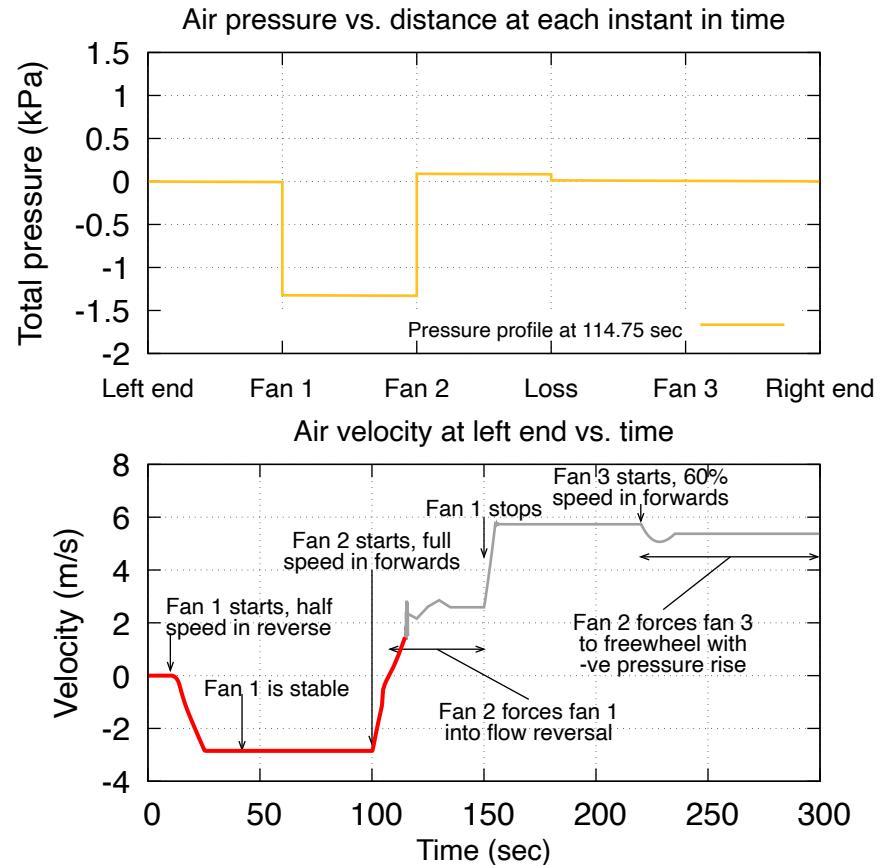
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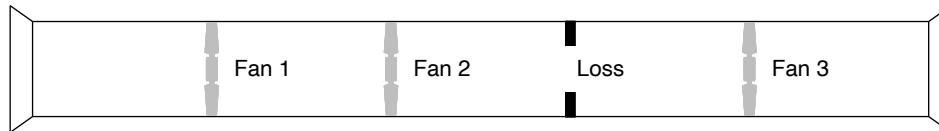
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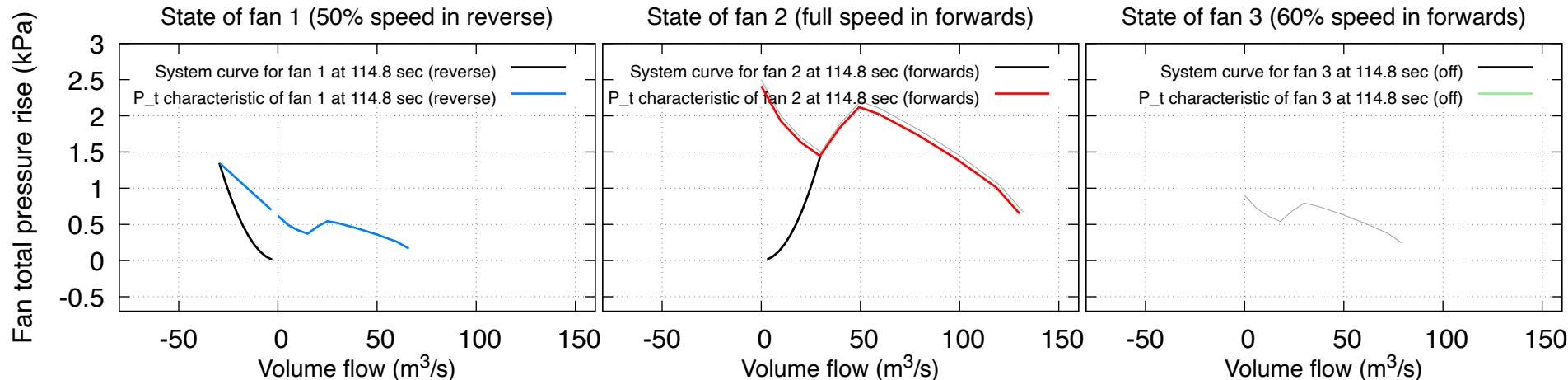
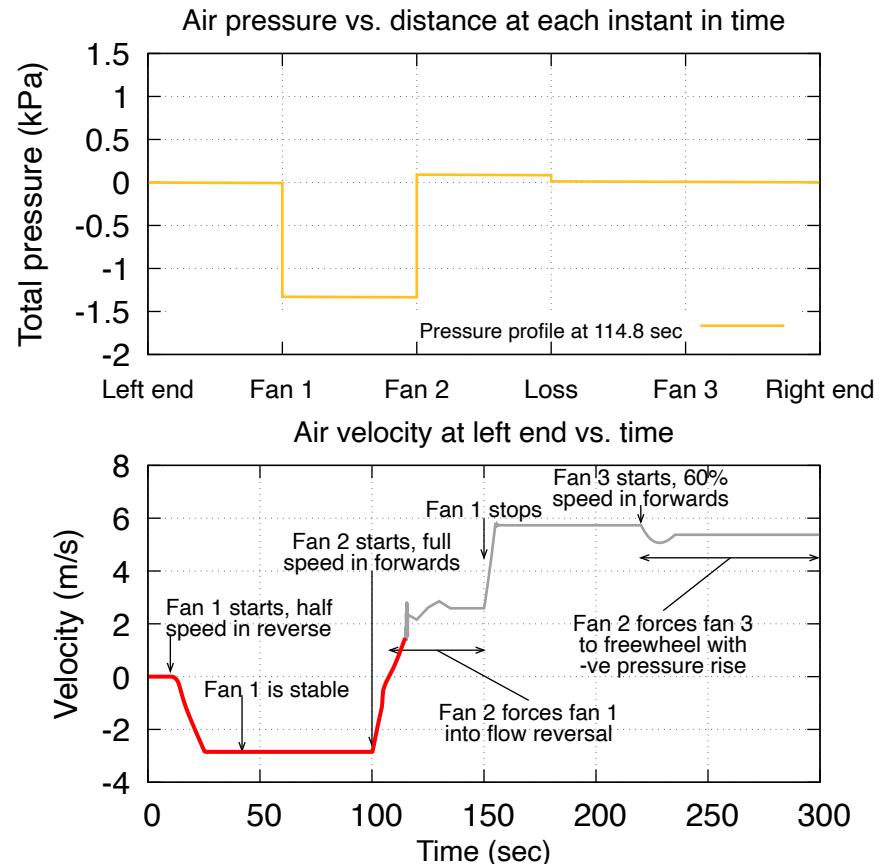
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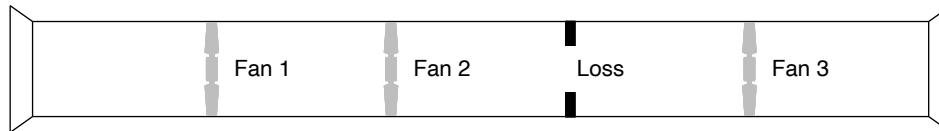
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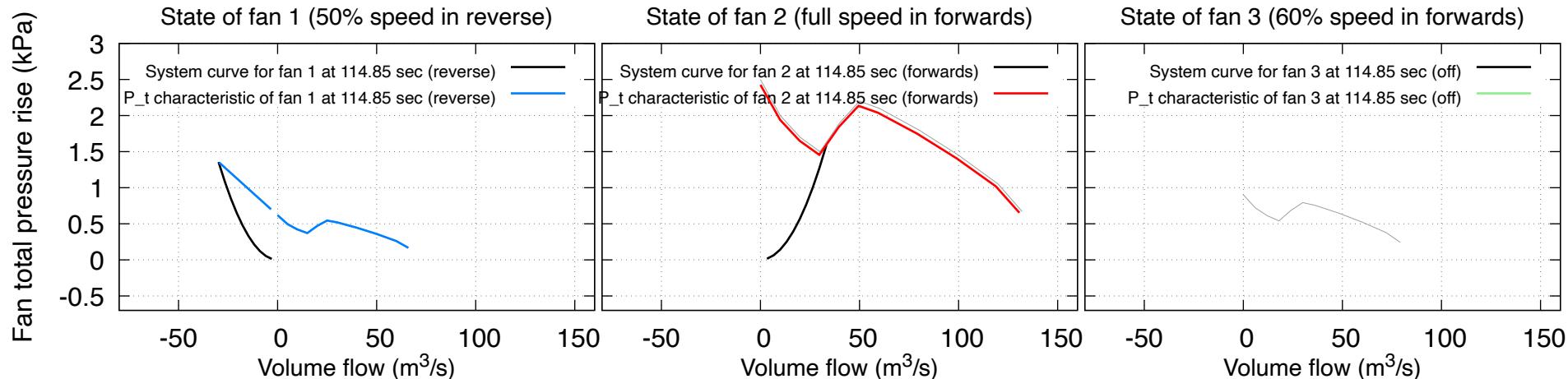
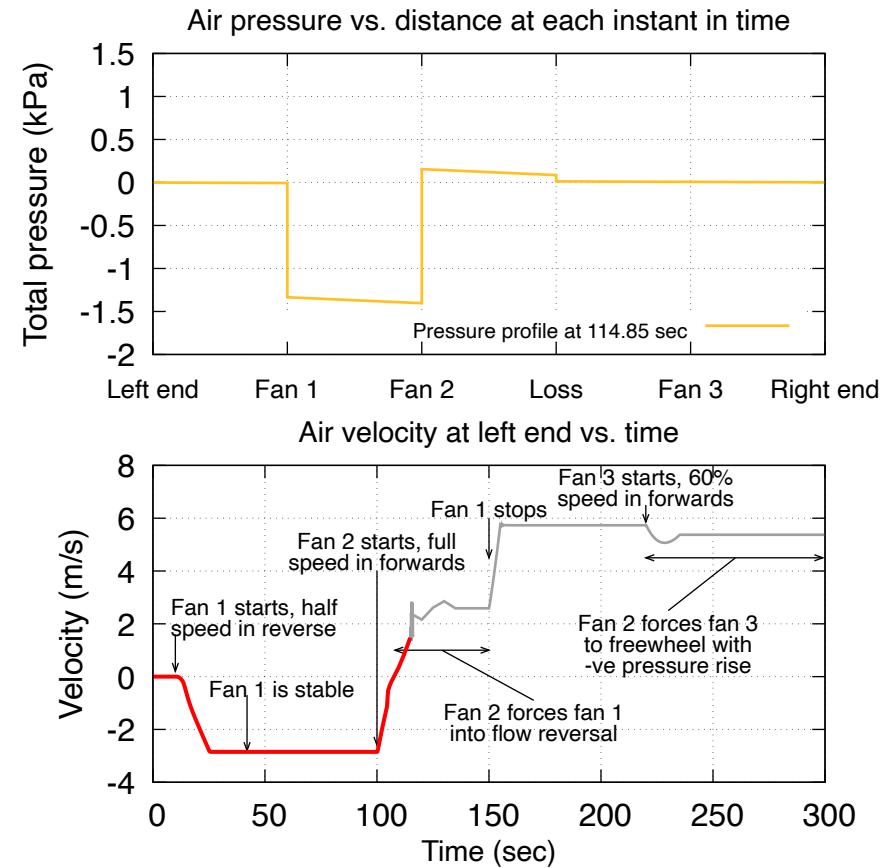
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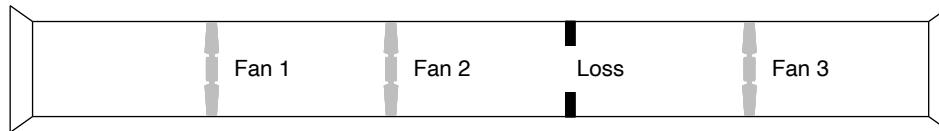
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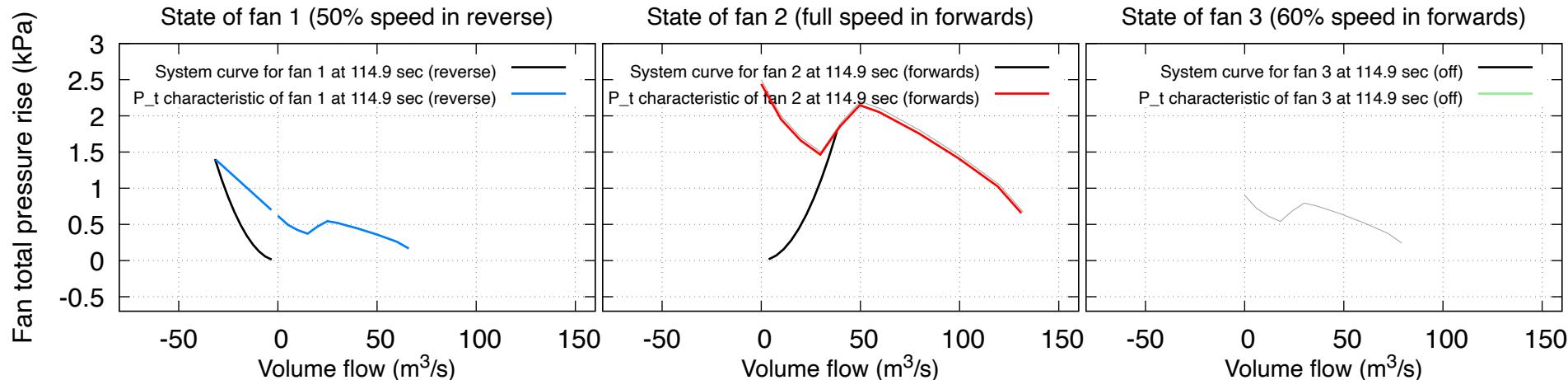
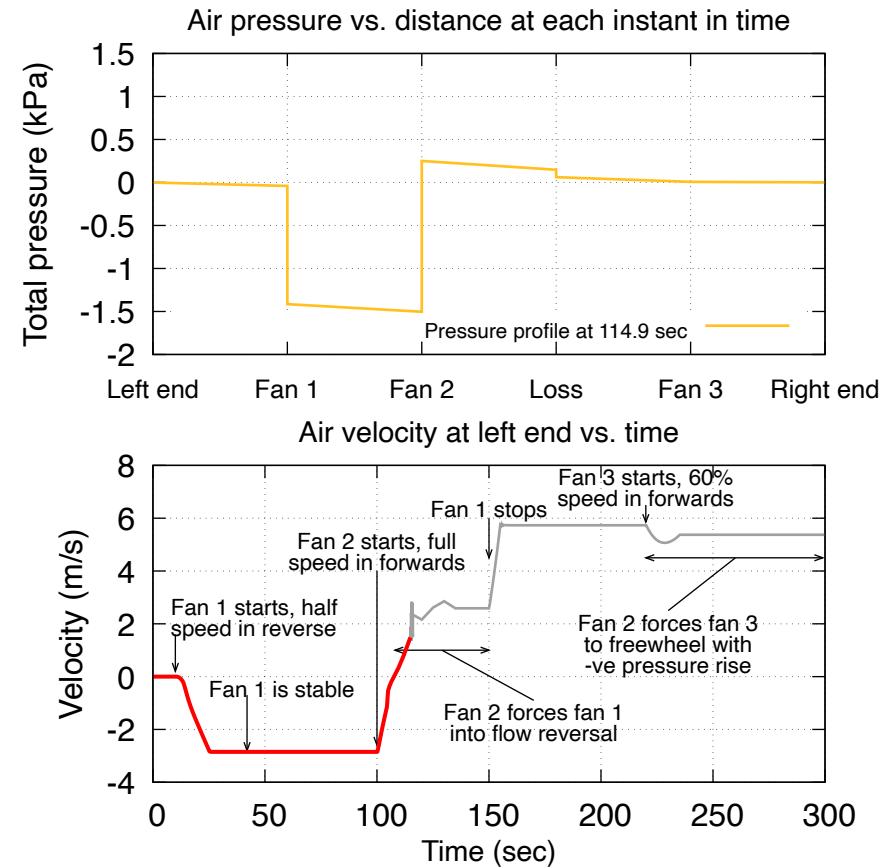
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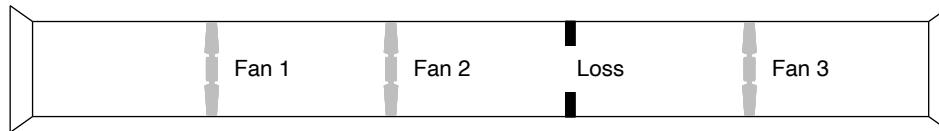
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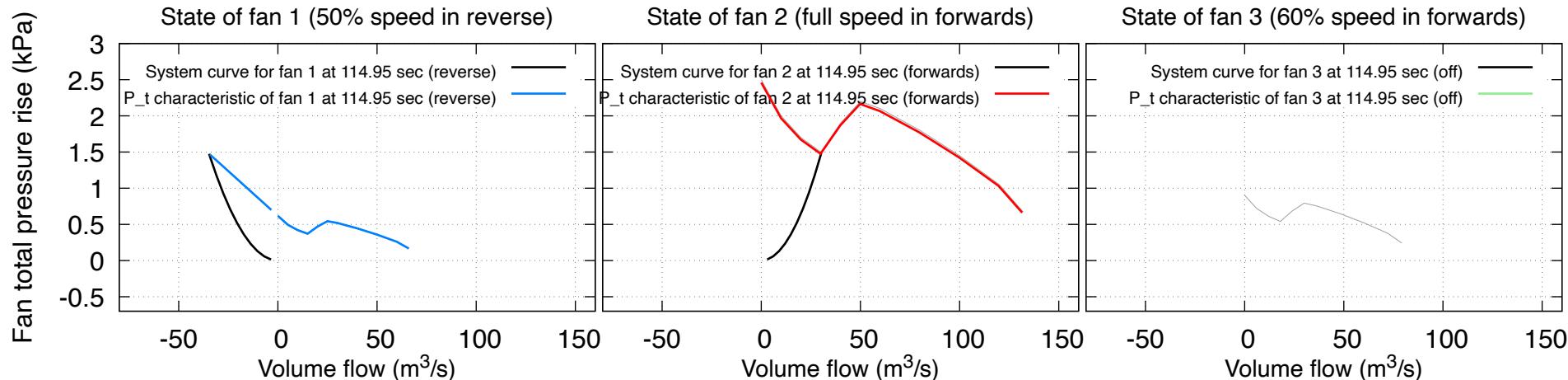
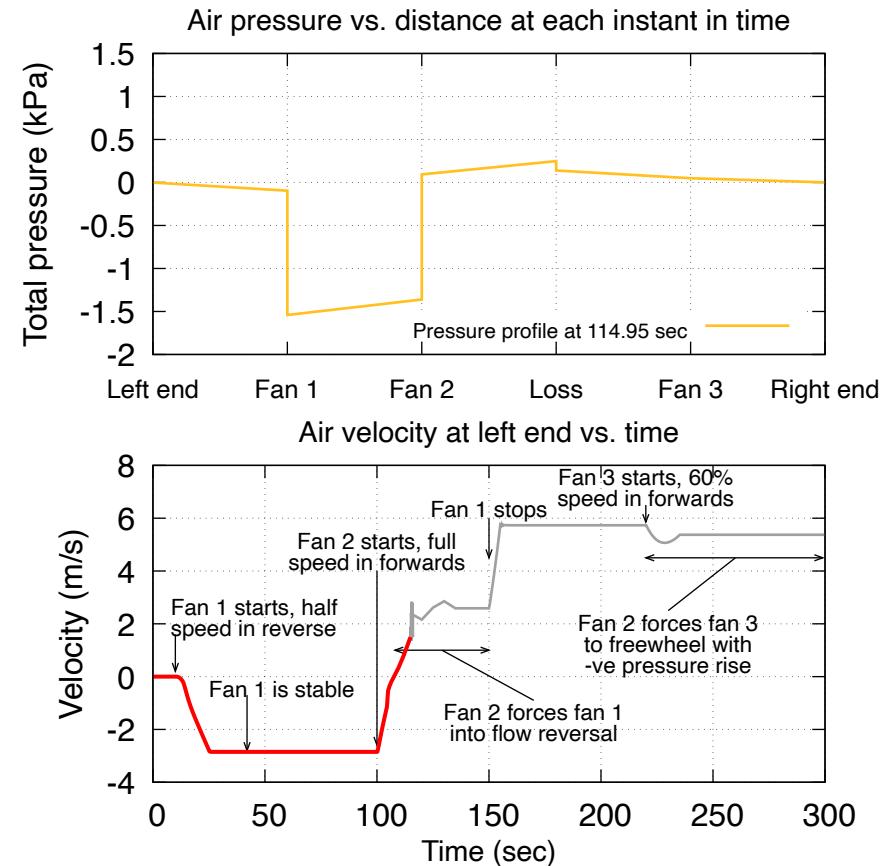
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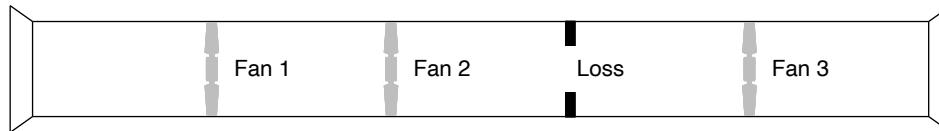
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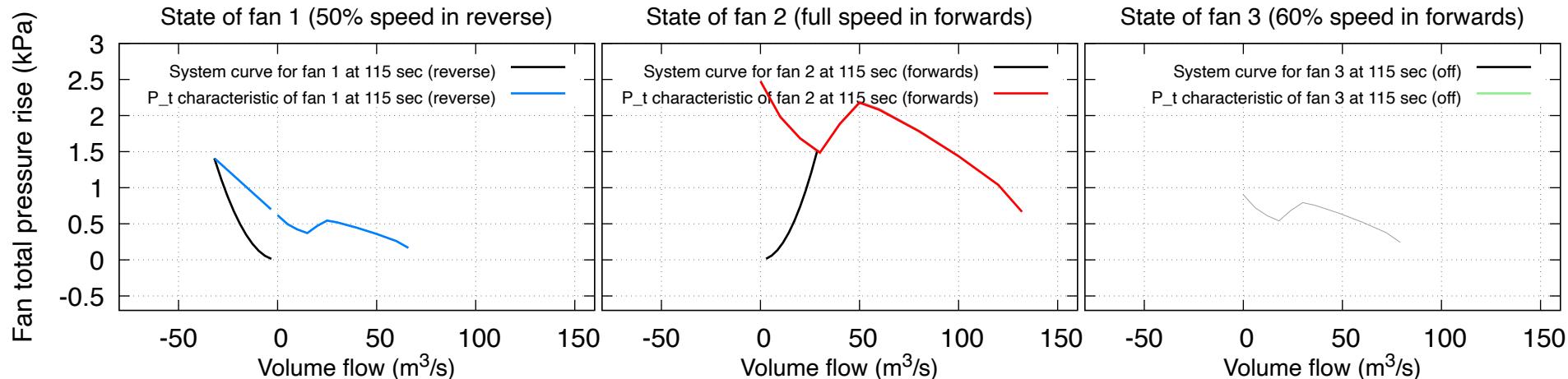
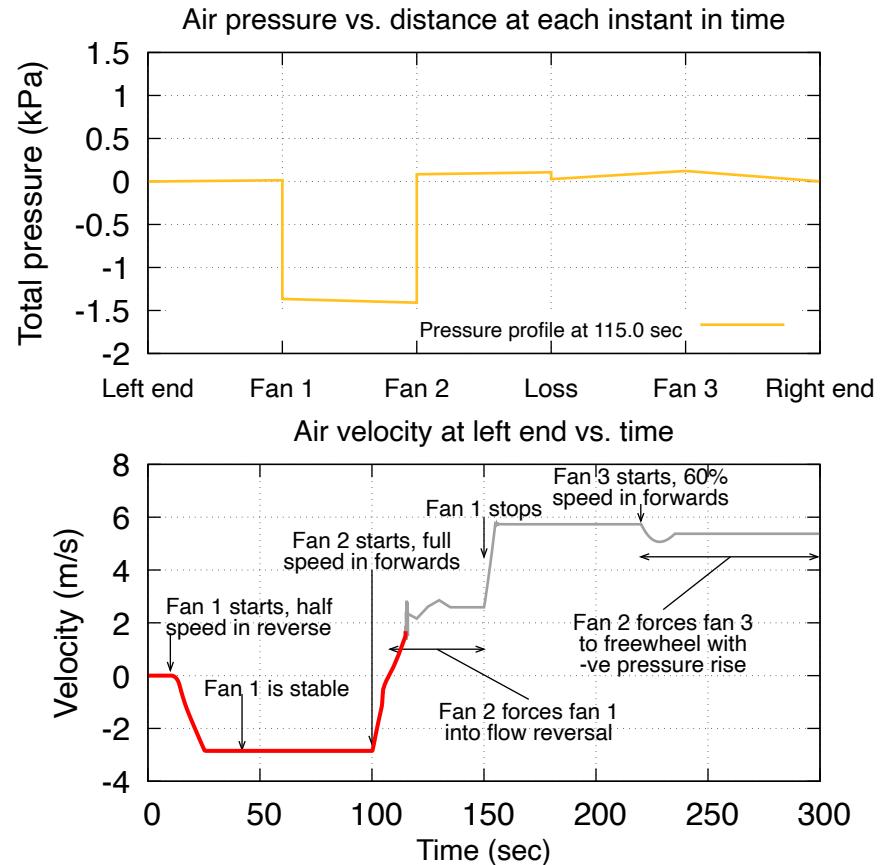
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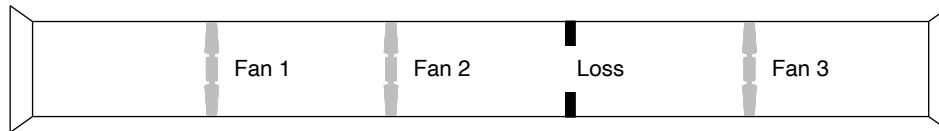
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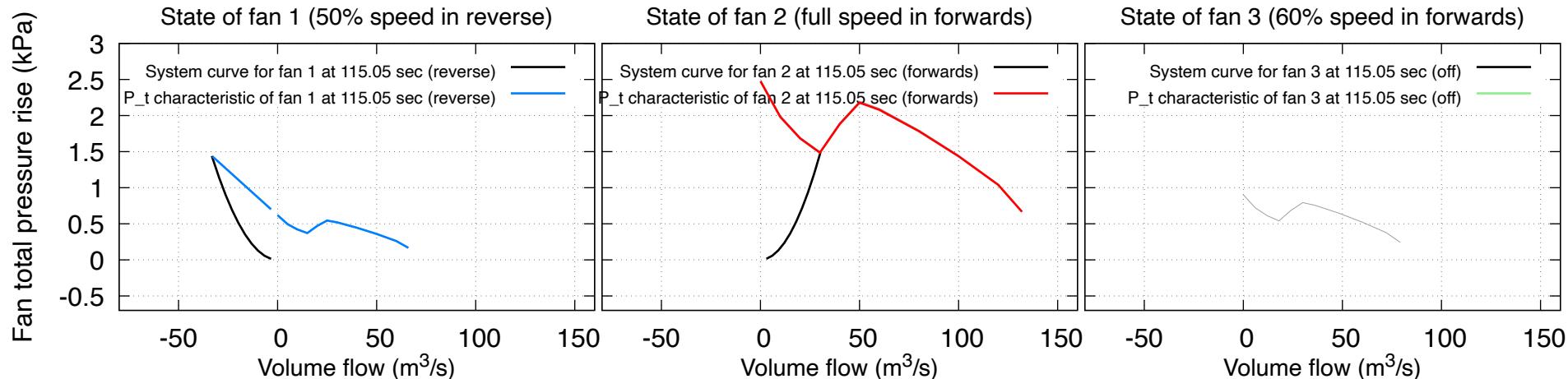
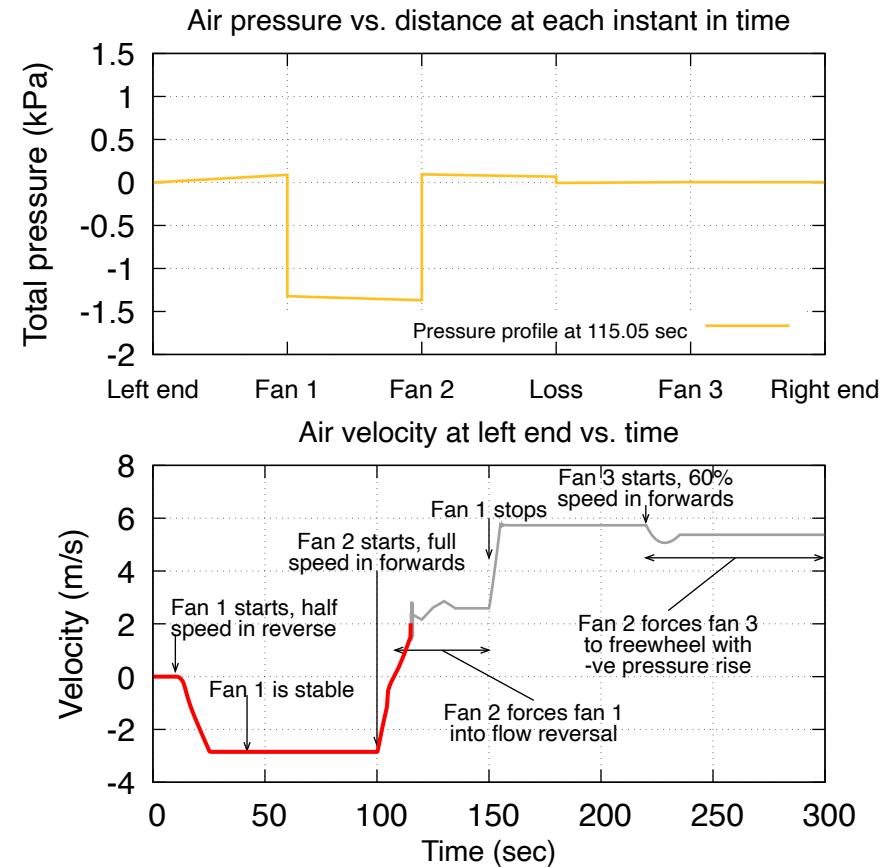
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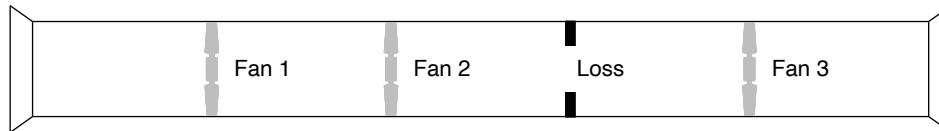
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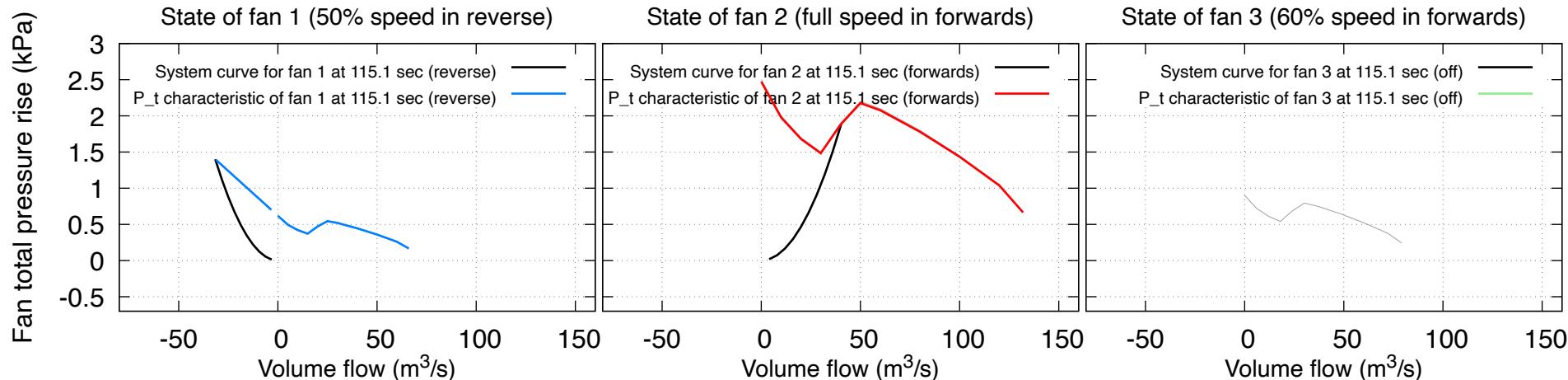
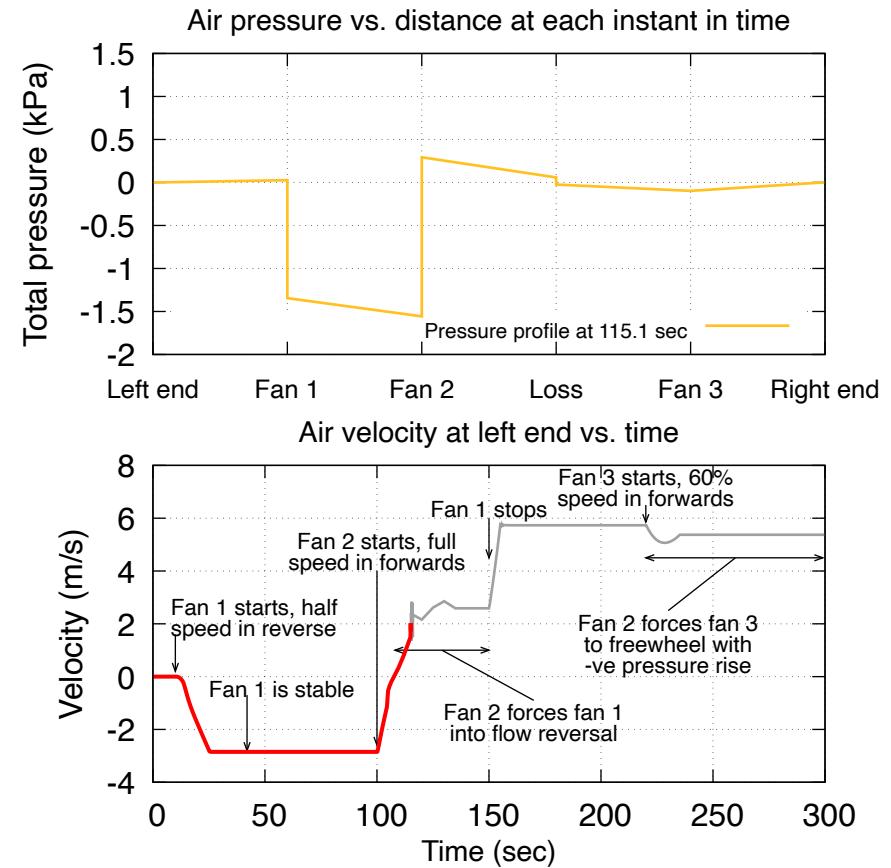
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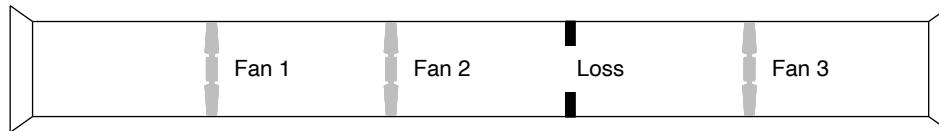
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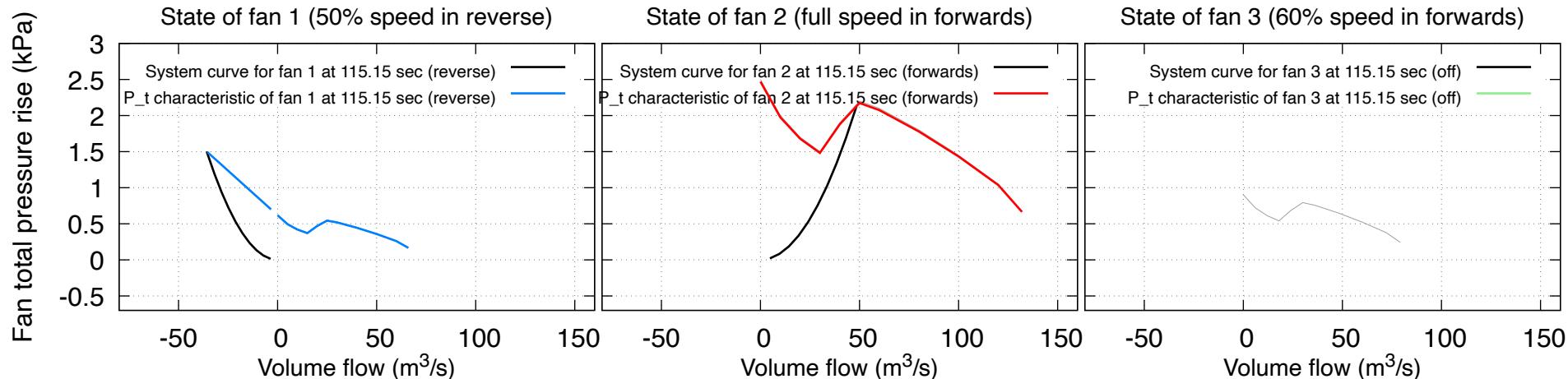
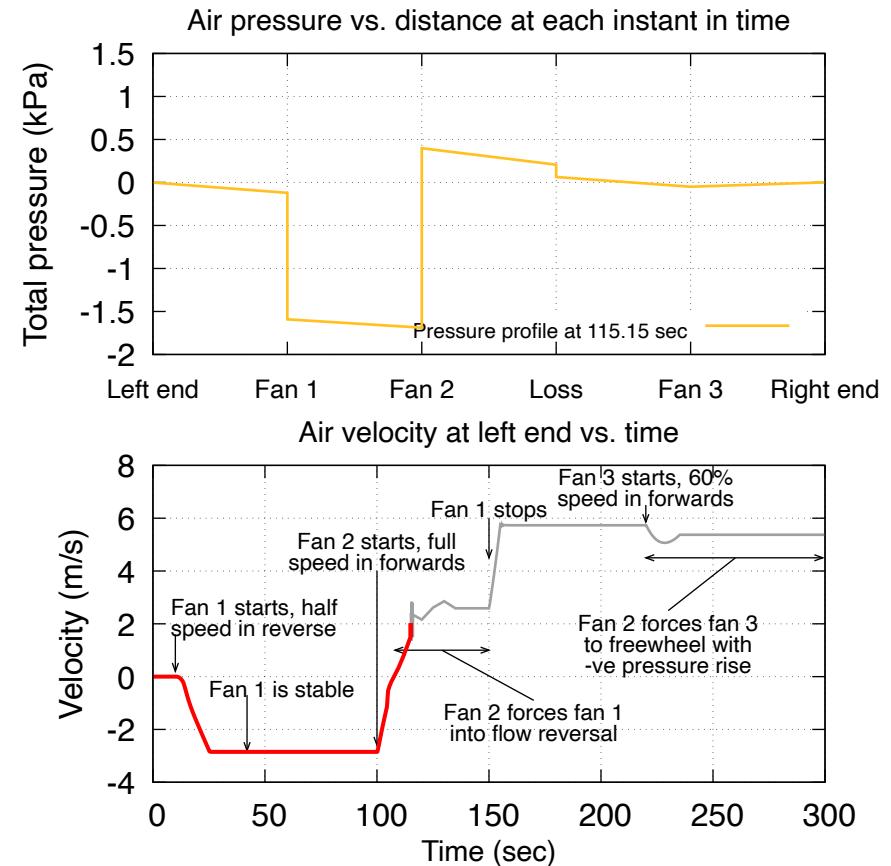
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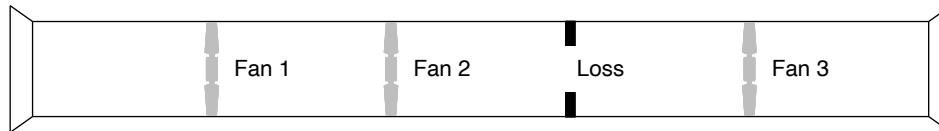
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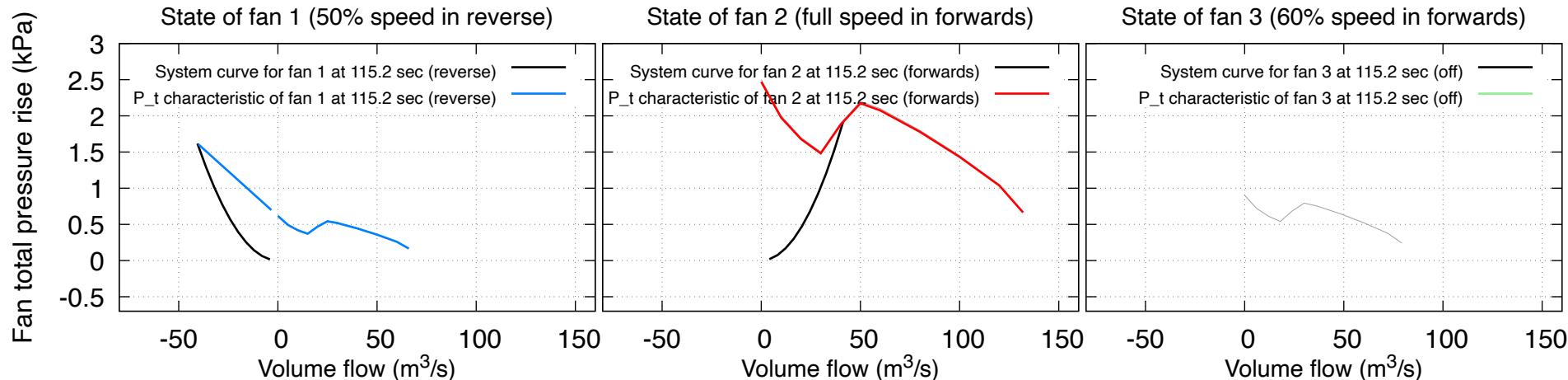
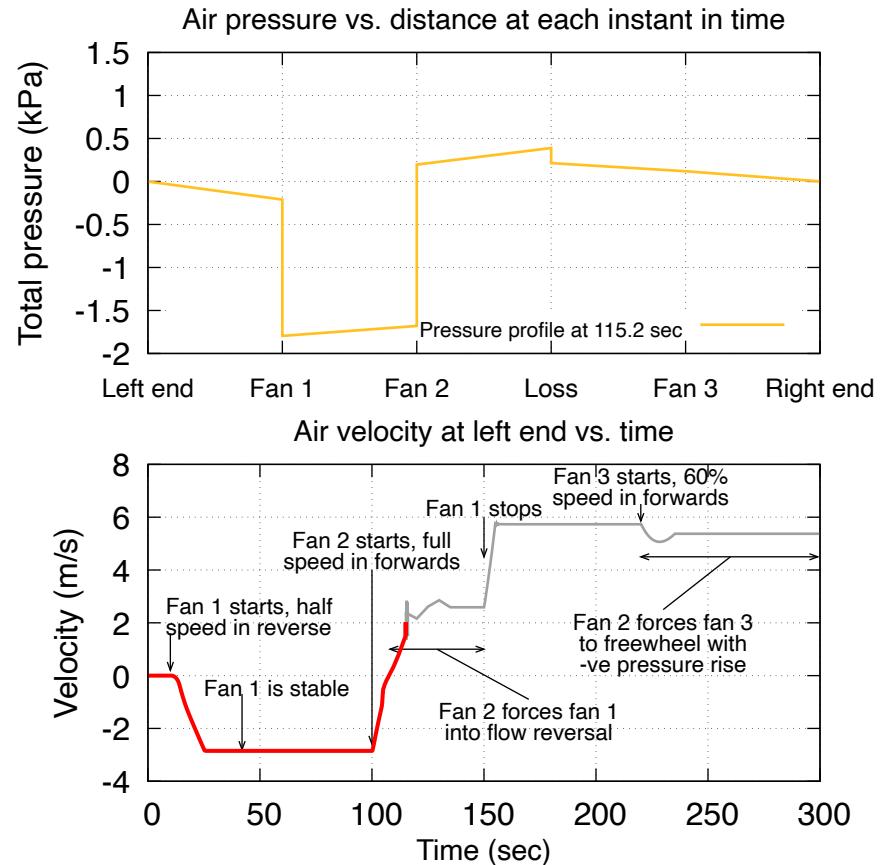
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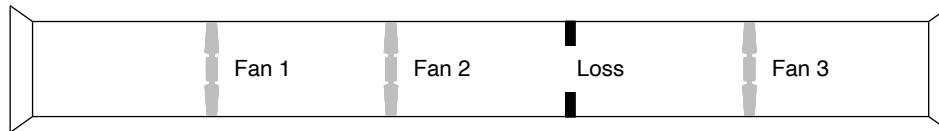
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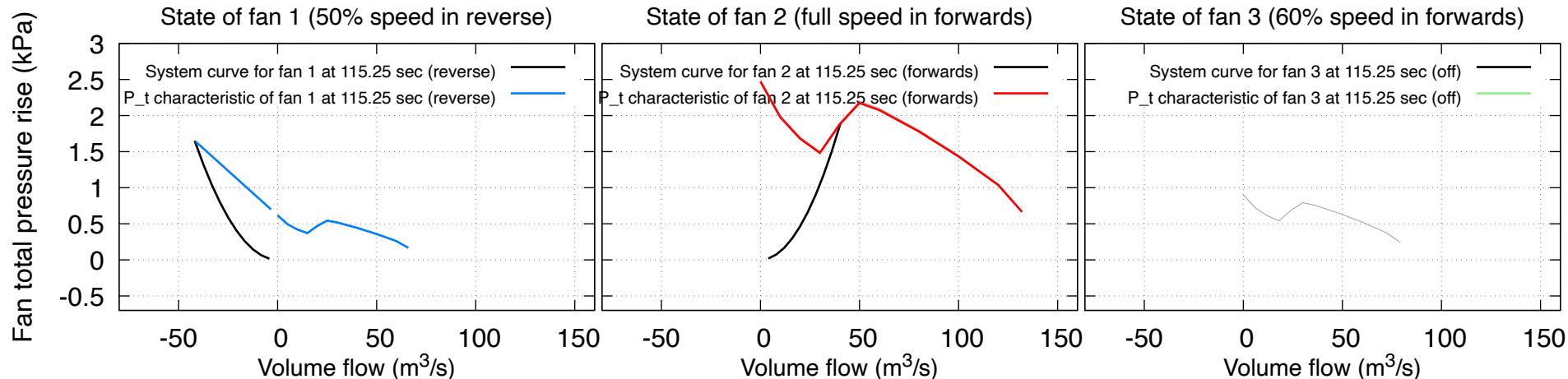
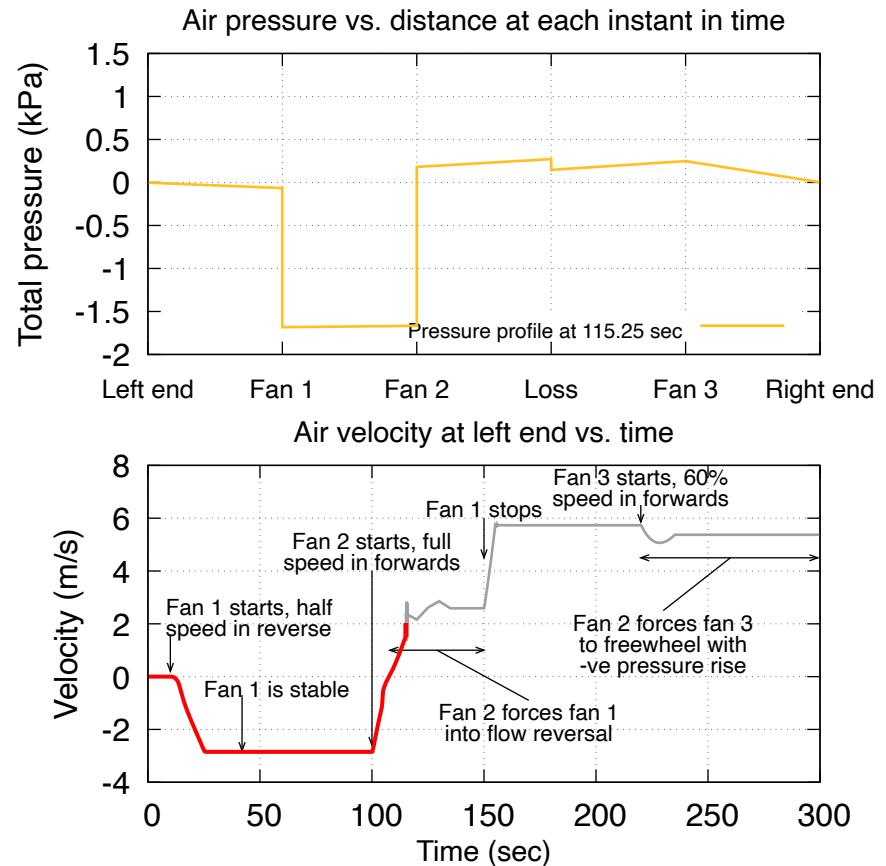
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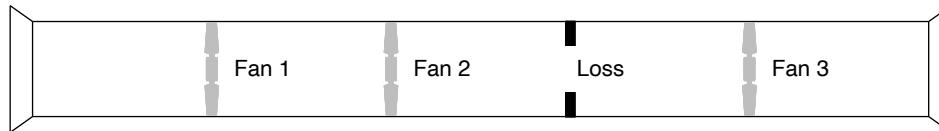
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Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



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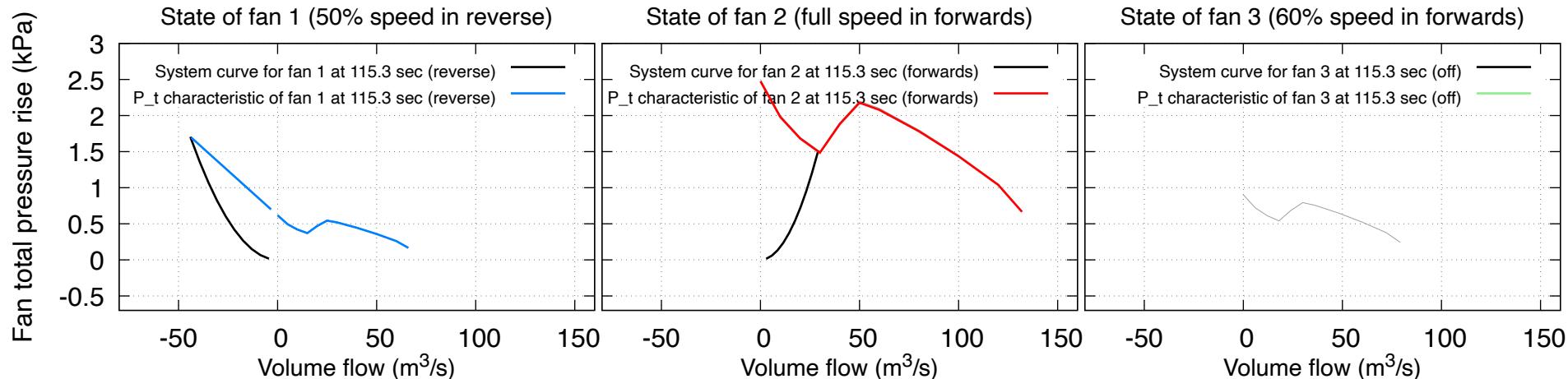
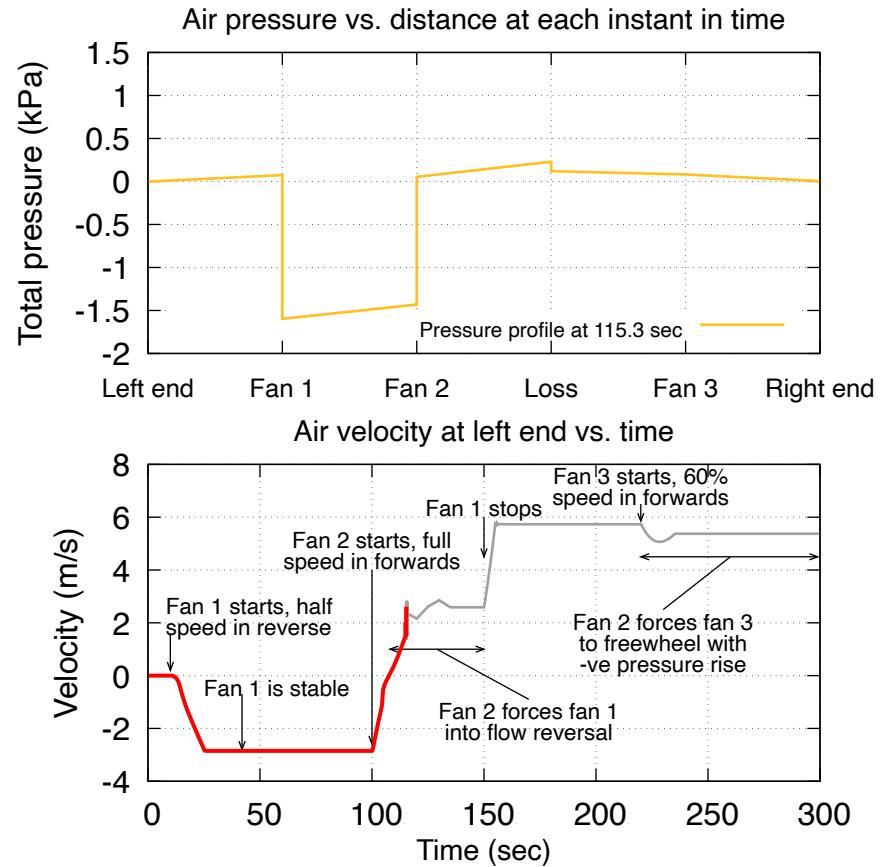
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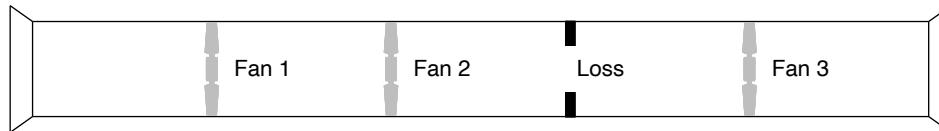
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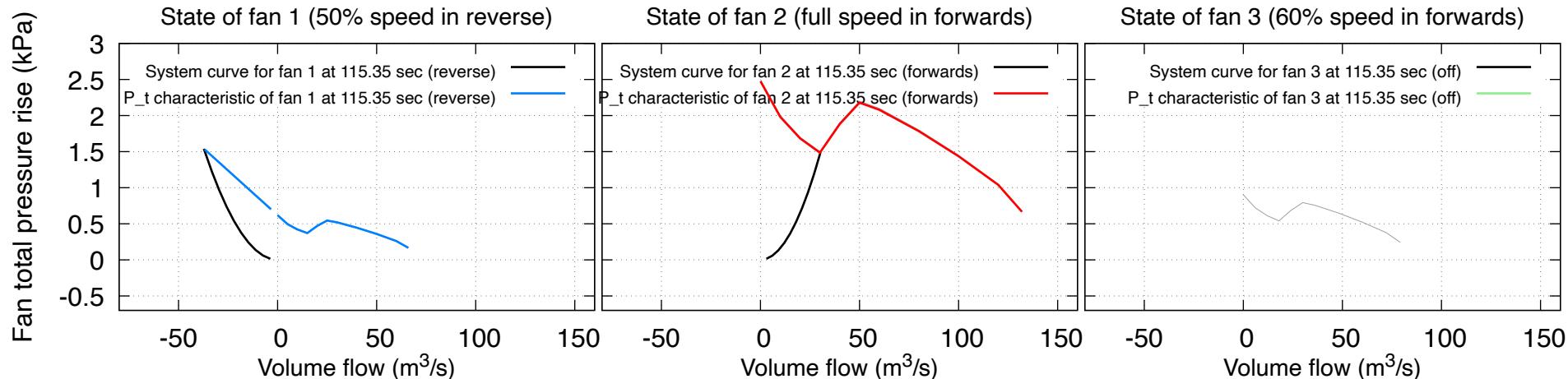
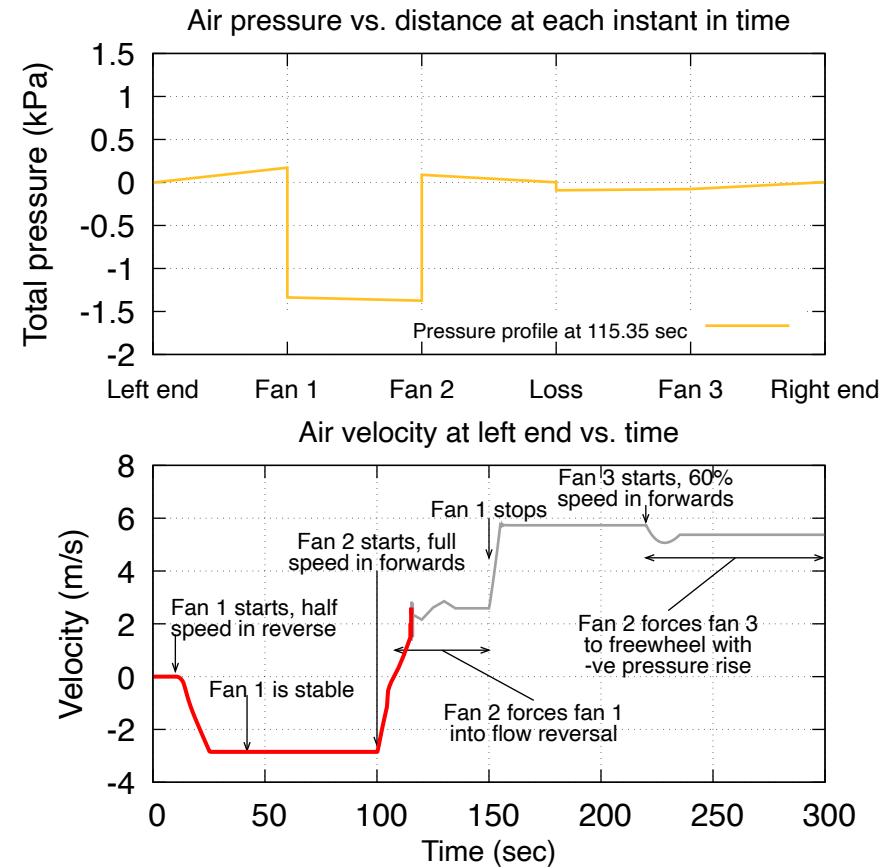
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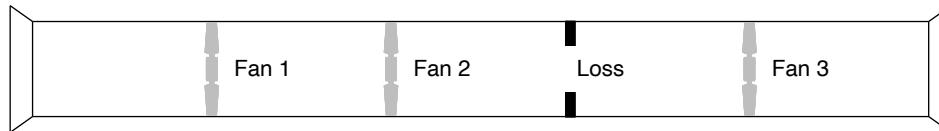
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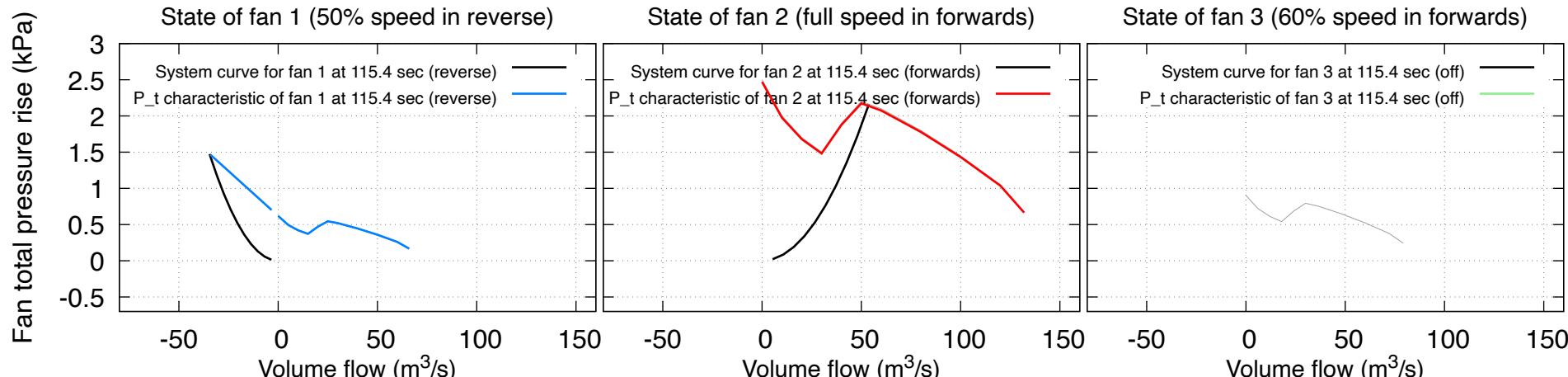
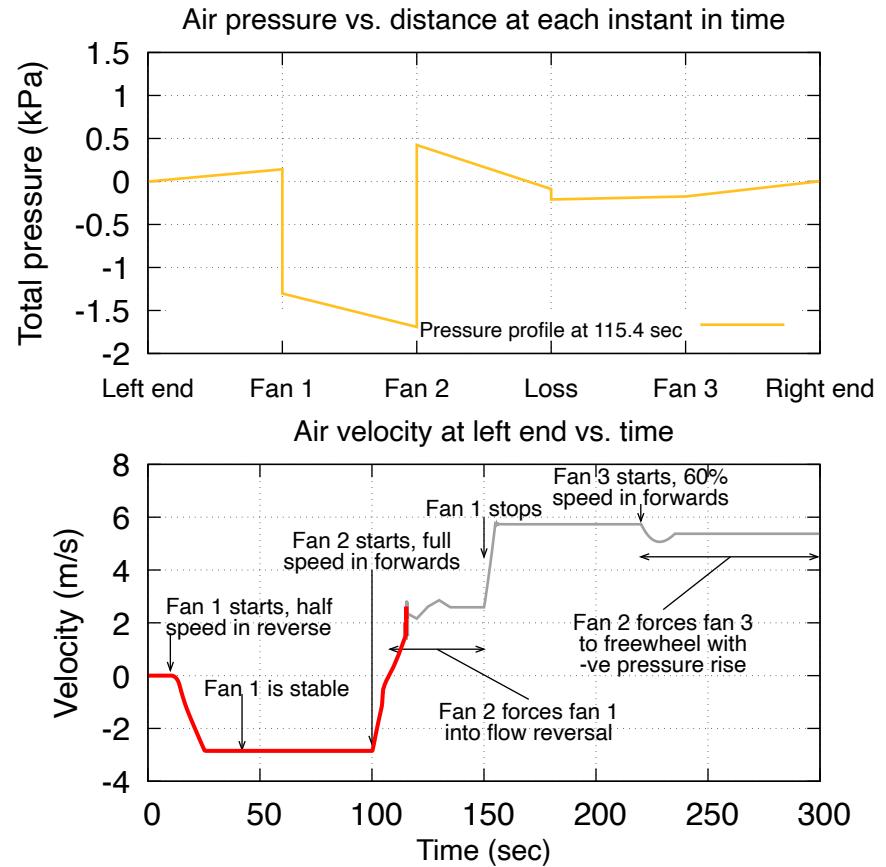
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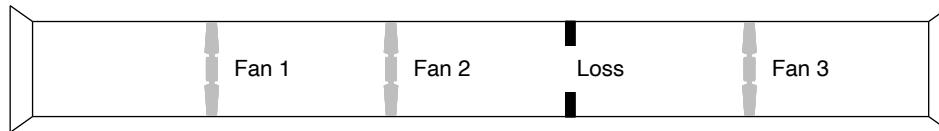
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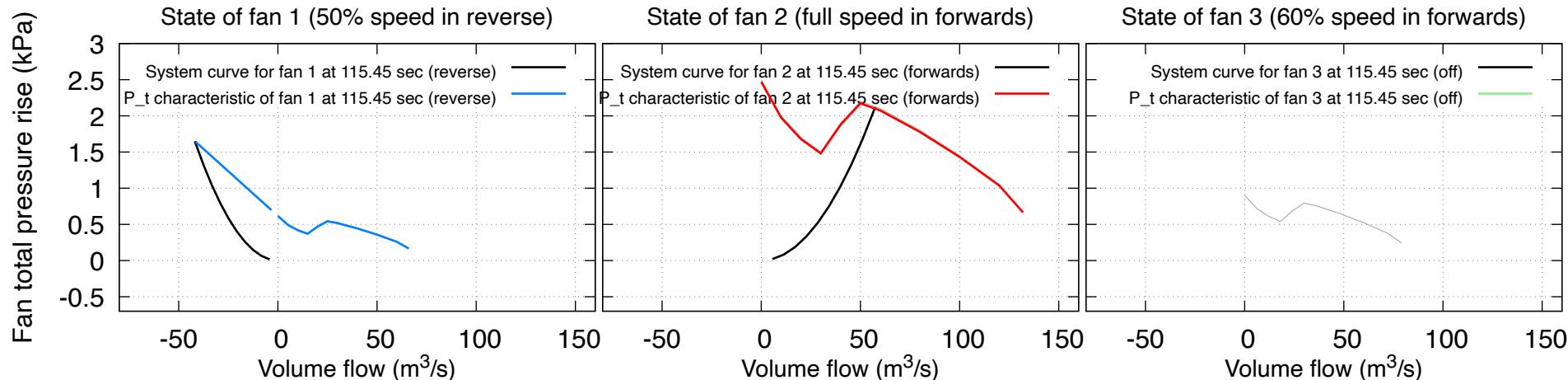
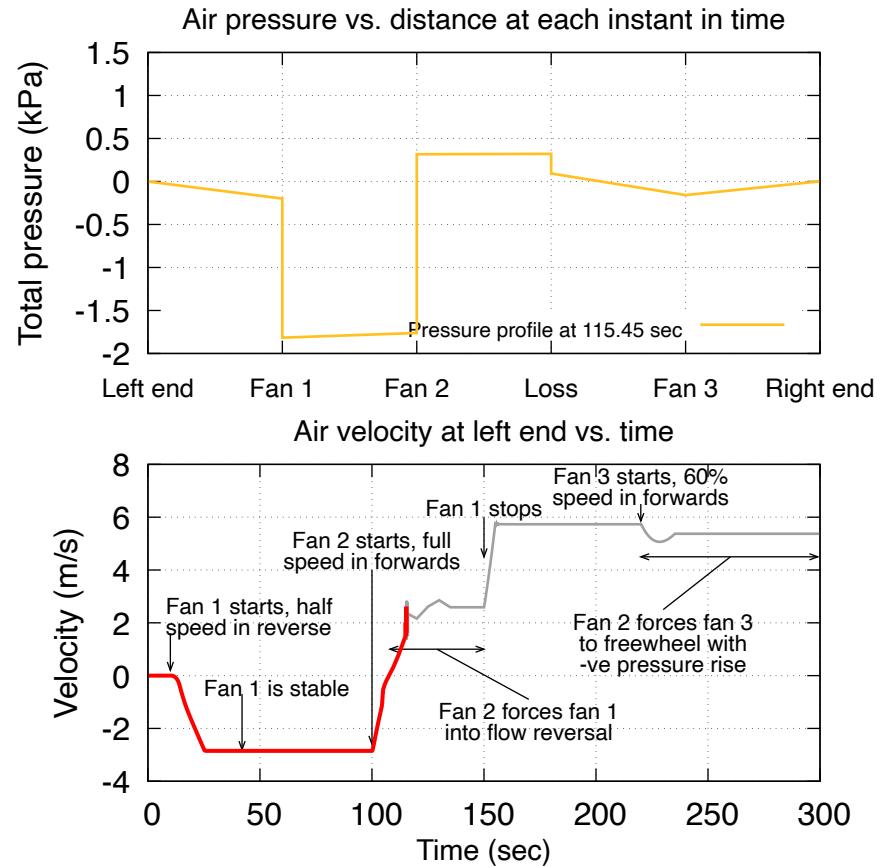
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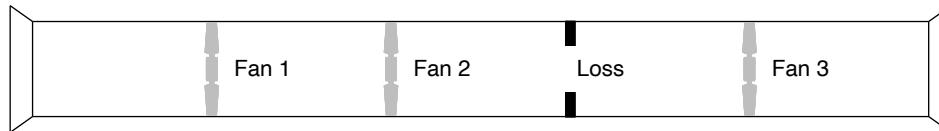
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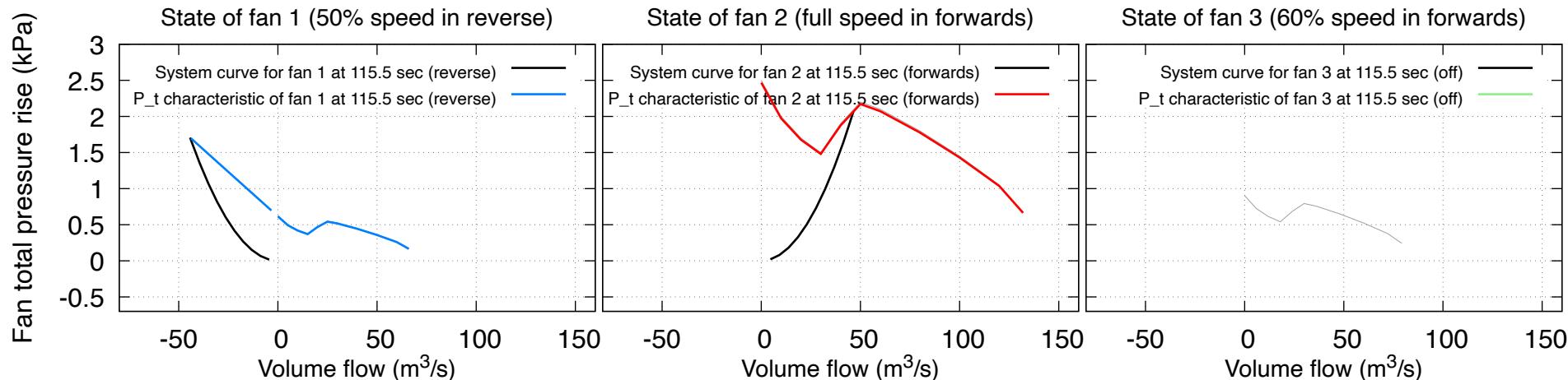
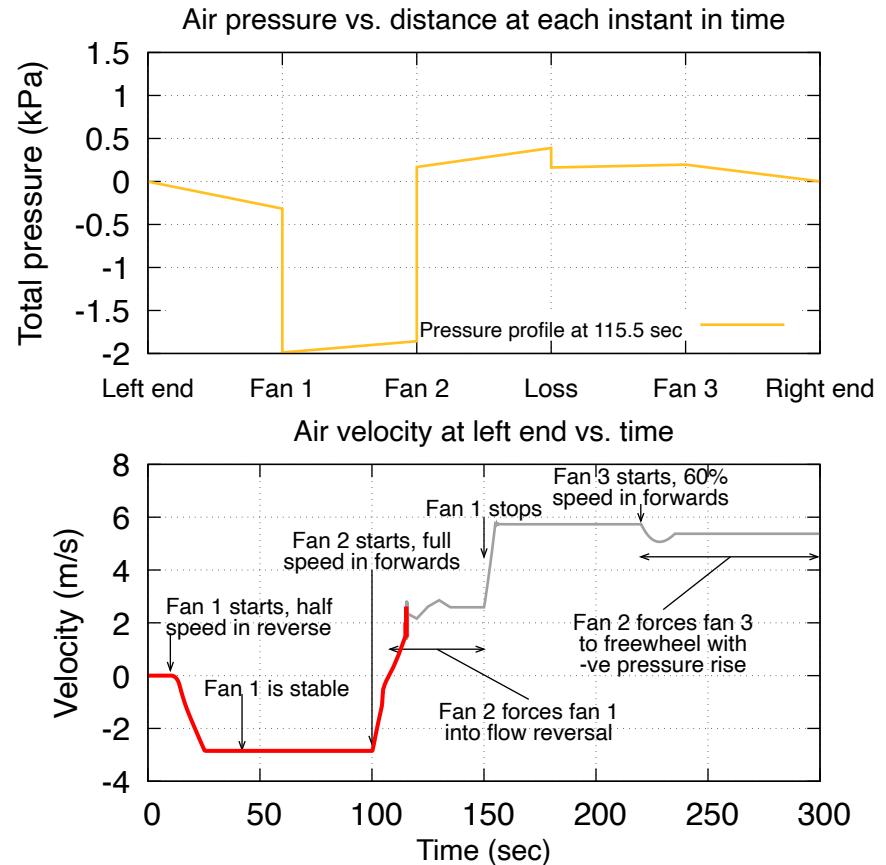
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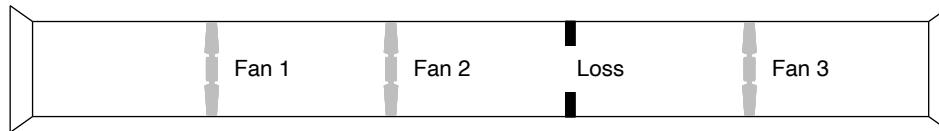
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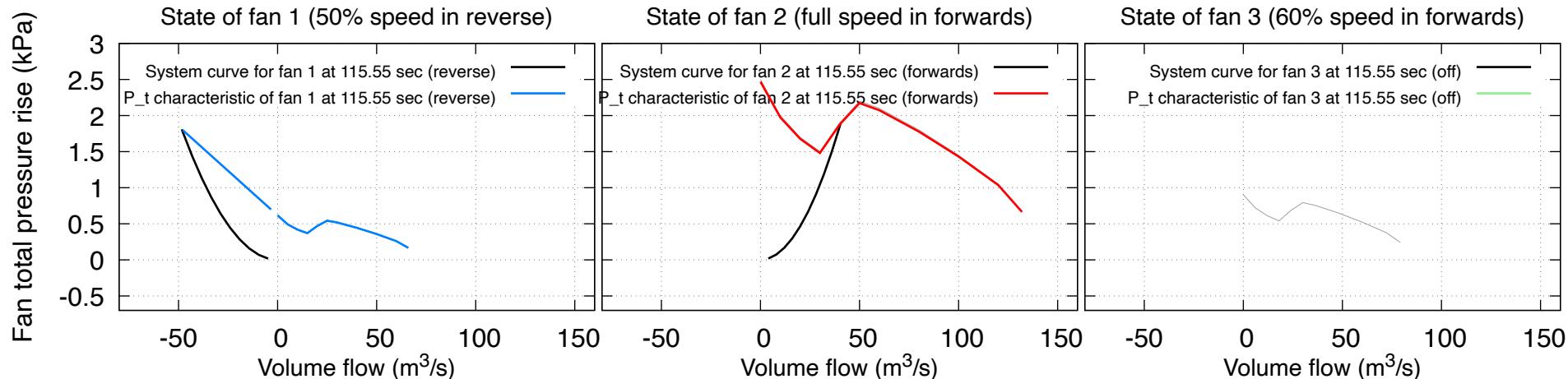
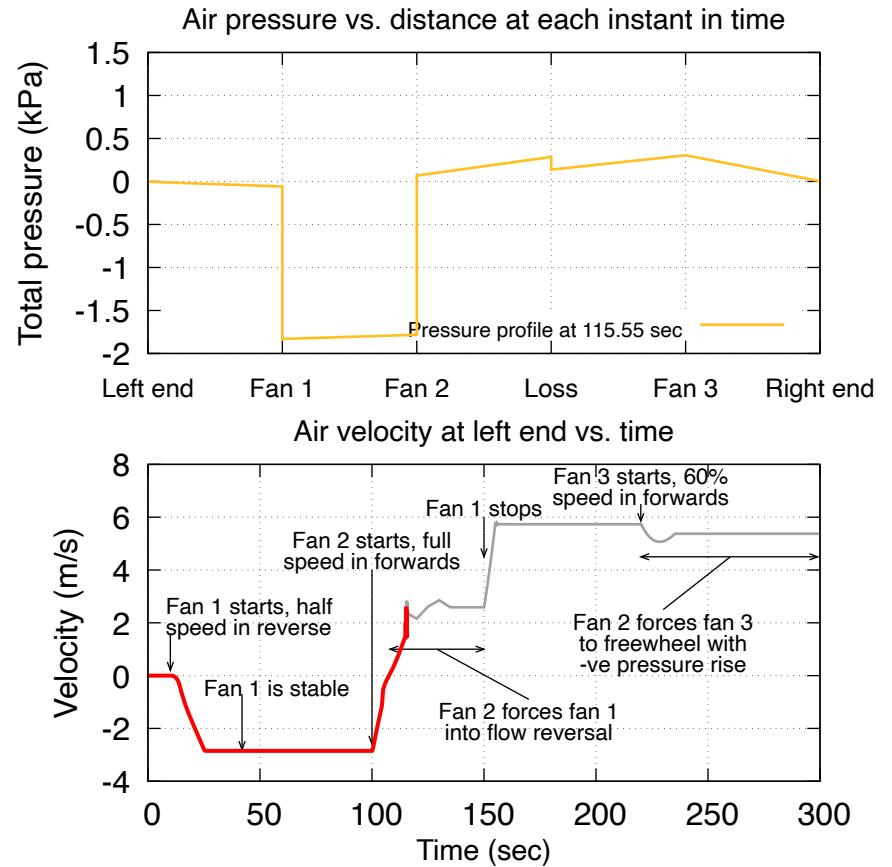
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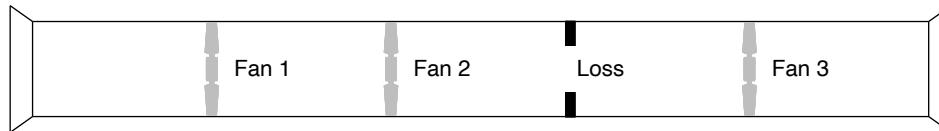
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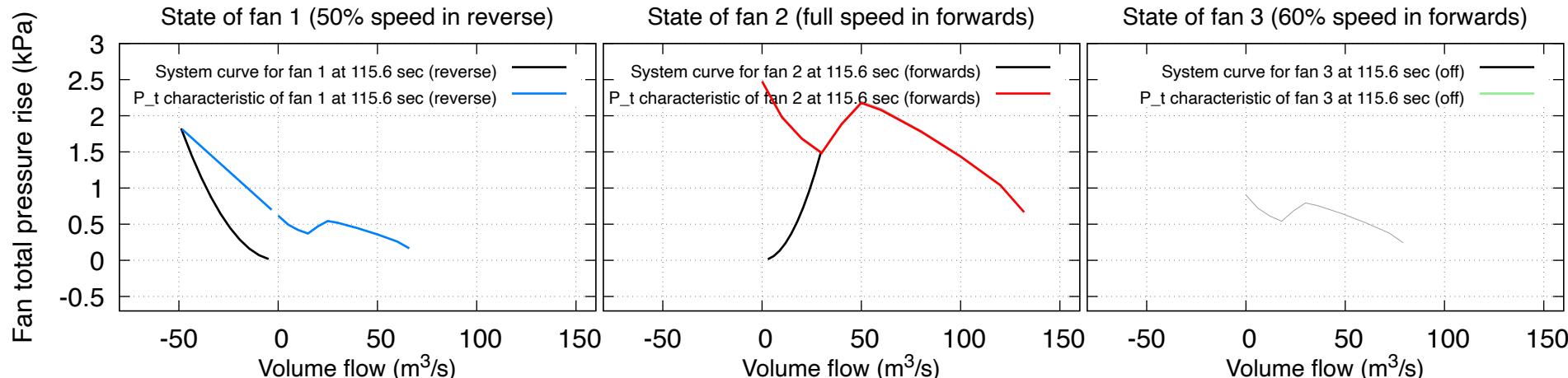
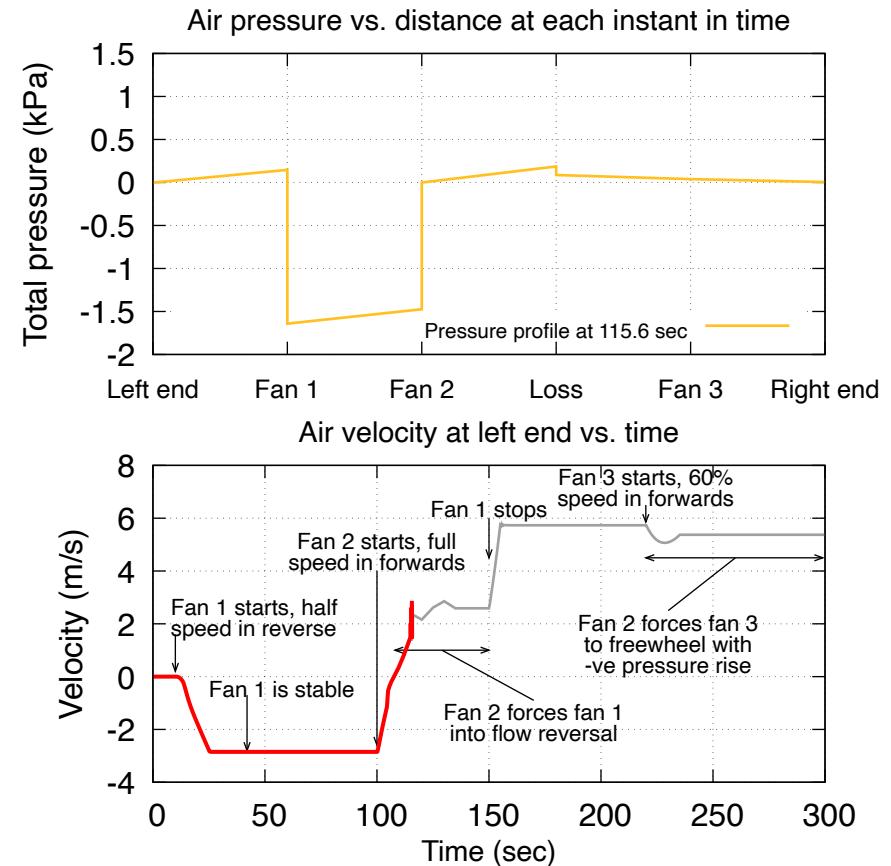
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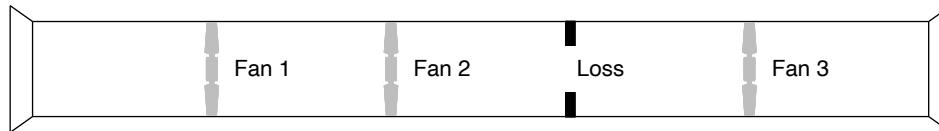
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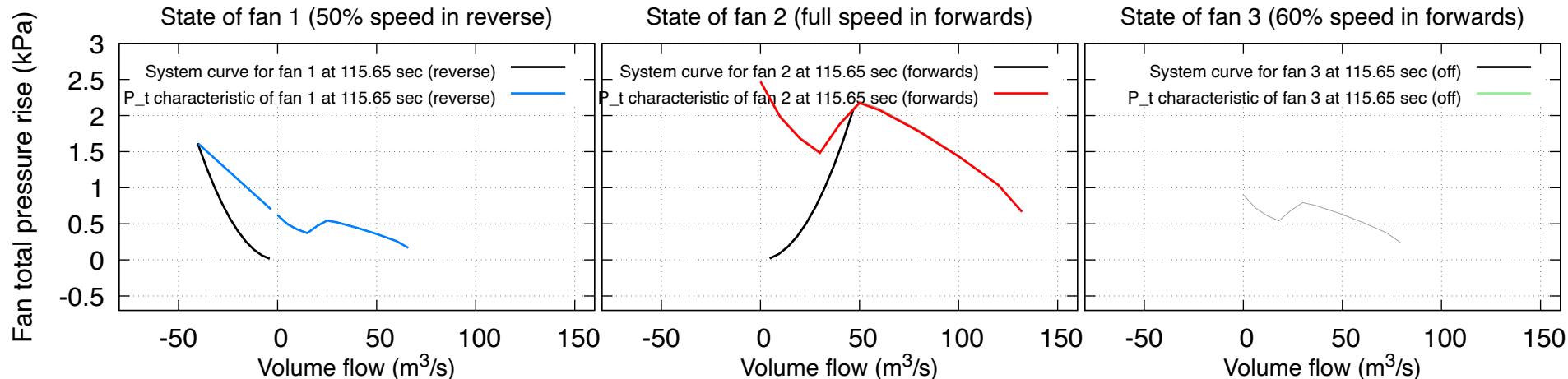
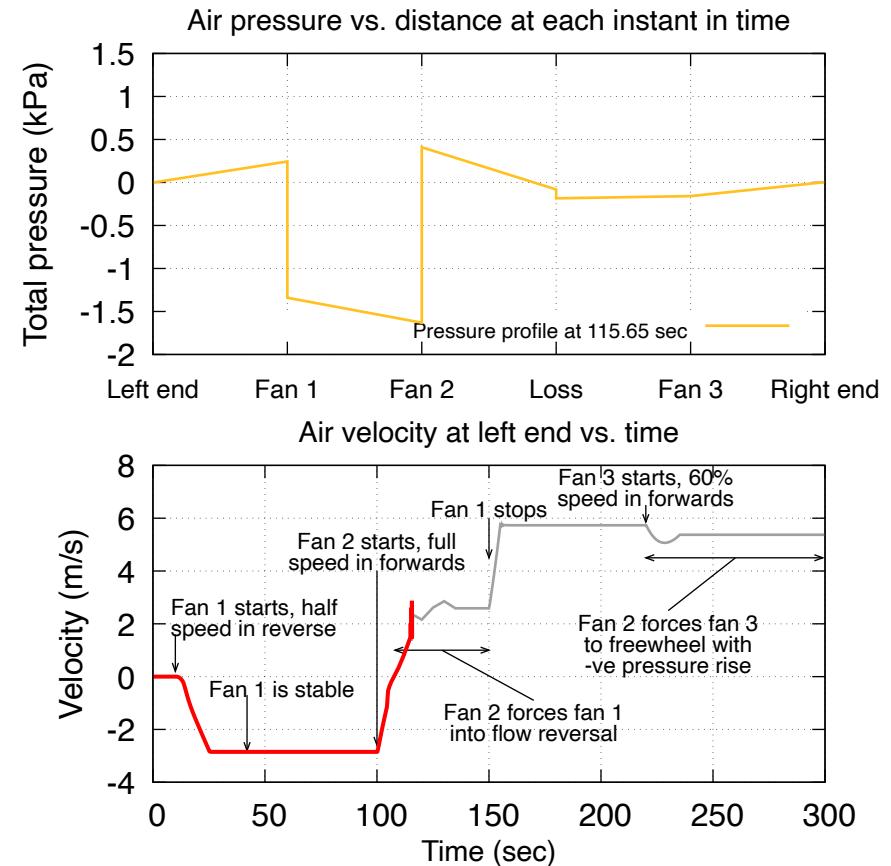
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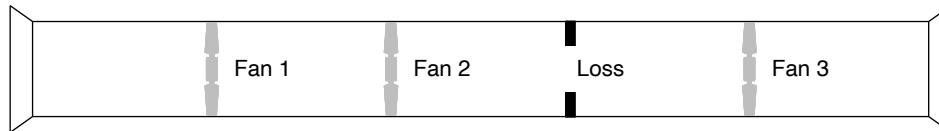
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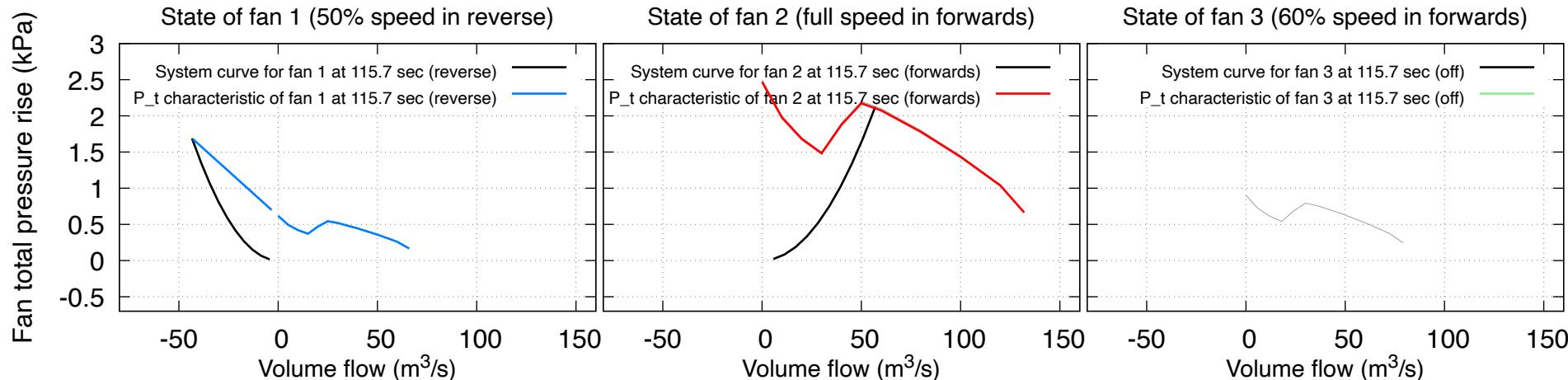
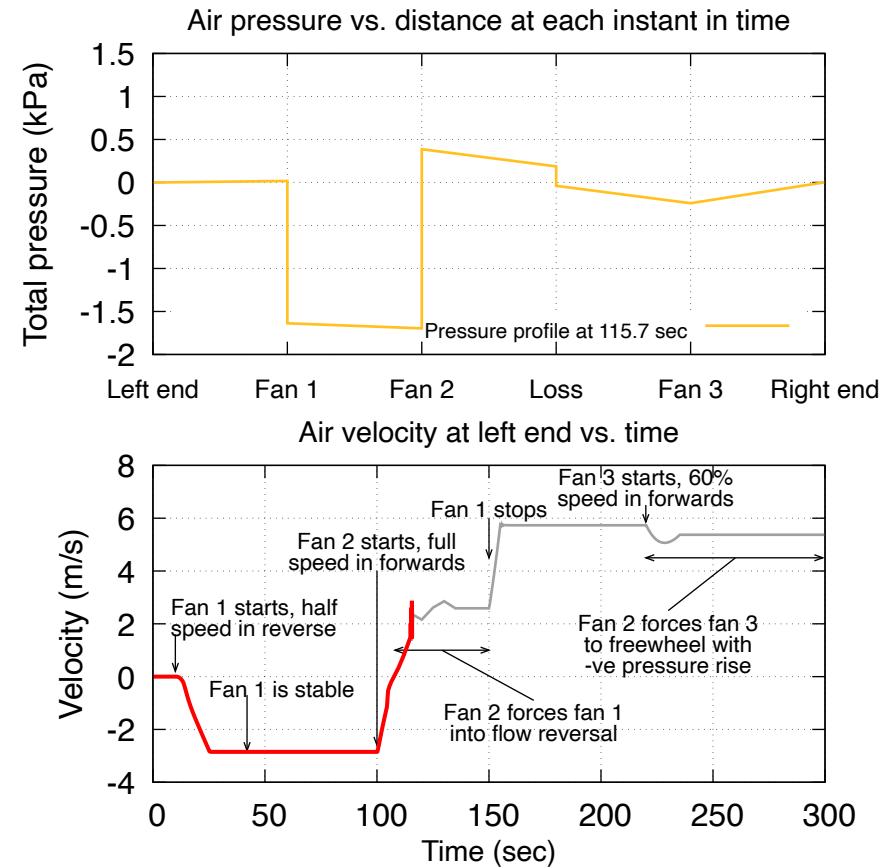
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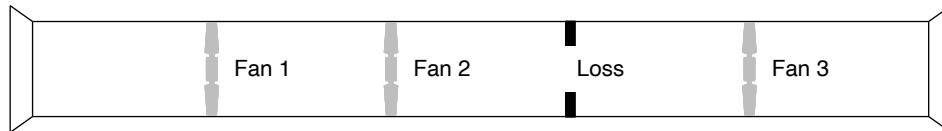
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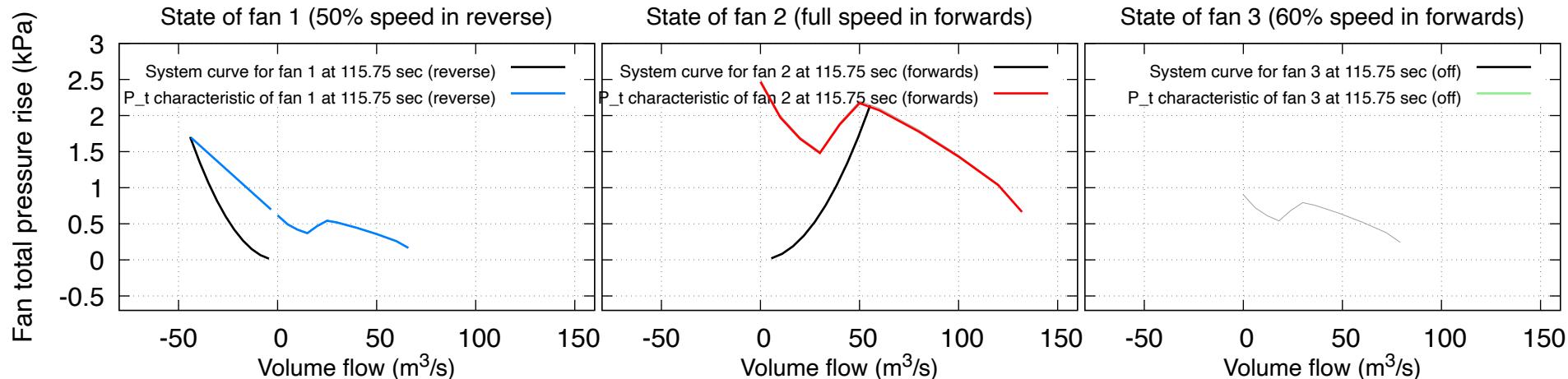
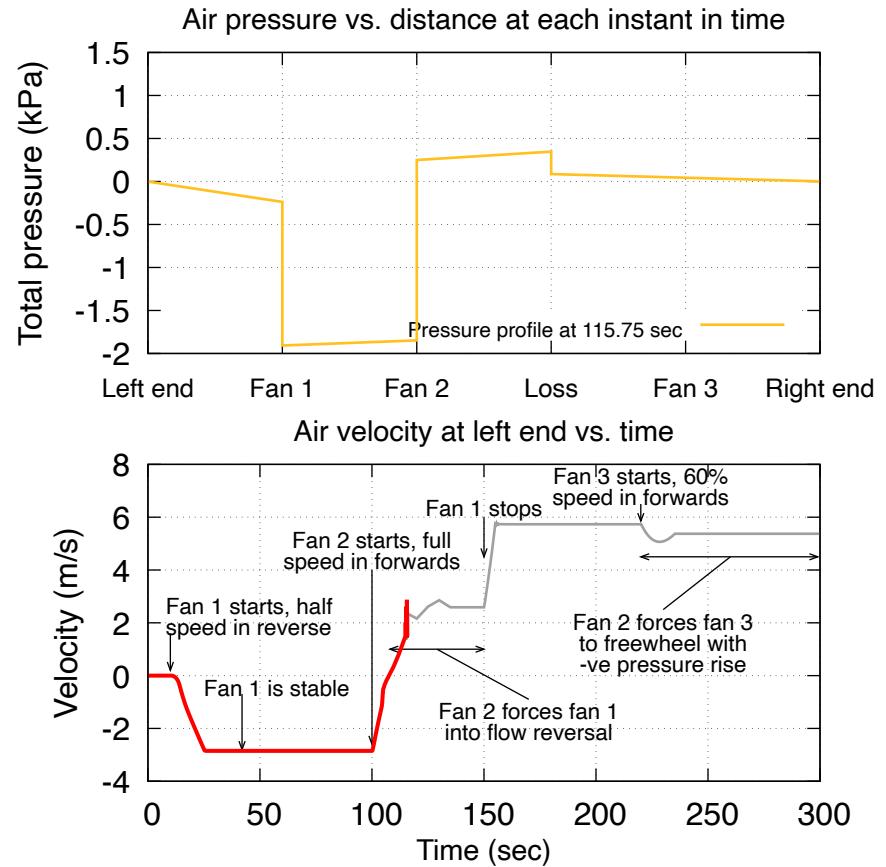
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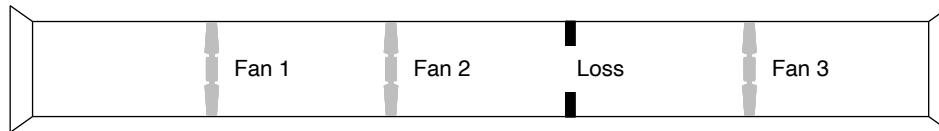
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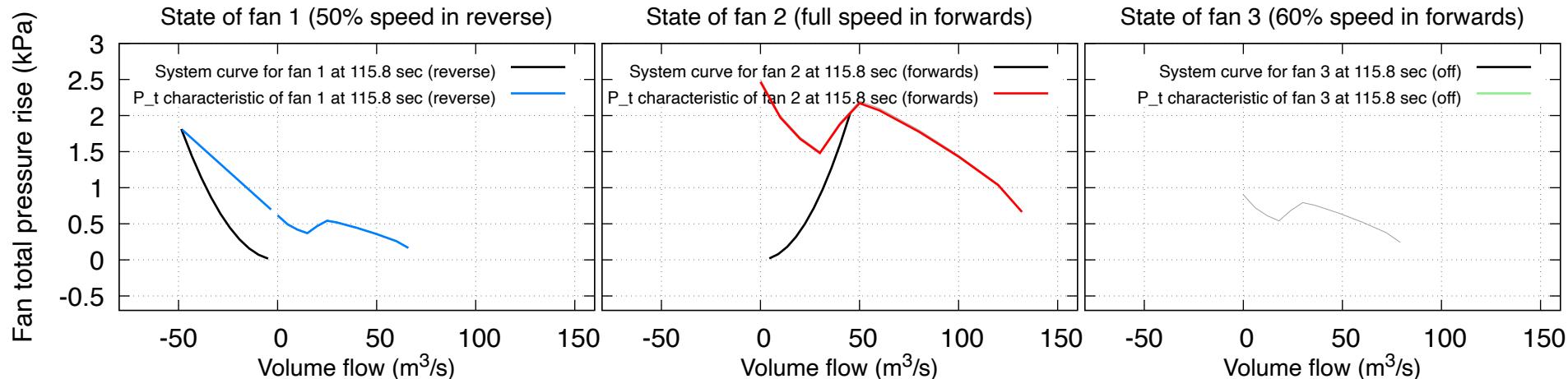
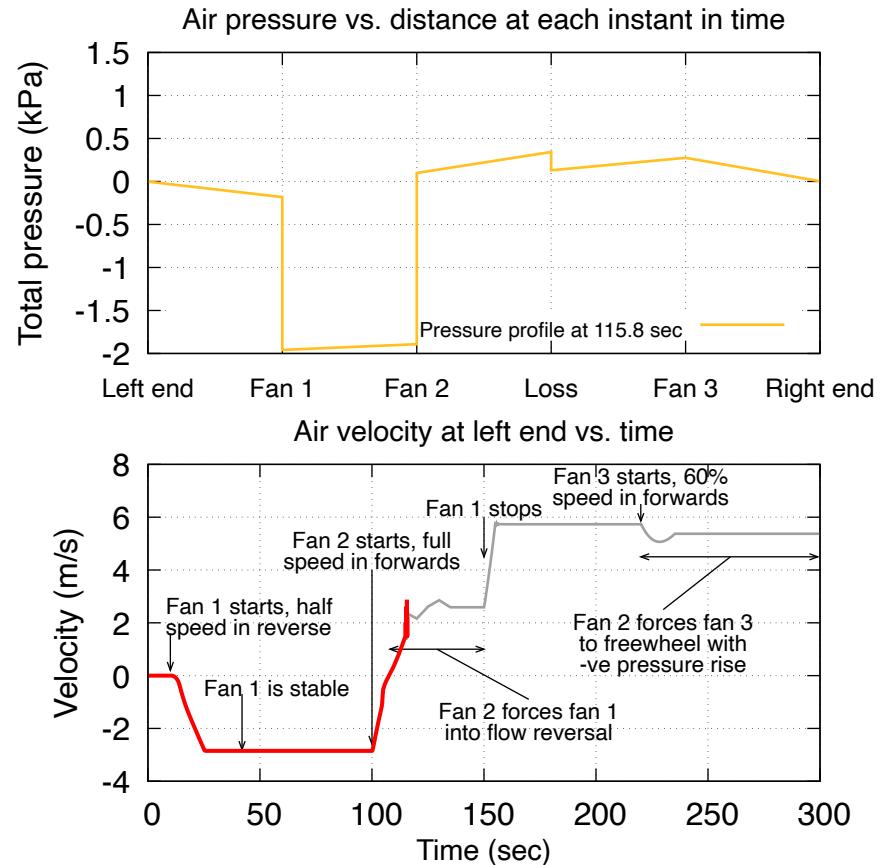
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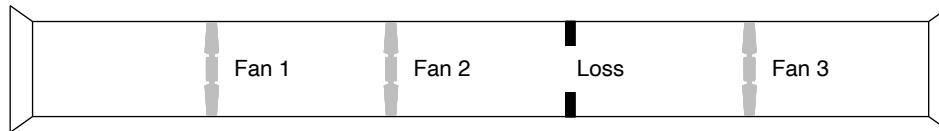
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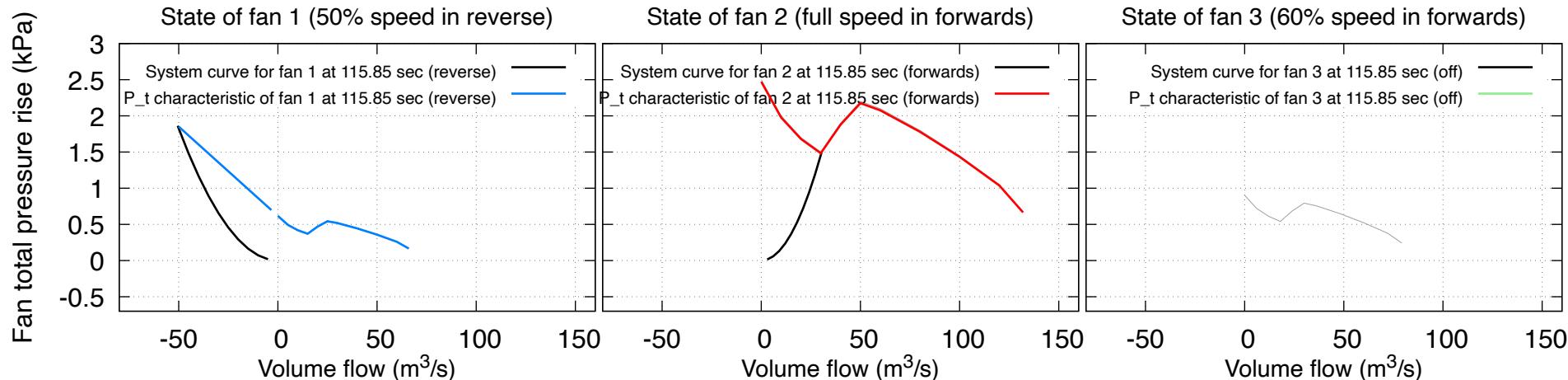
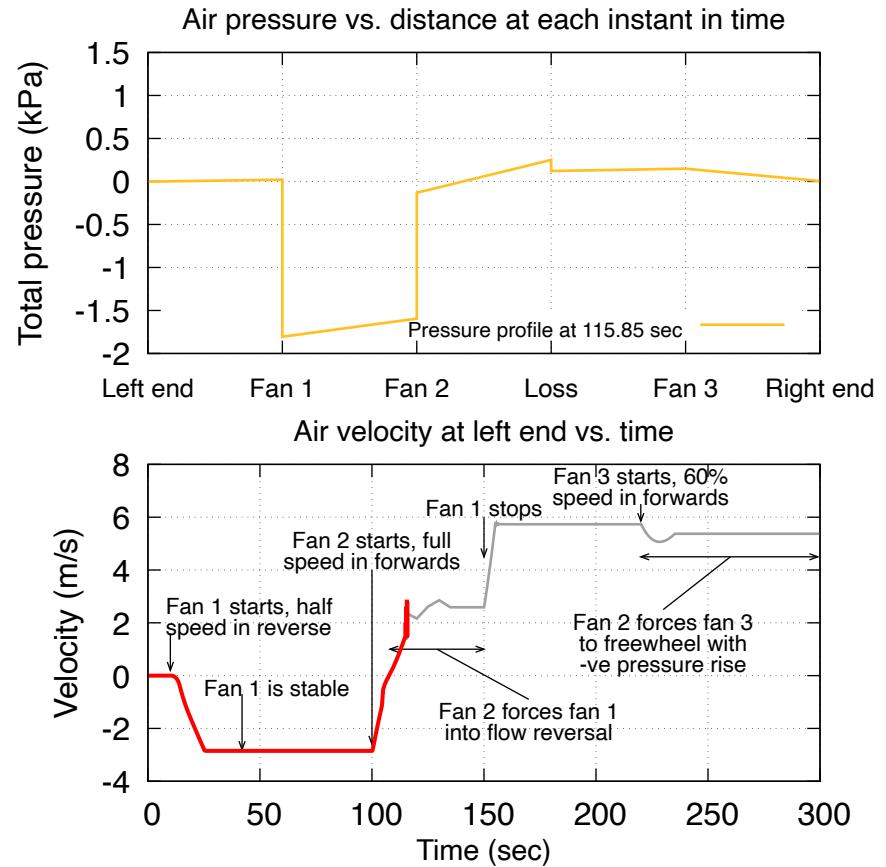
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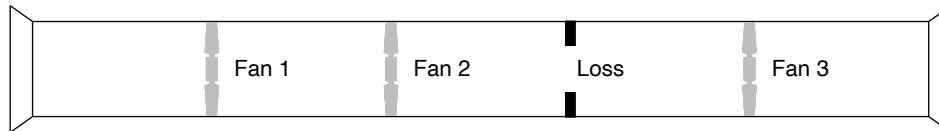
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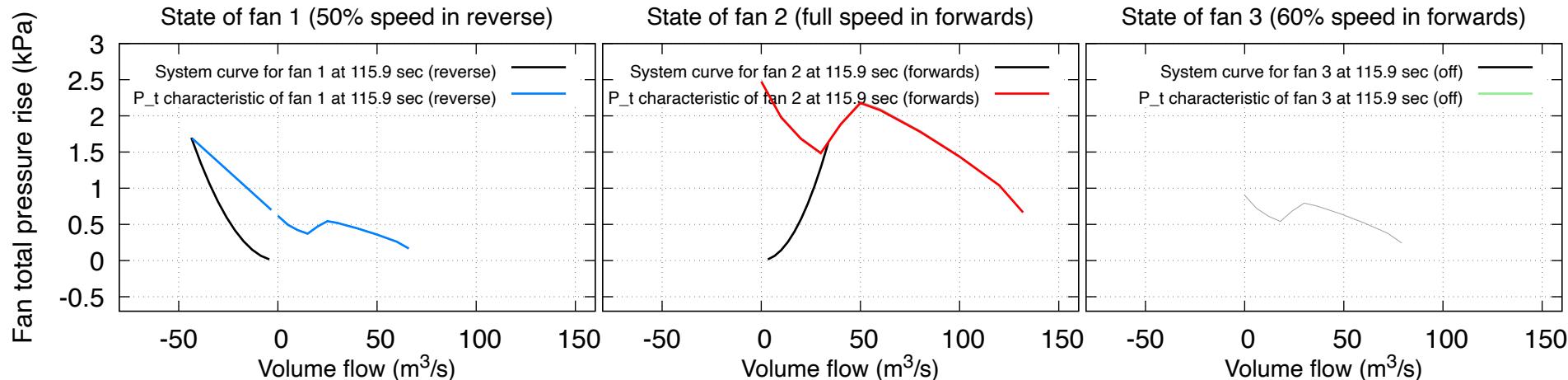
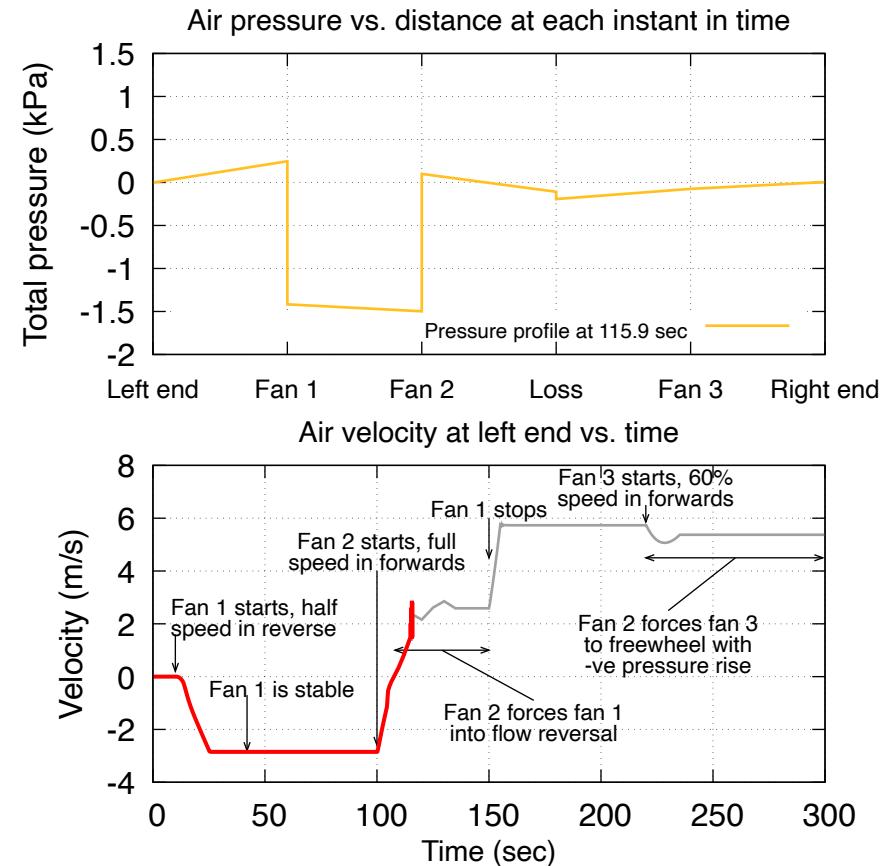
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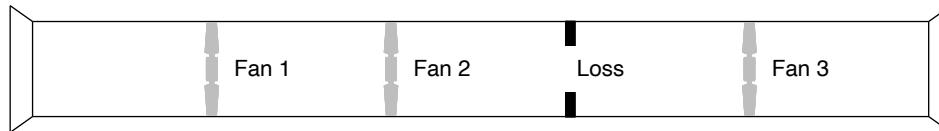
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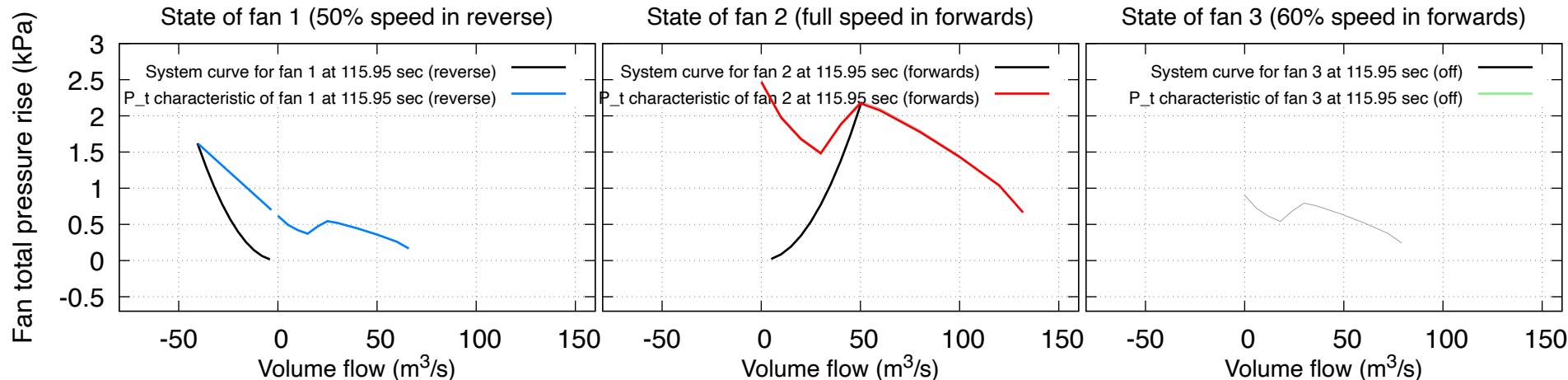
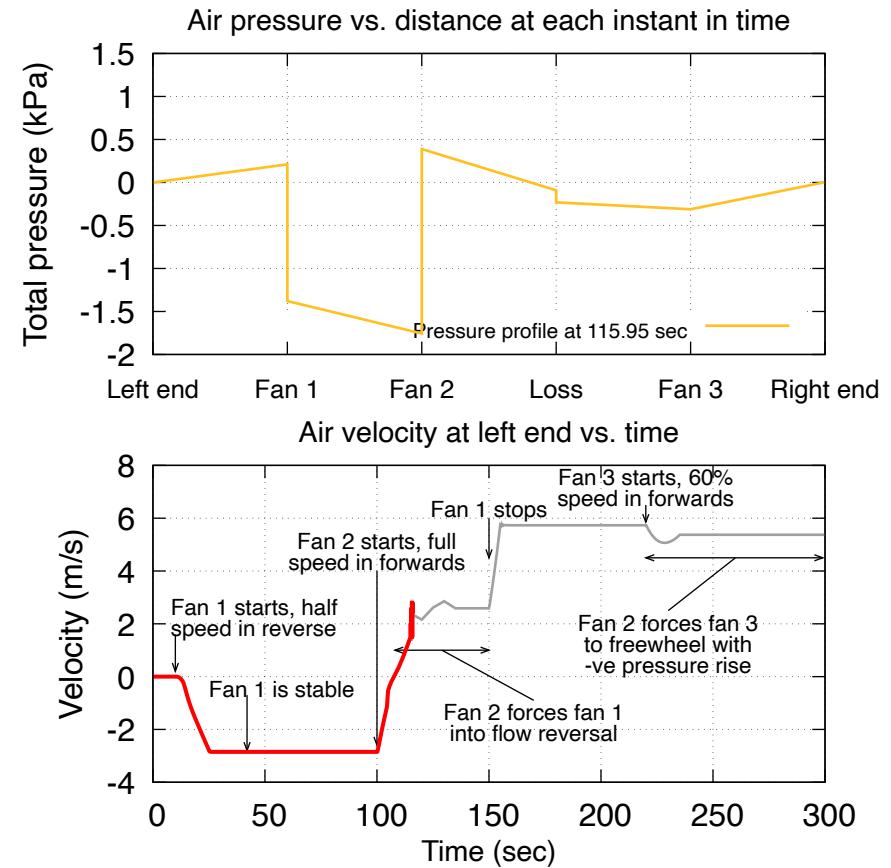
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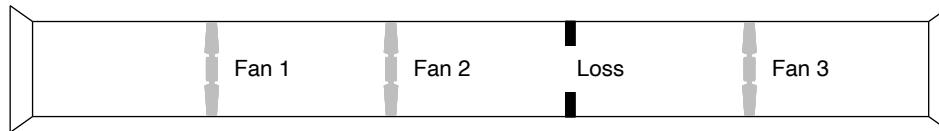
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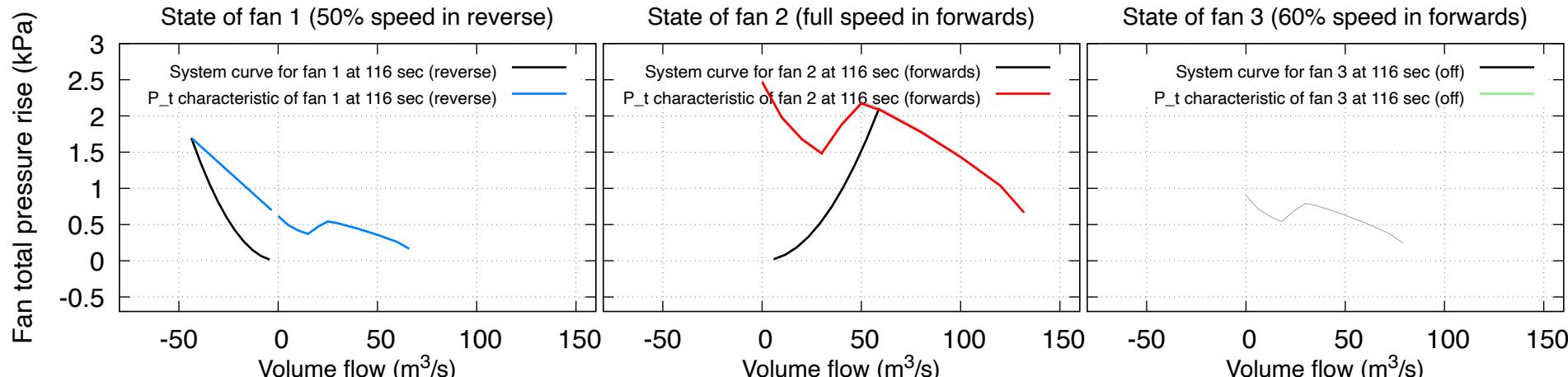
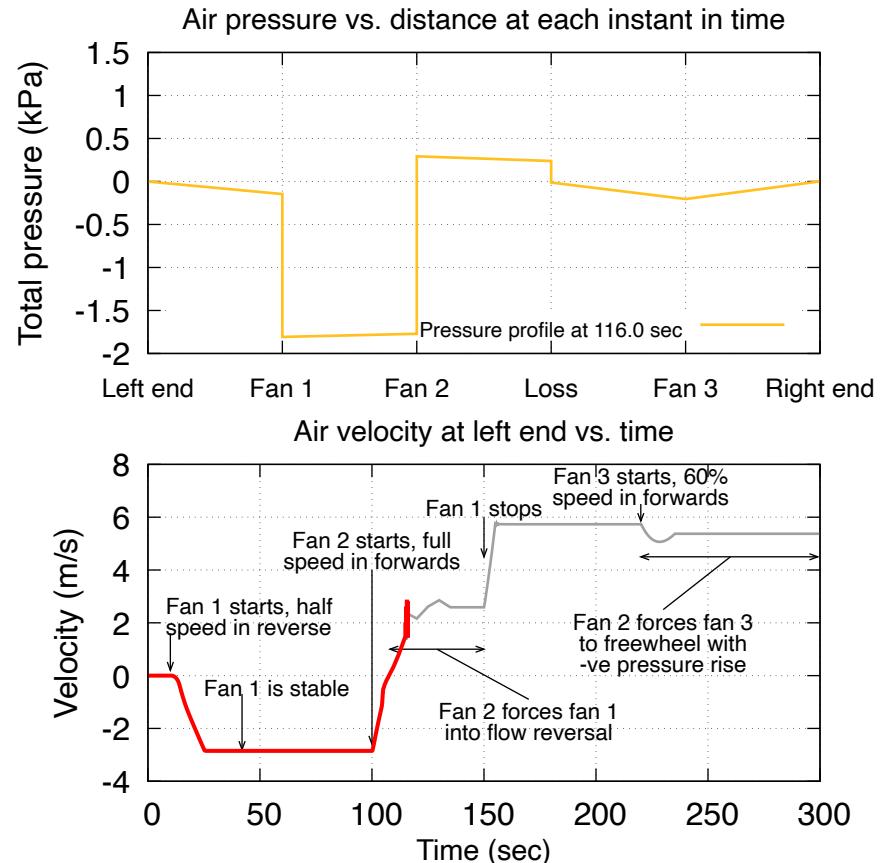
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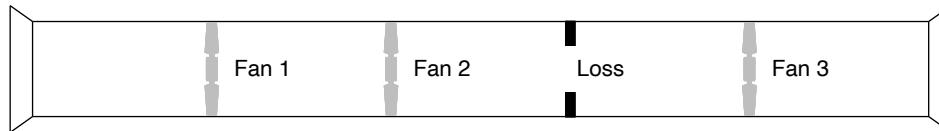
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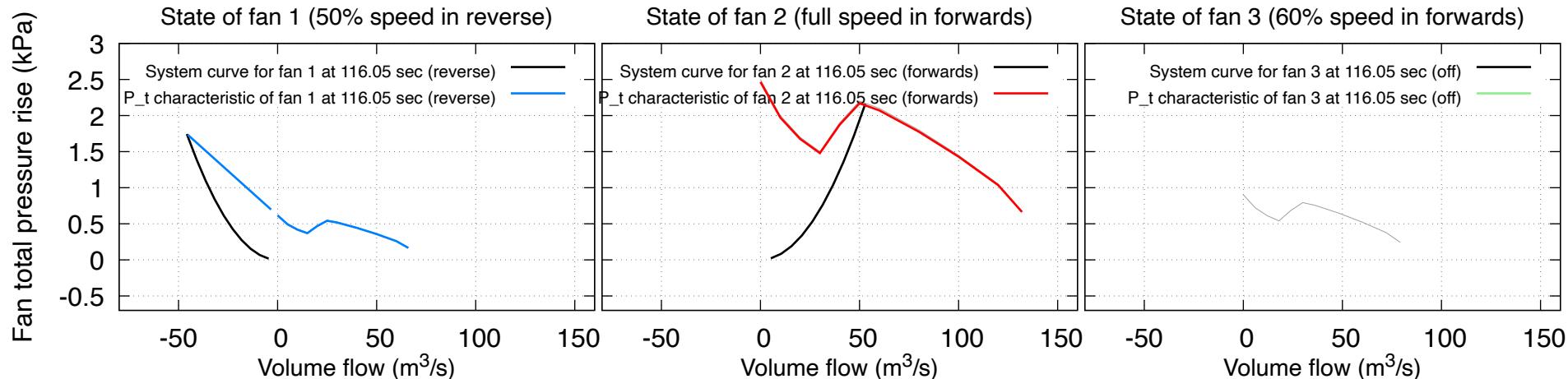
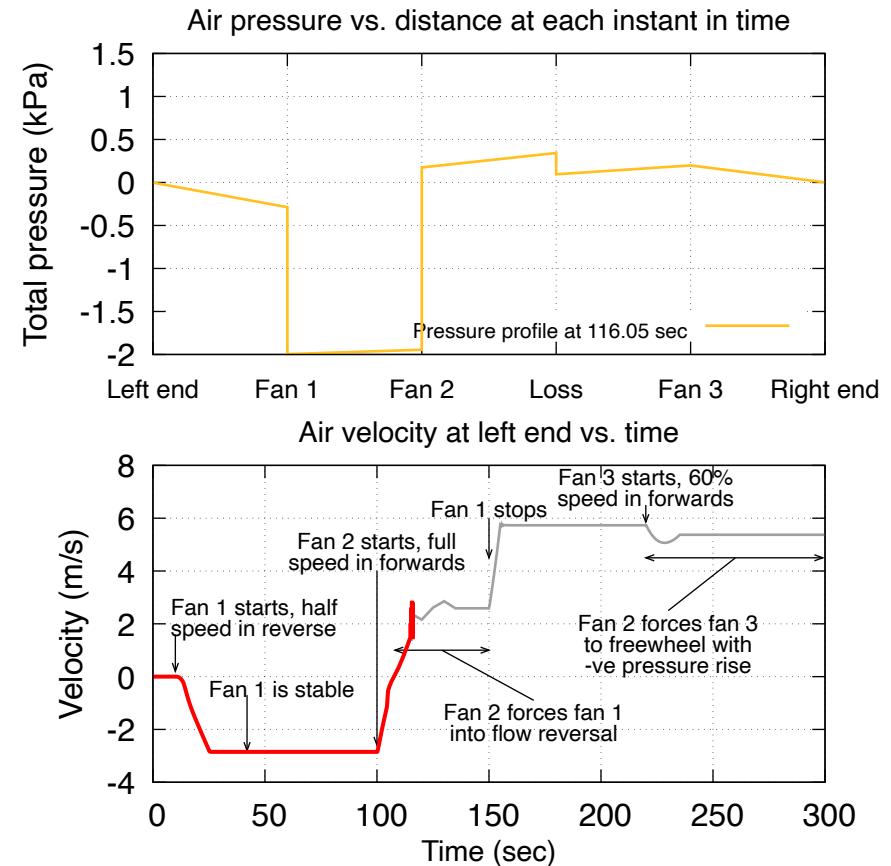
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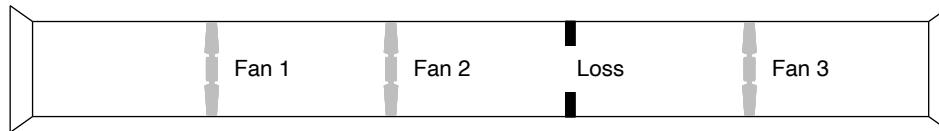
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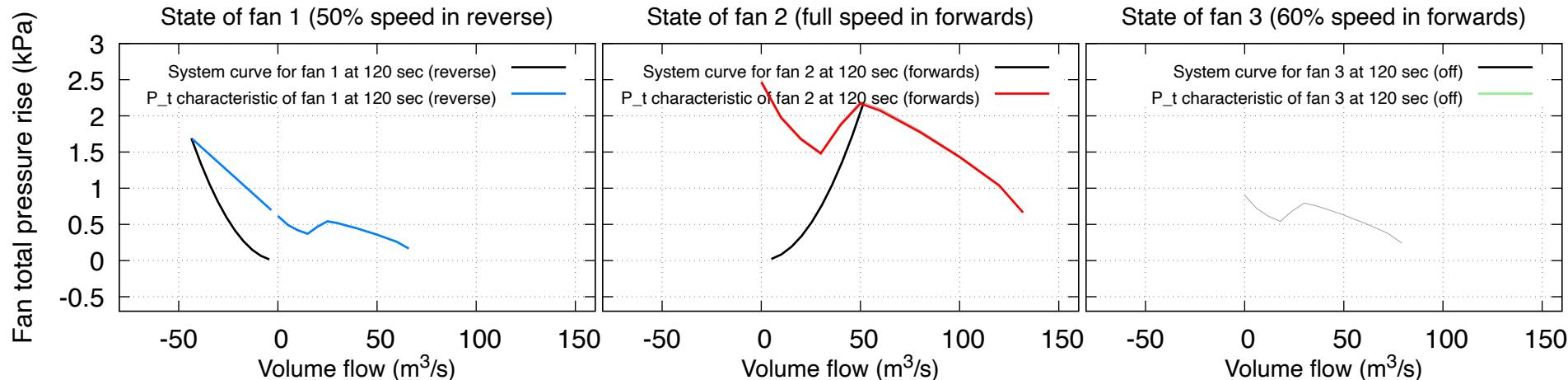
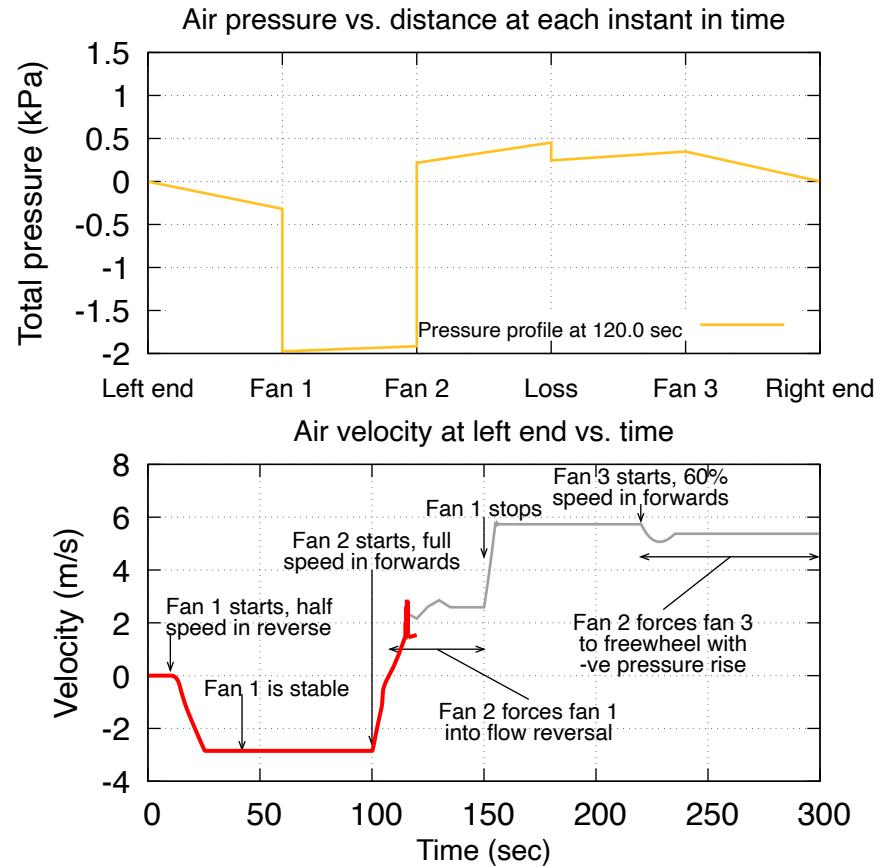
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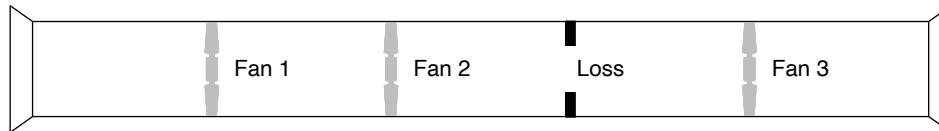
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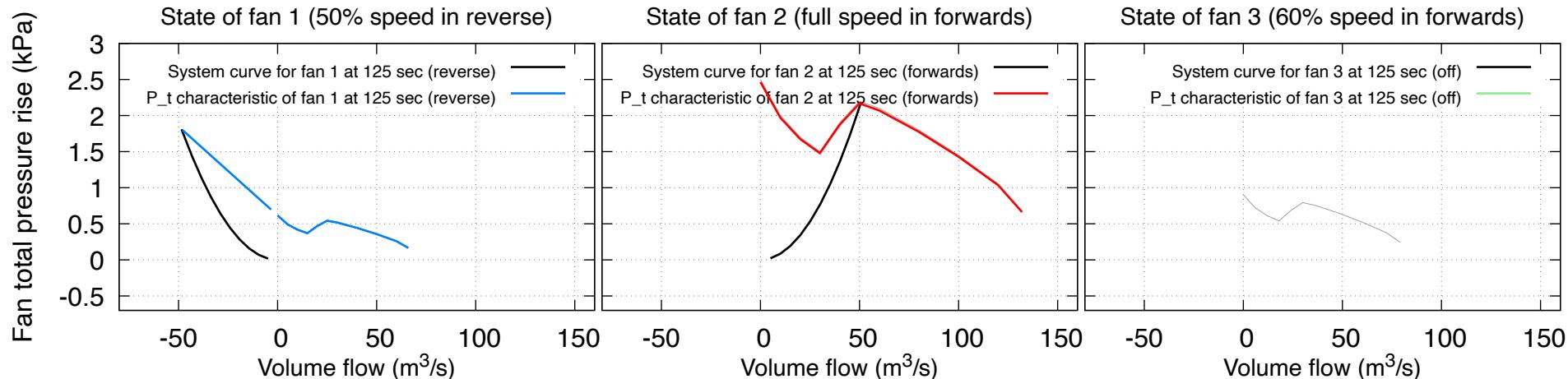
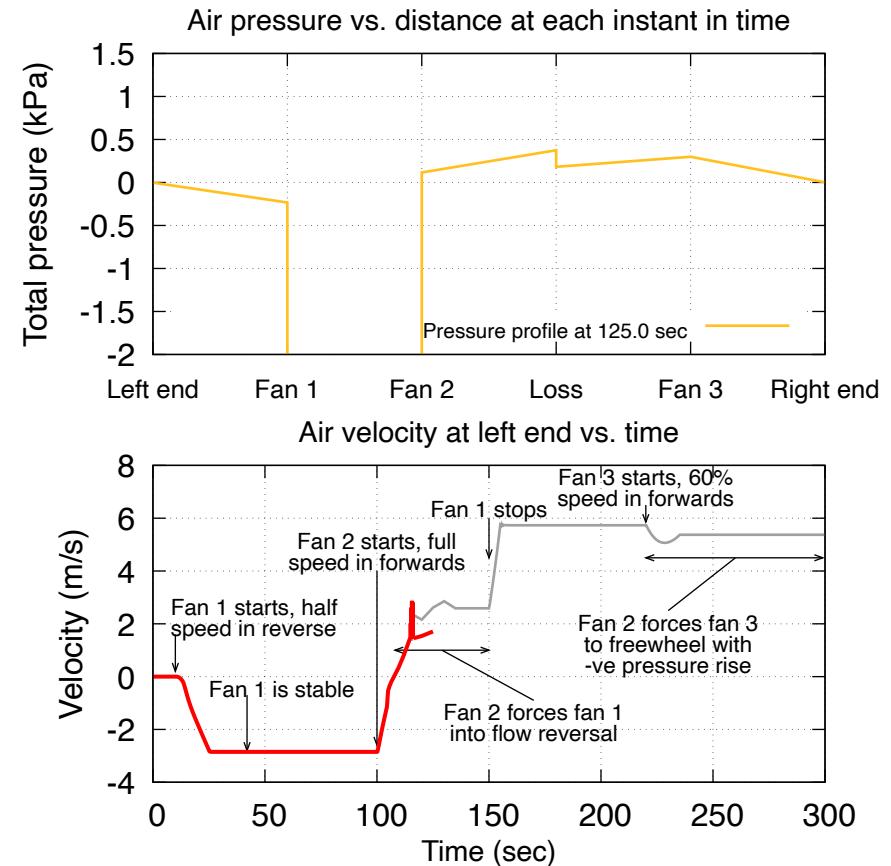
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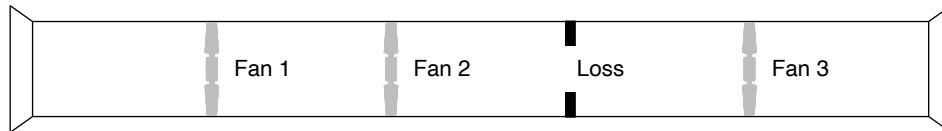
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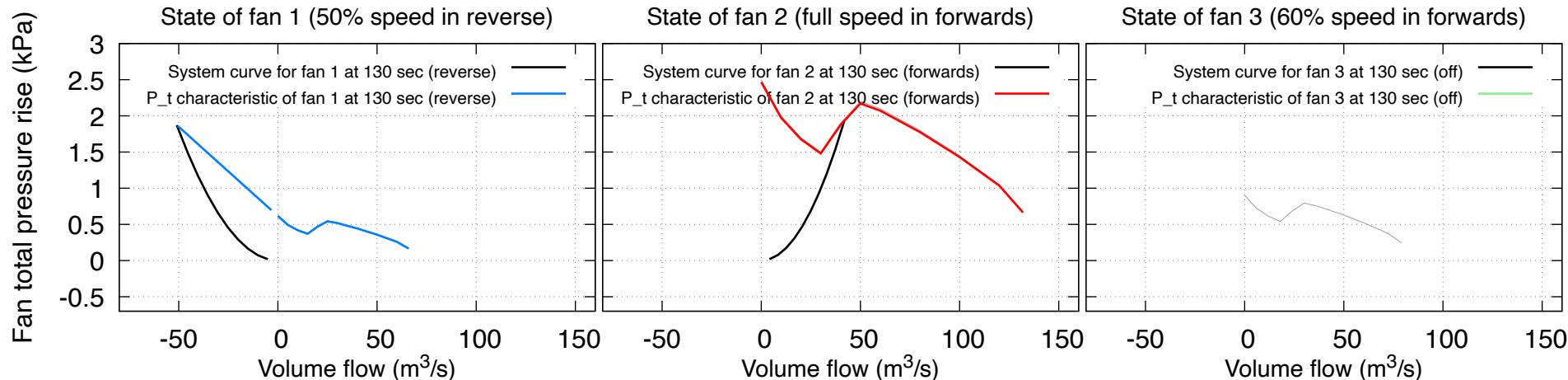
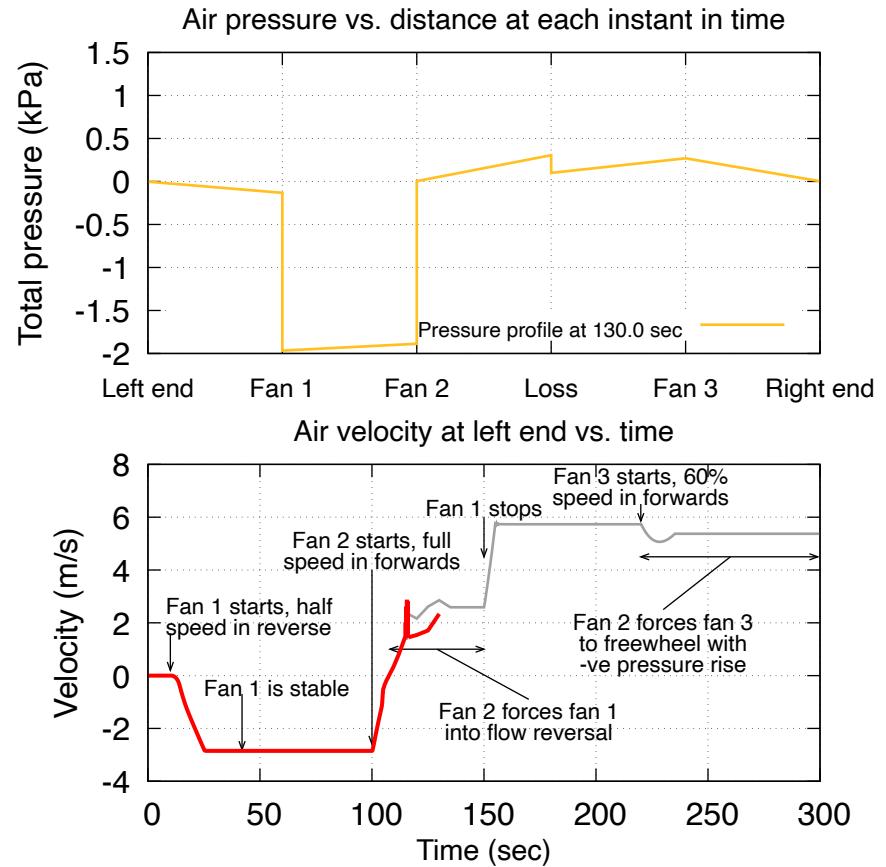
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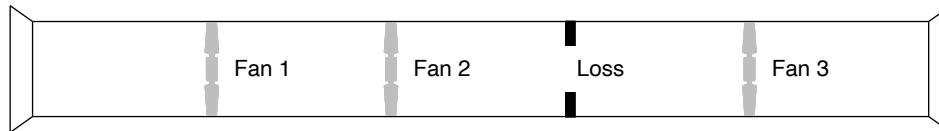
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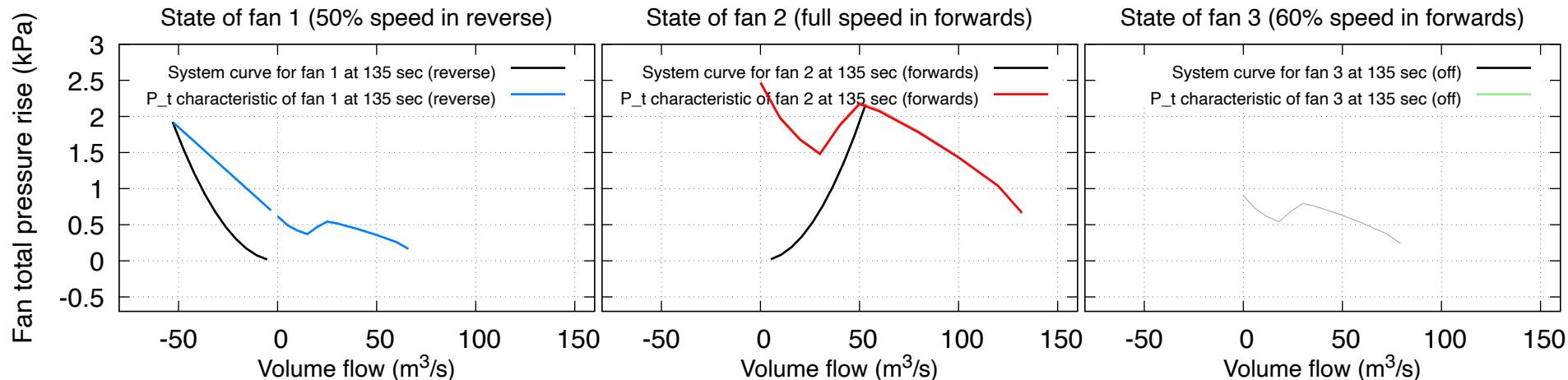
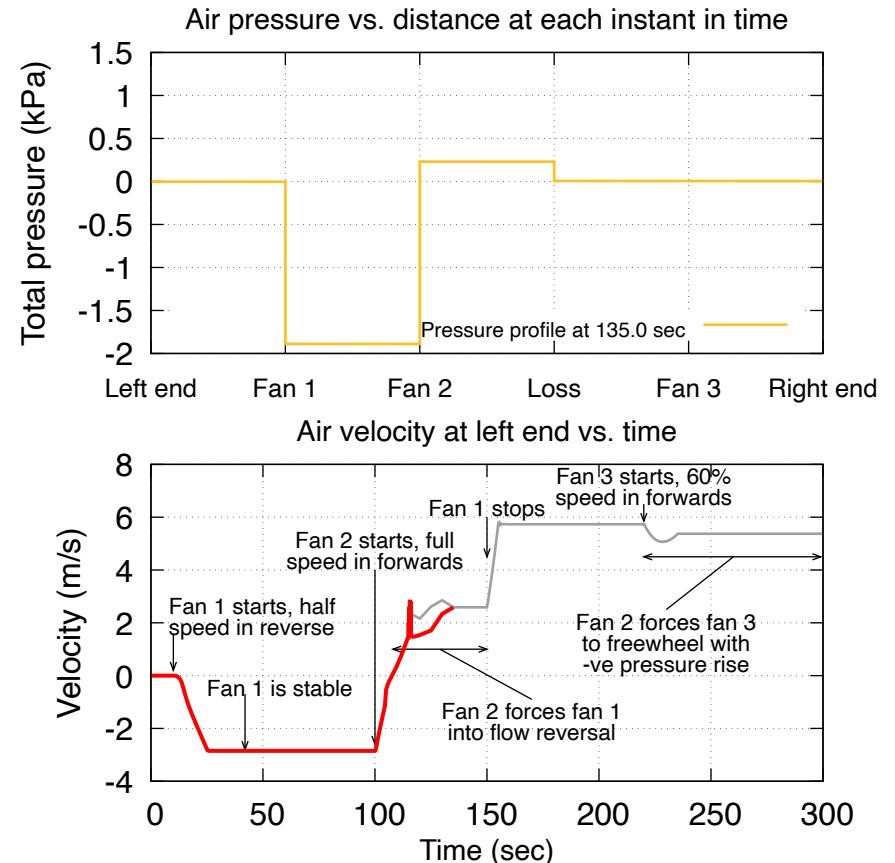
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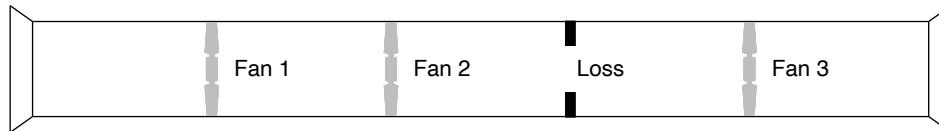
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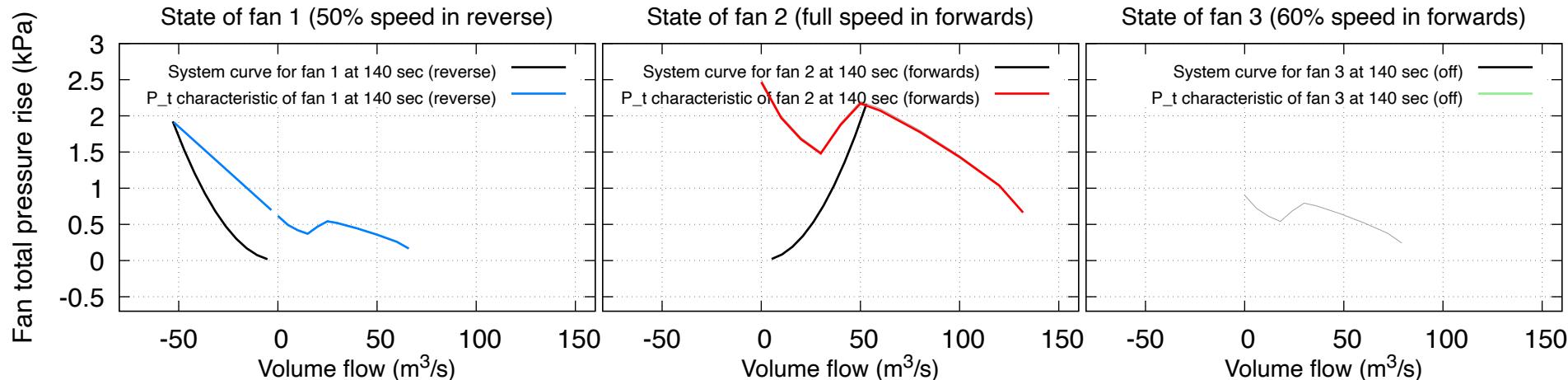
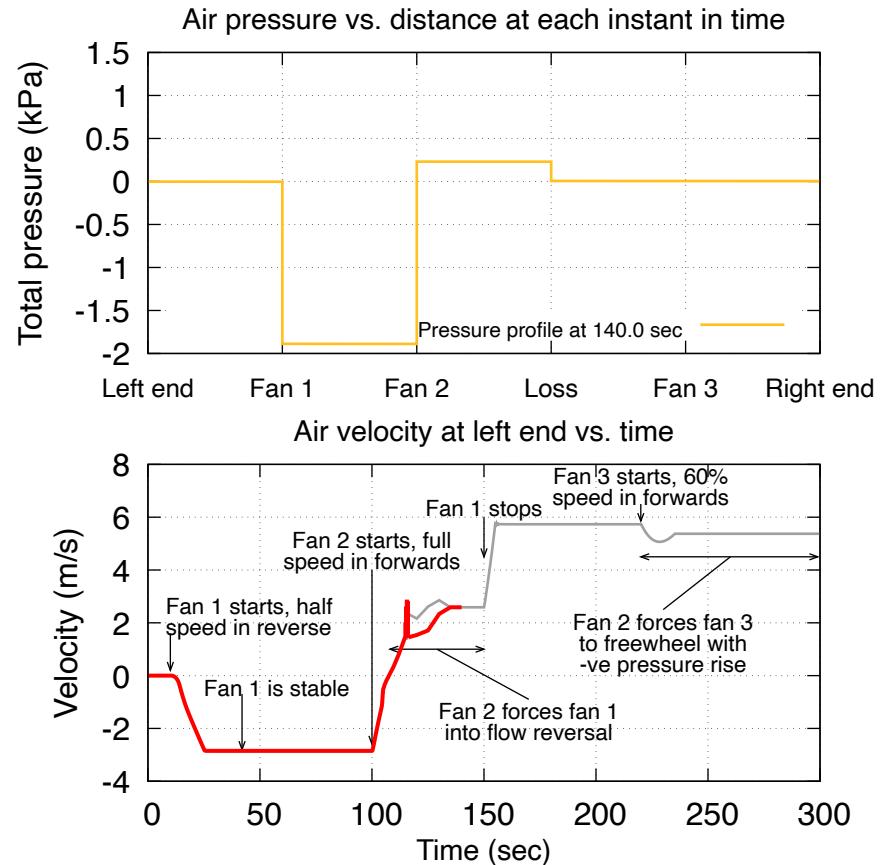
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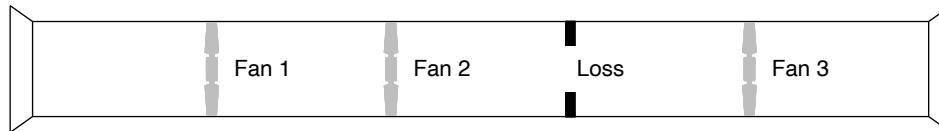
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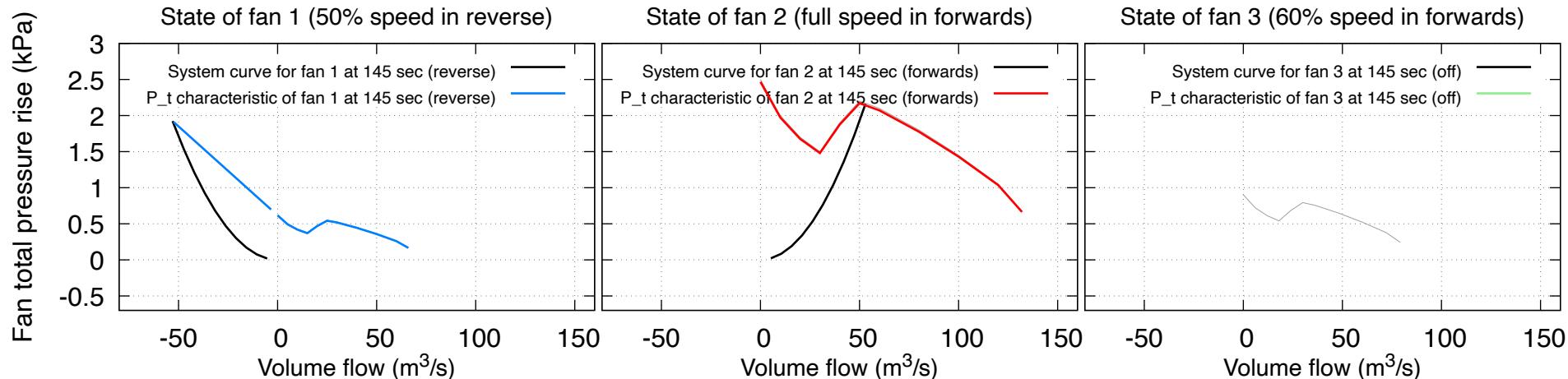
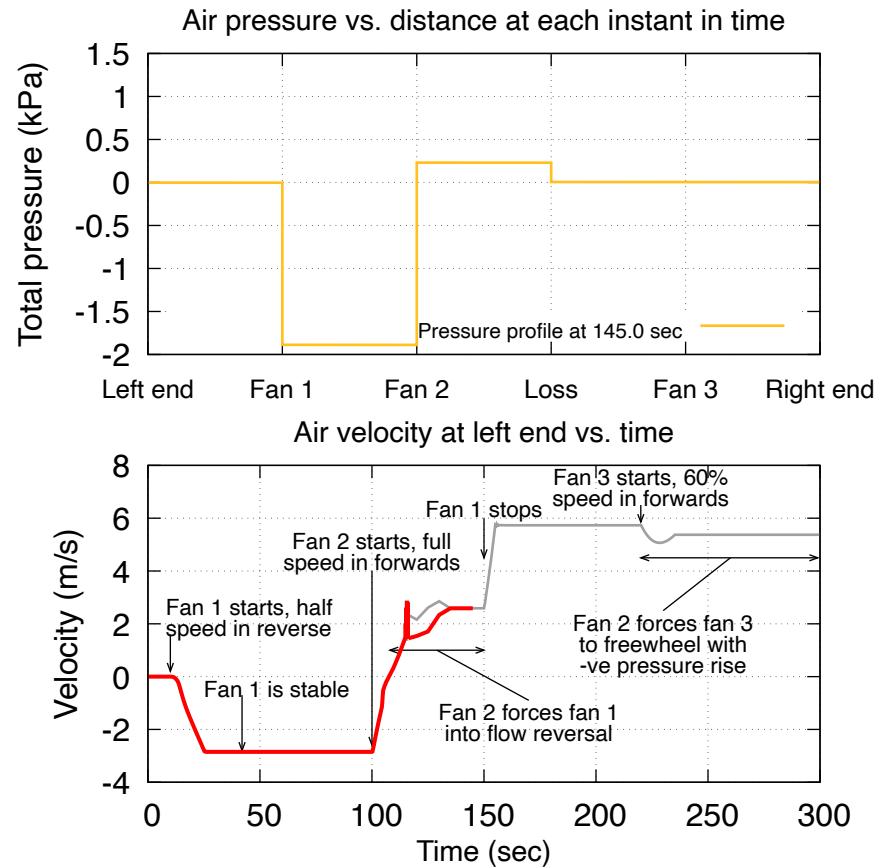
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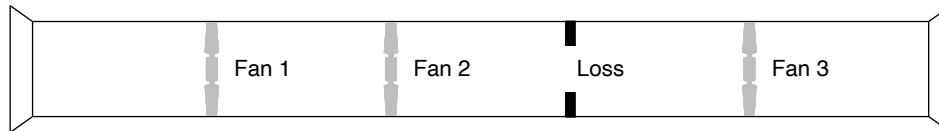
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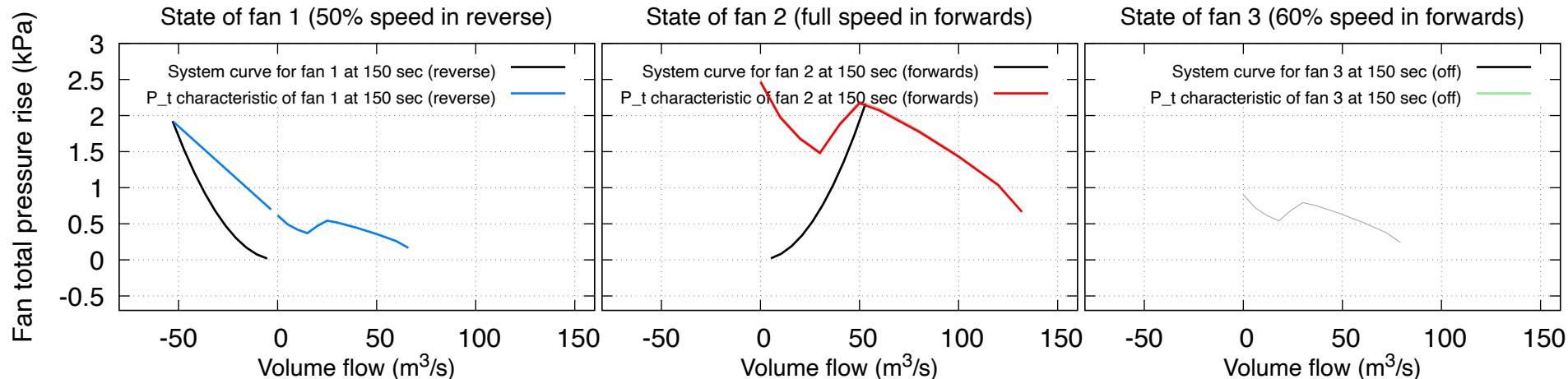
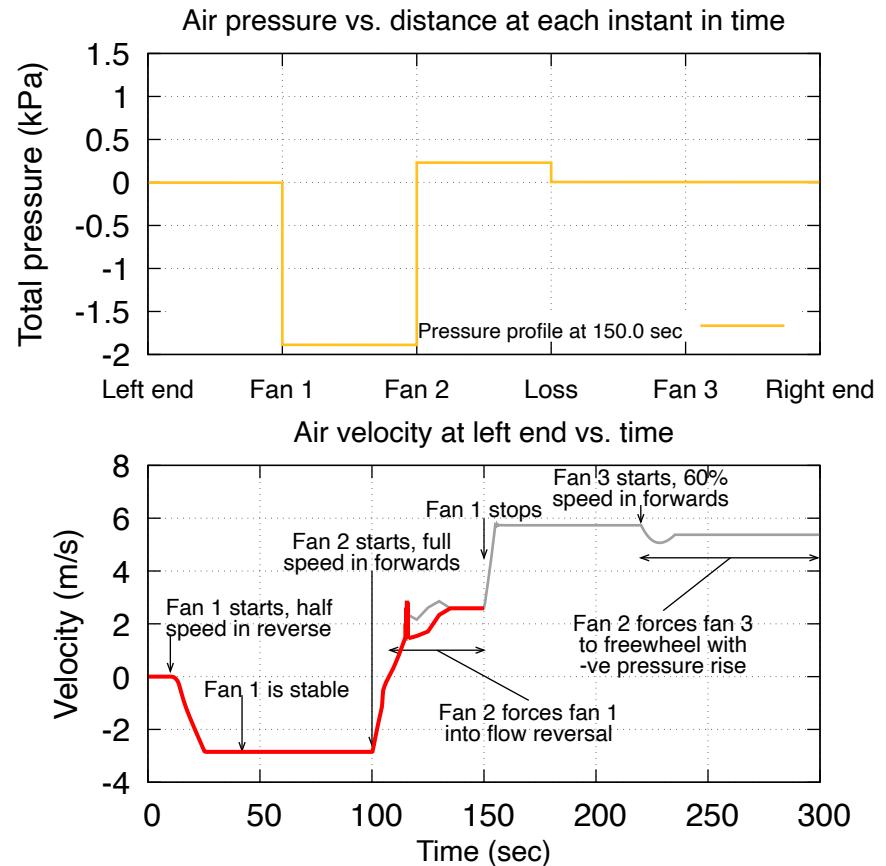
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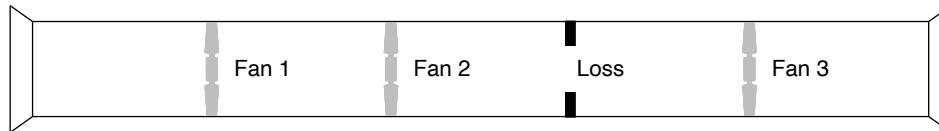
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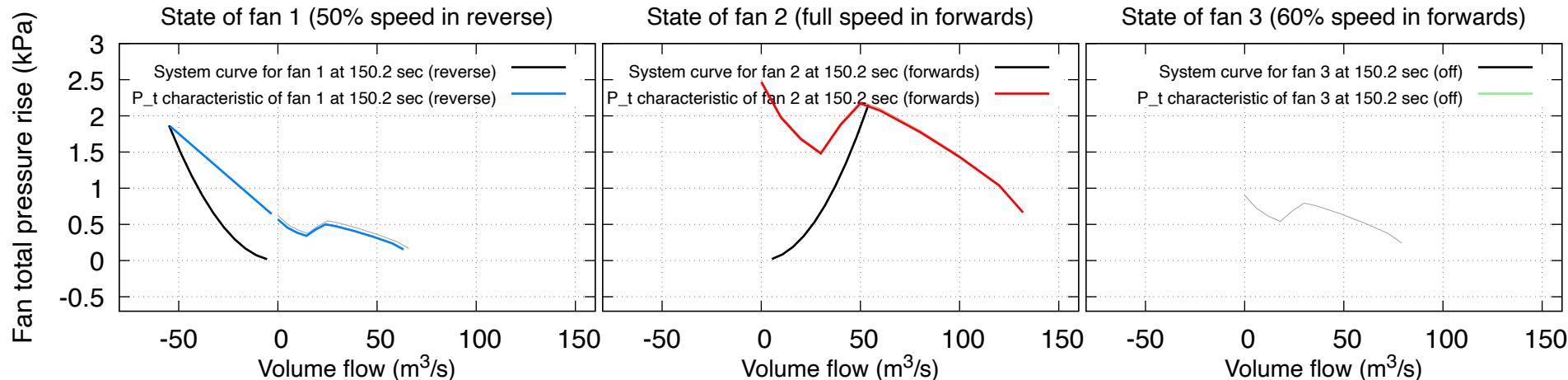
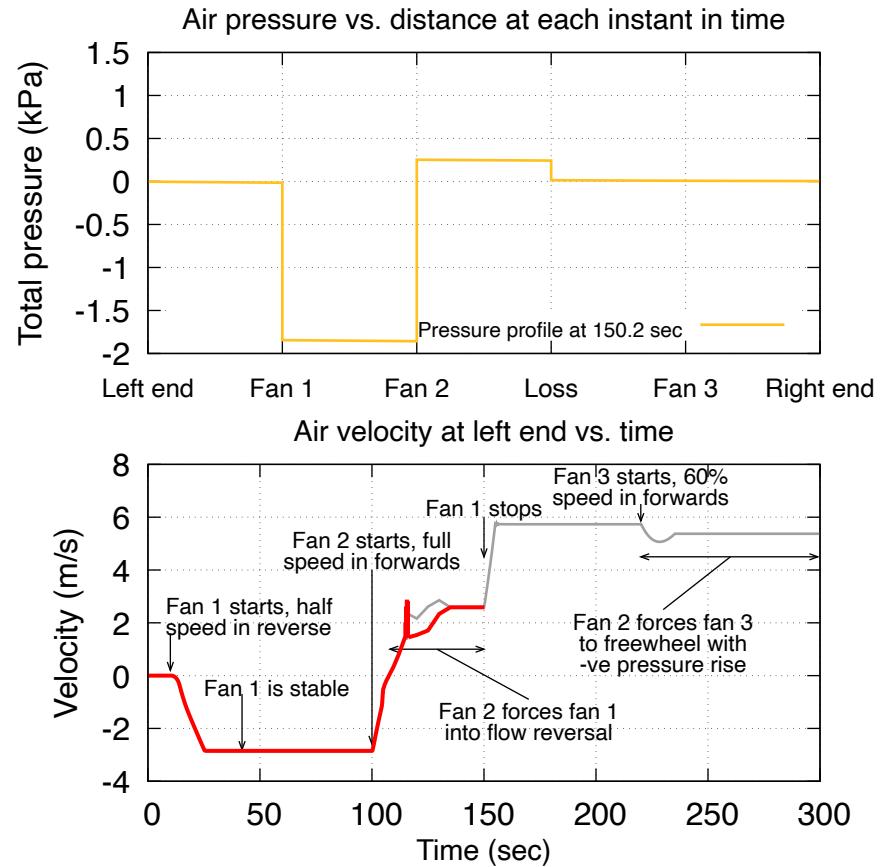
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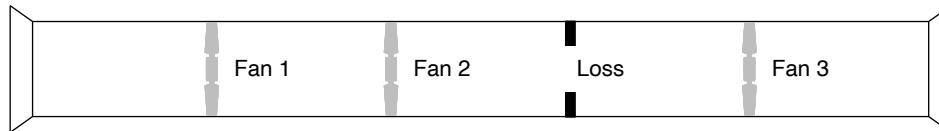
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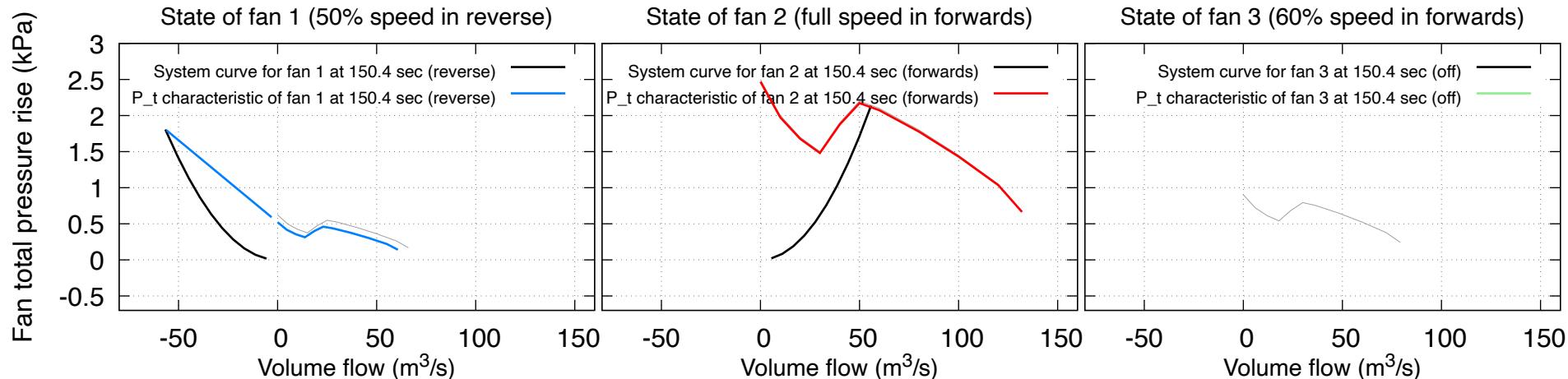
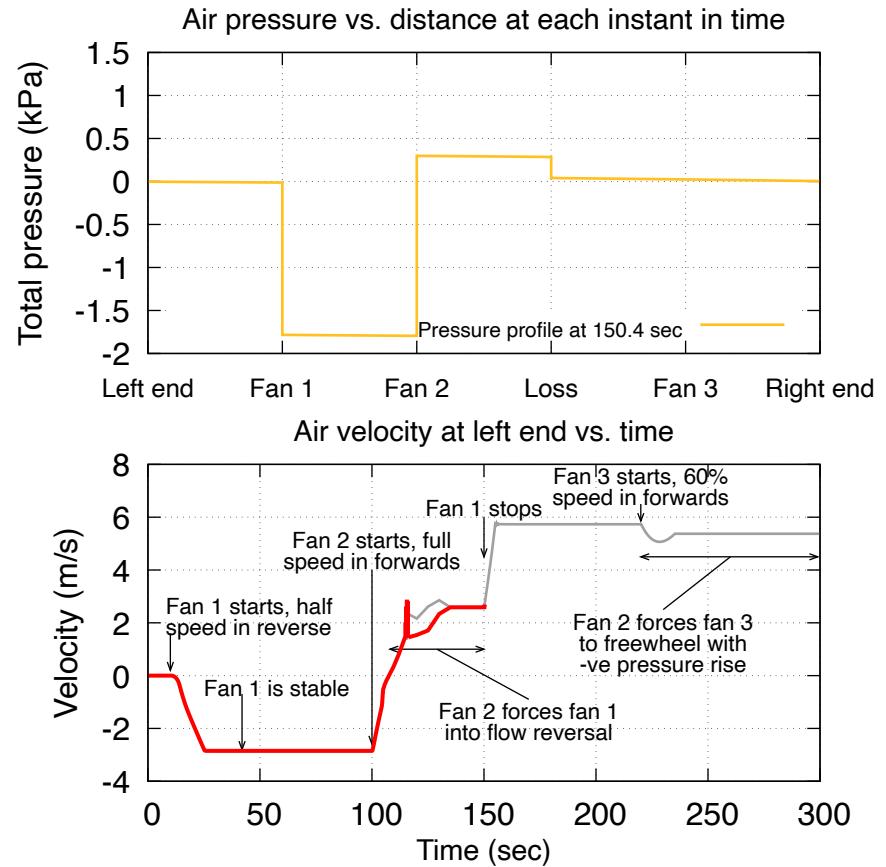
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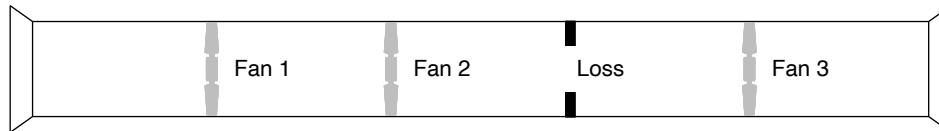
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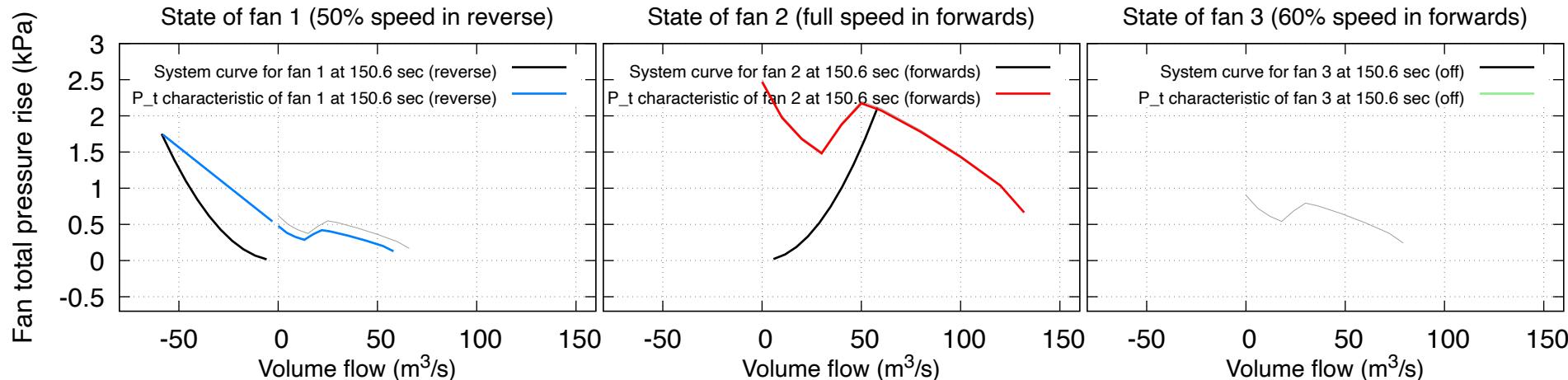
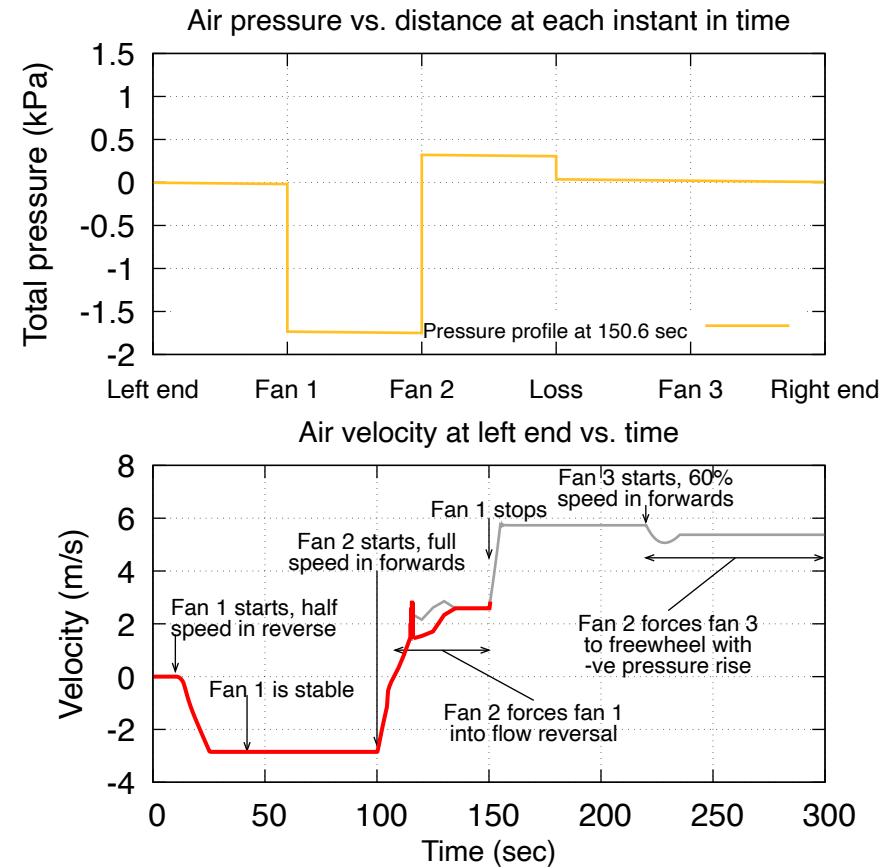
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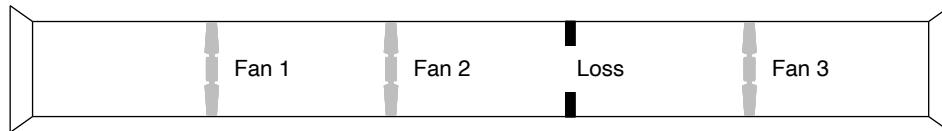
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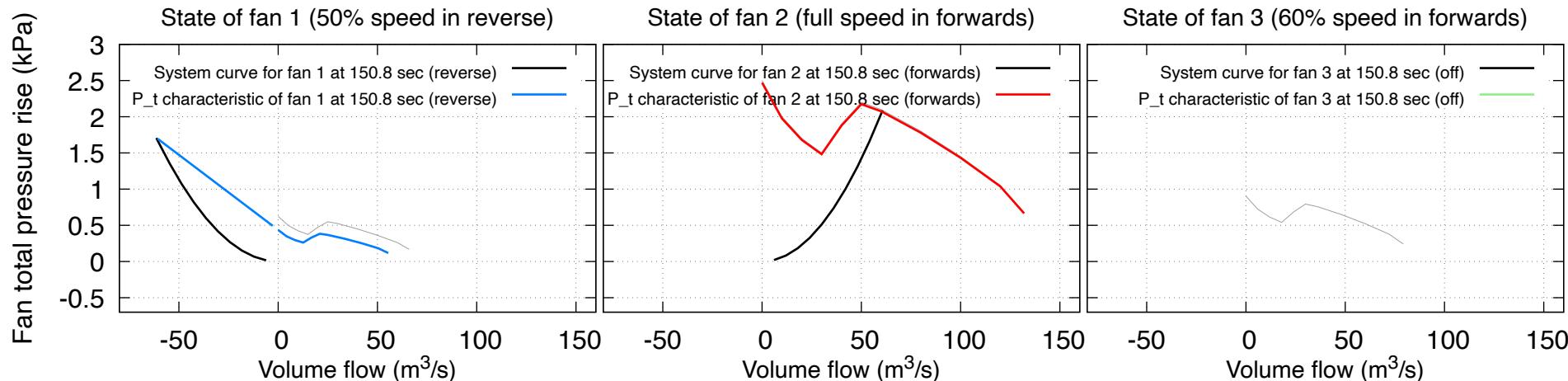
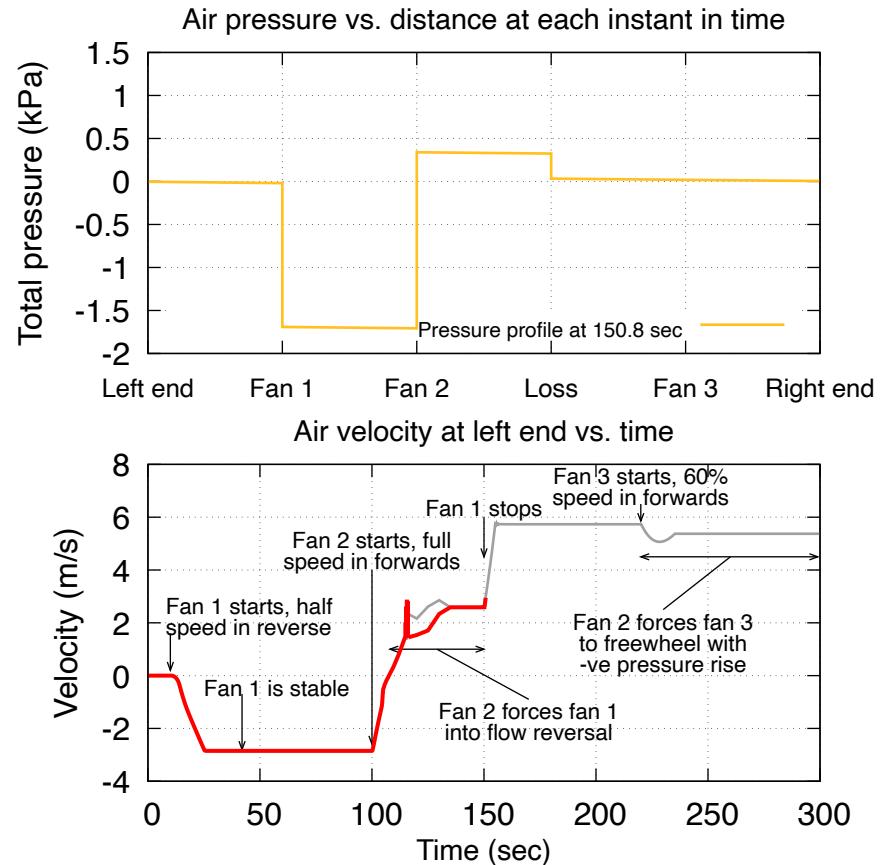
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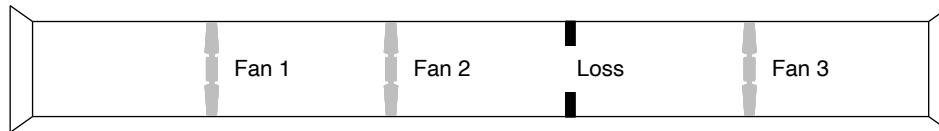
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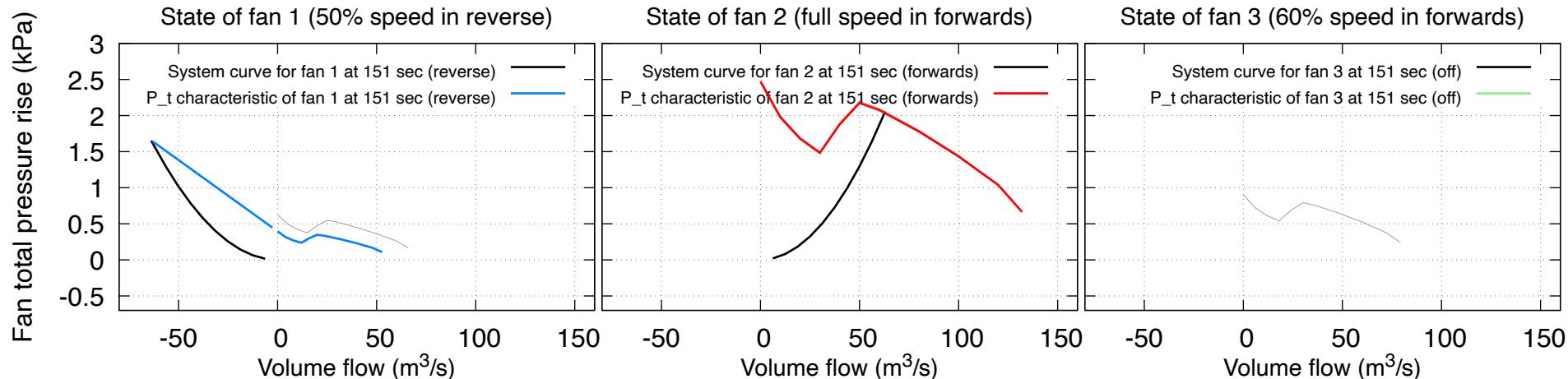
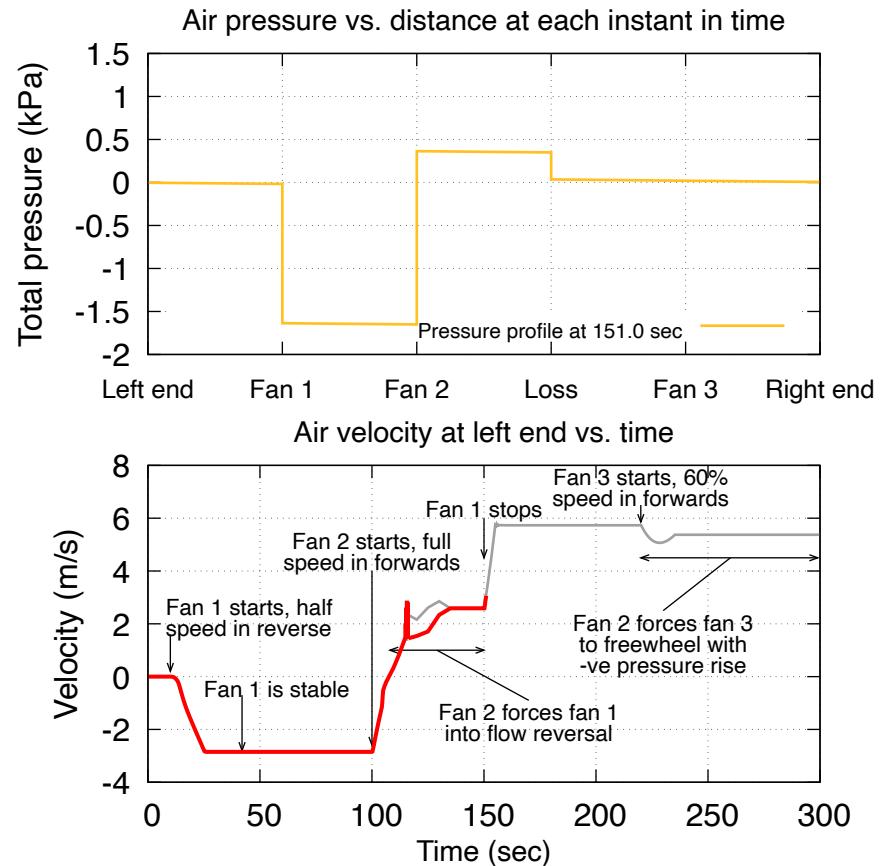
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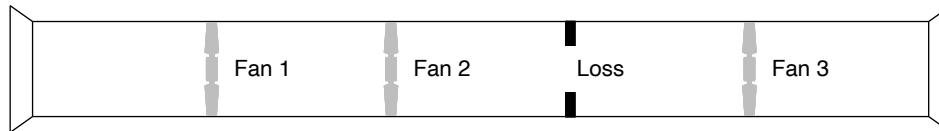
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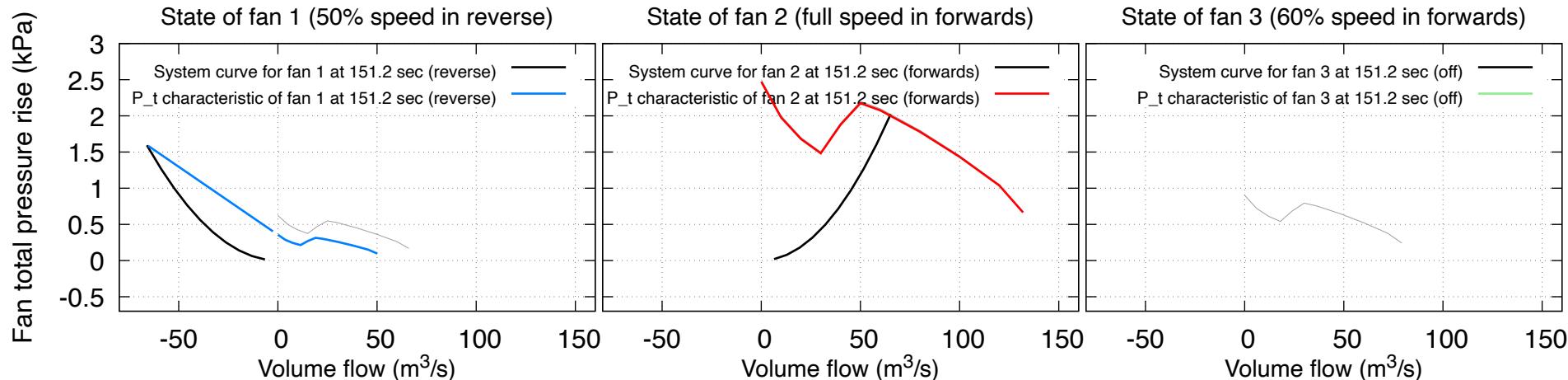
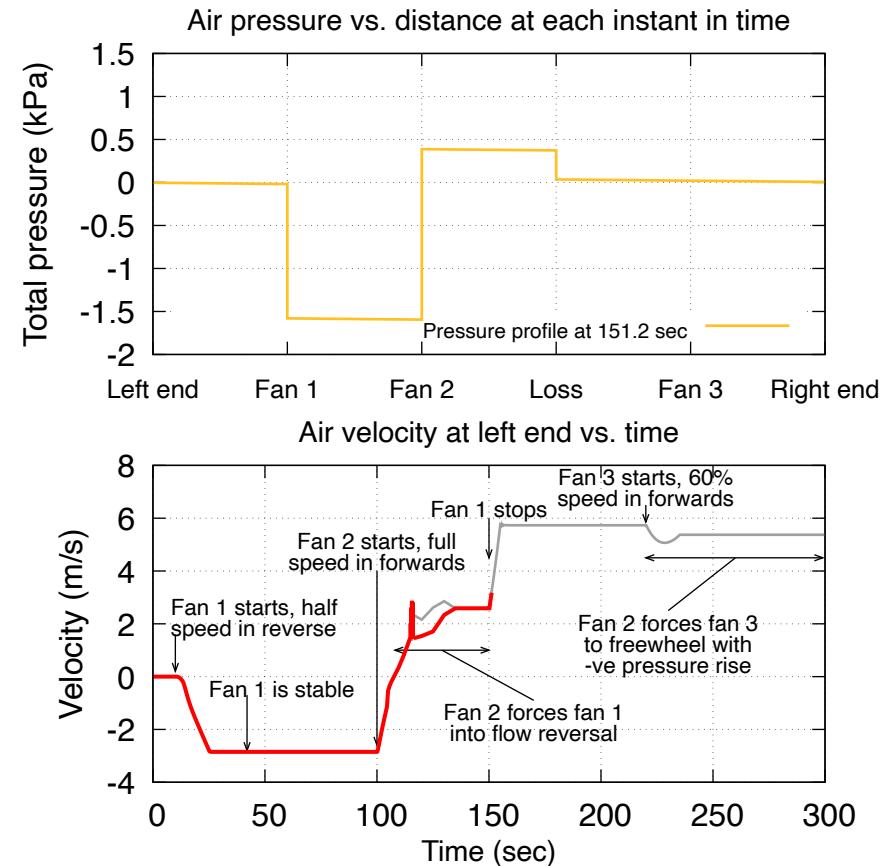
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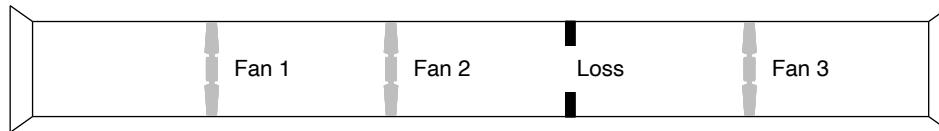
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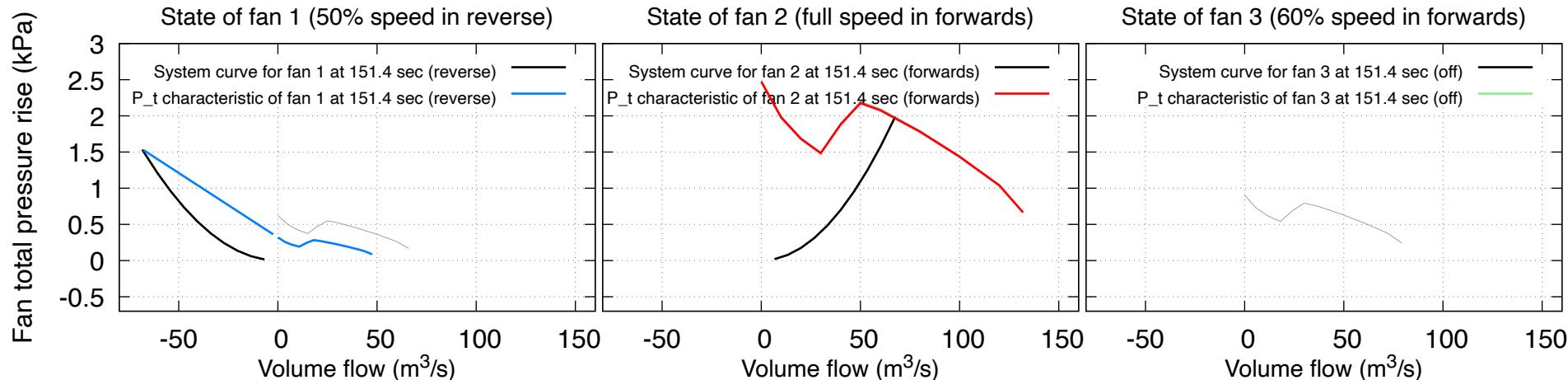
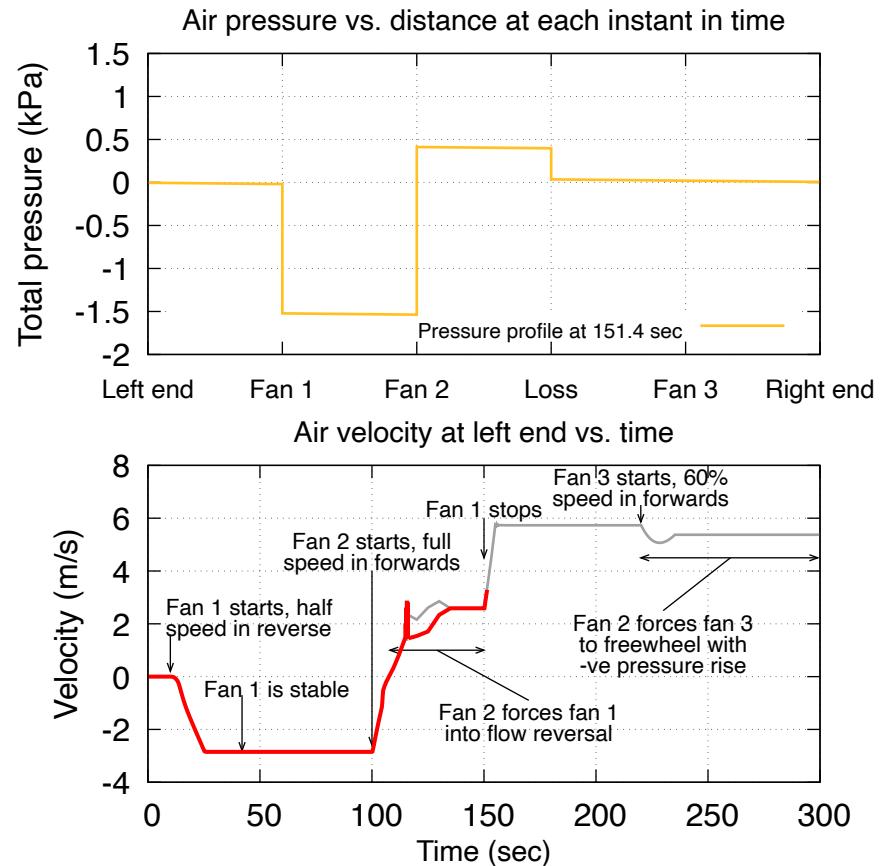
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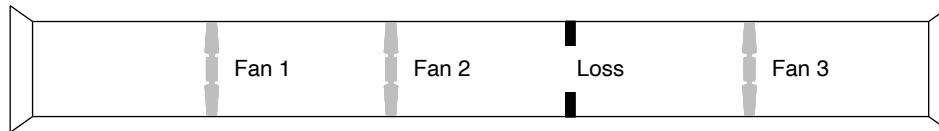
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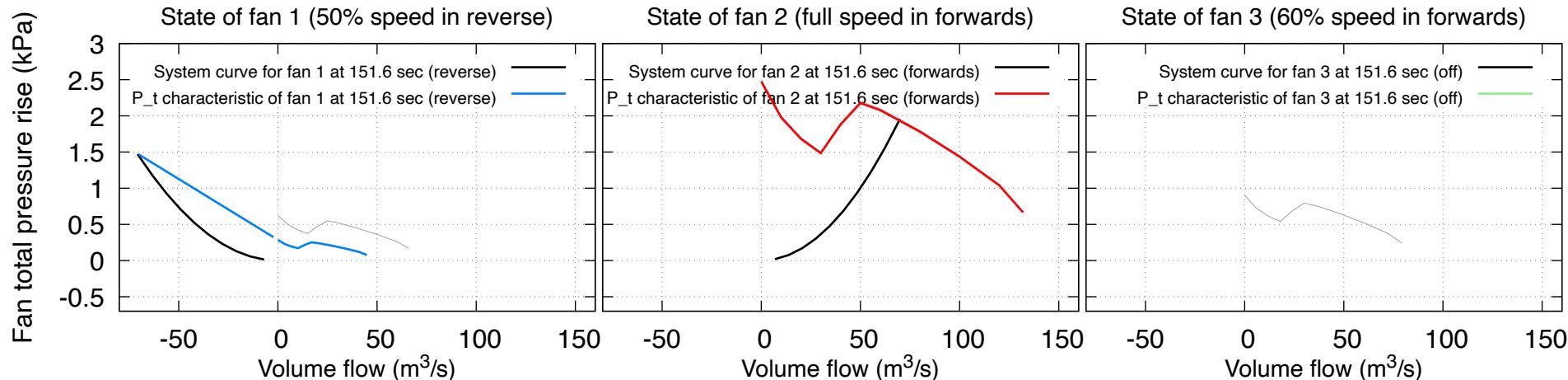
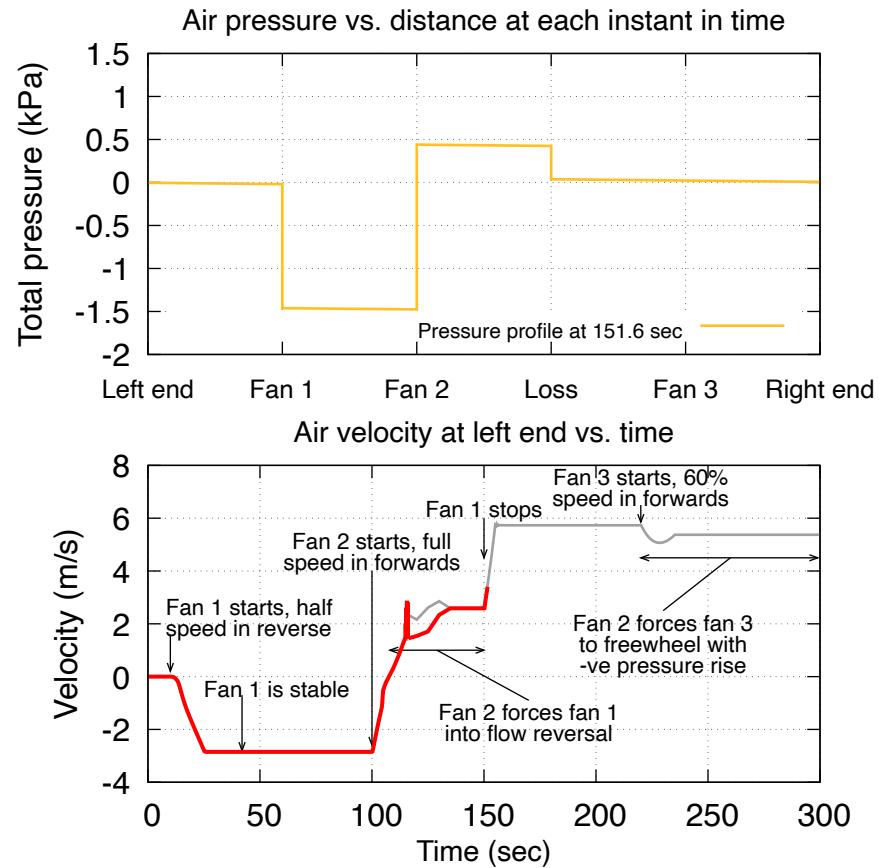
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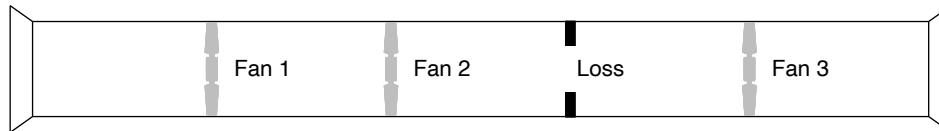
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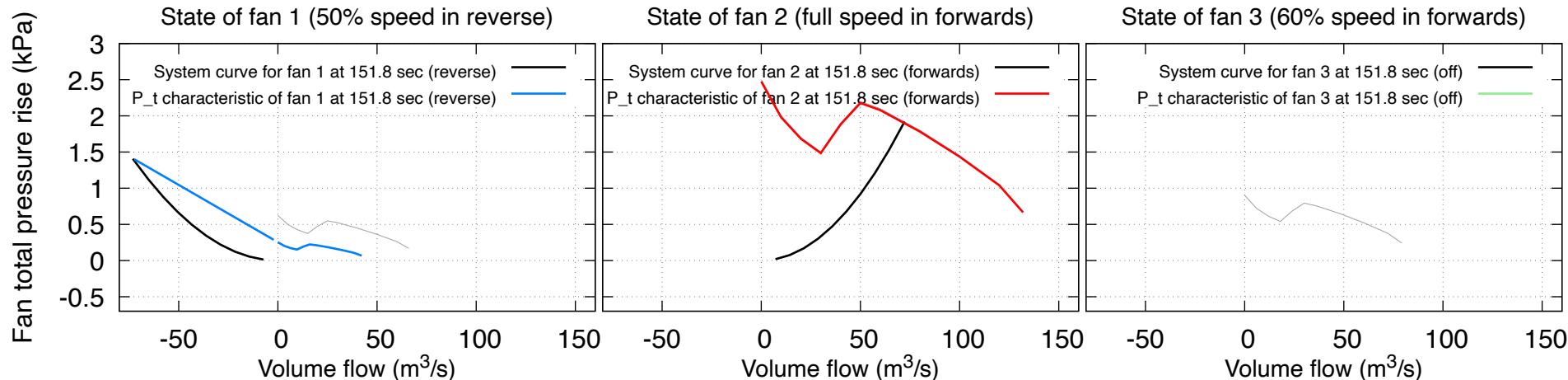
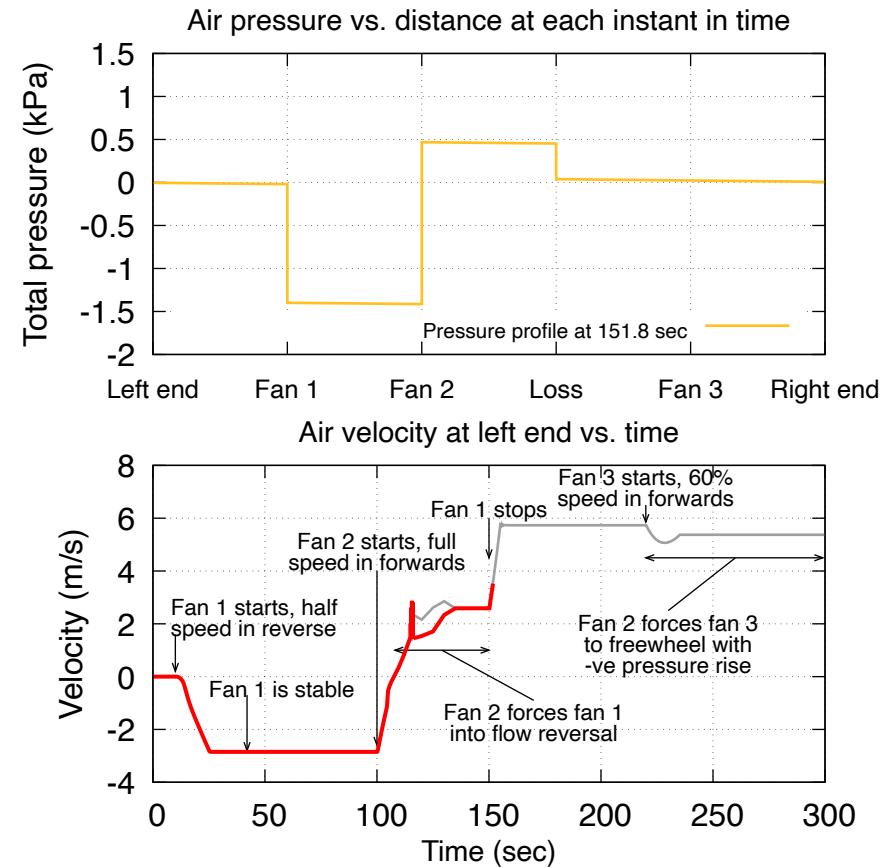
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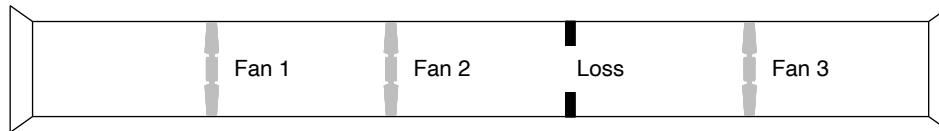
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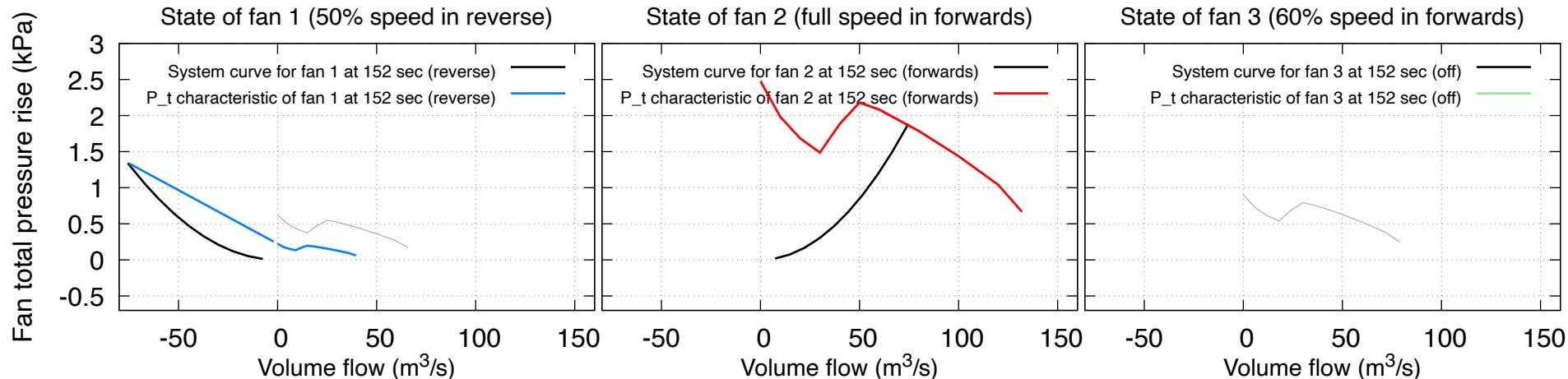
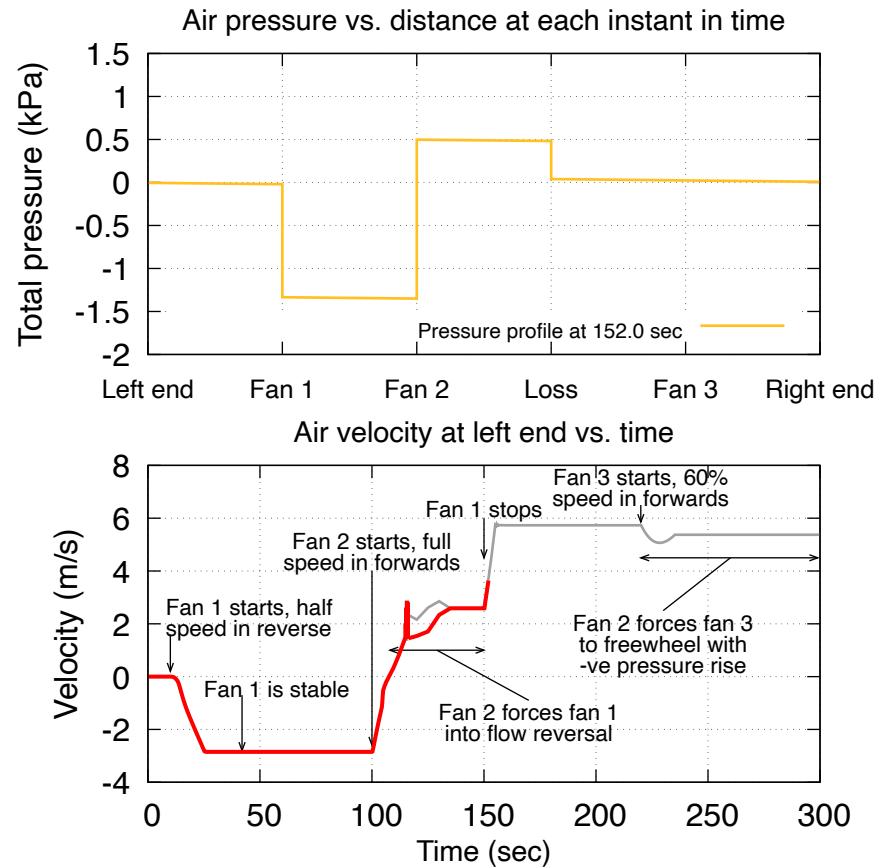
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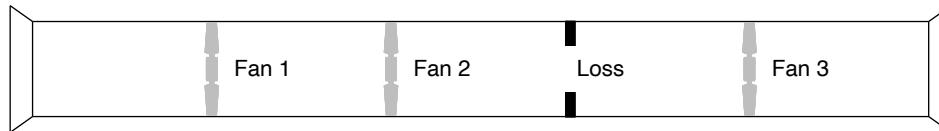
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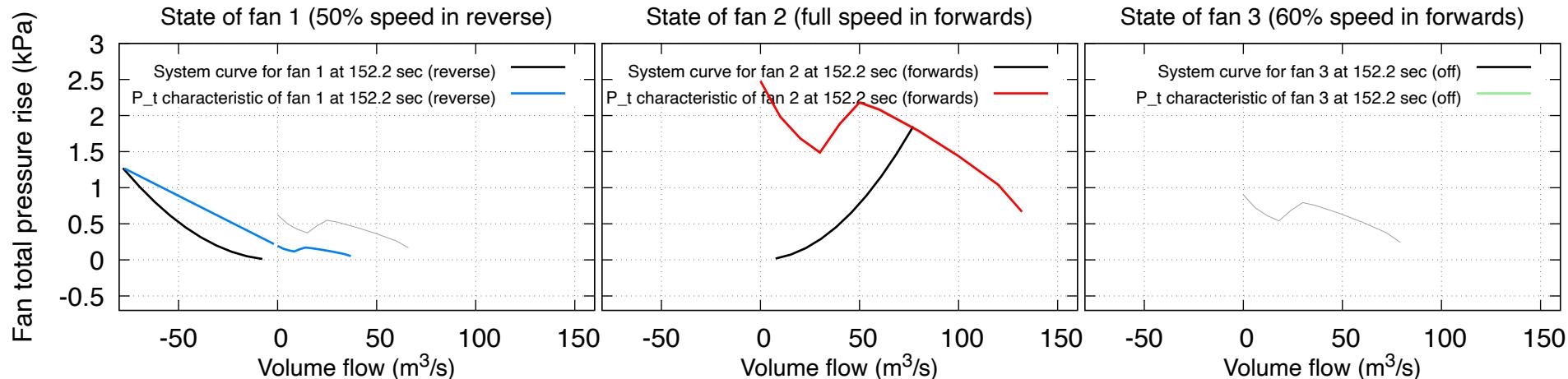
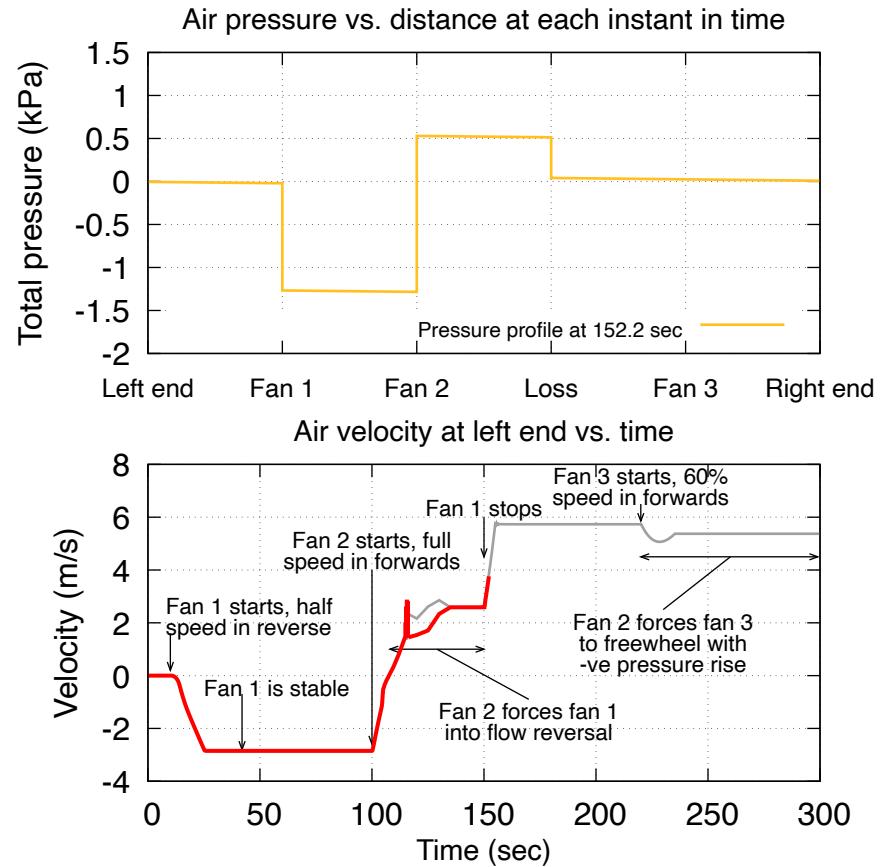
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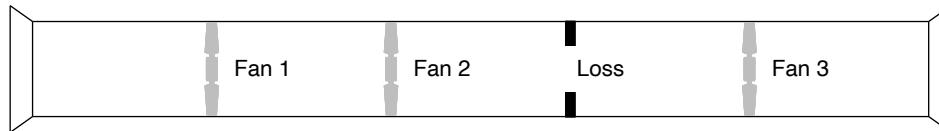
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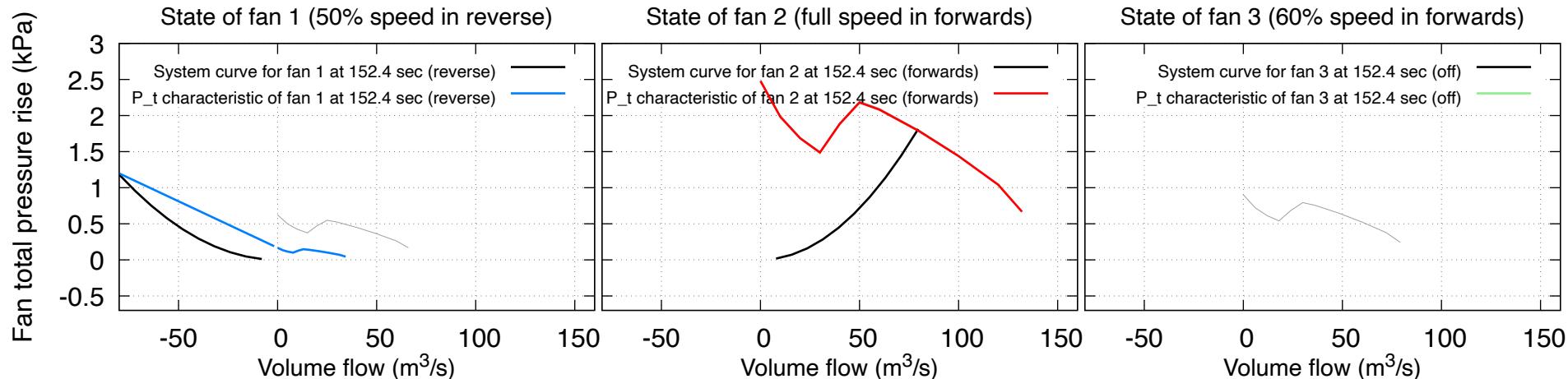
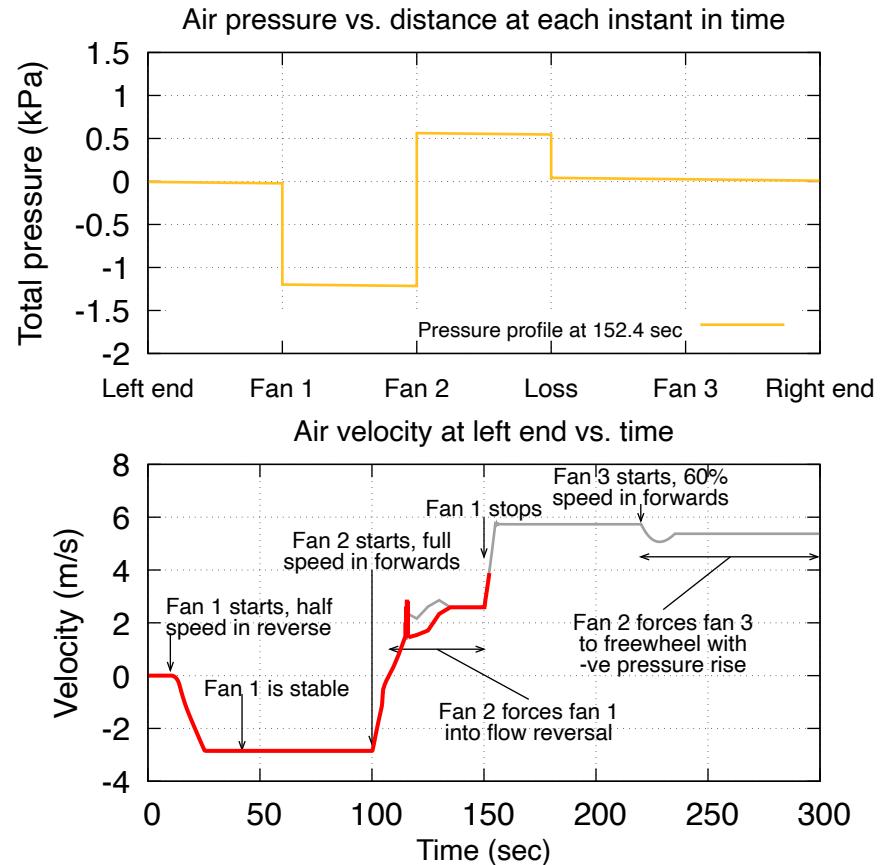
Fan 1 starts in reverse at half speed and ends up at a suitable duty point.

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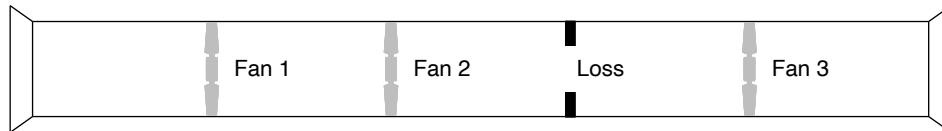
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

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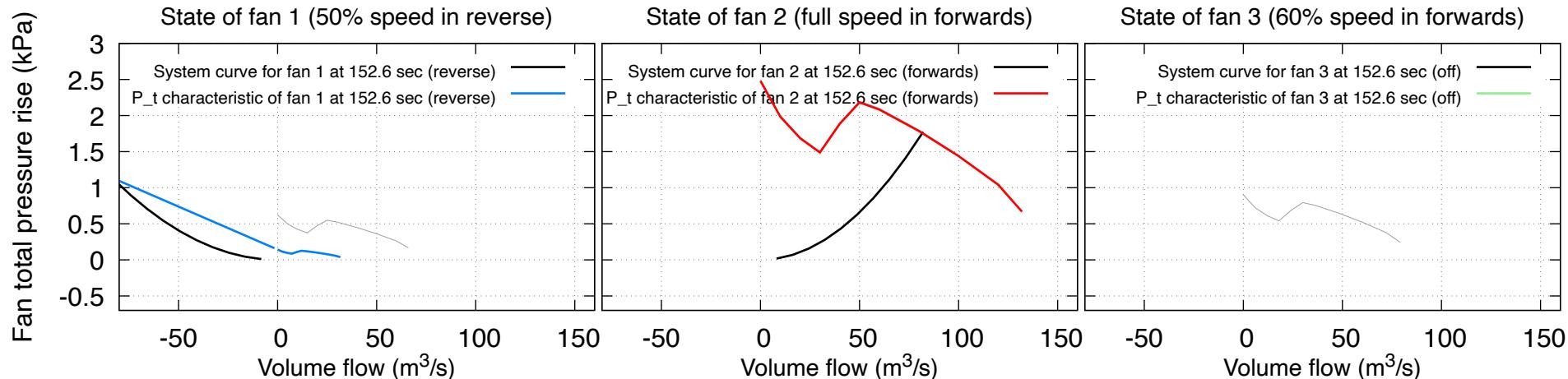
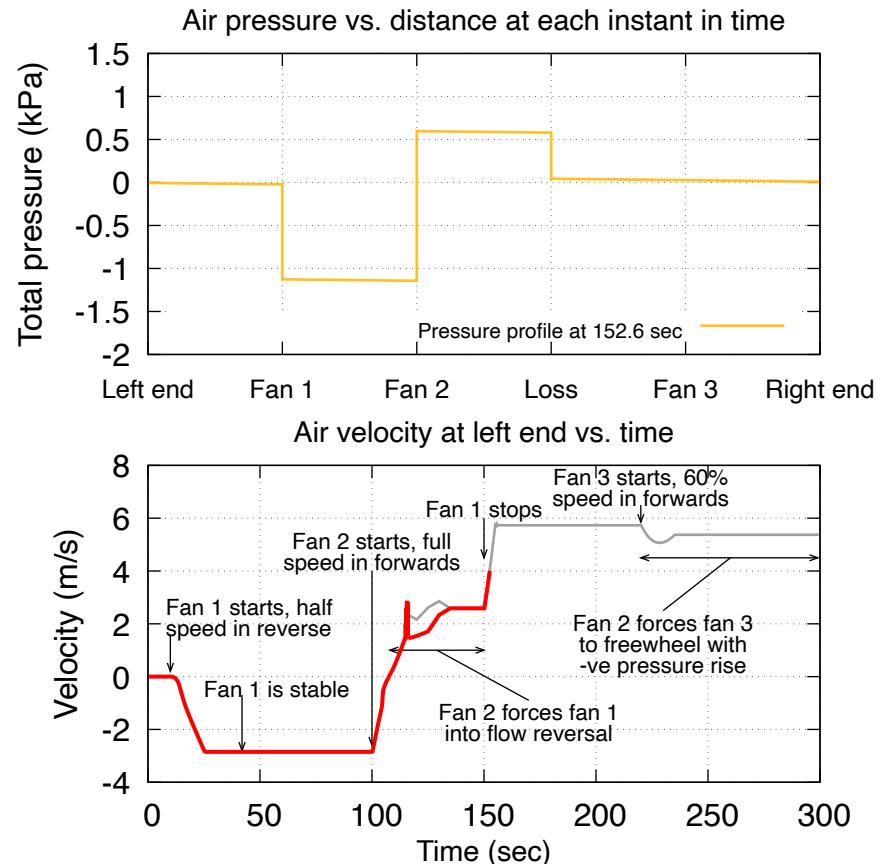
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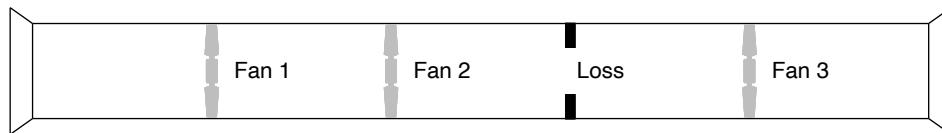
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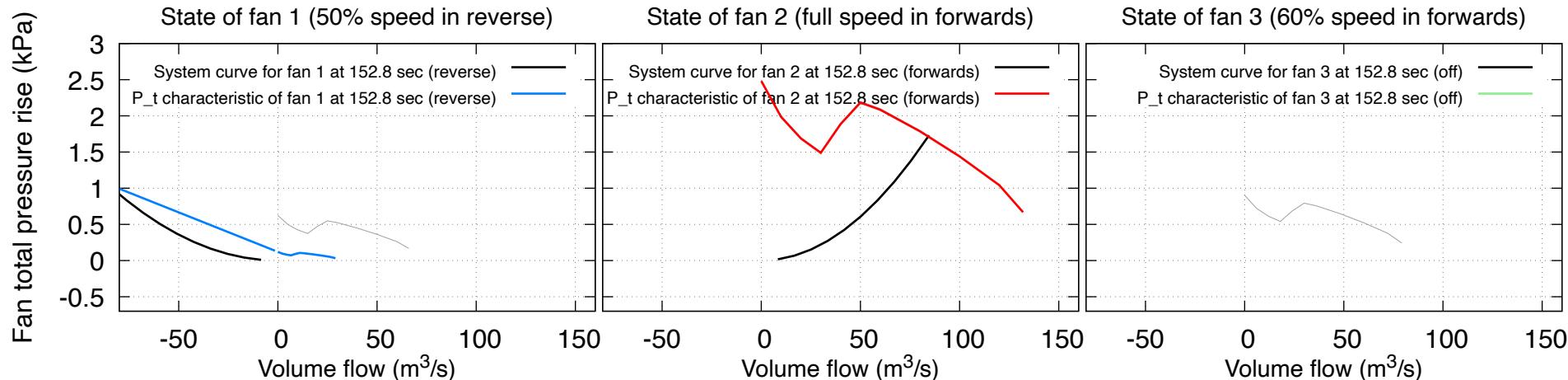
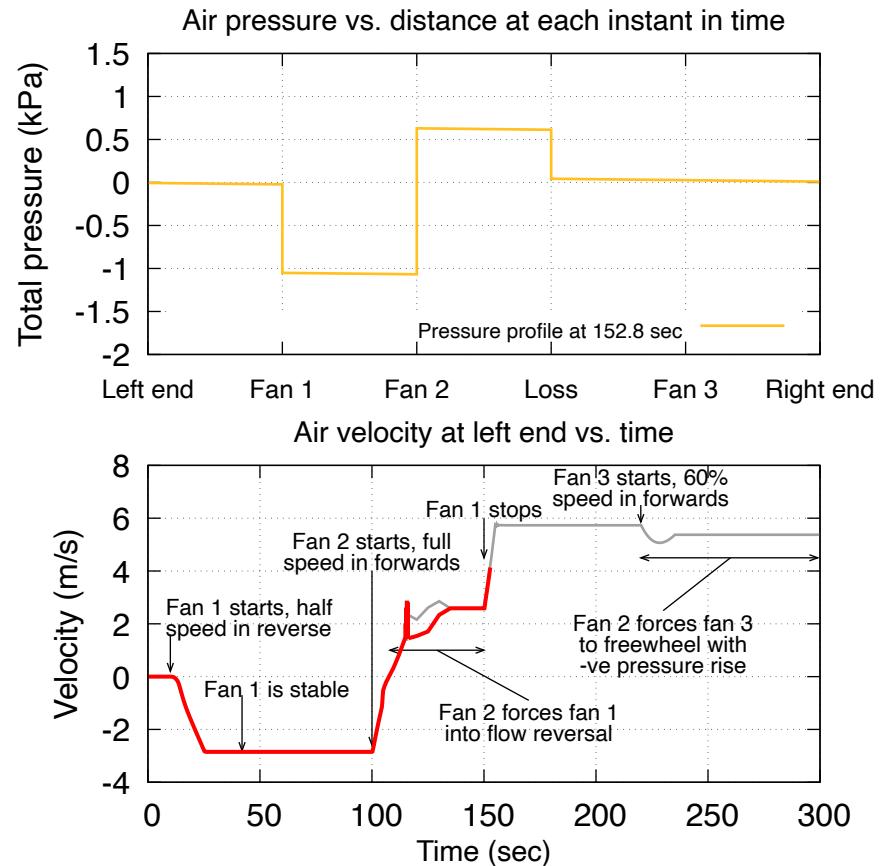
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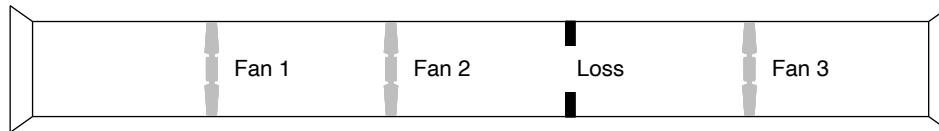
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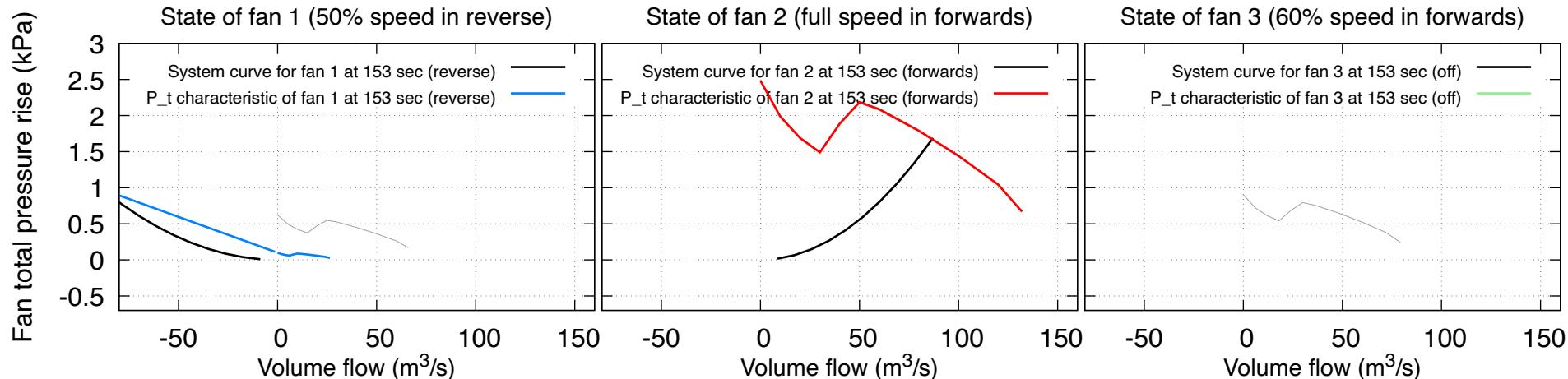
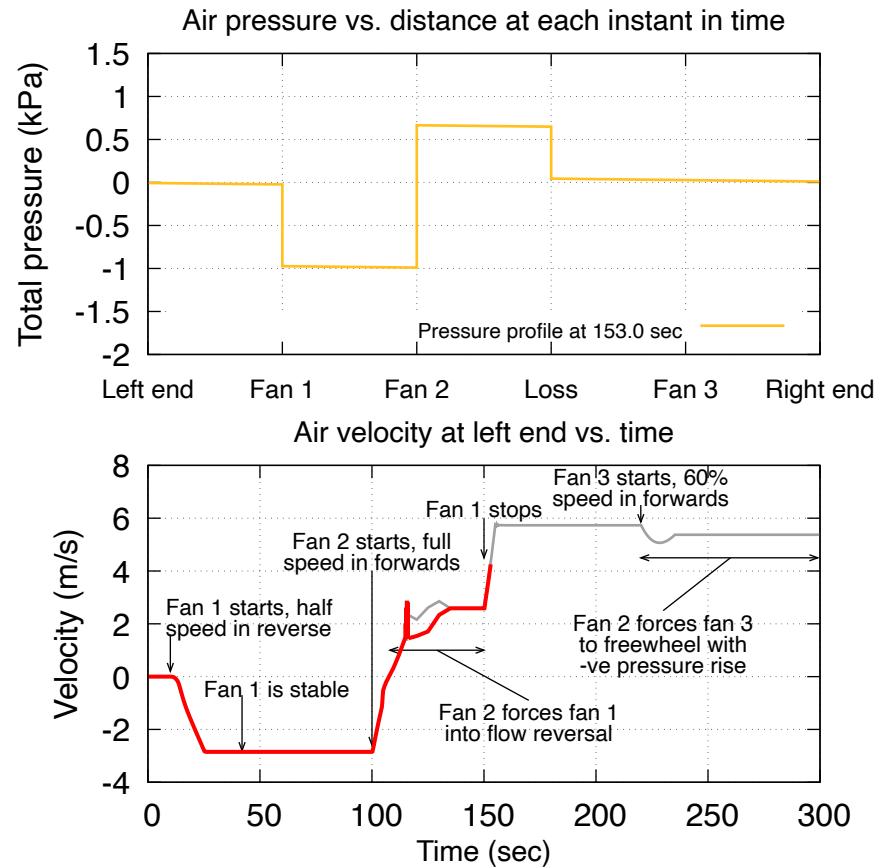
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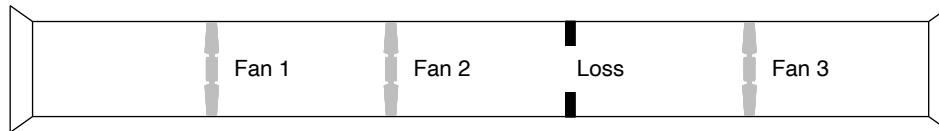
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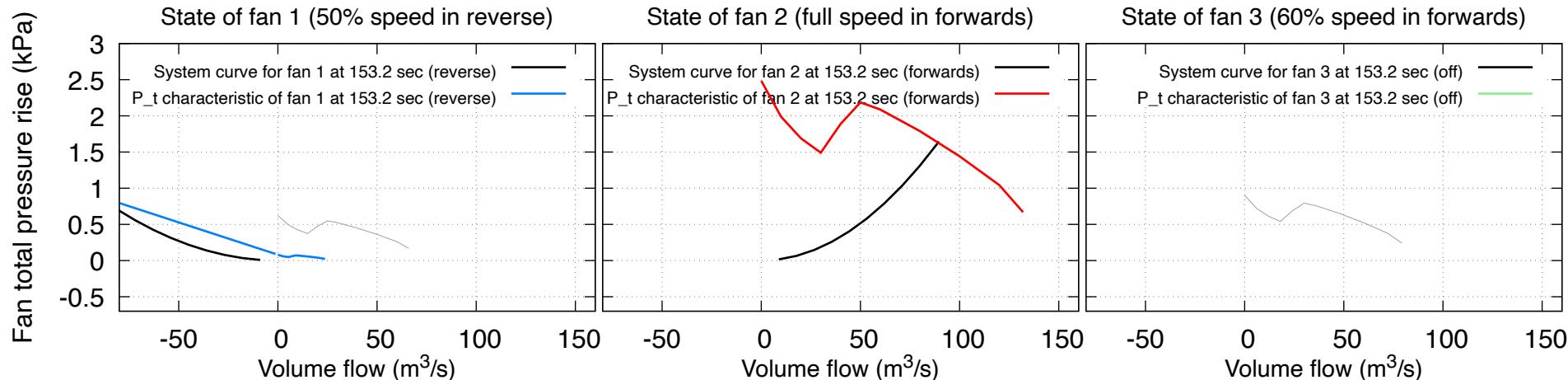
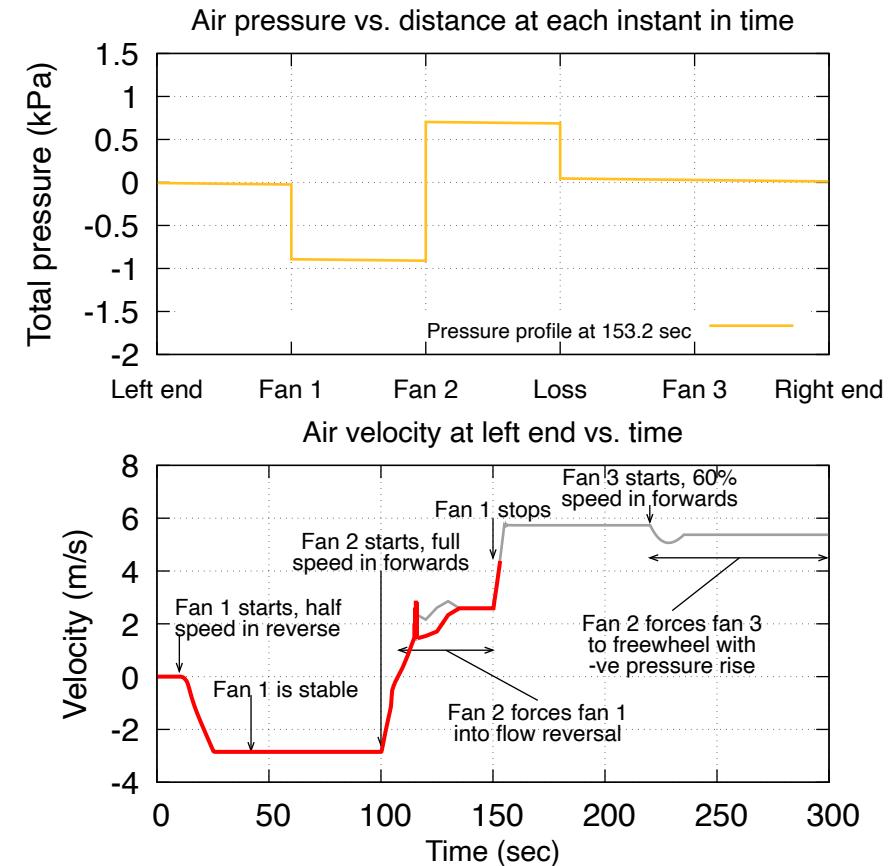
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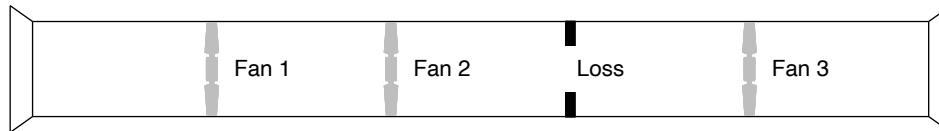
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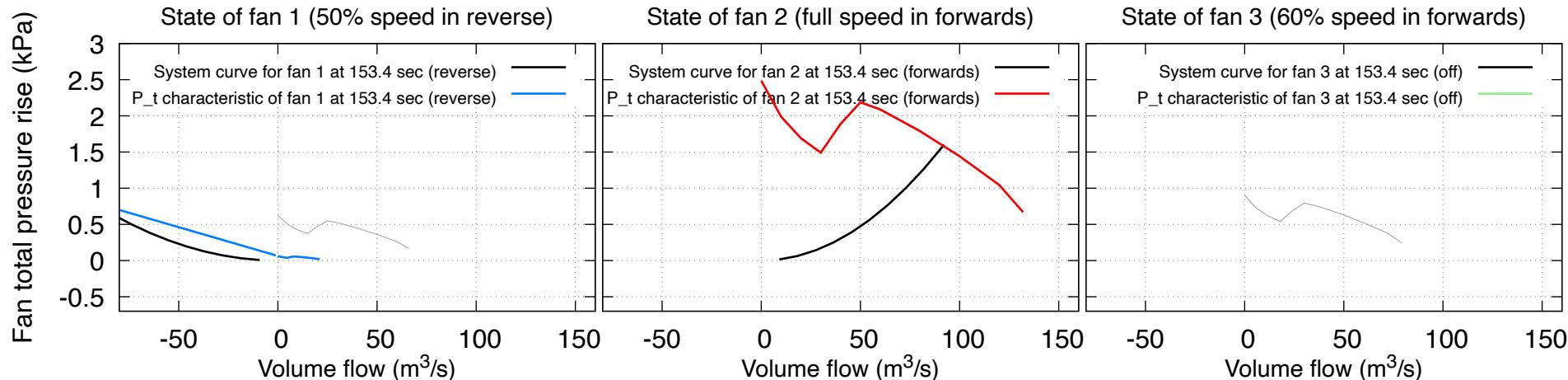
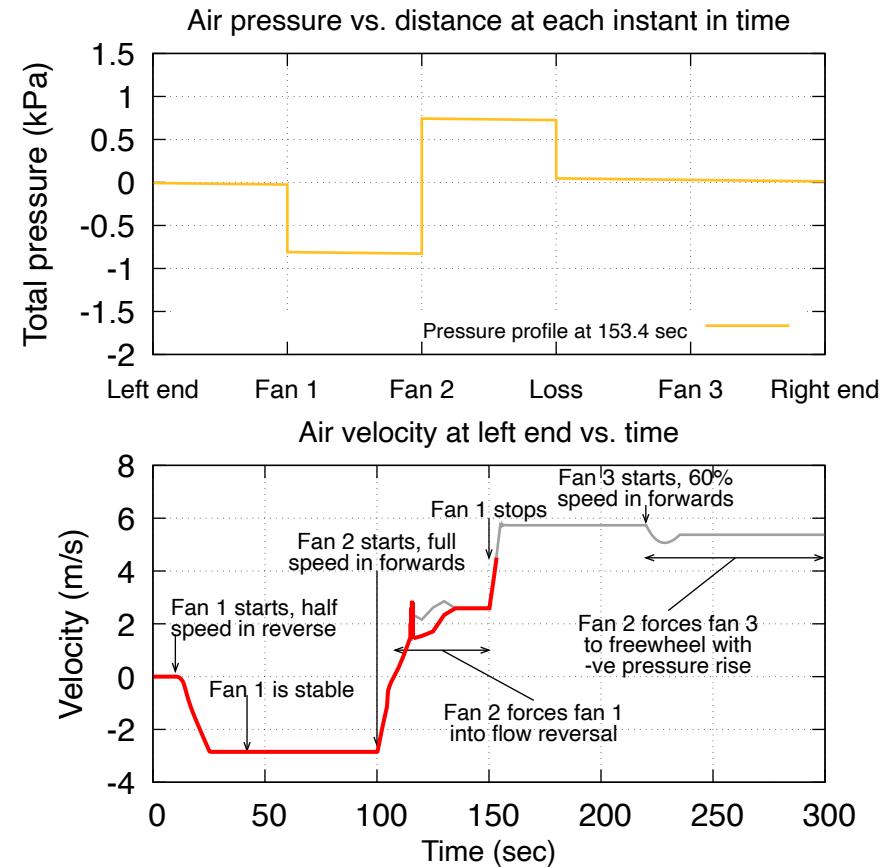
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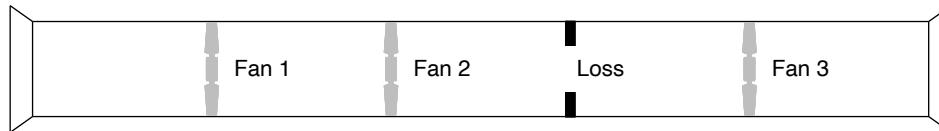
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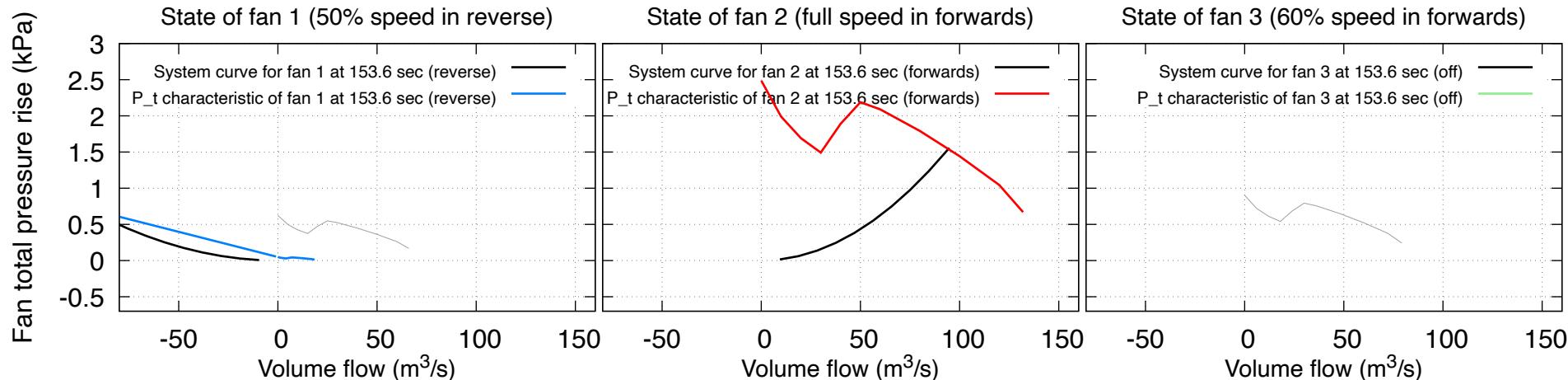
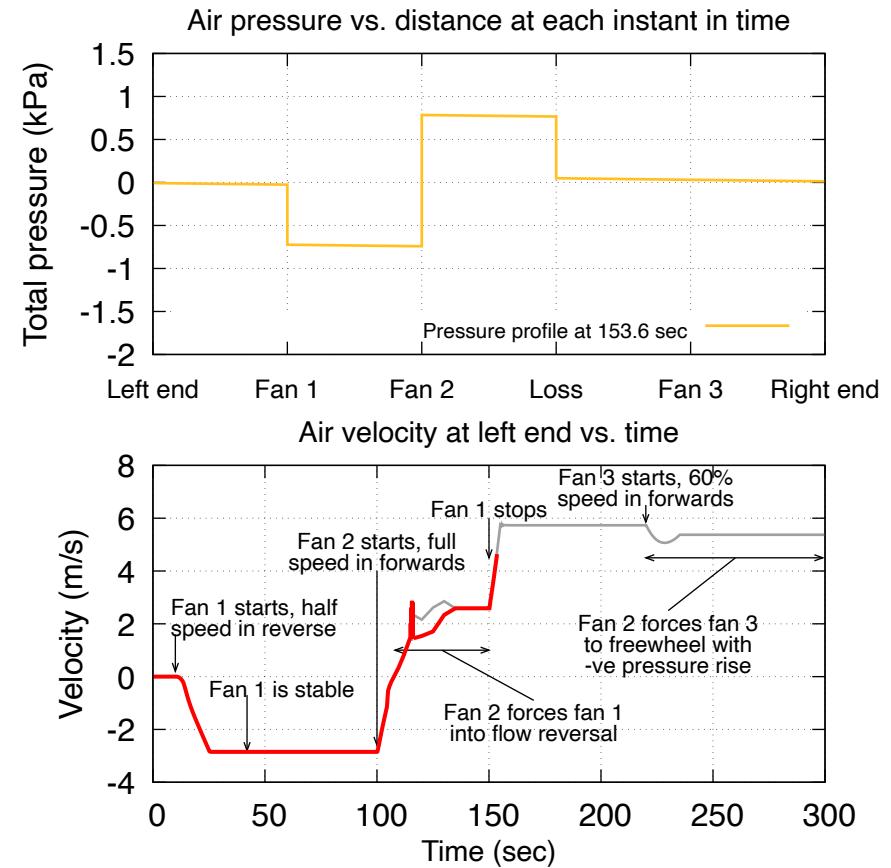
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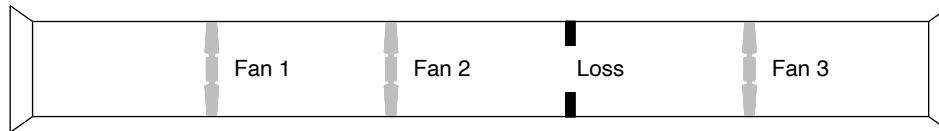
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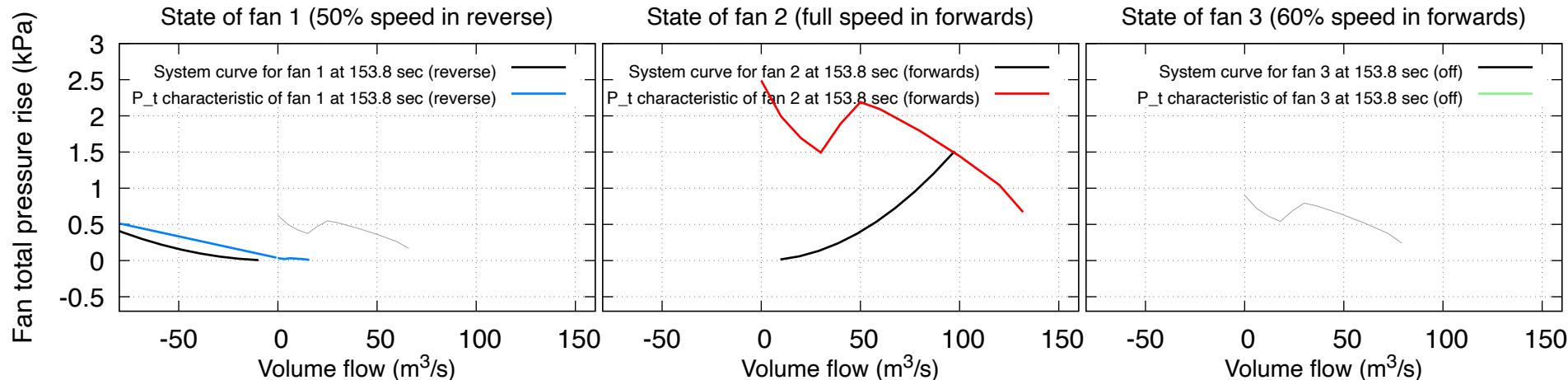
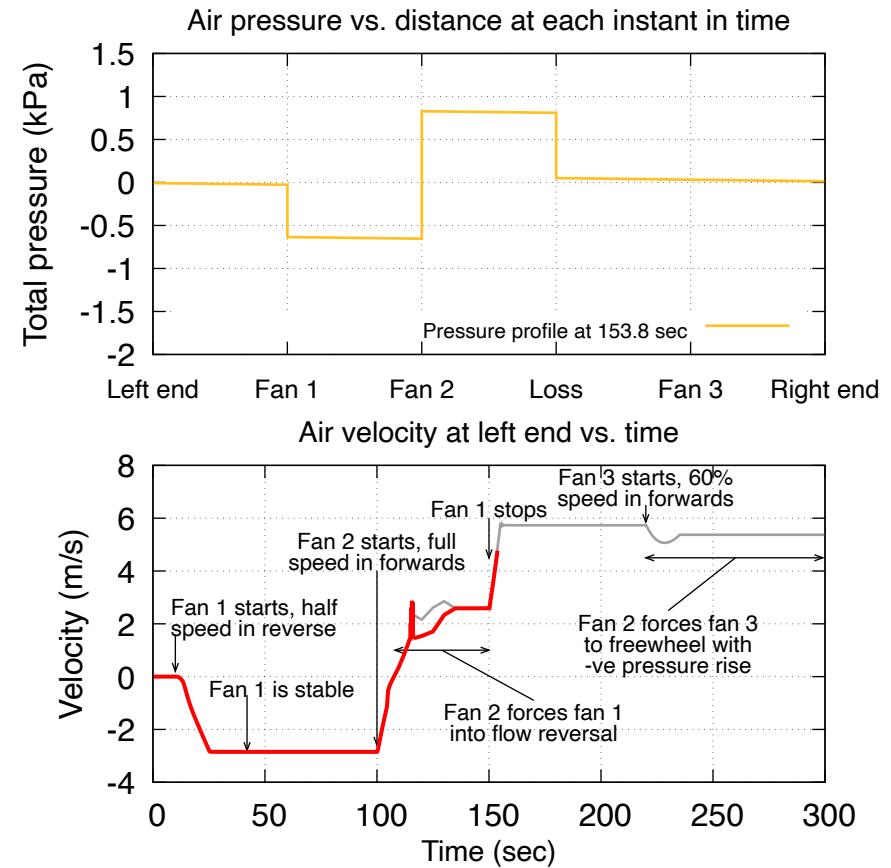
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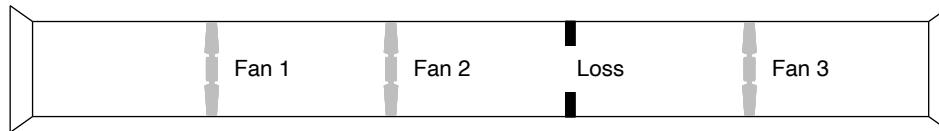
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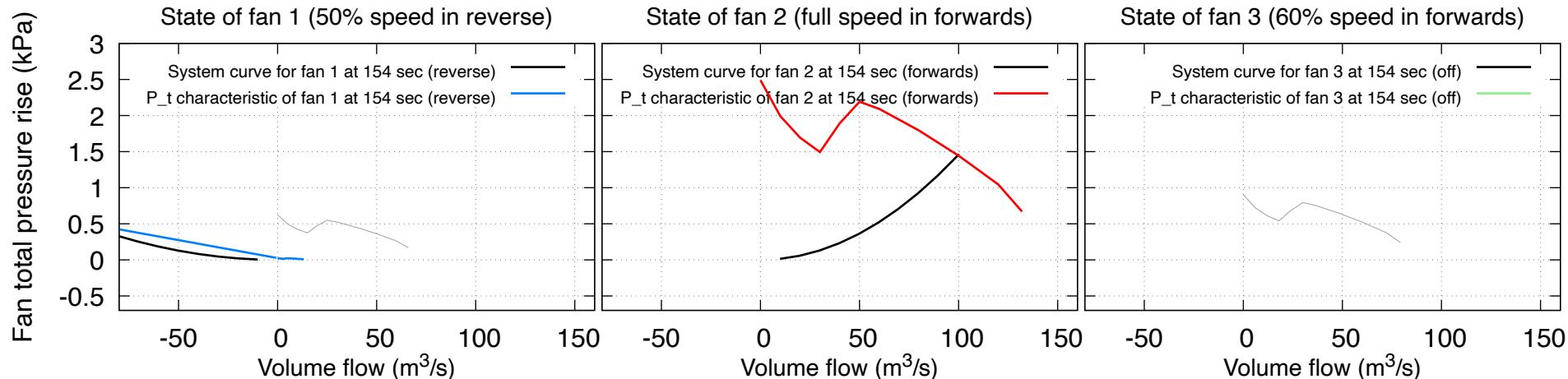
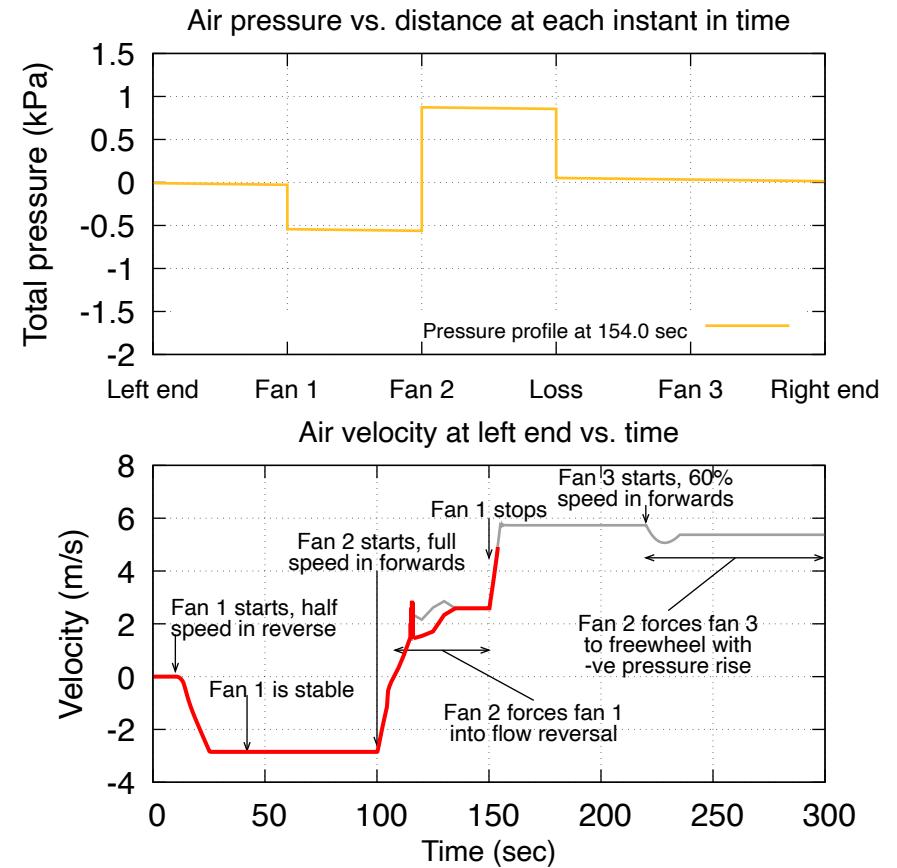
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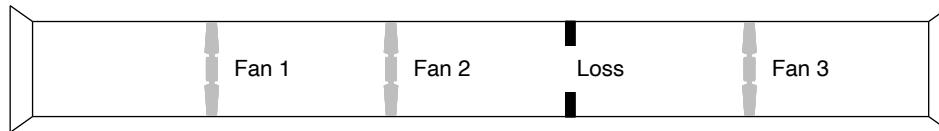
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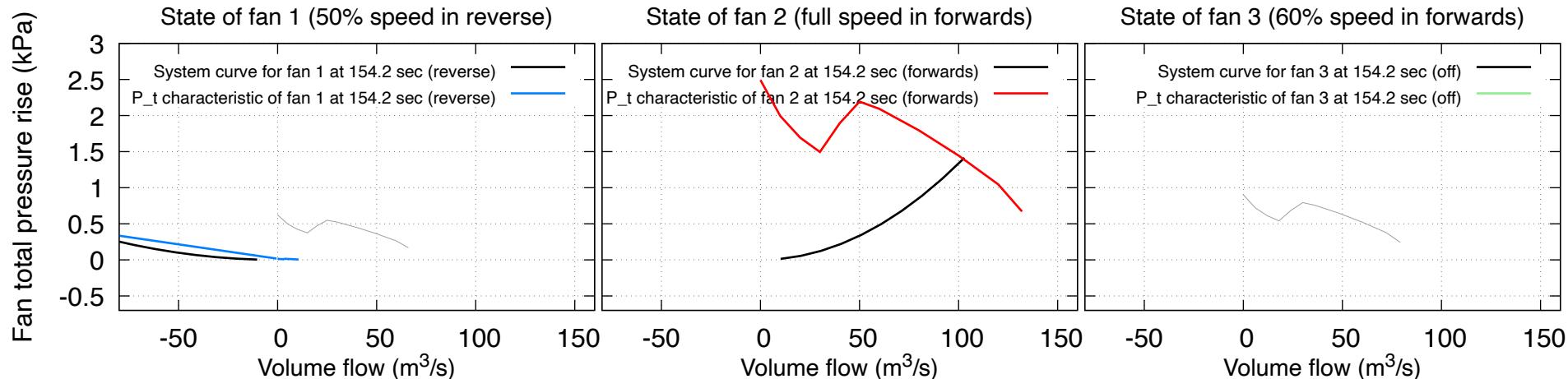
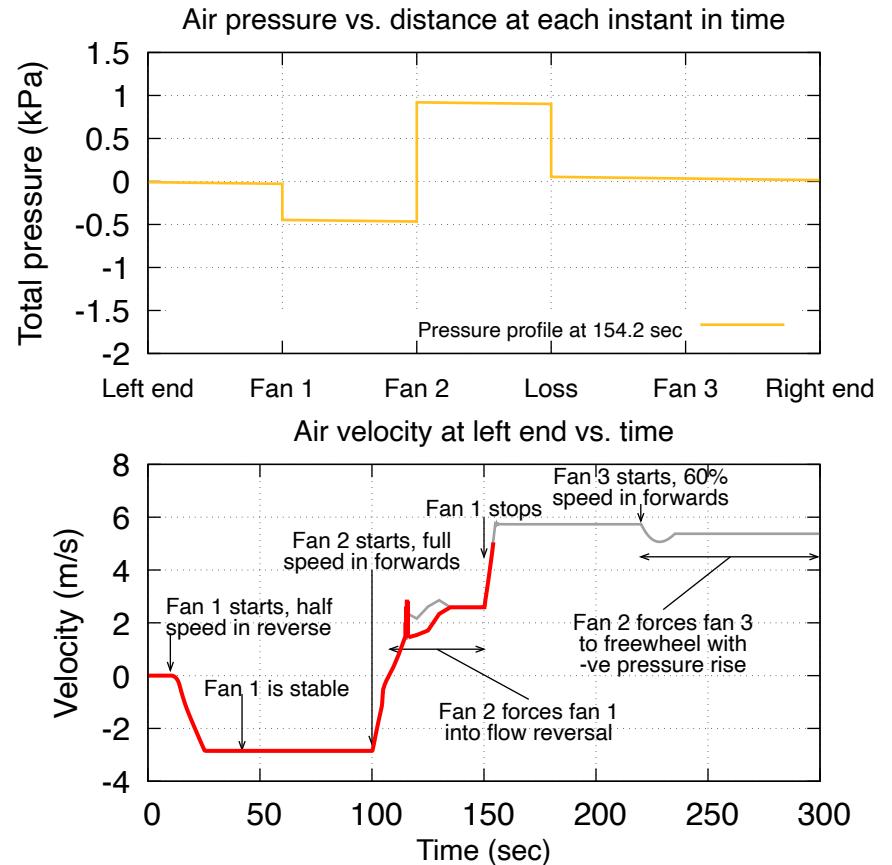
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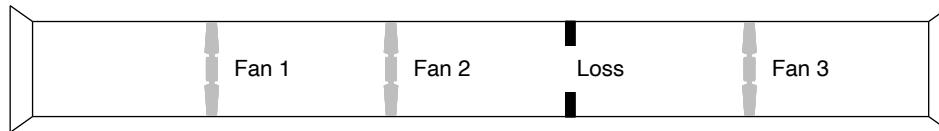
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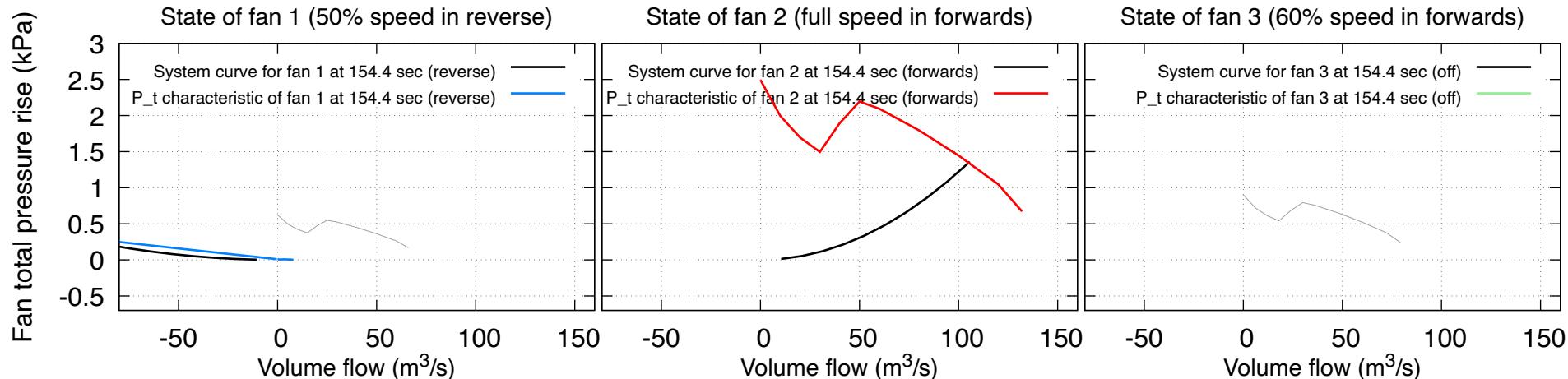
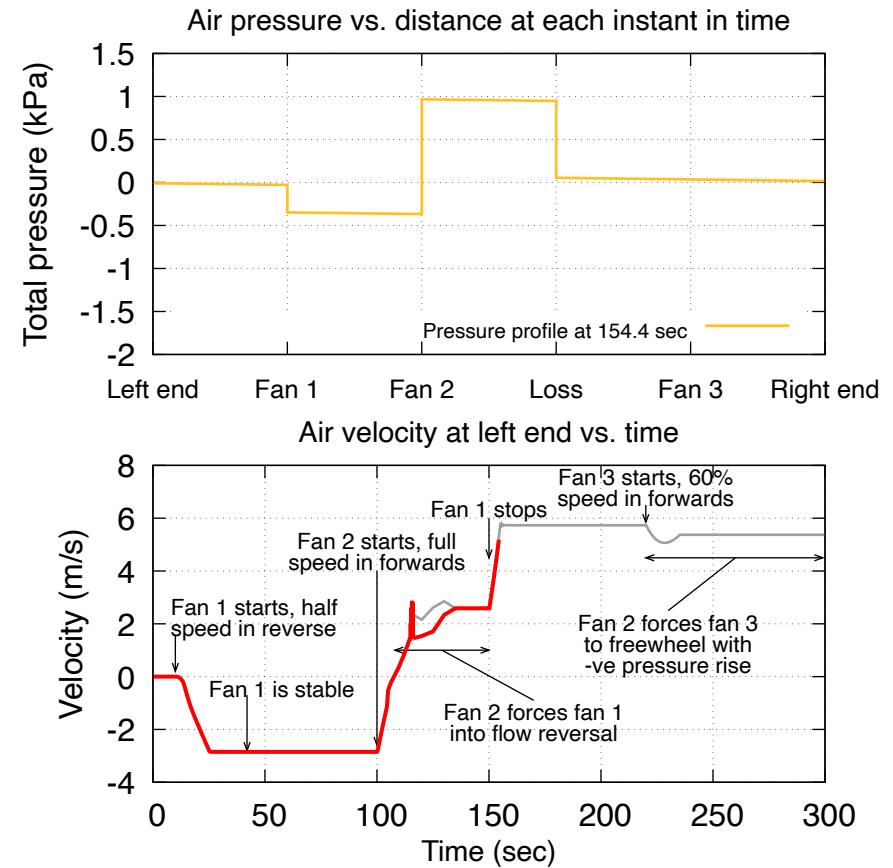
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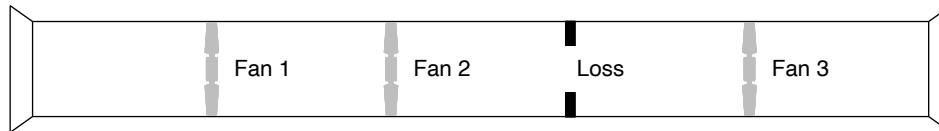
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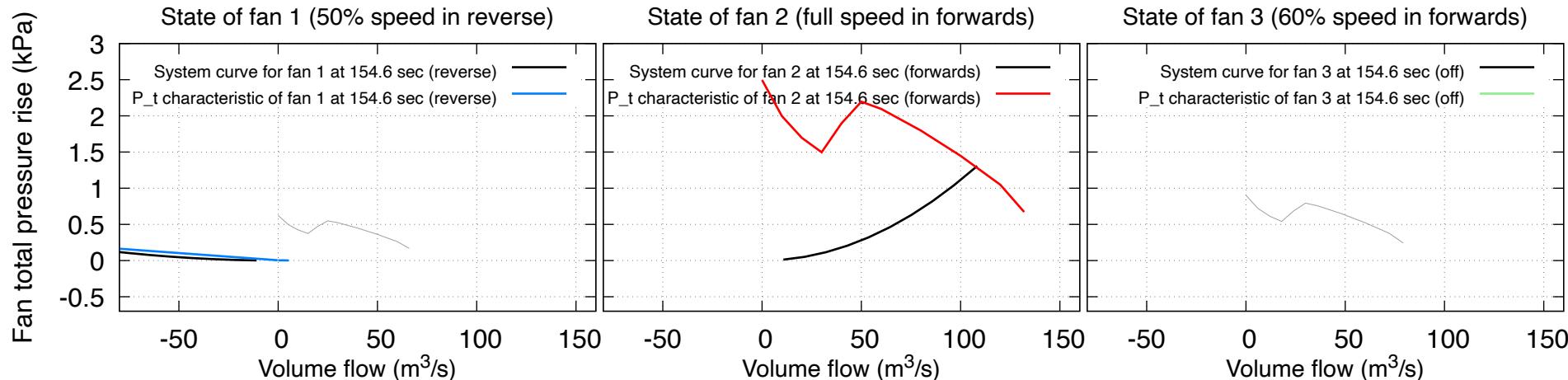
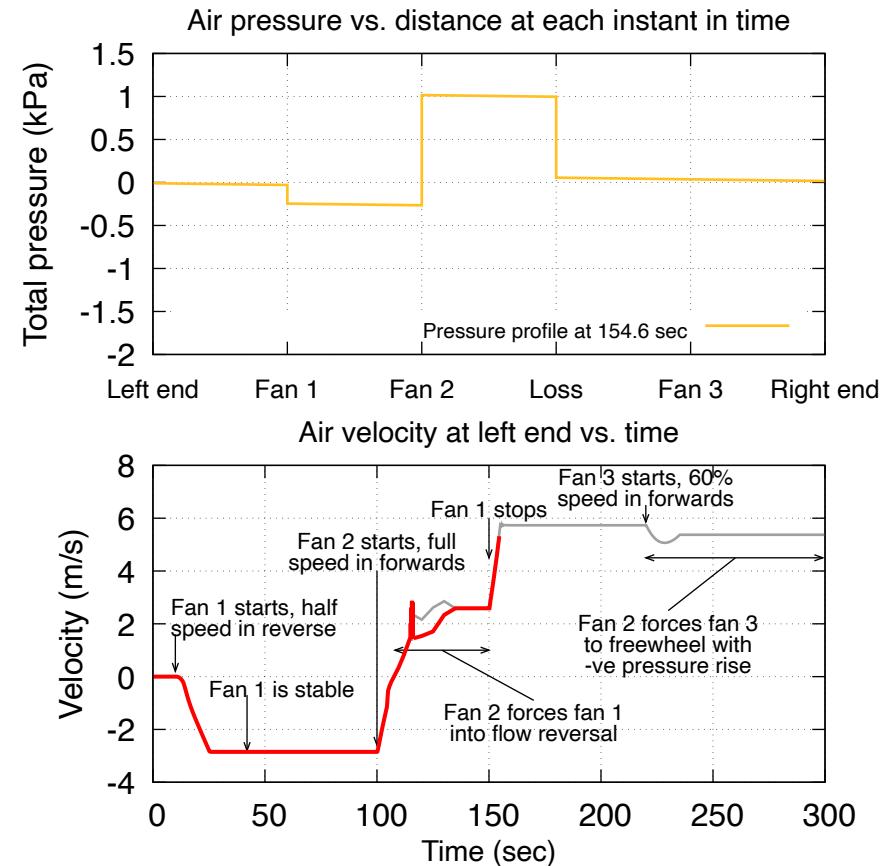
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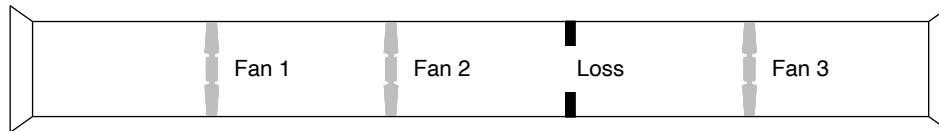
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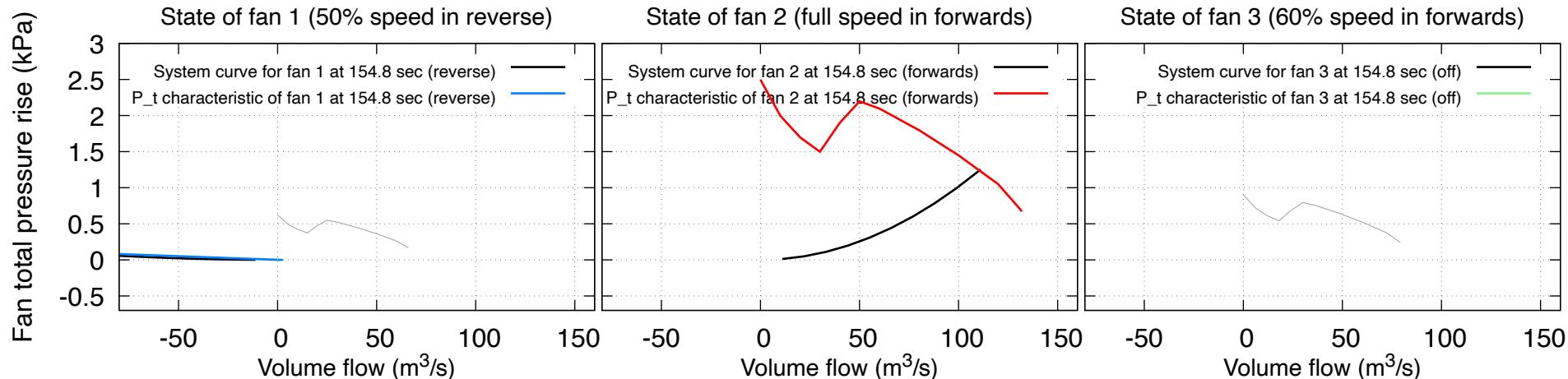
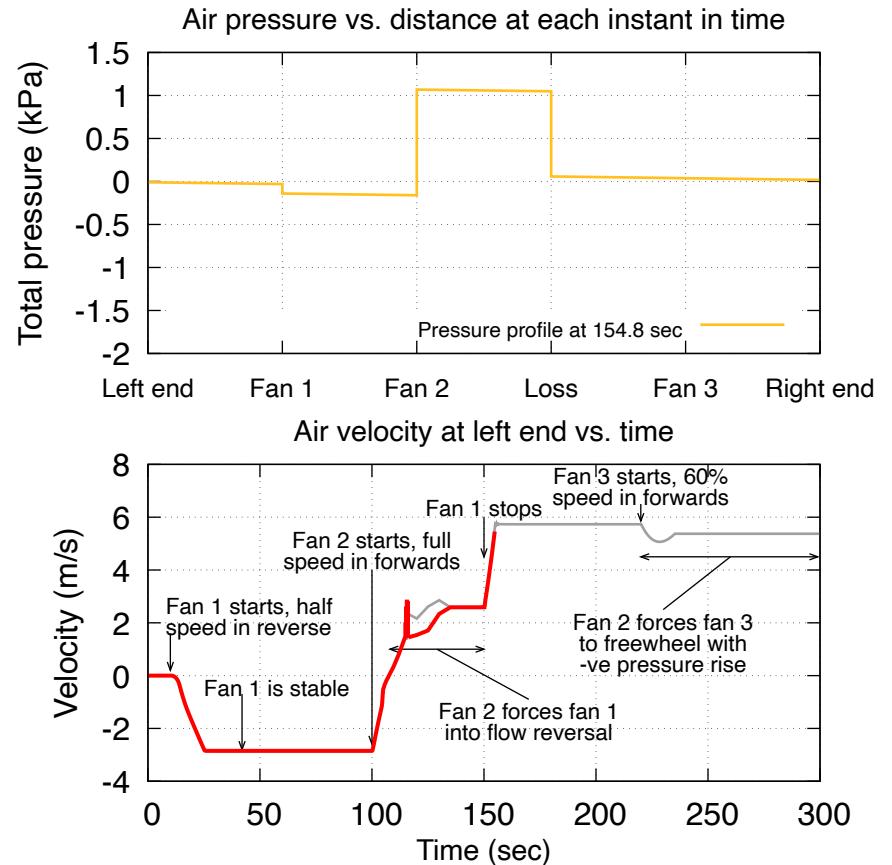
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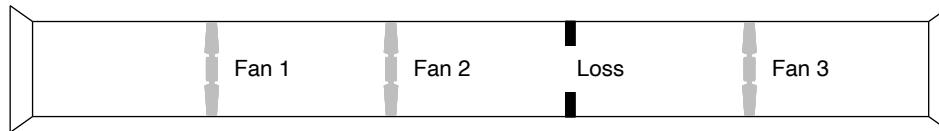
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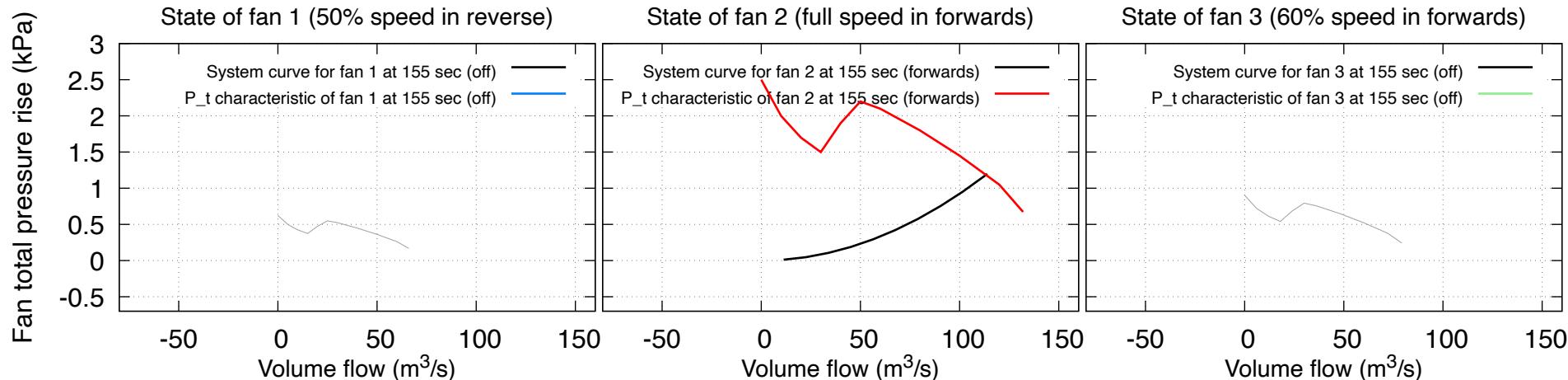
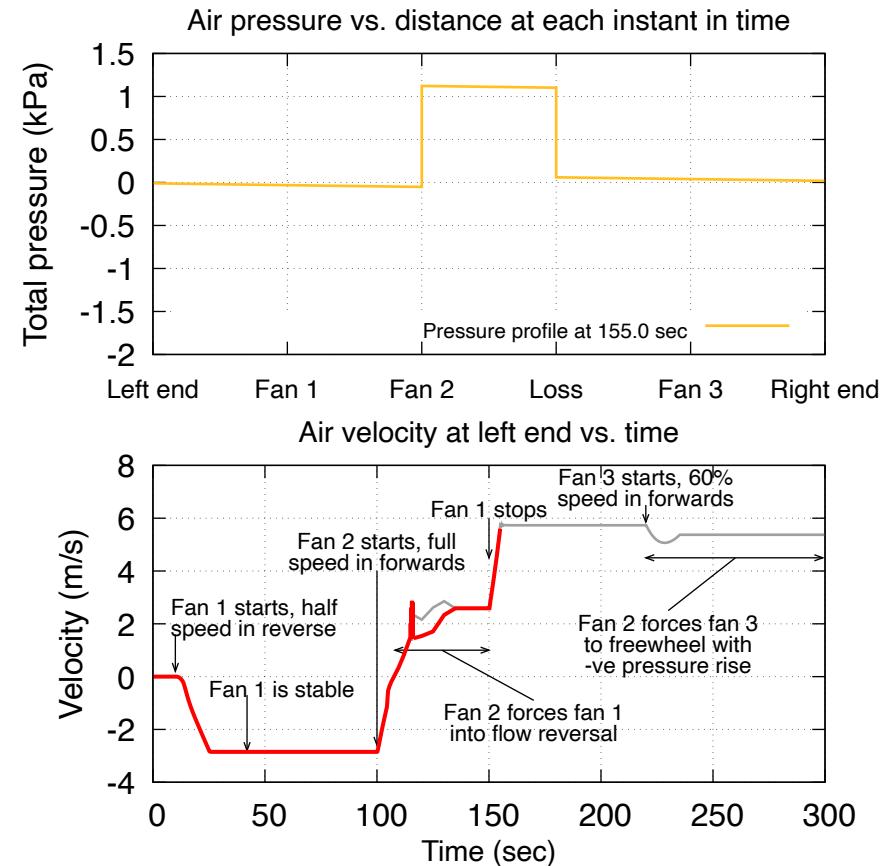
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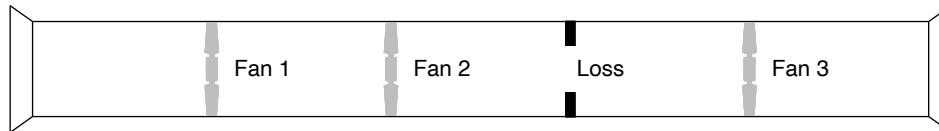
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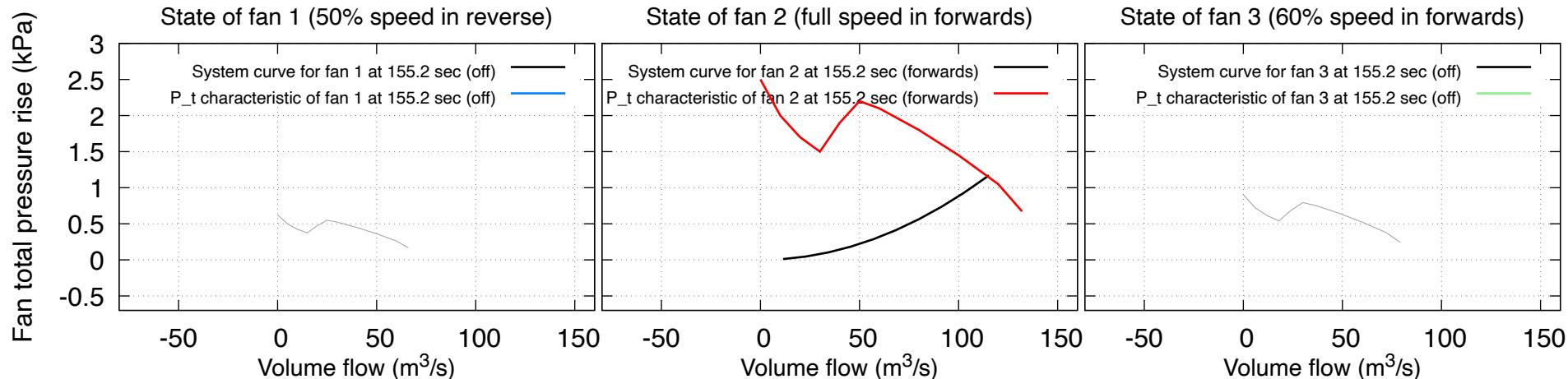
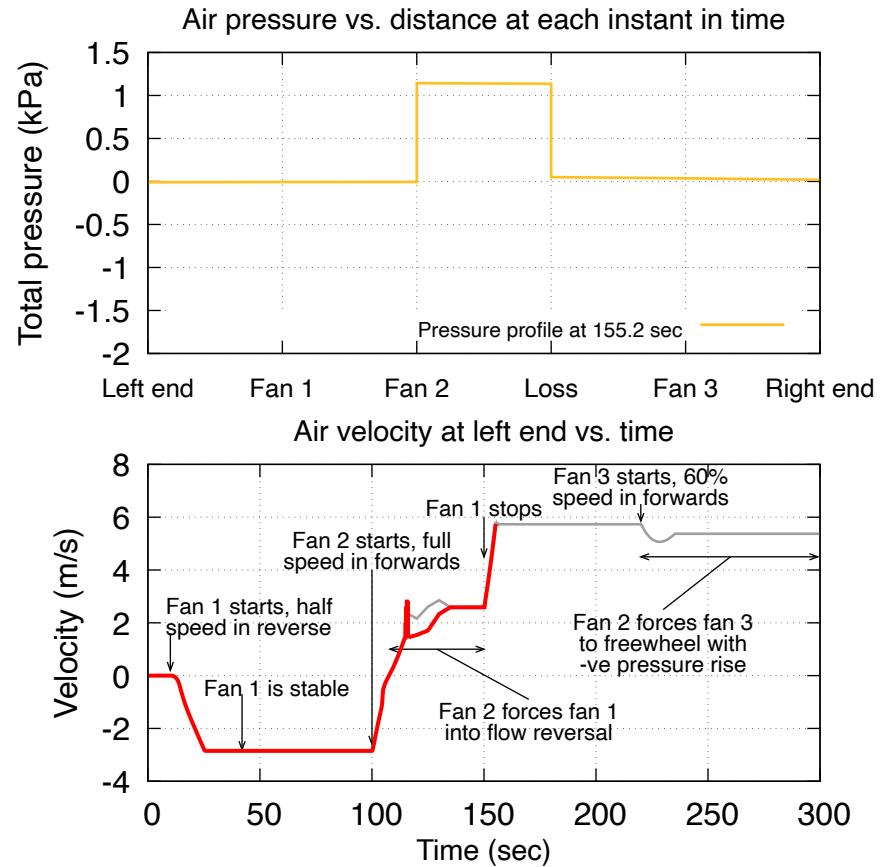
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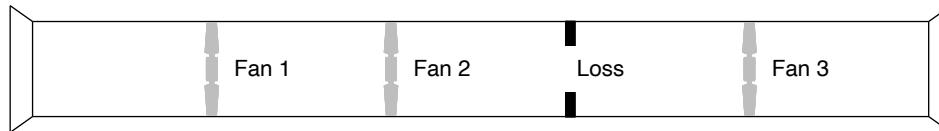
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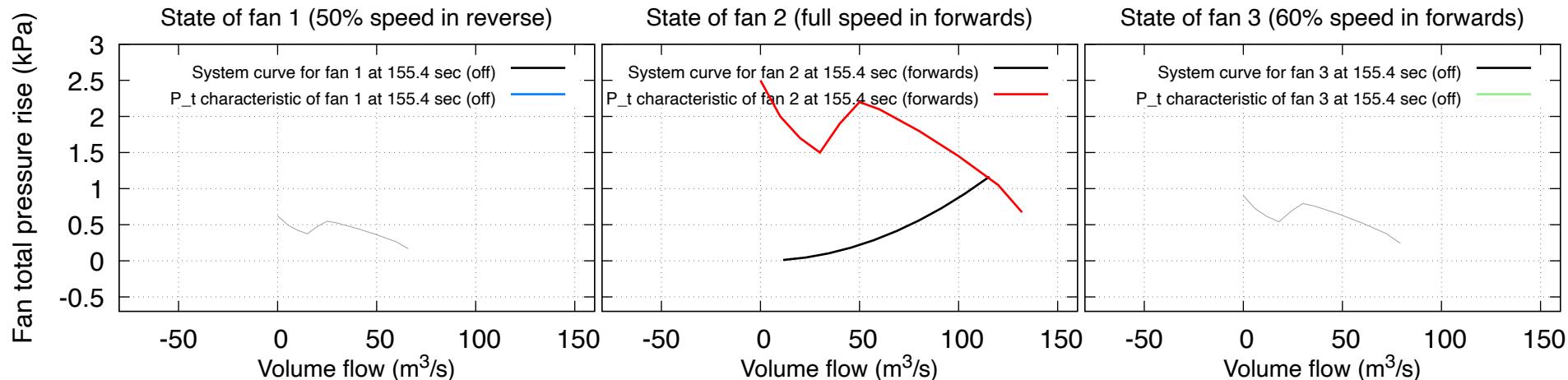
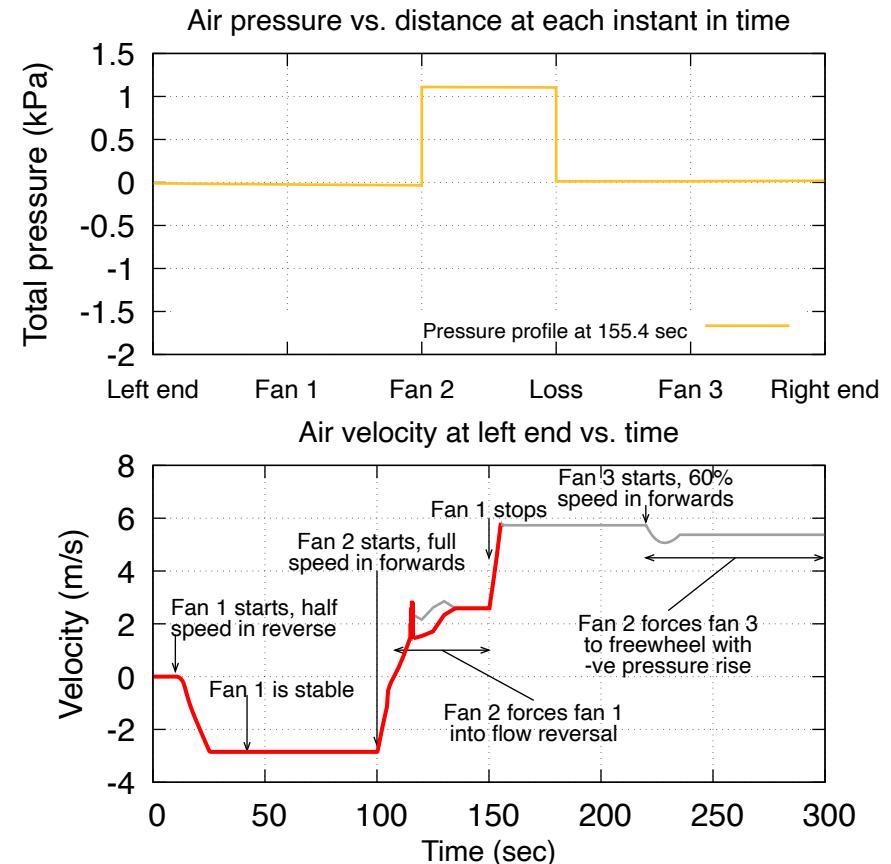
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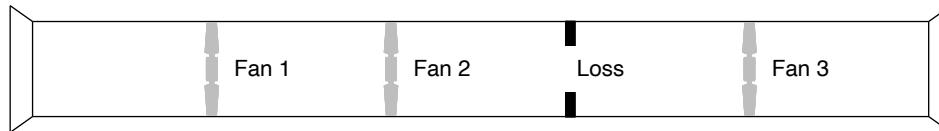
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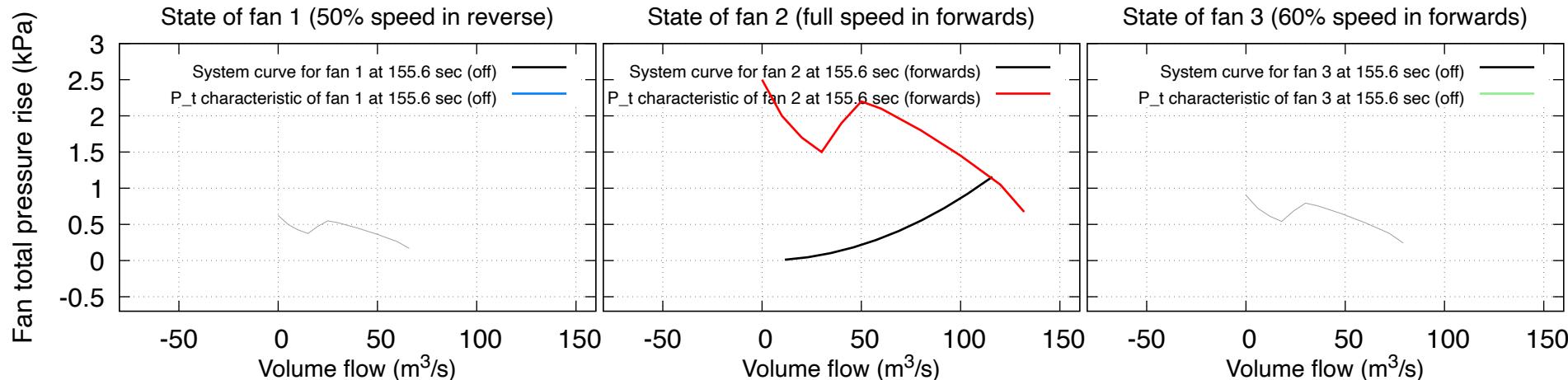
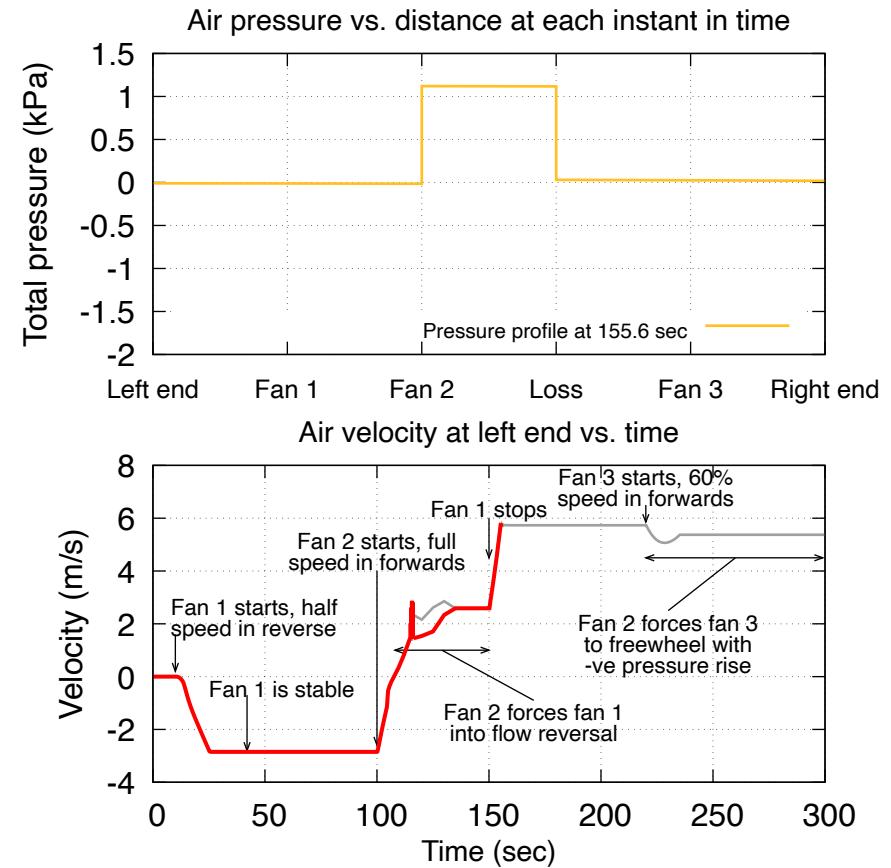
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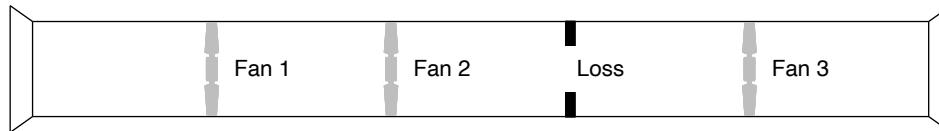
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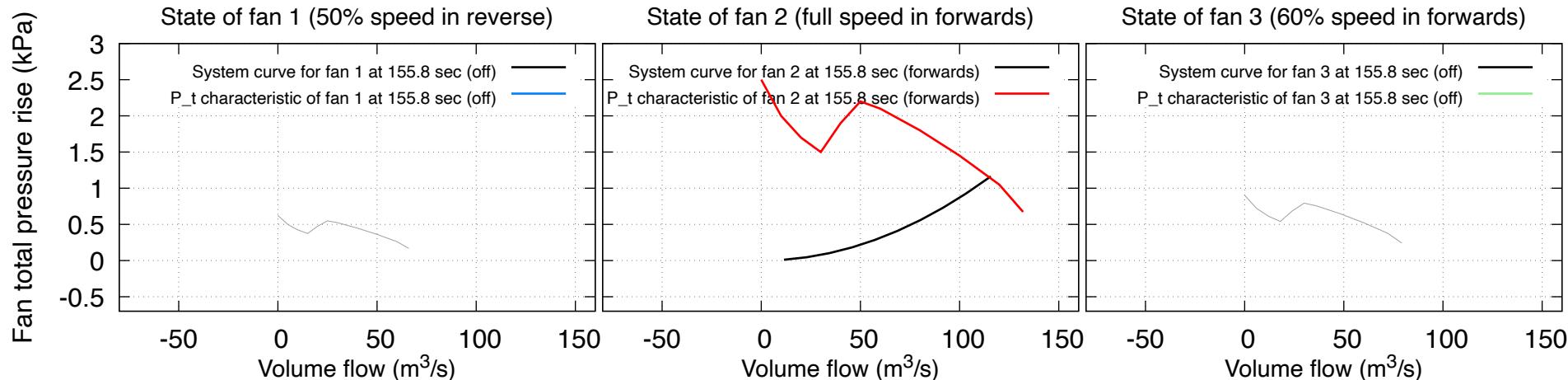
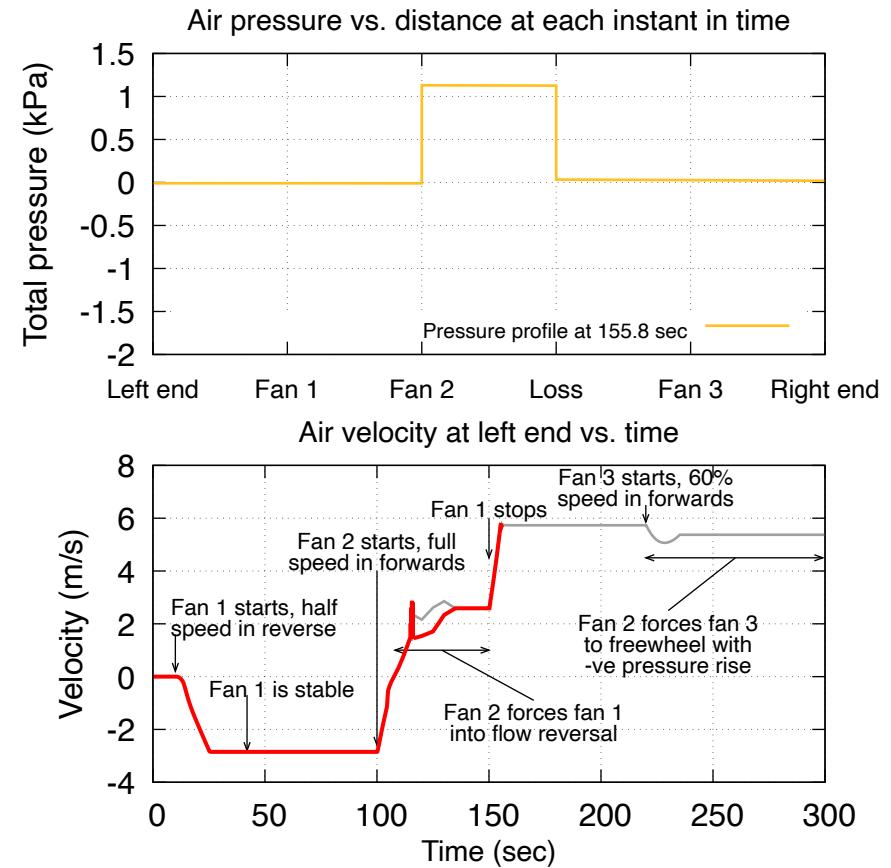
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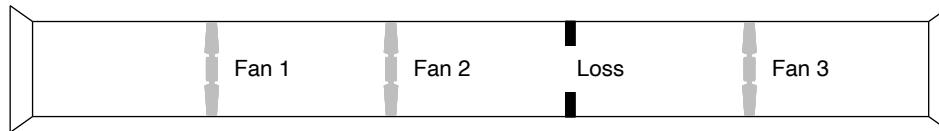
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

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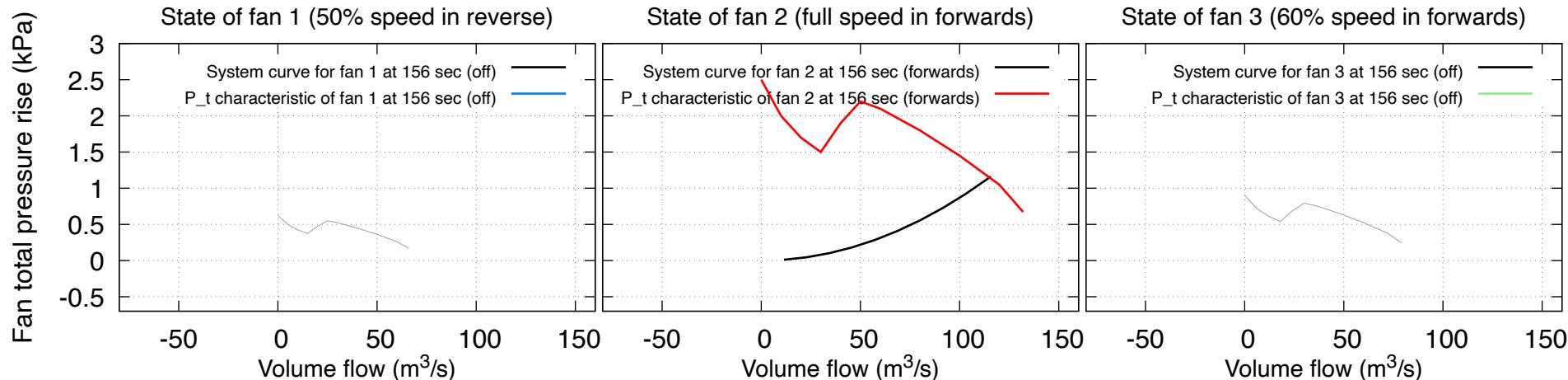
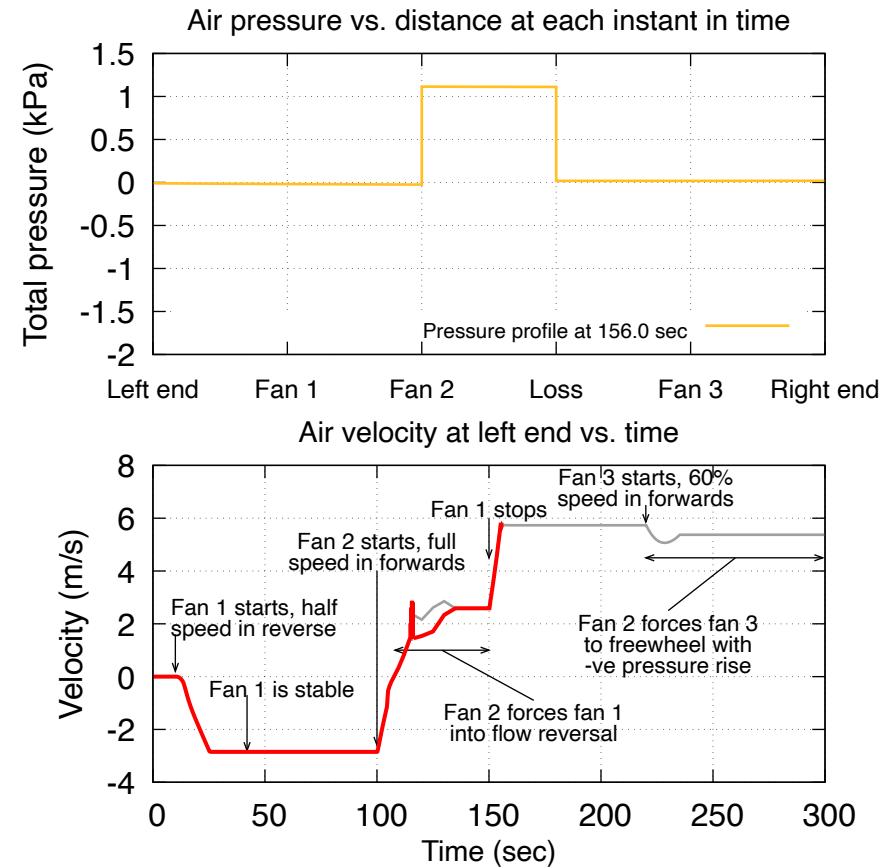
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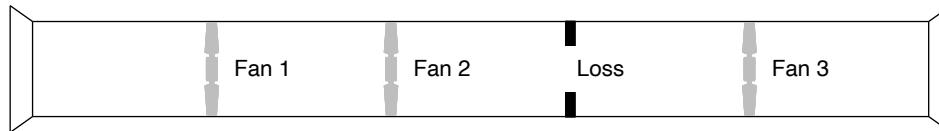
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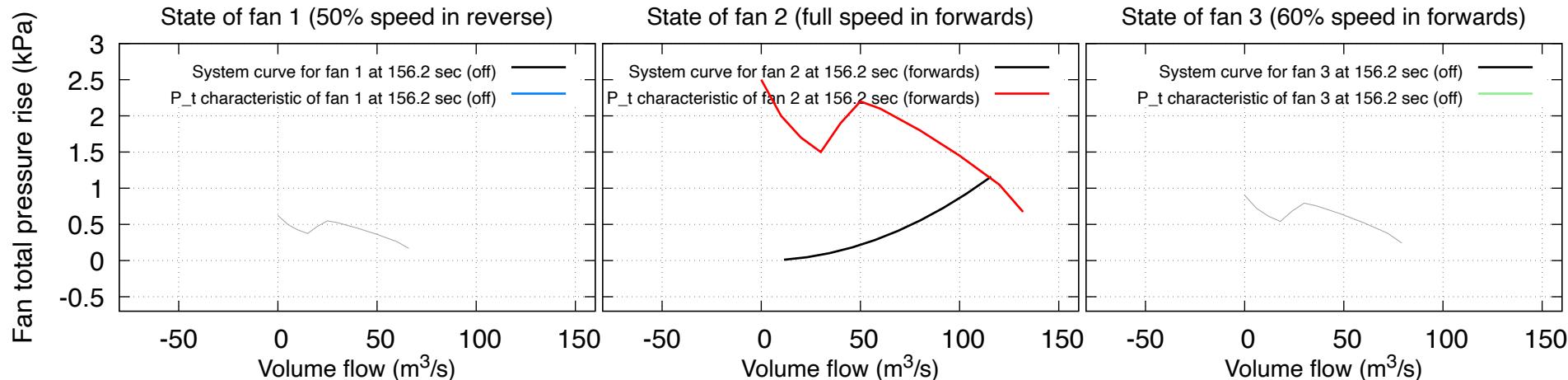
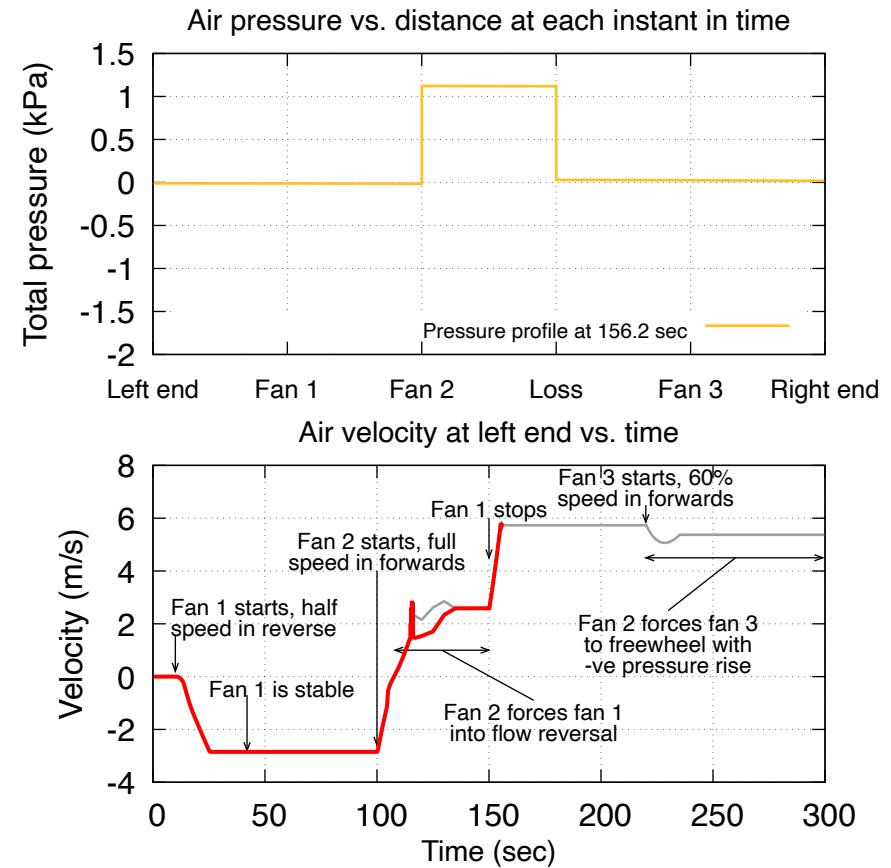
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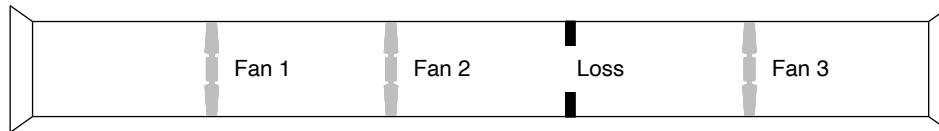
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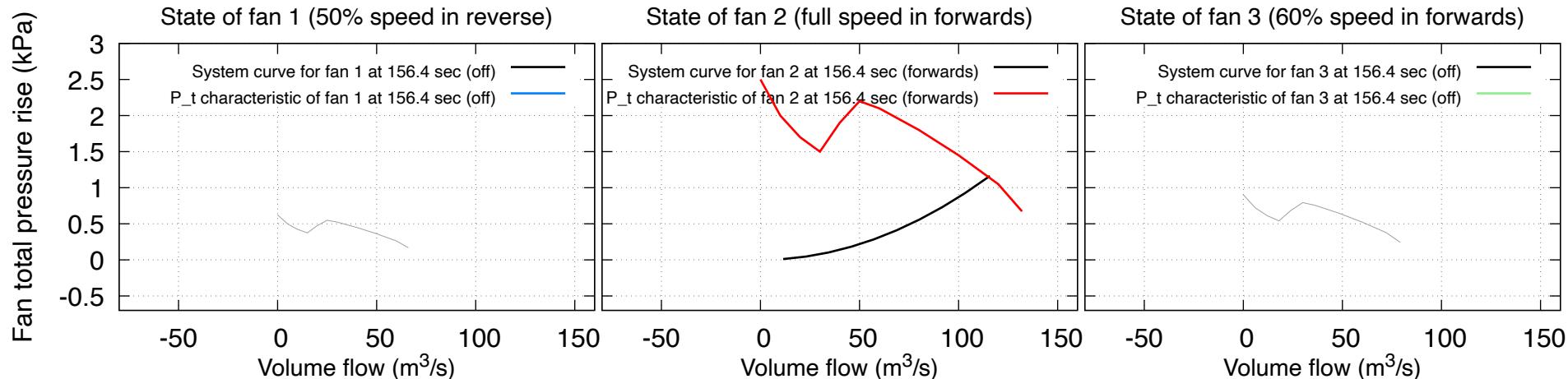
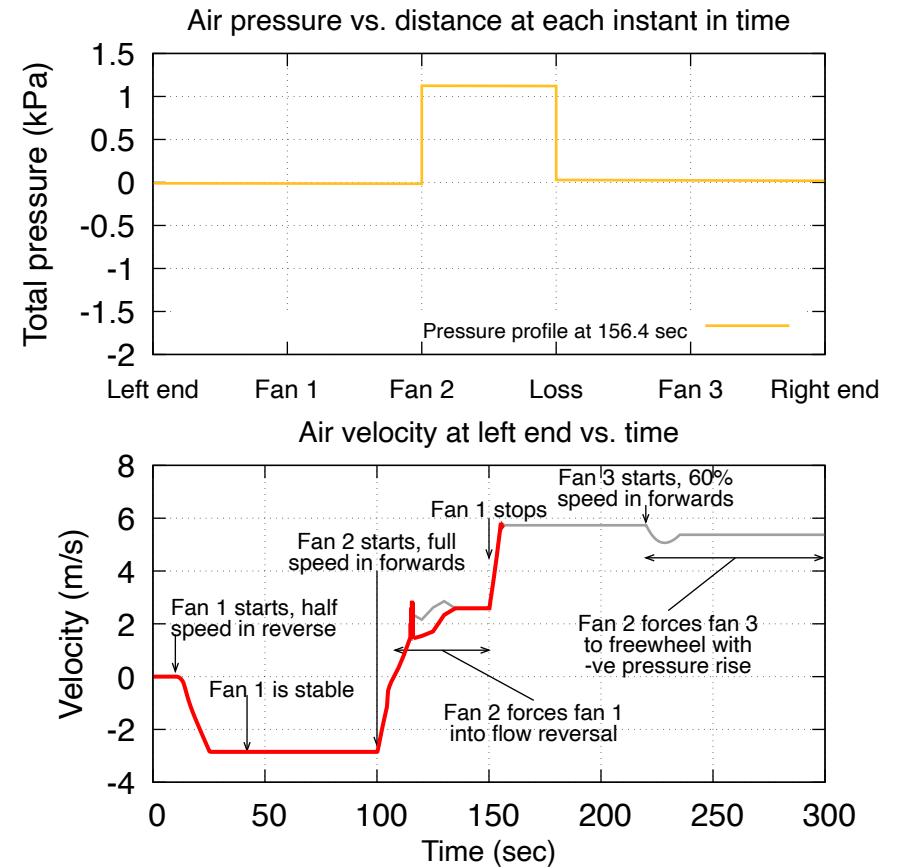
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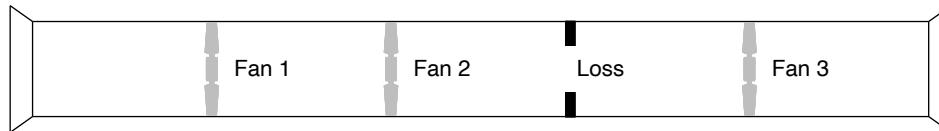
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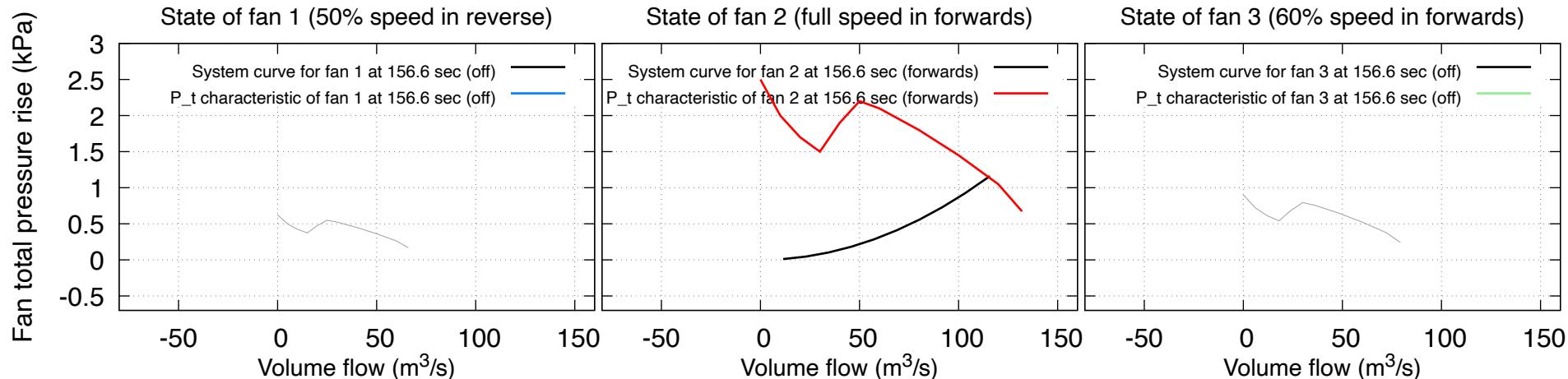
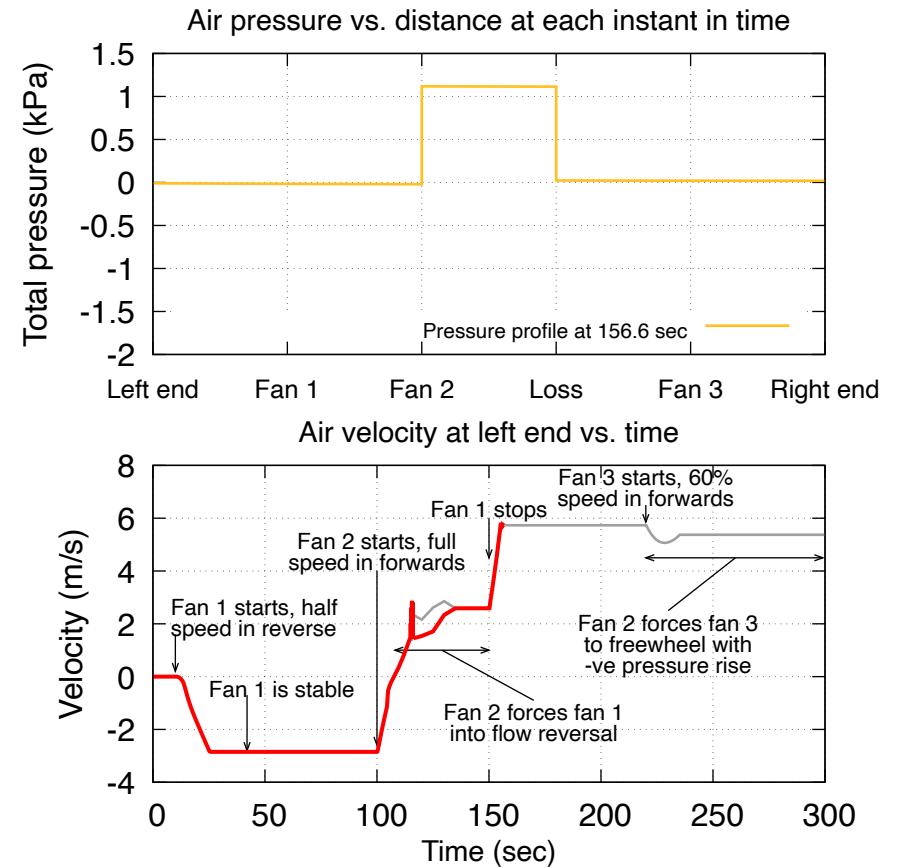
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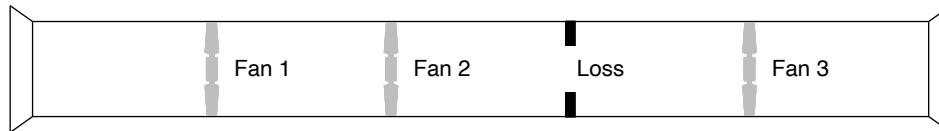
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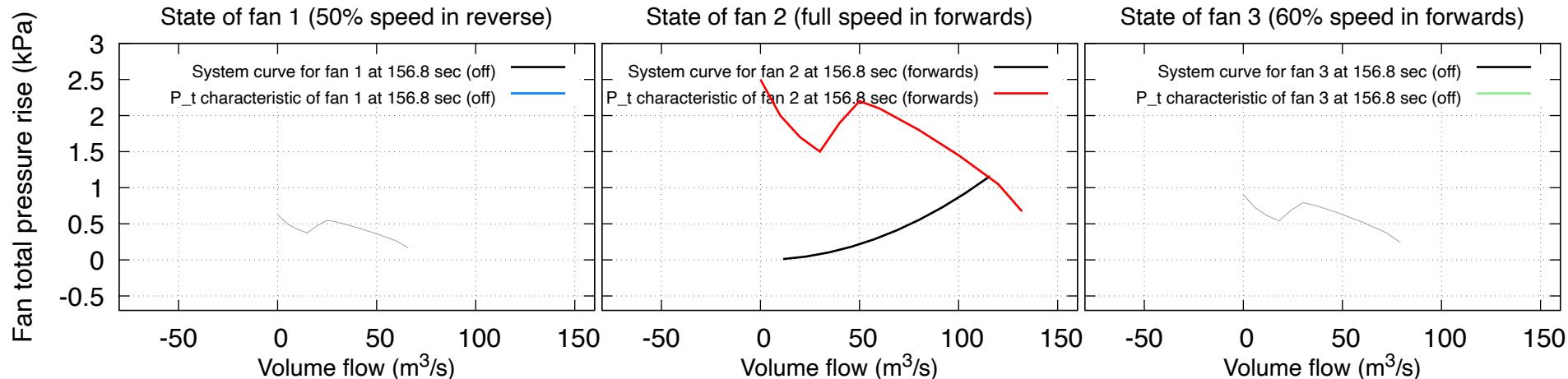
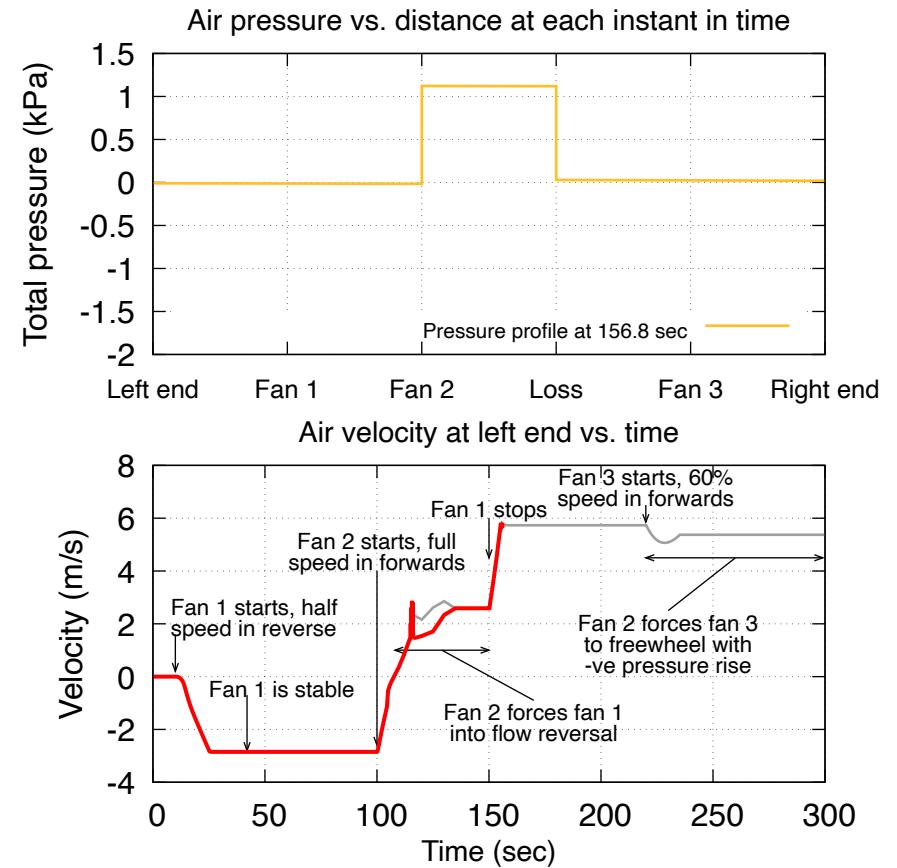
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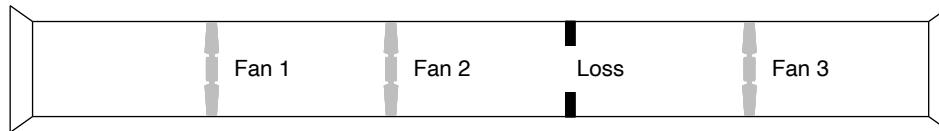
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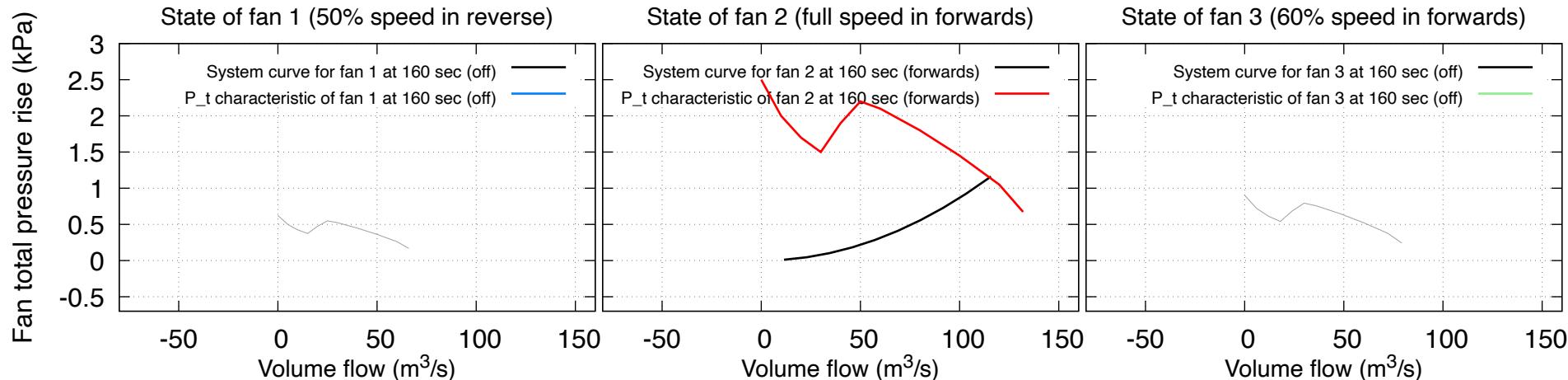
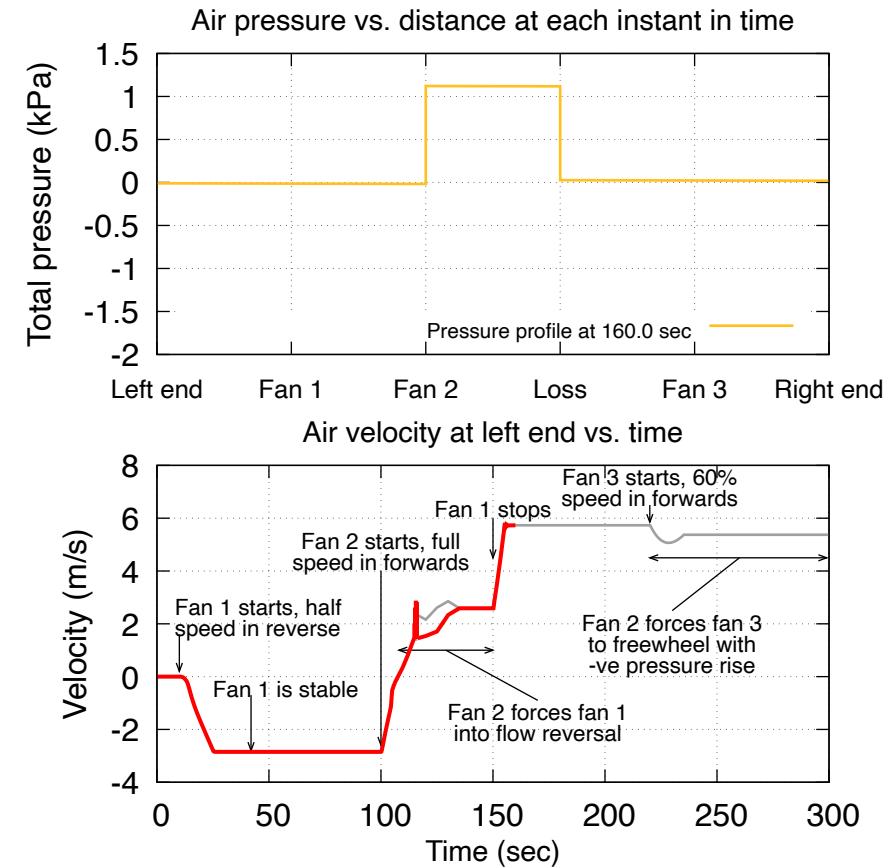
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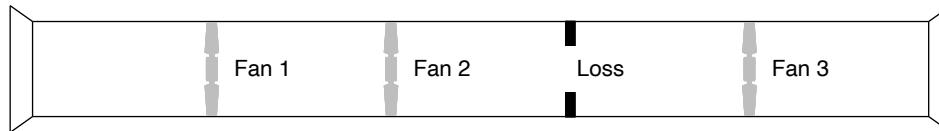
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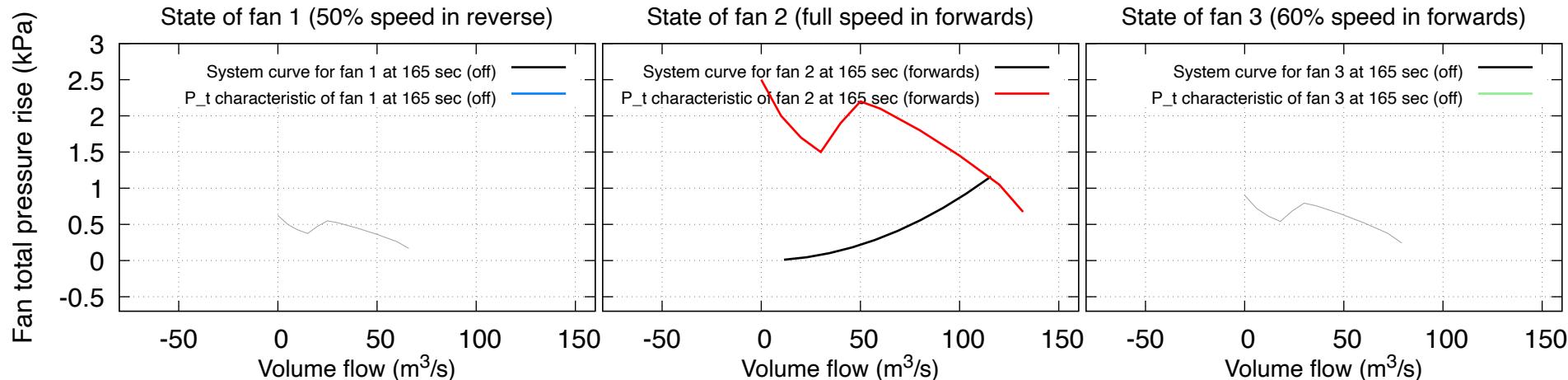
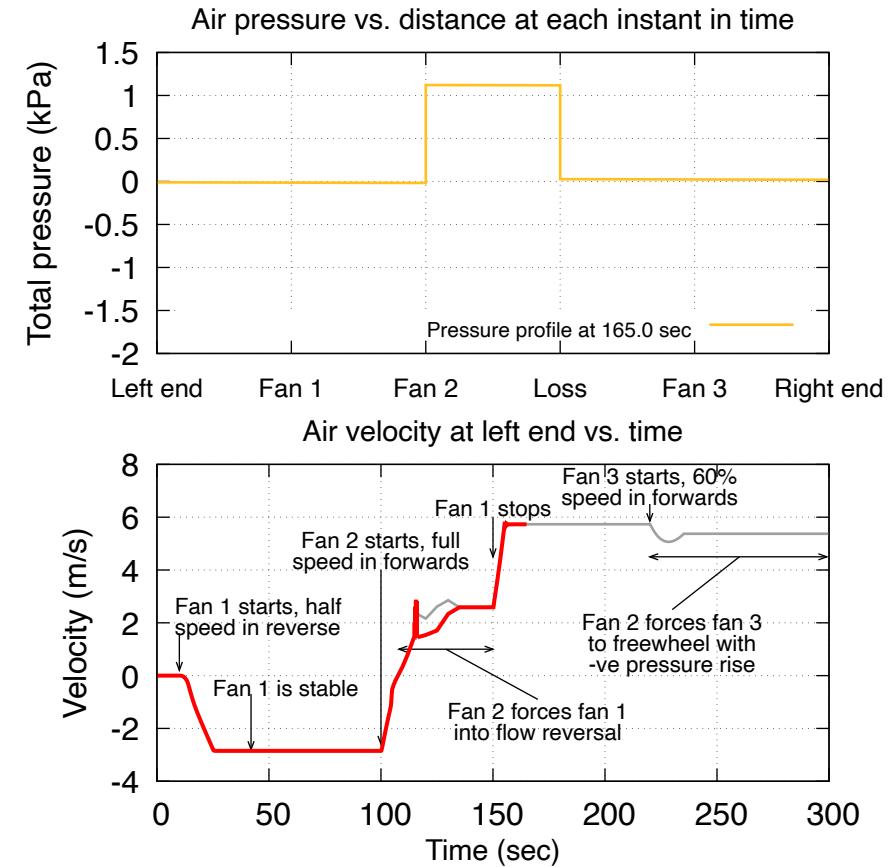
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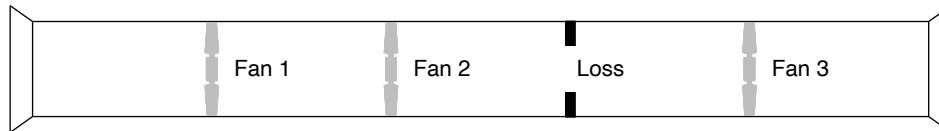
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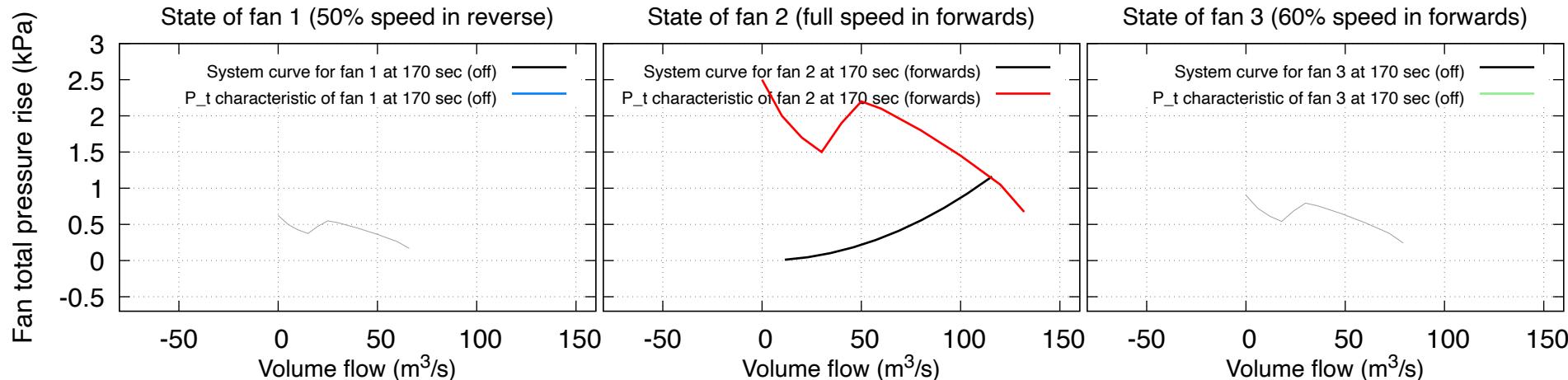
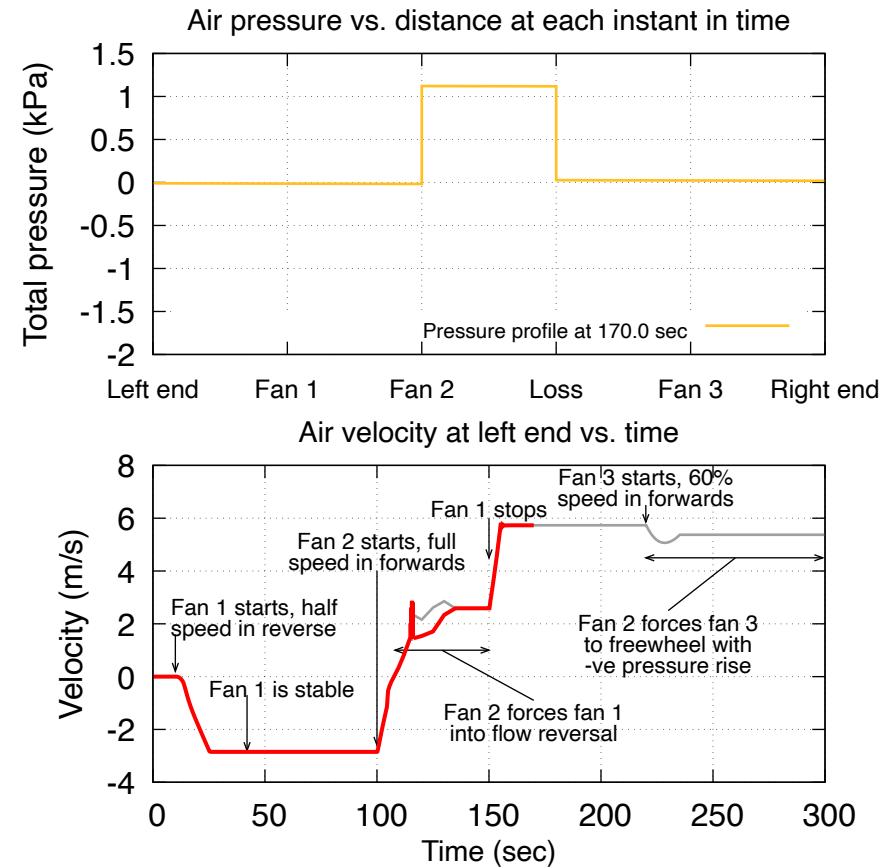
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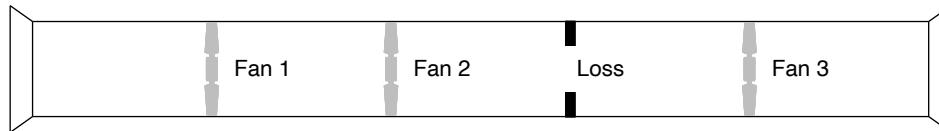
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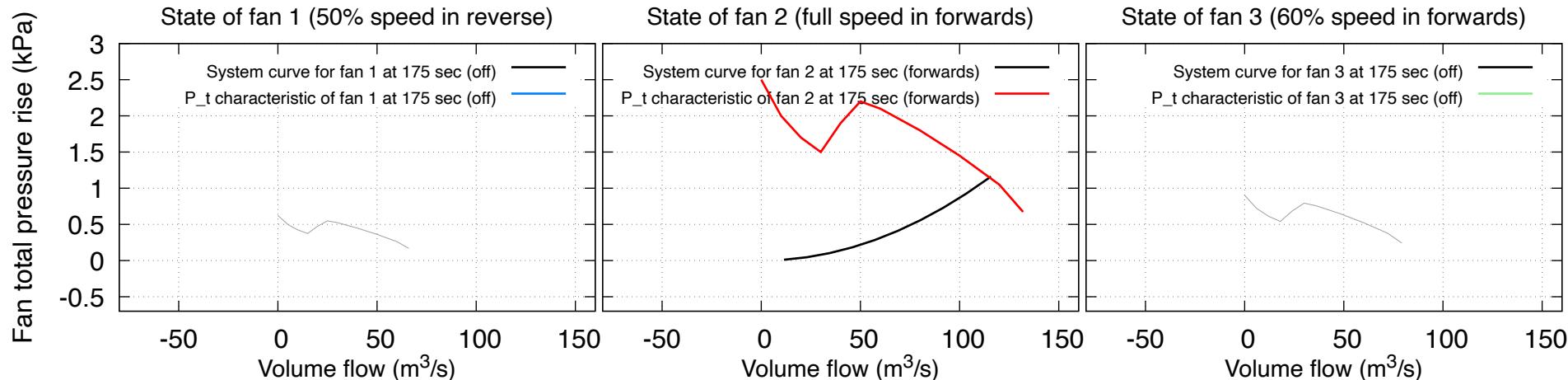
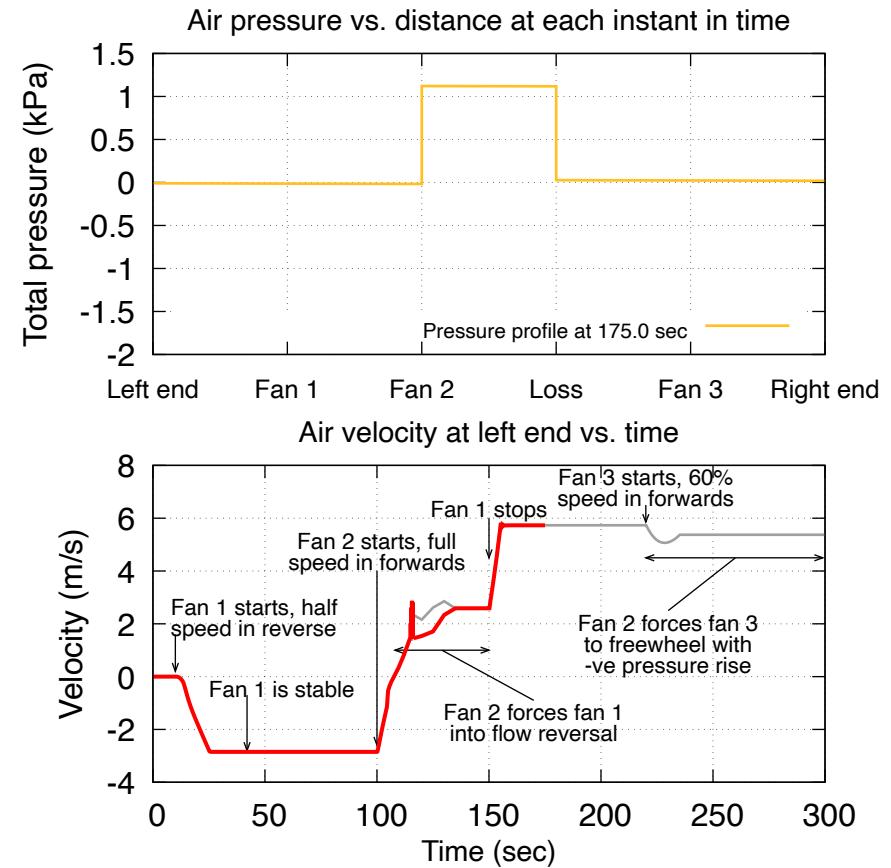
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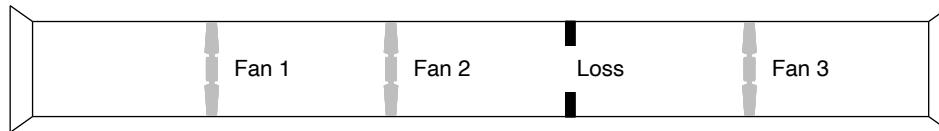
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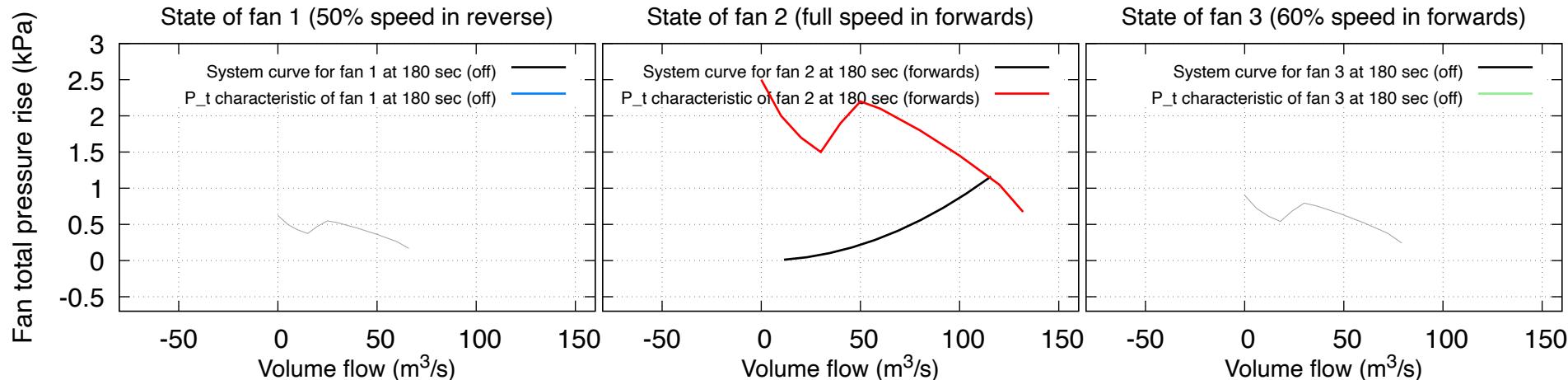
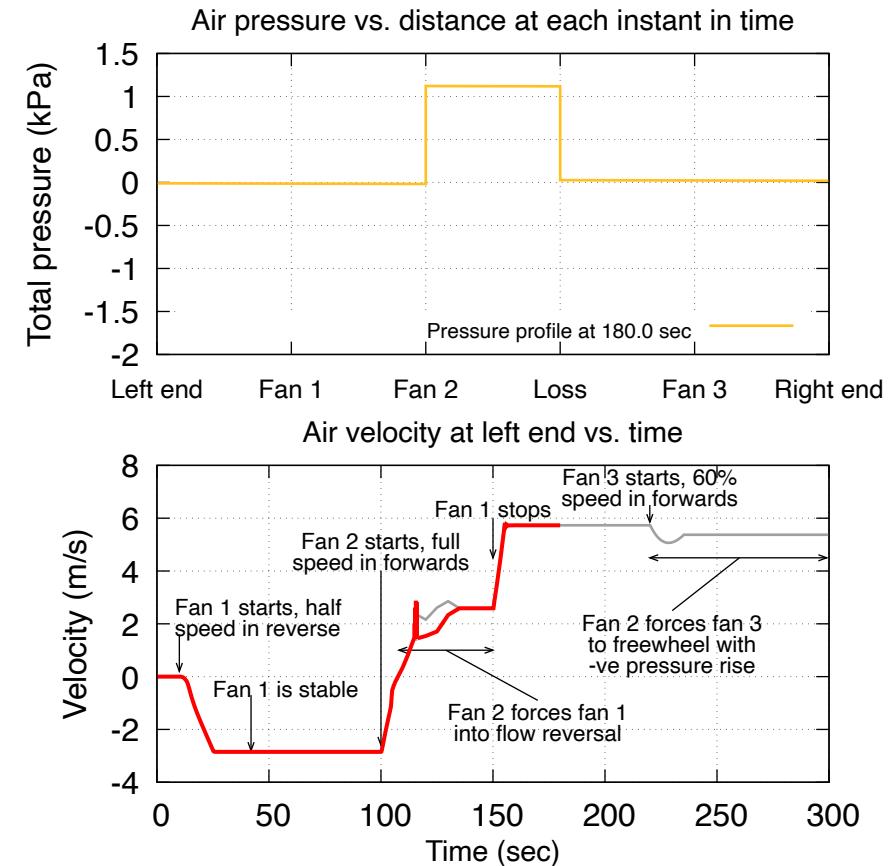
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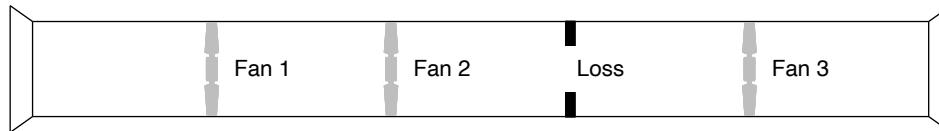
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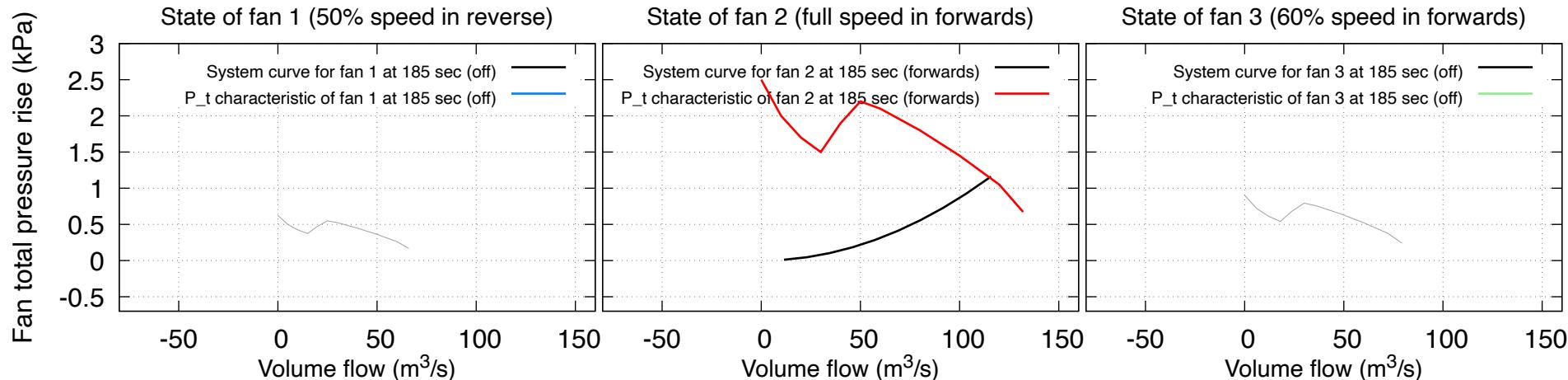
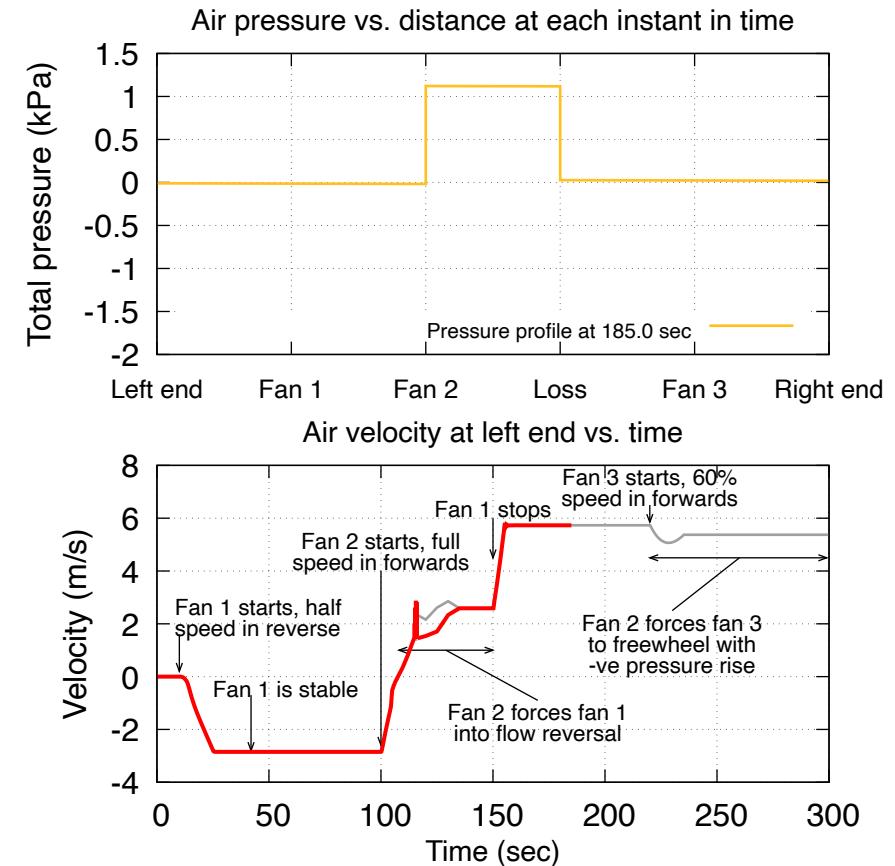
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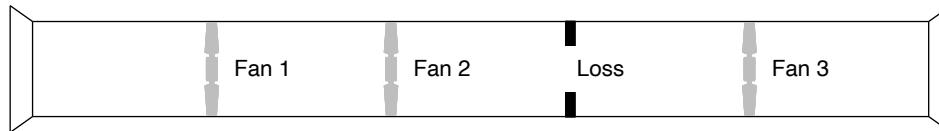
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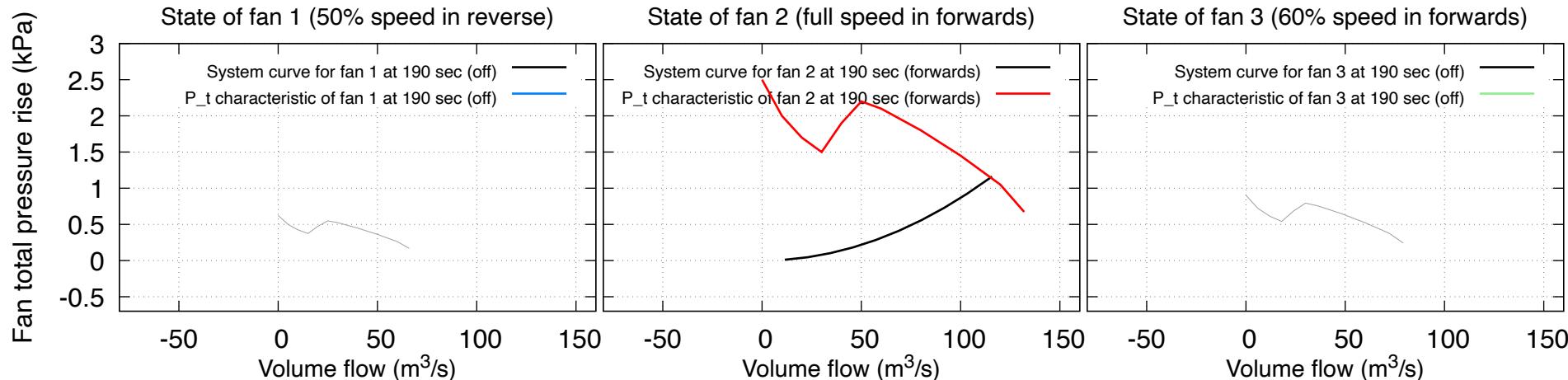
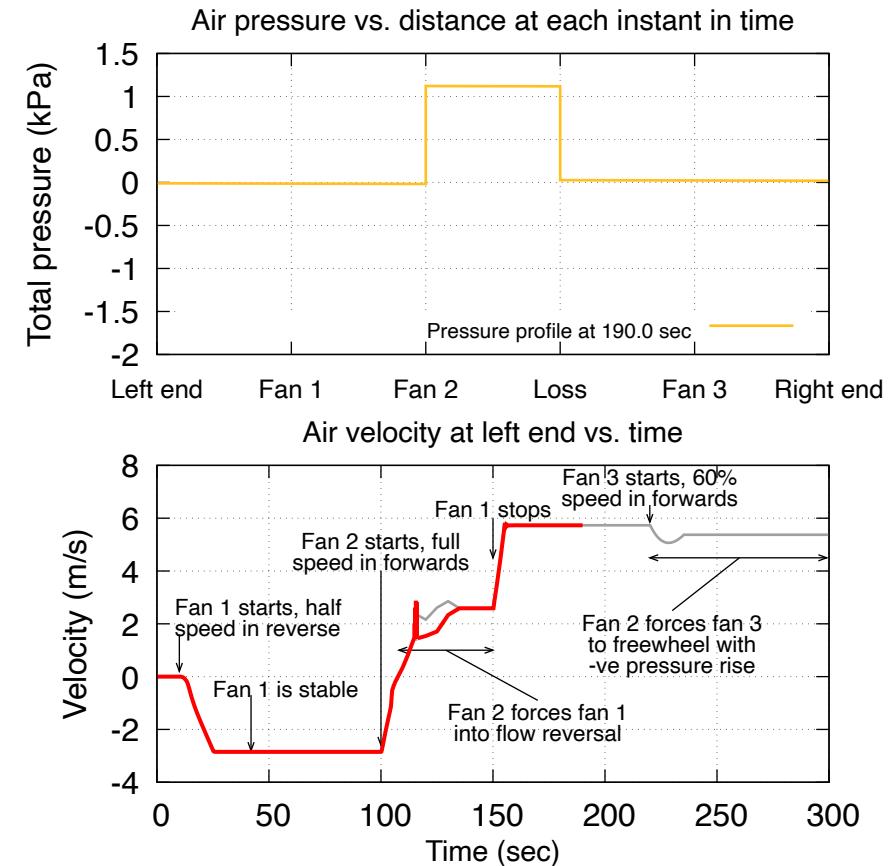
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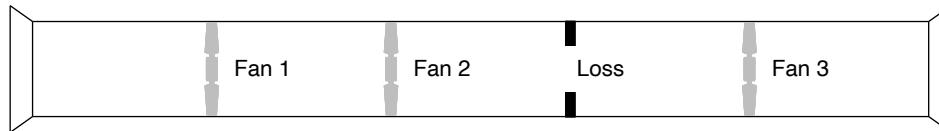
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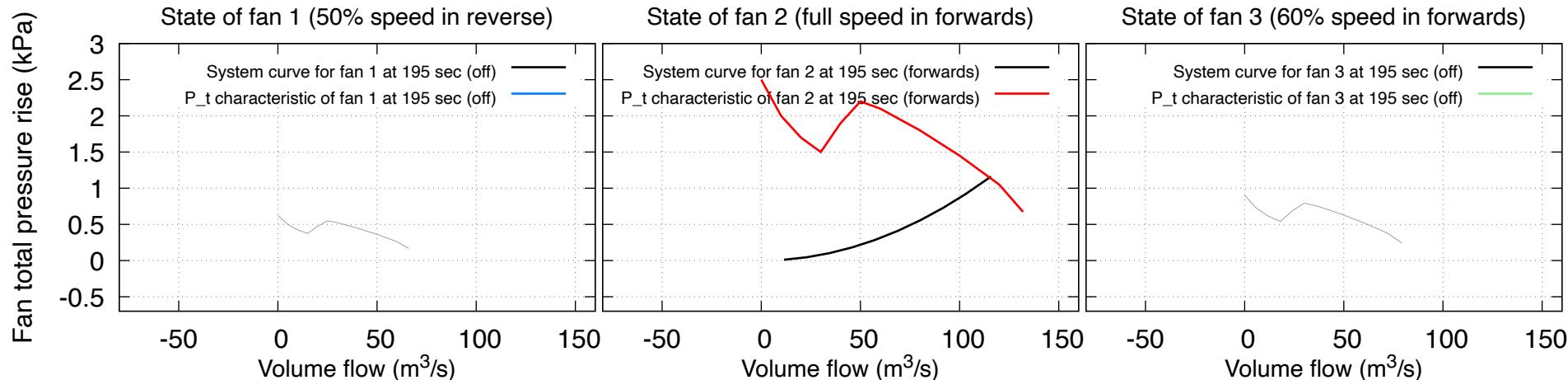
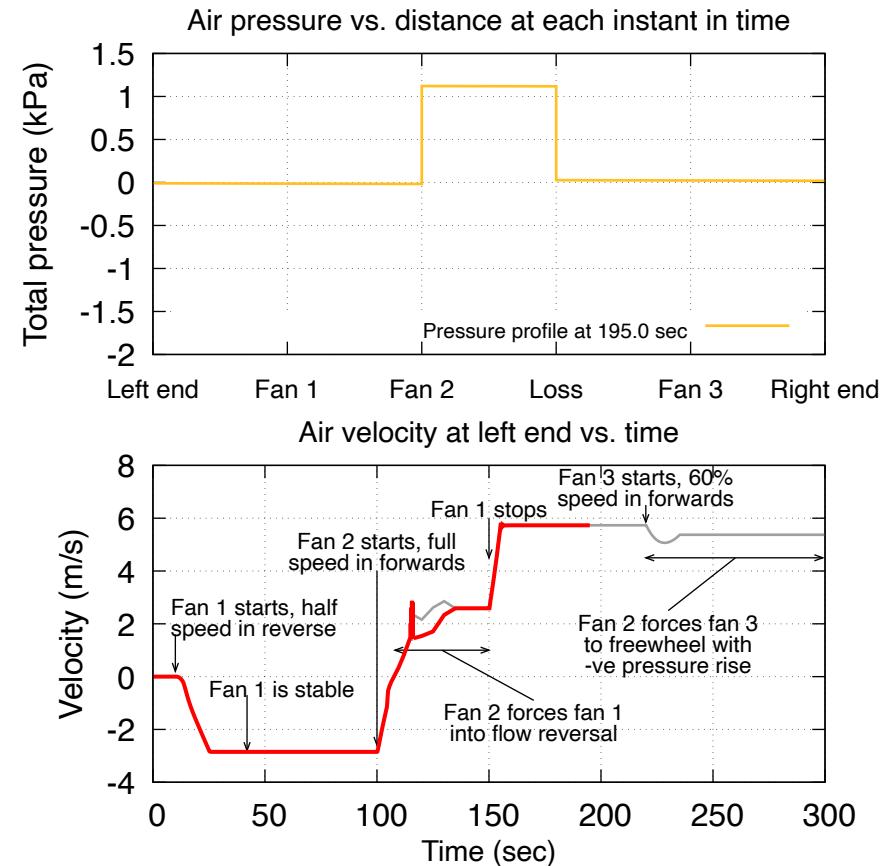
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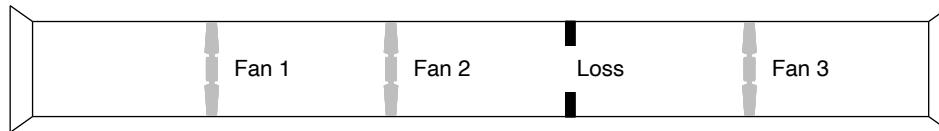
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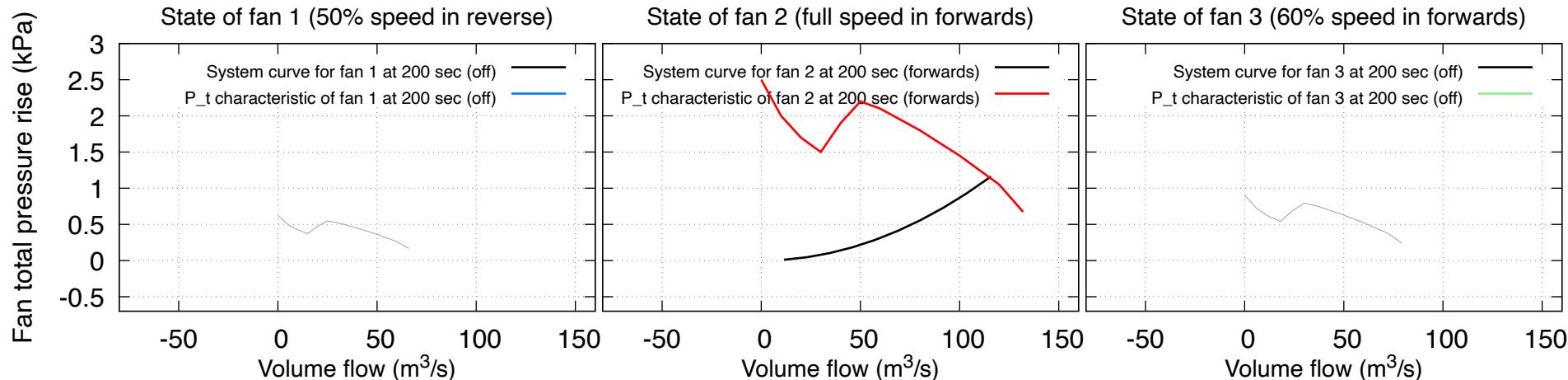
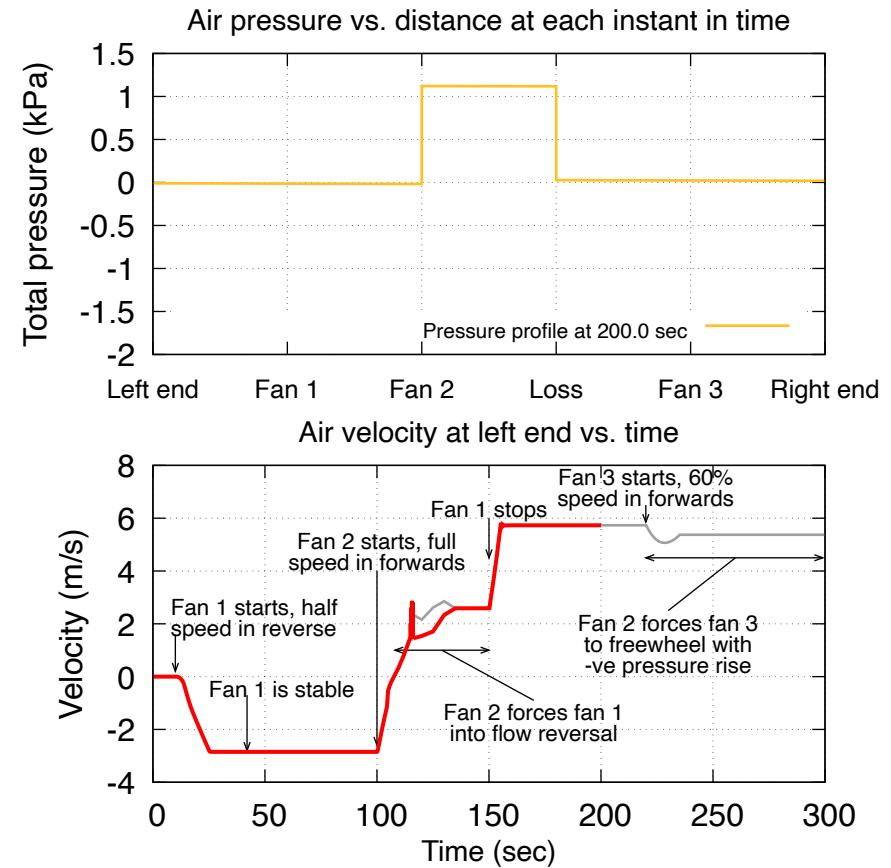
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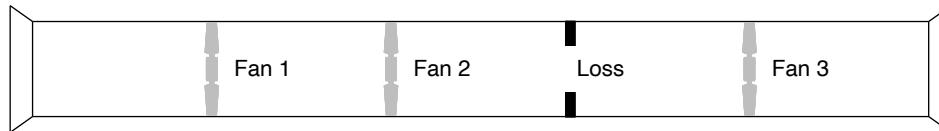
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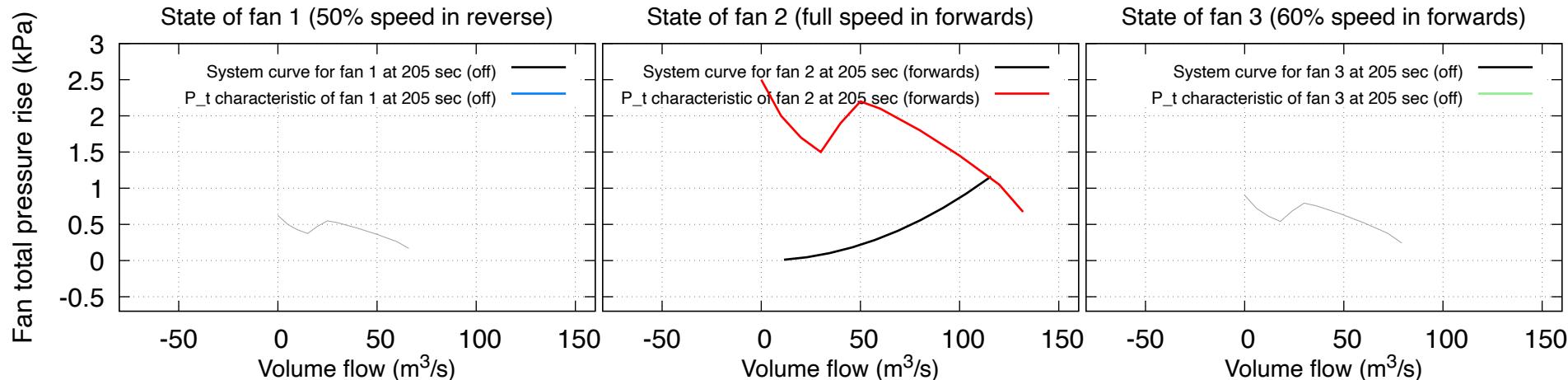
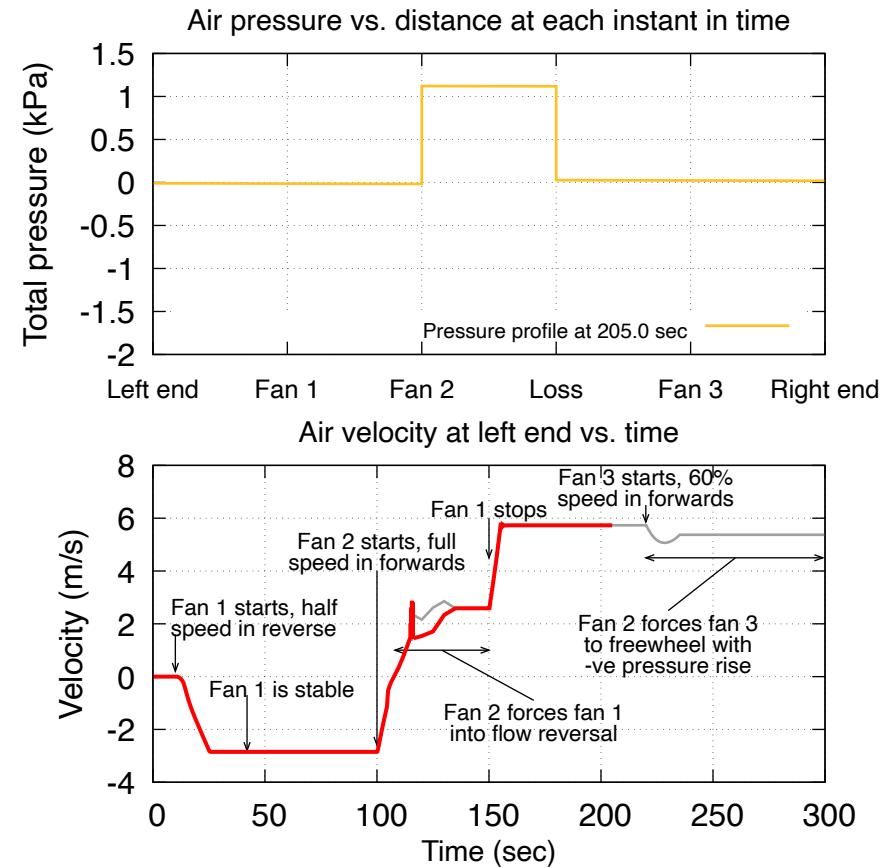
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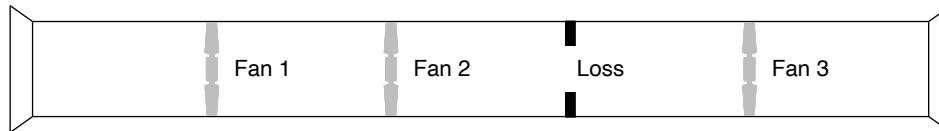
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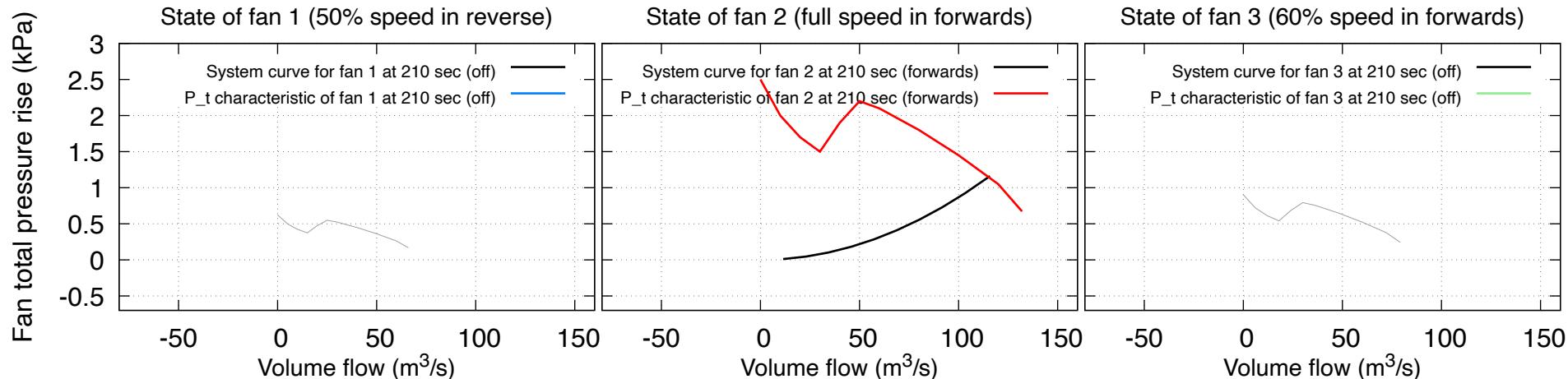
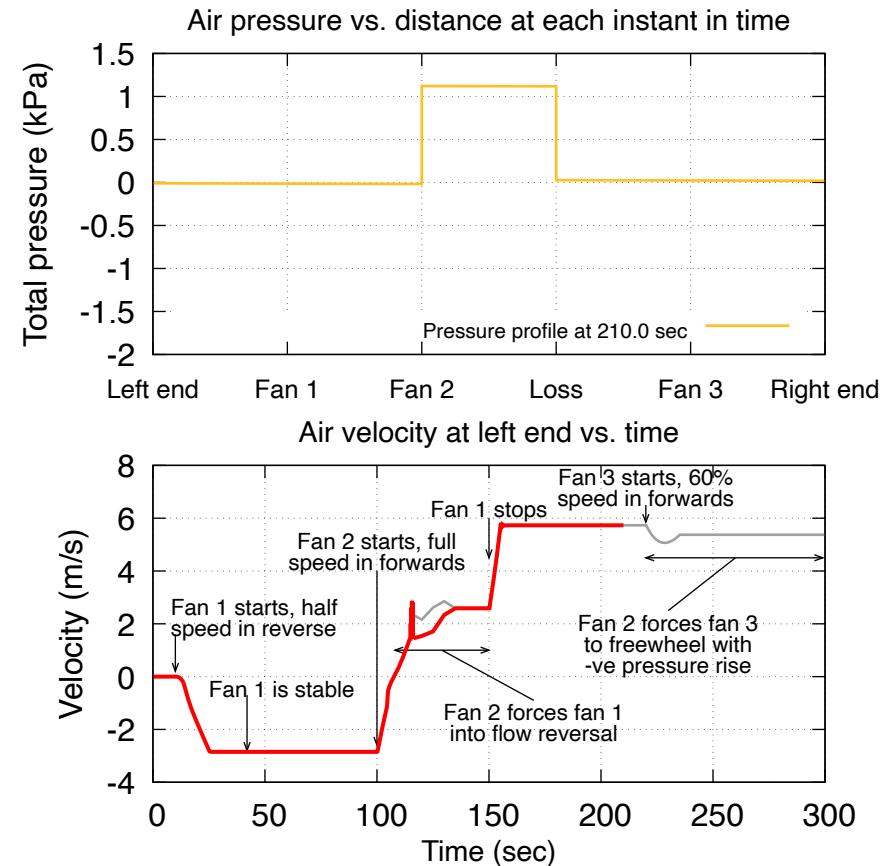
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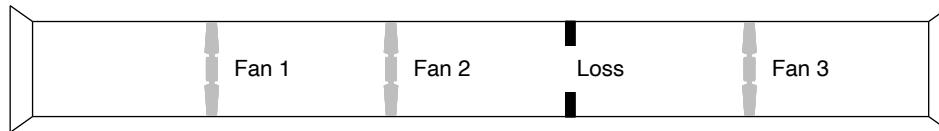
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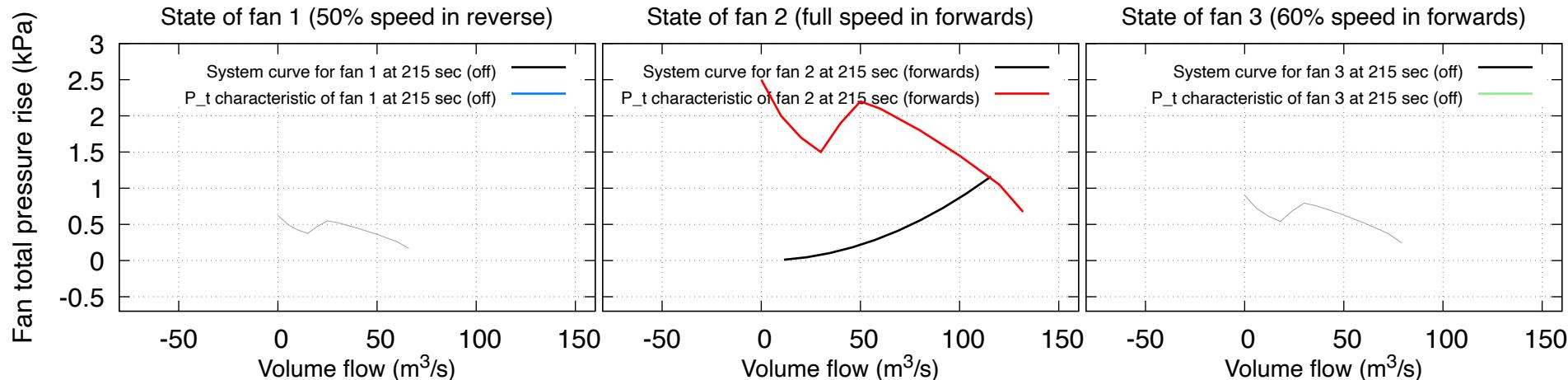
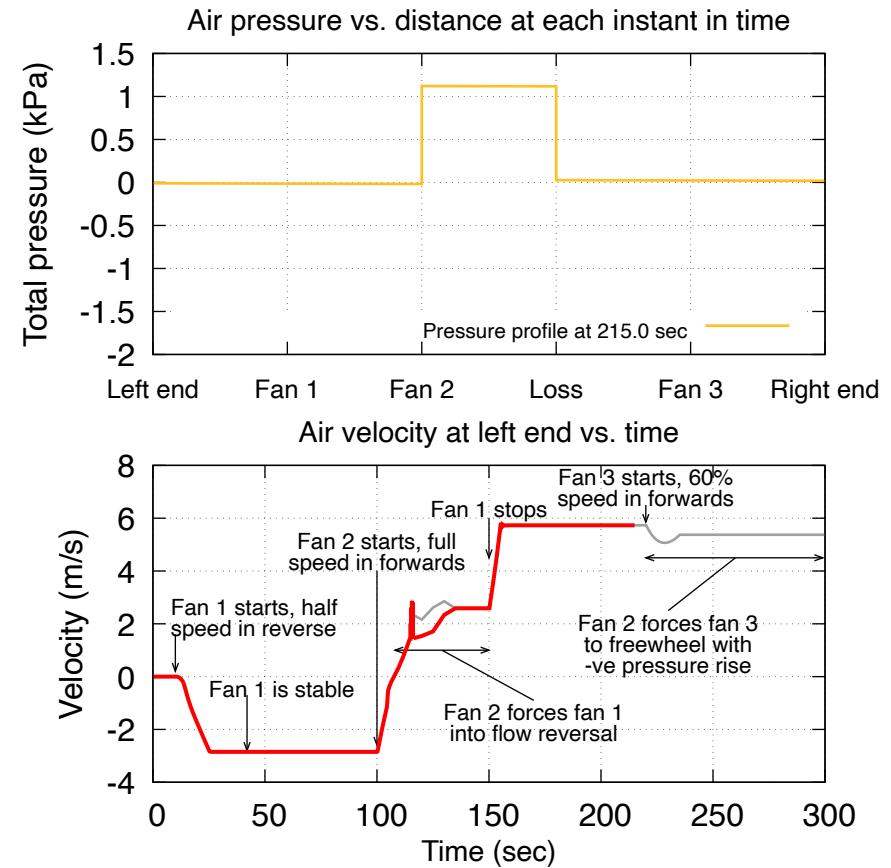
Fan 1 starts in reverse at half speed and ends up at a suitable duty point.

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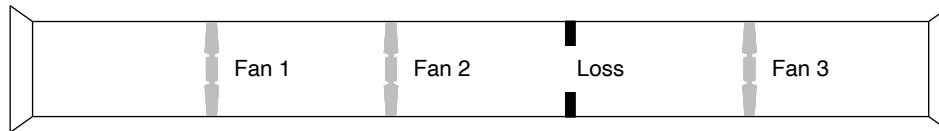
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



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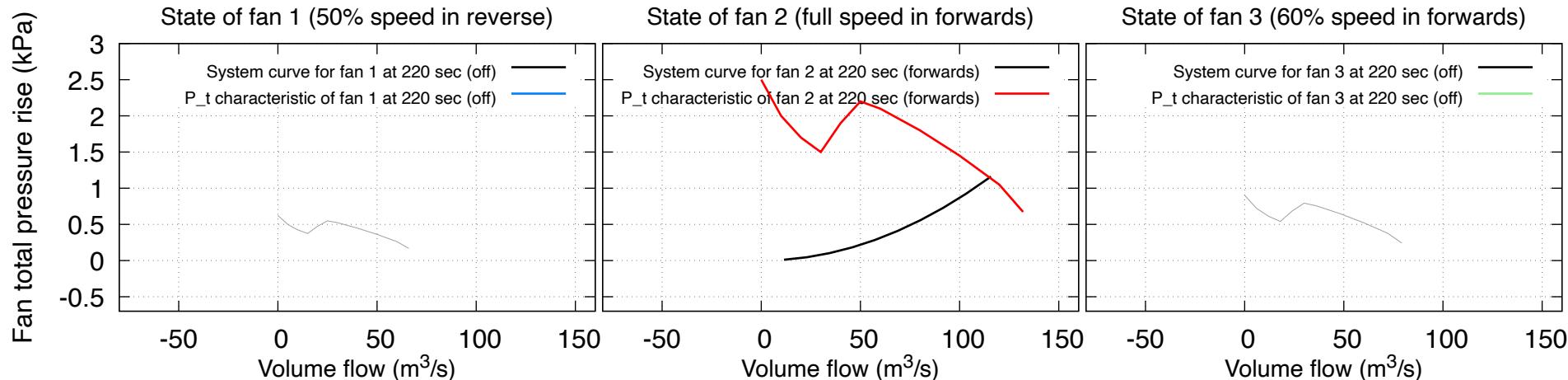
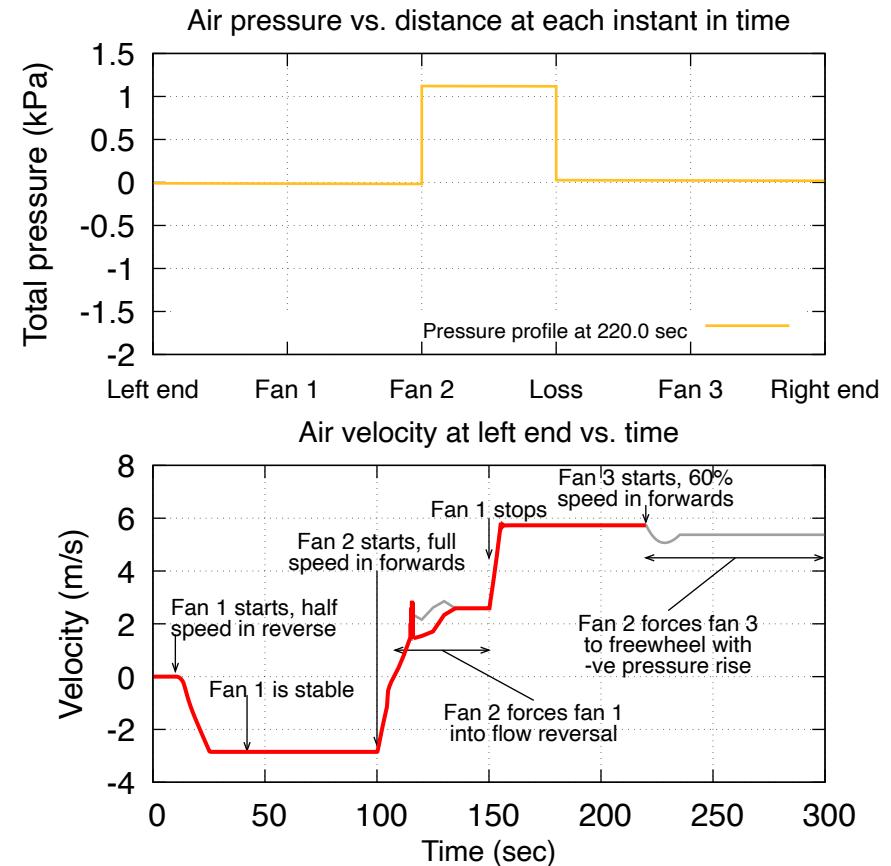
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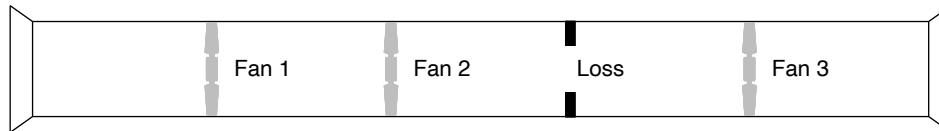
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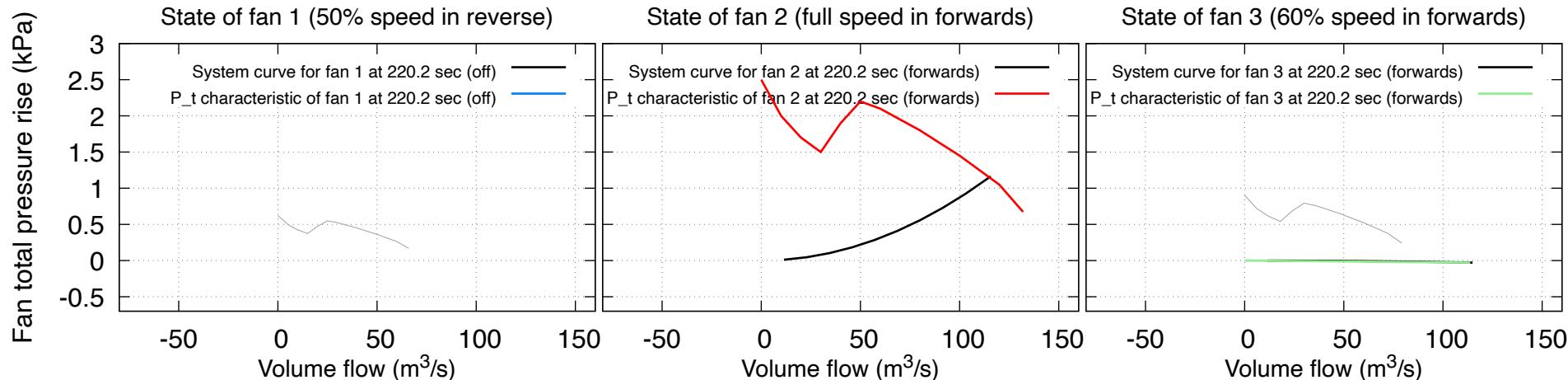
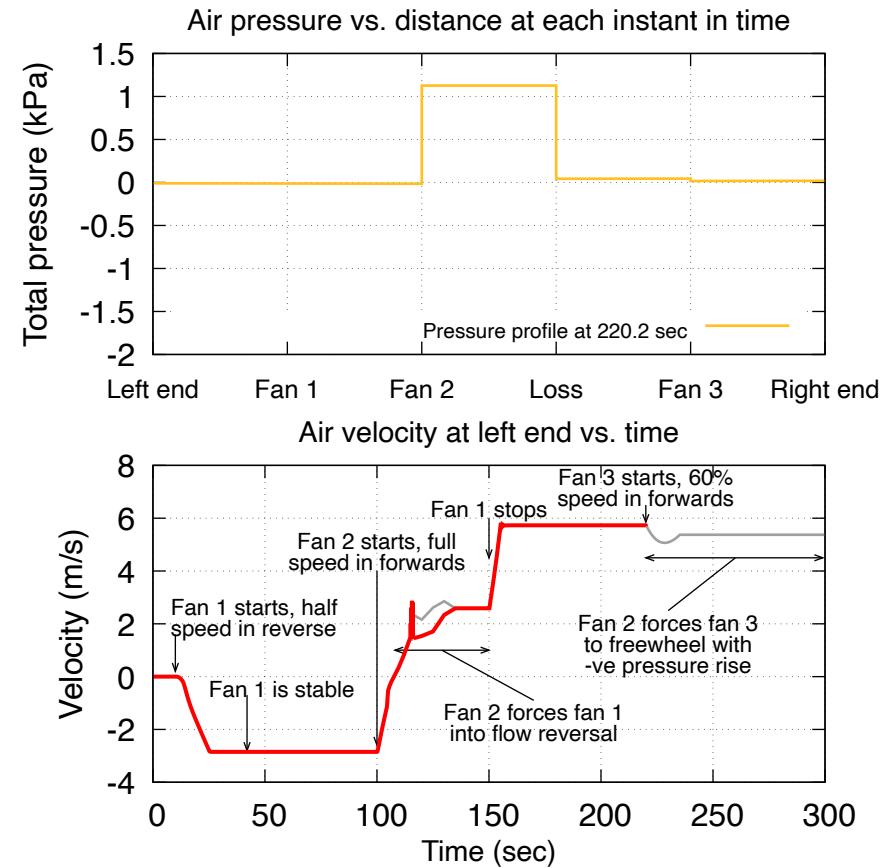
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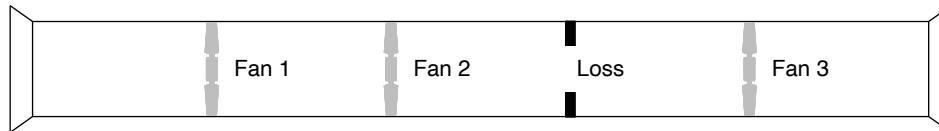
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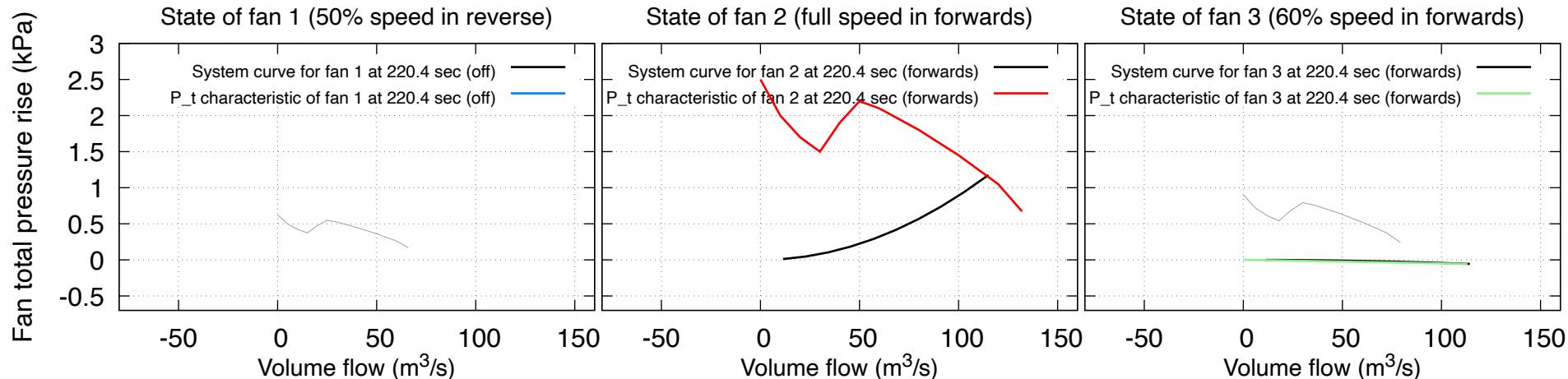
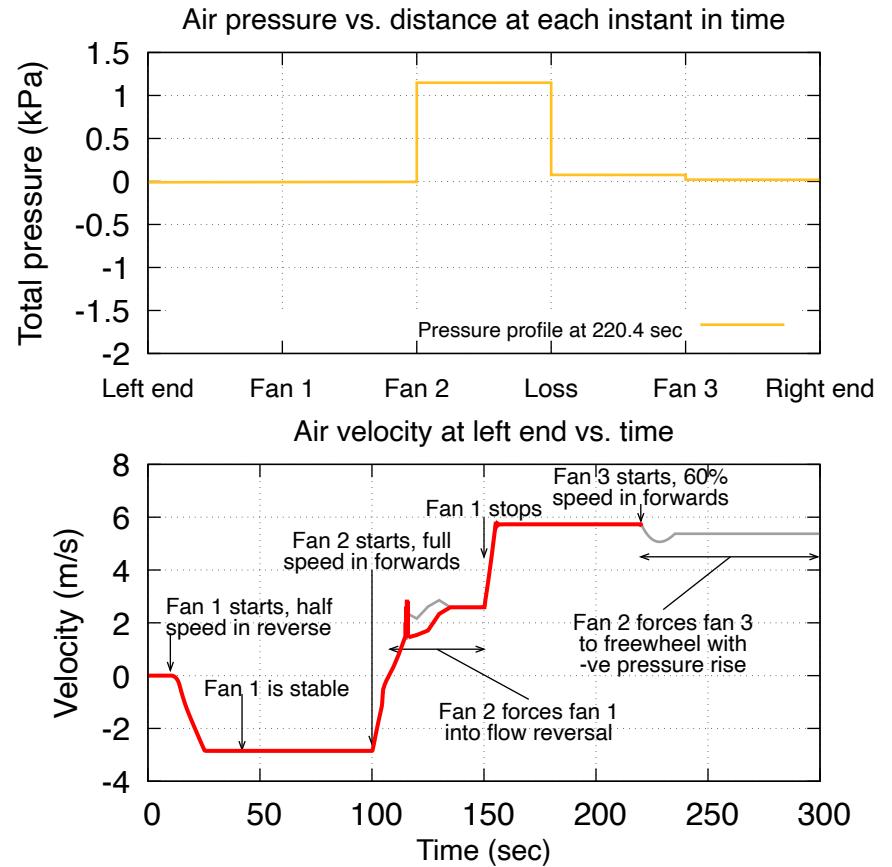
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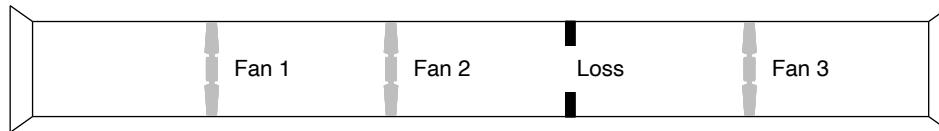
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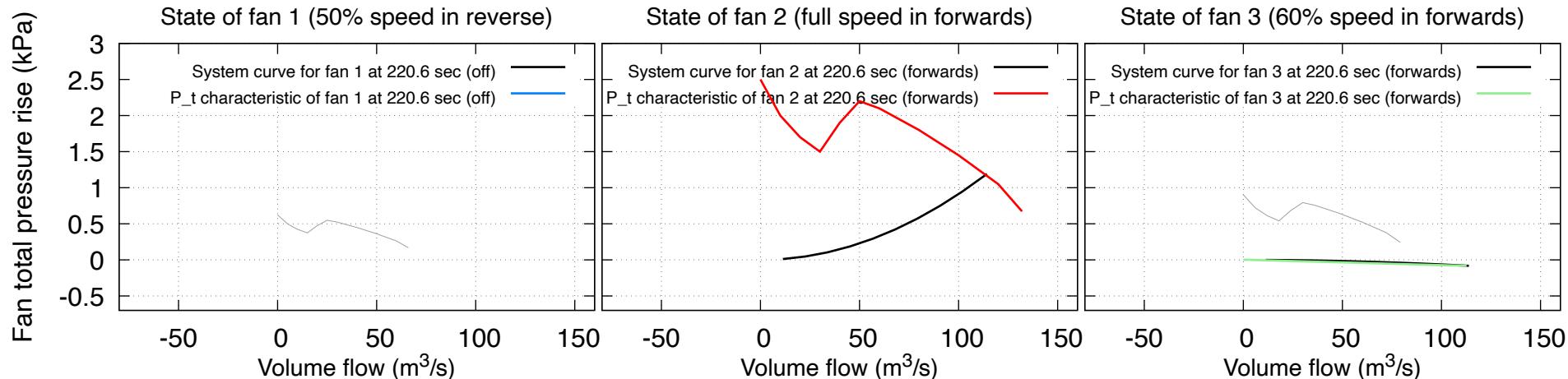
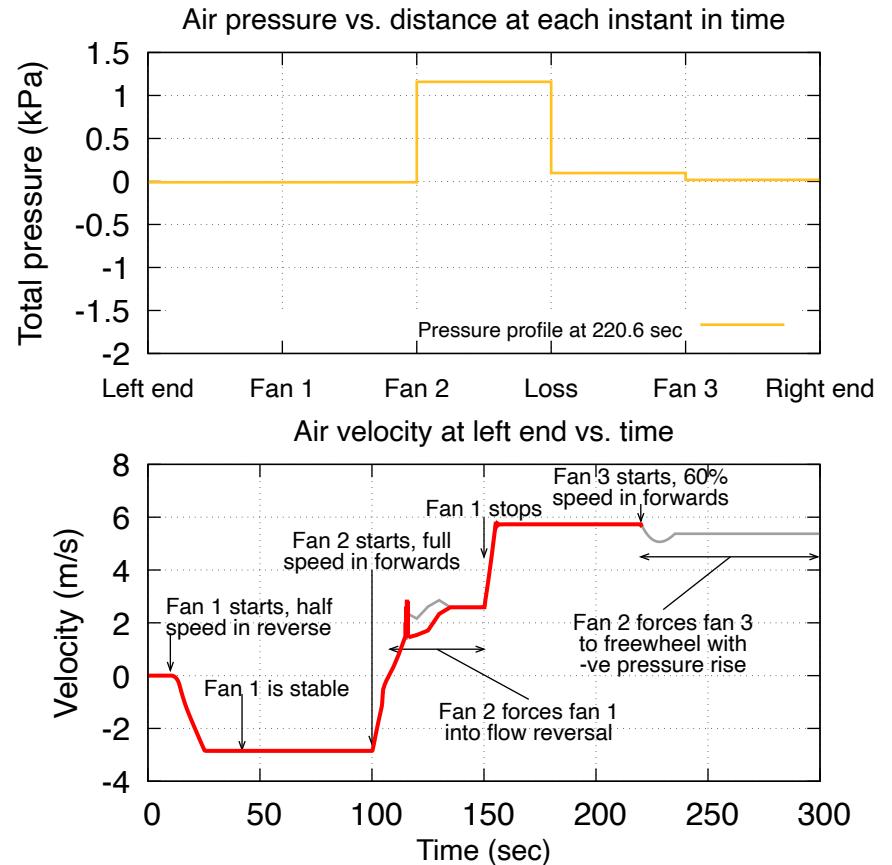
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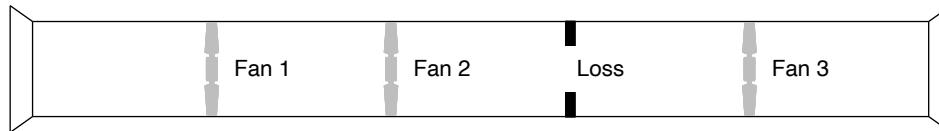
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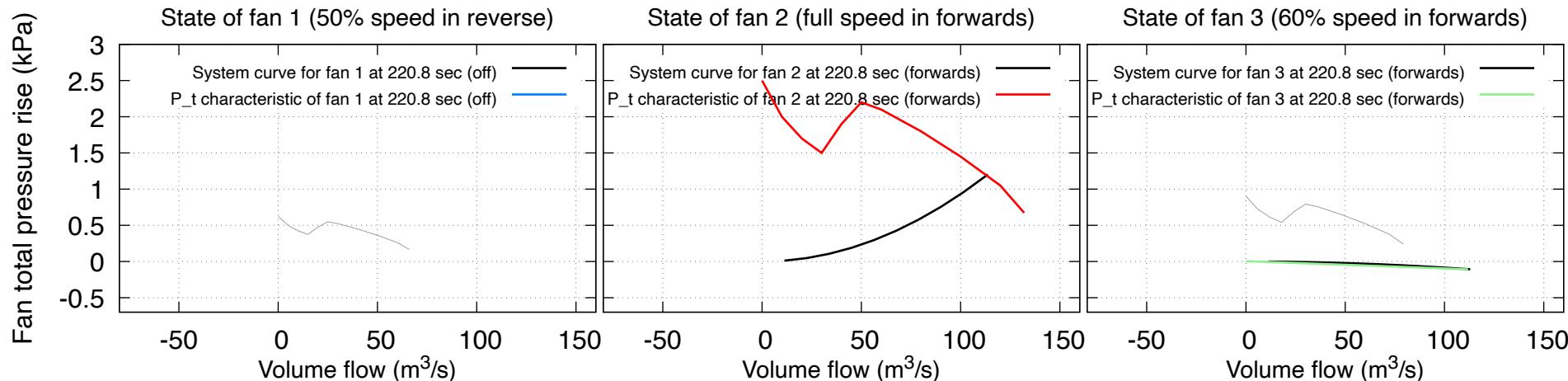
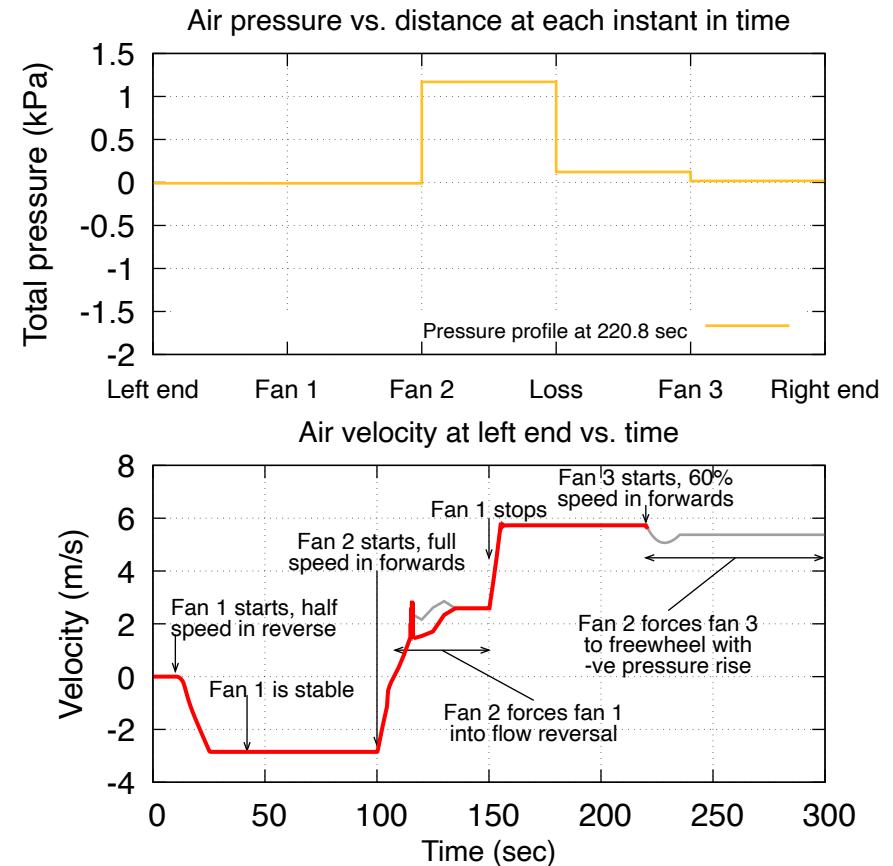
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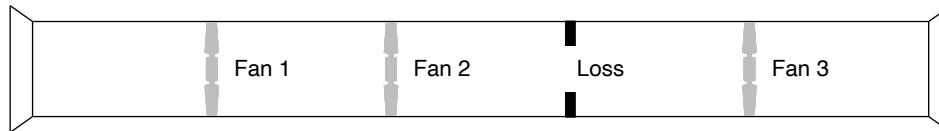
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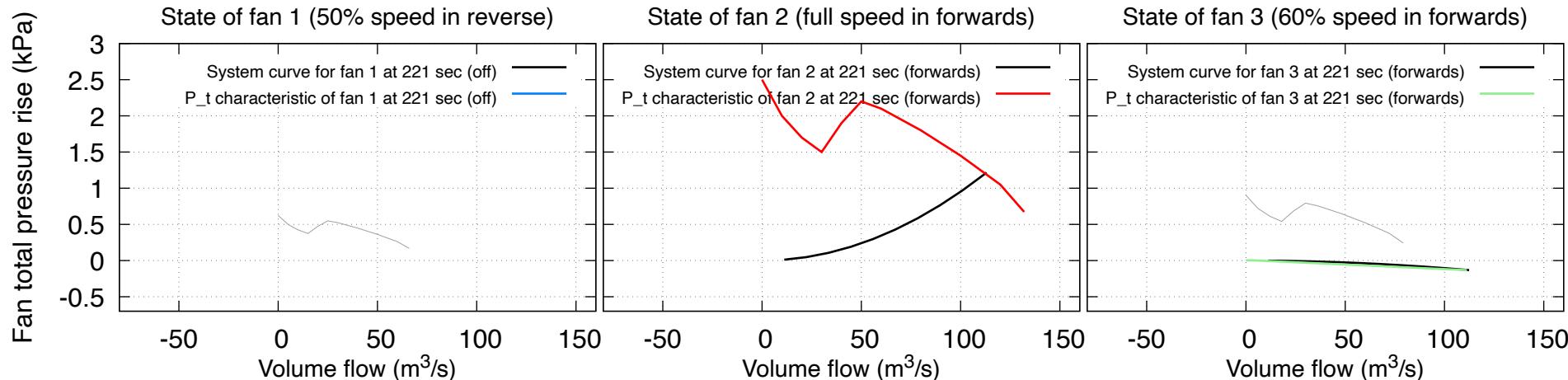
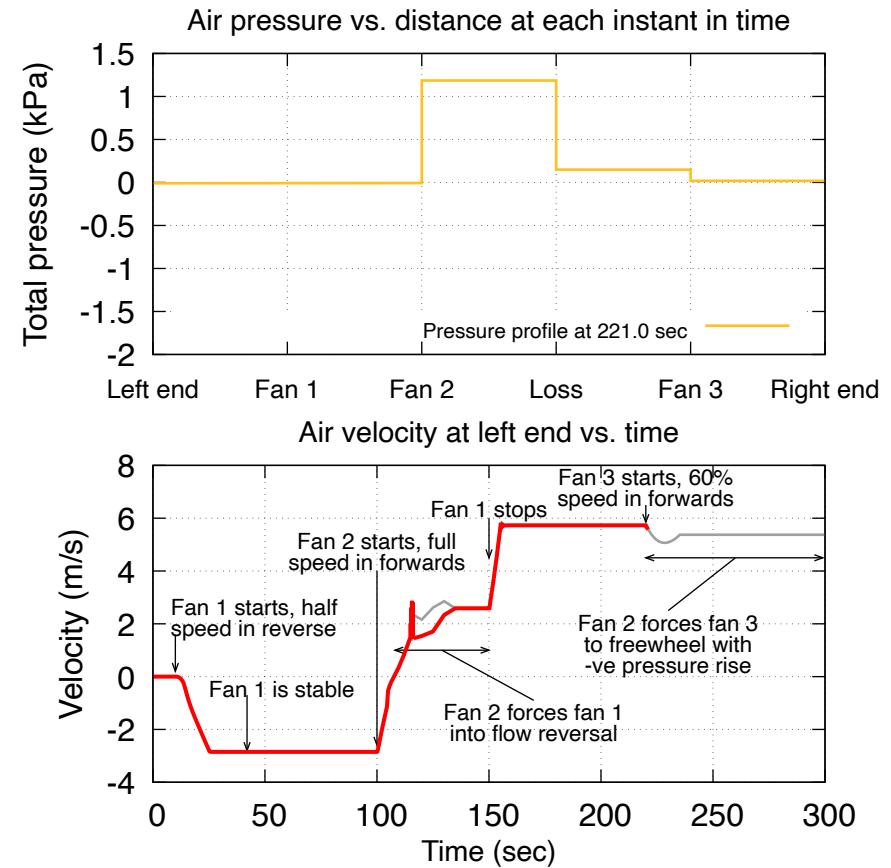
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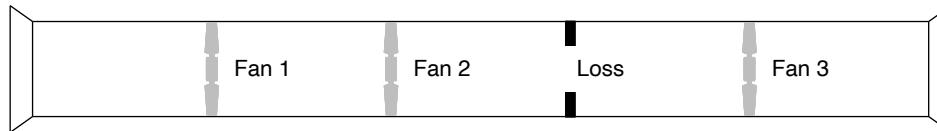
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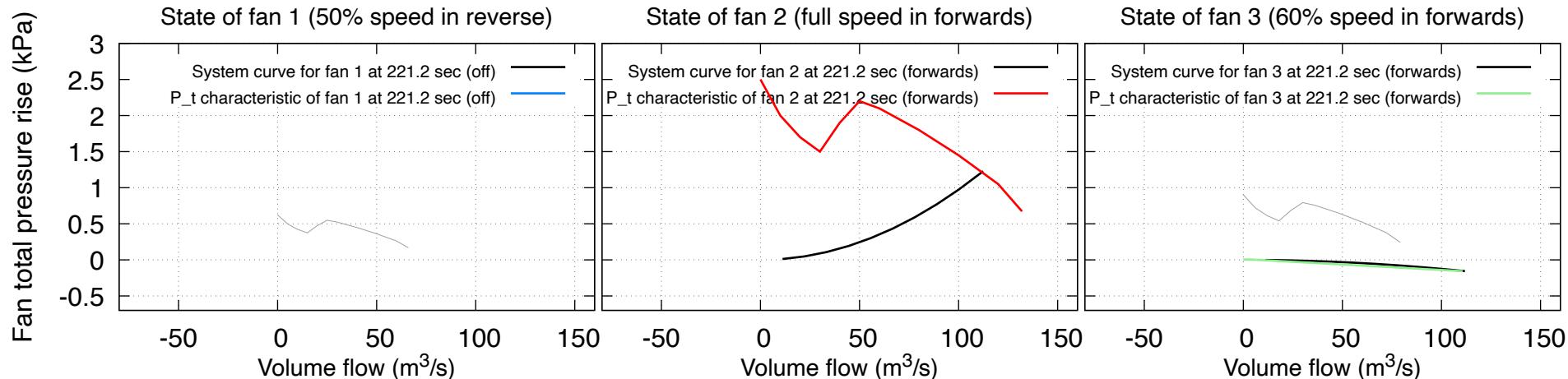
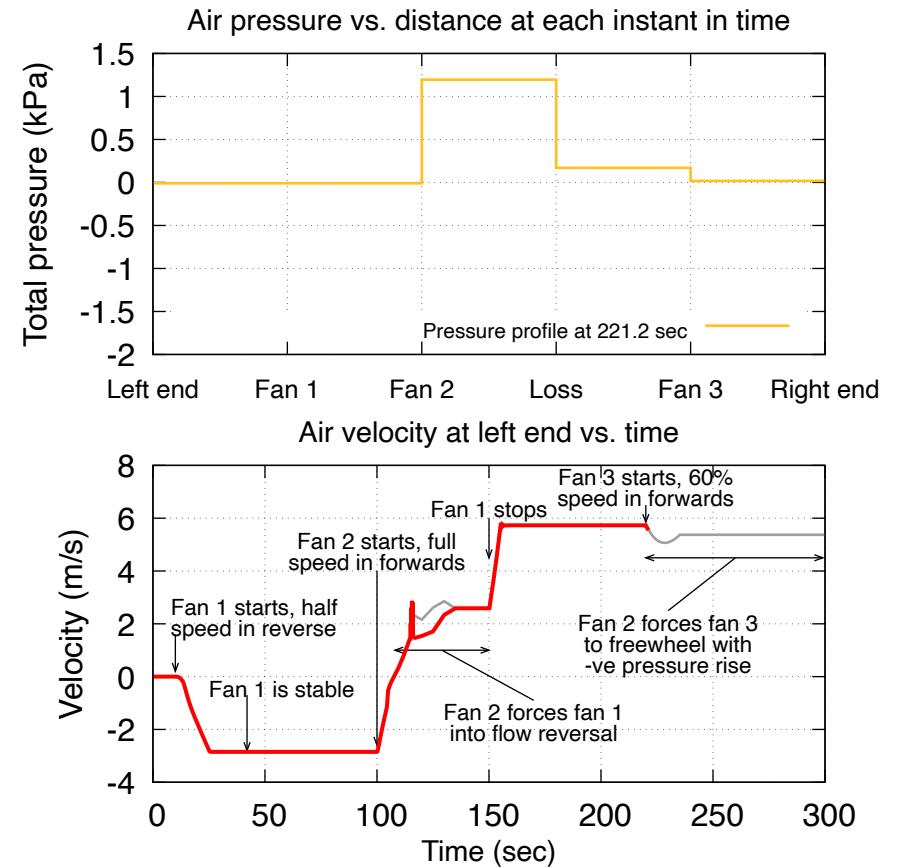
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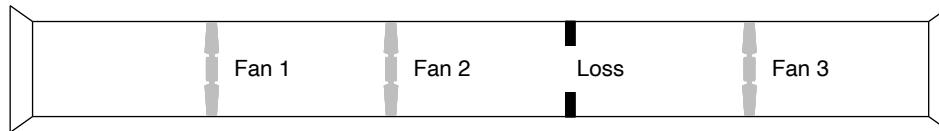
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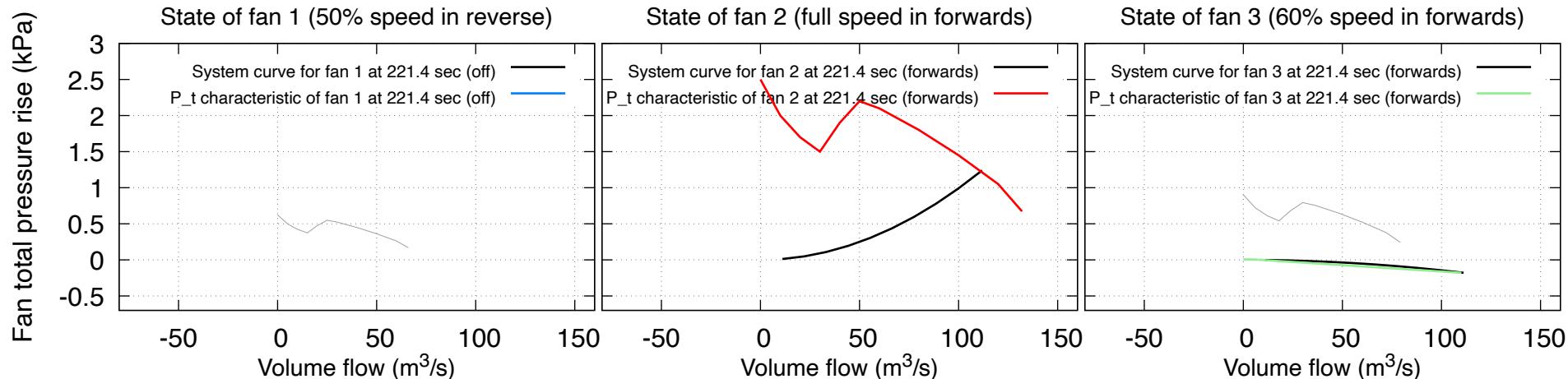
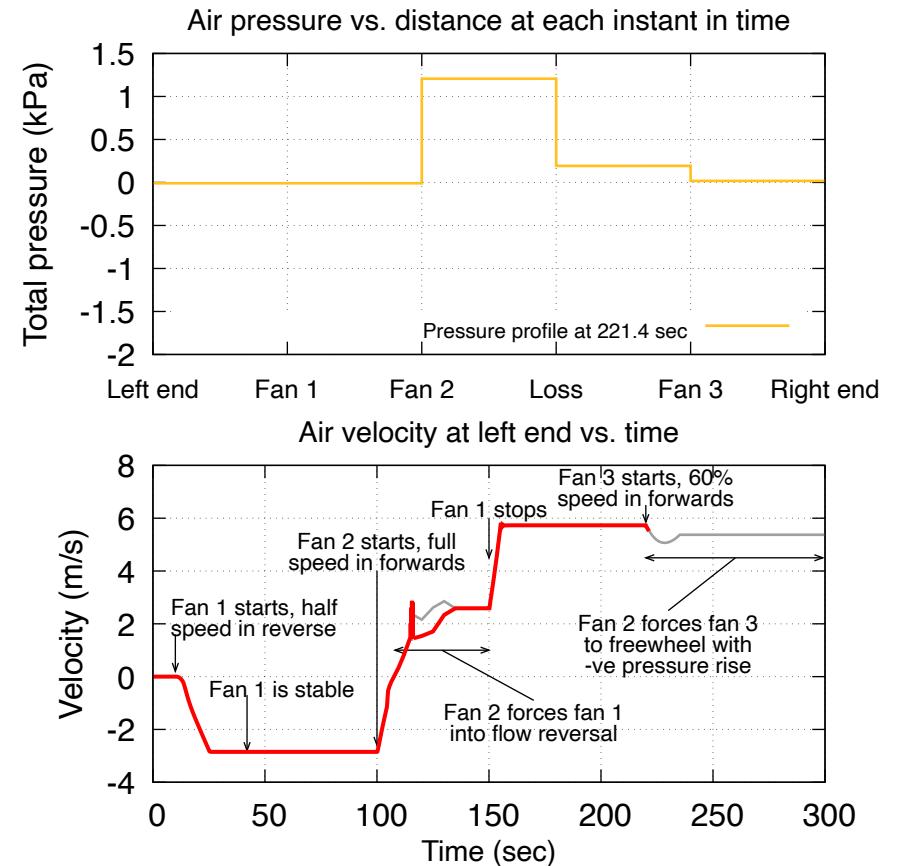
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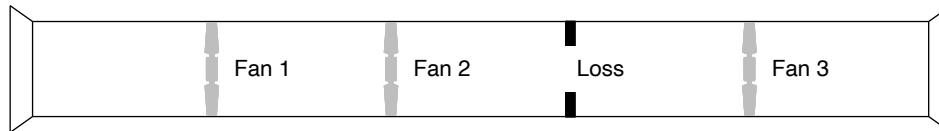
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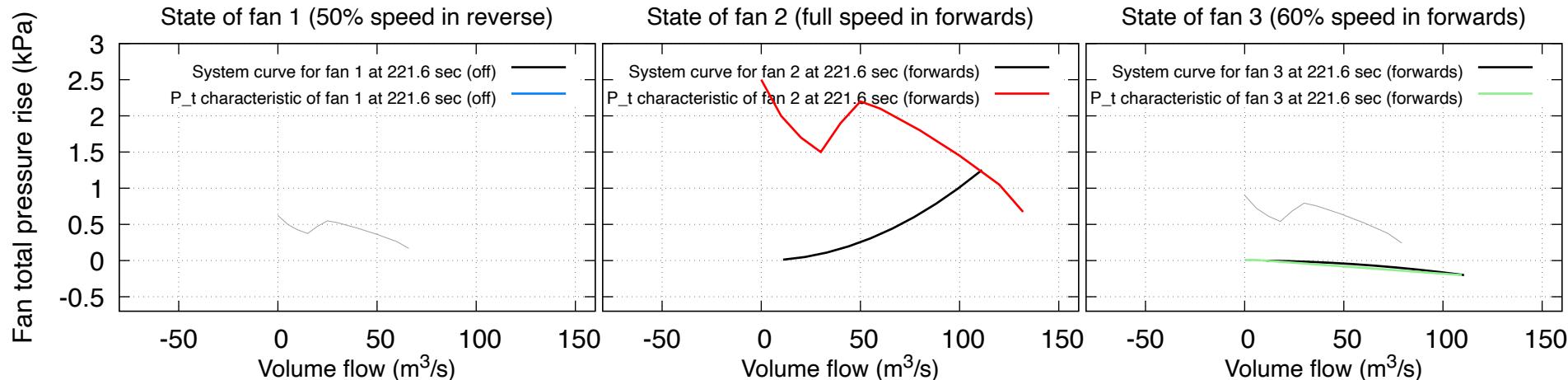
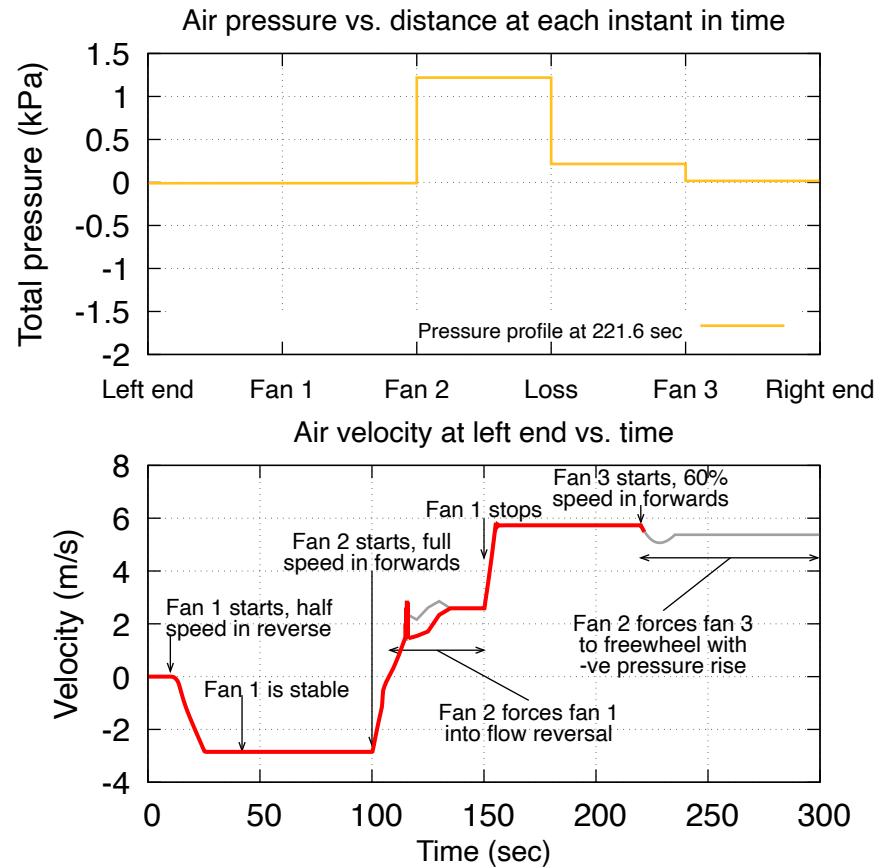
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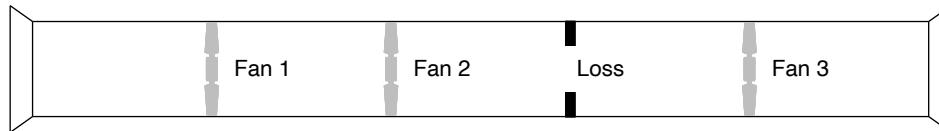
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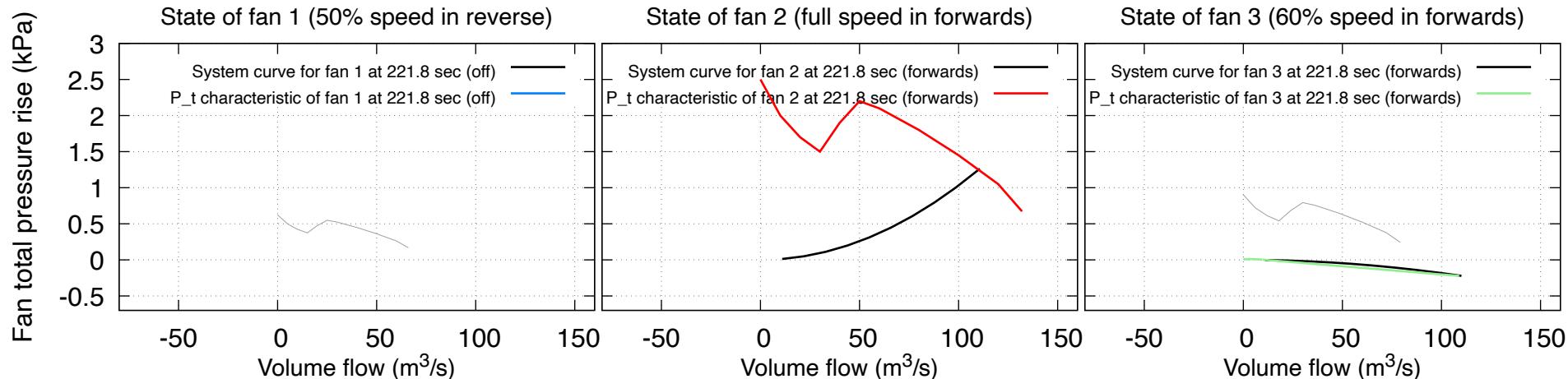
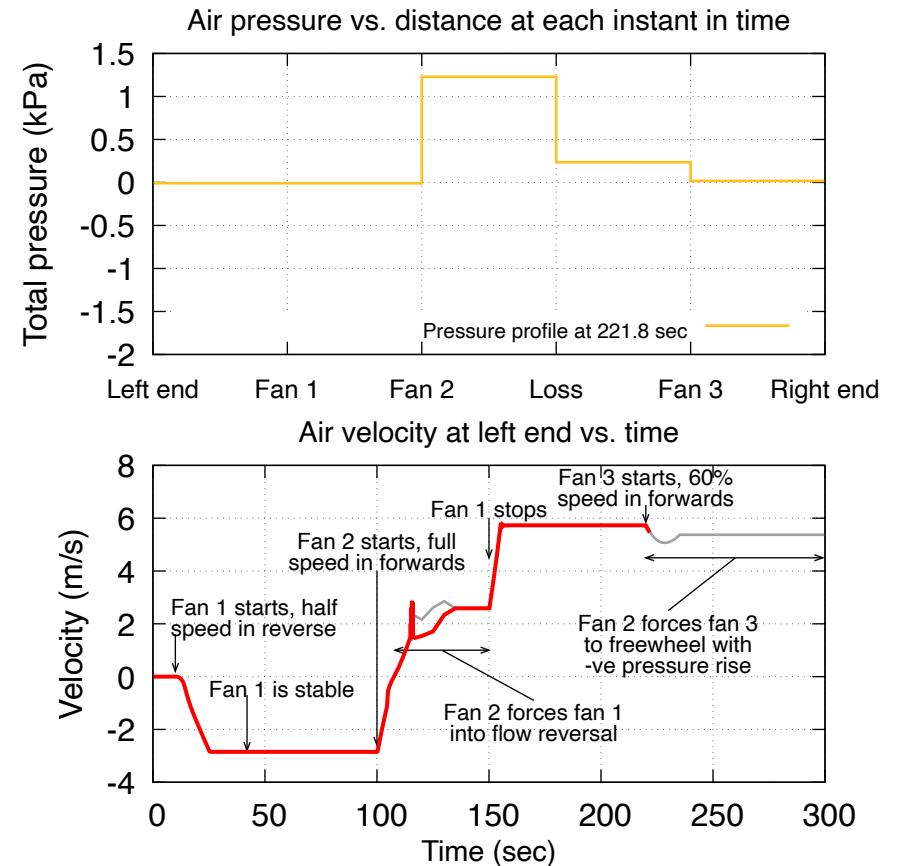
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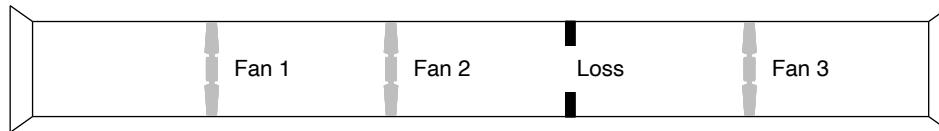
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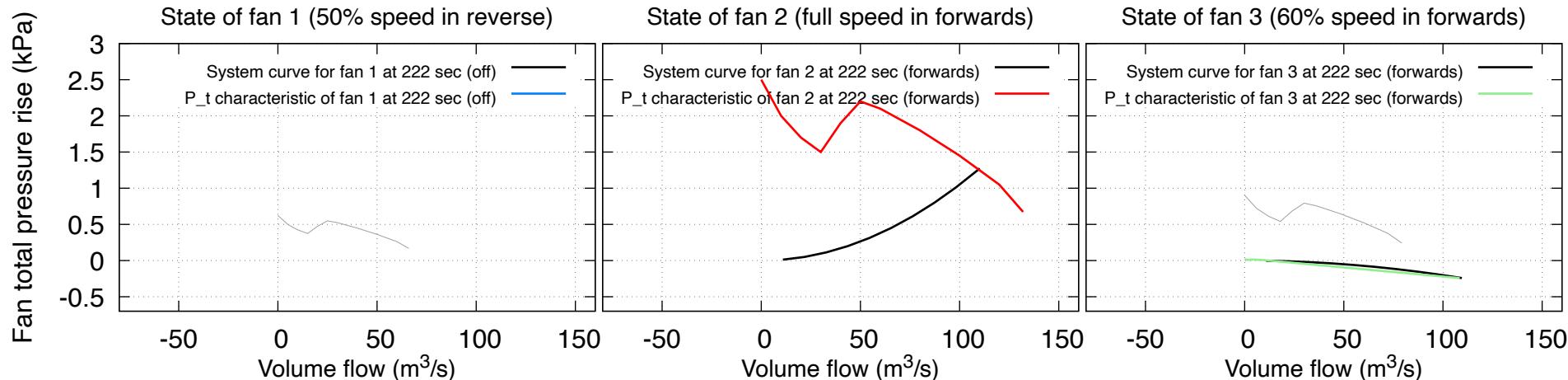
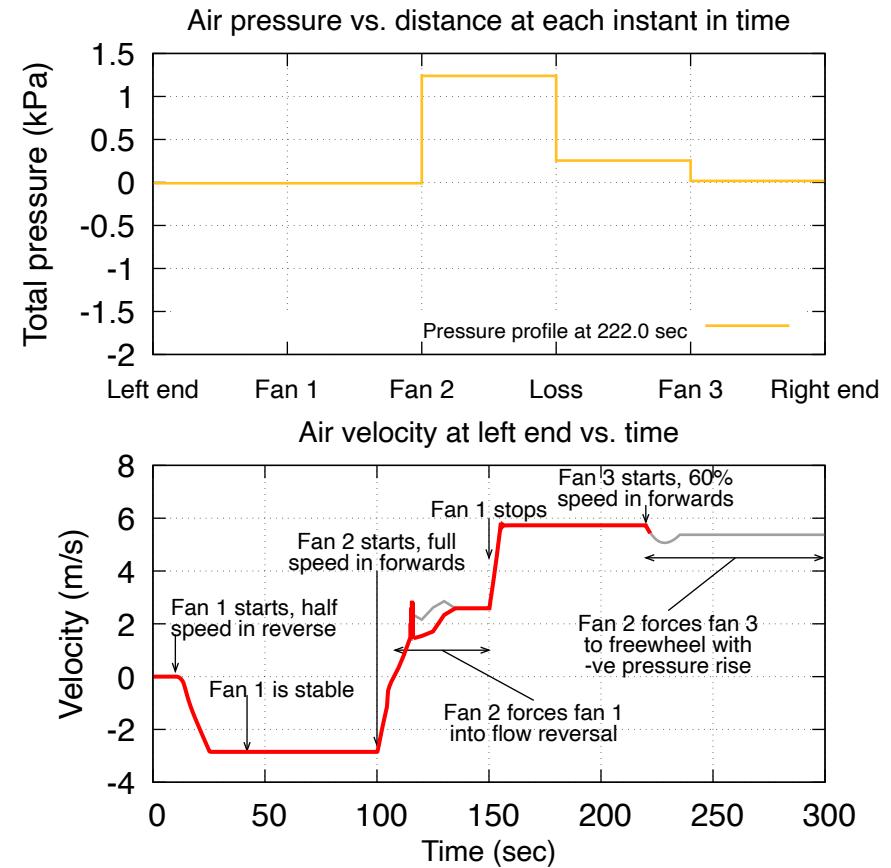
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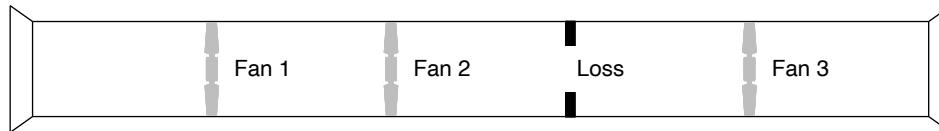
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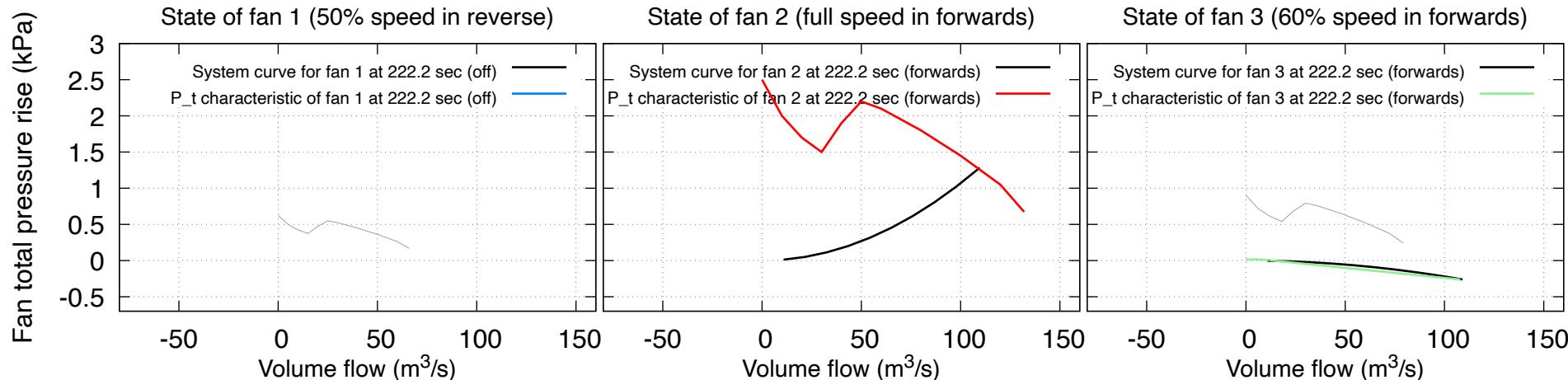
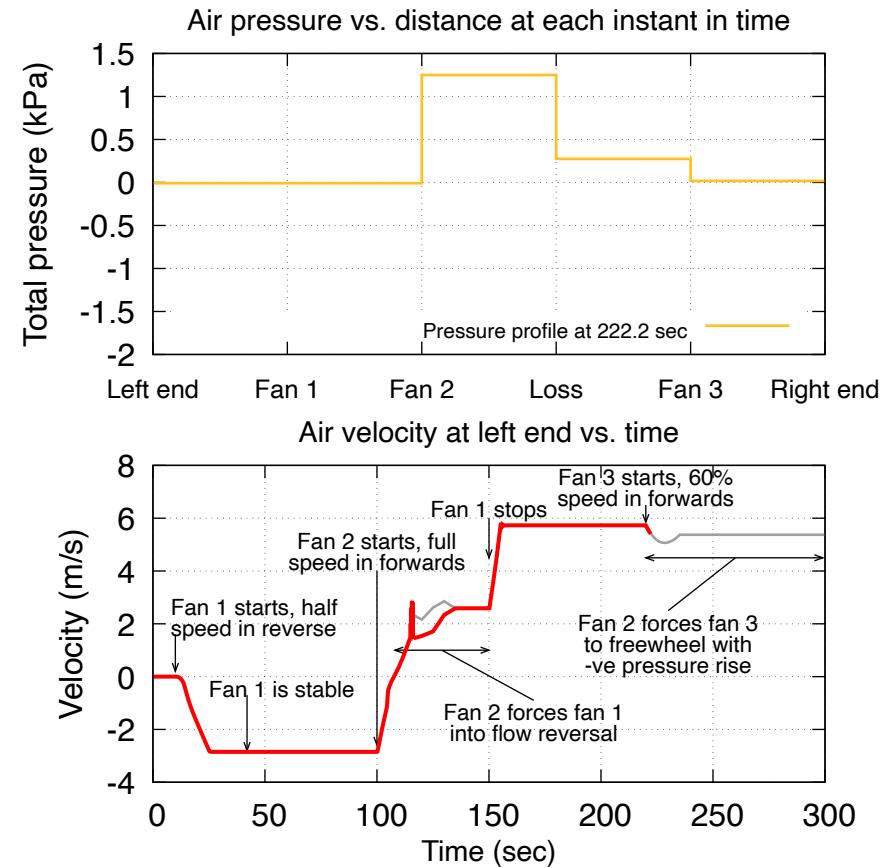
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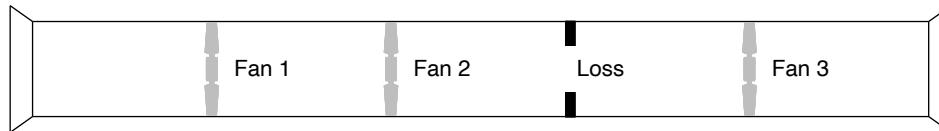
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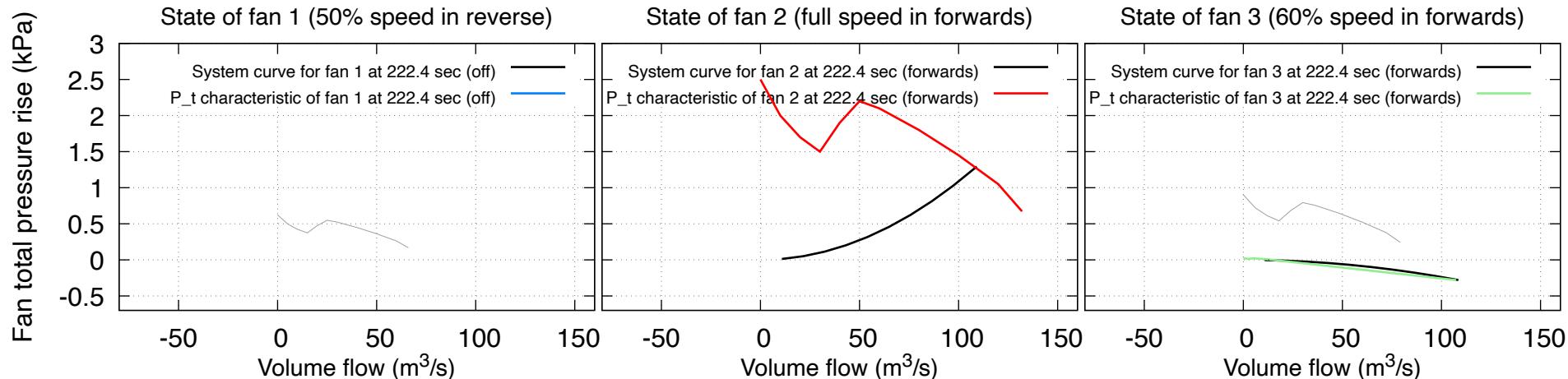
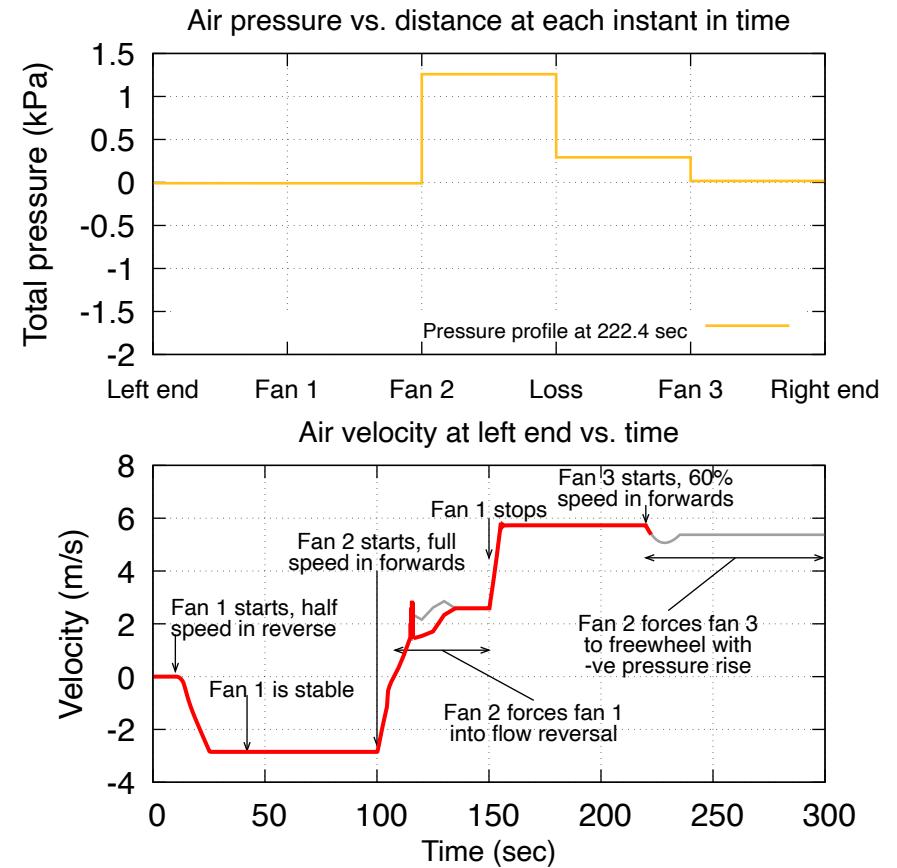
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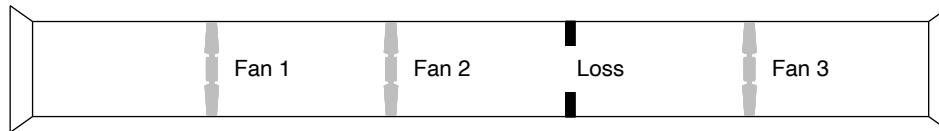
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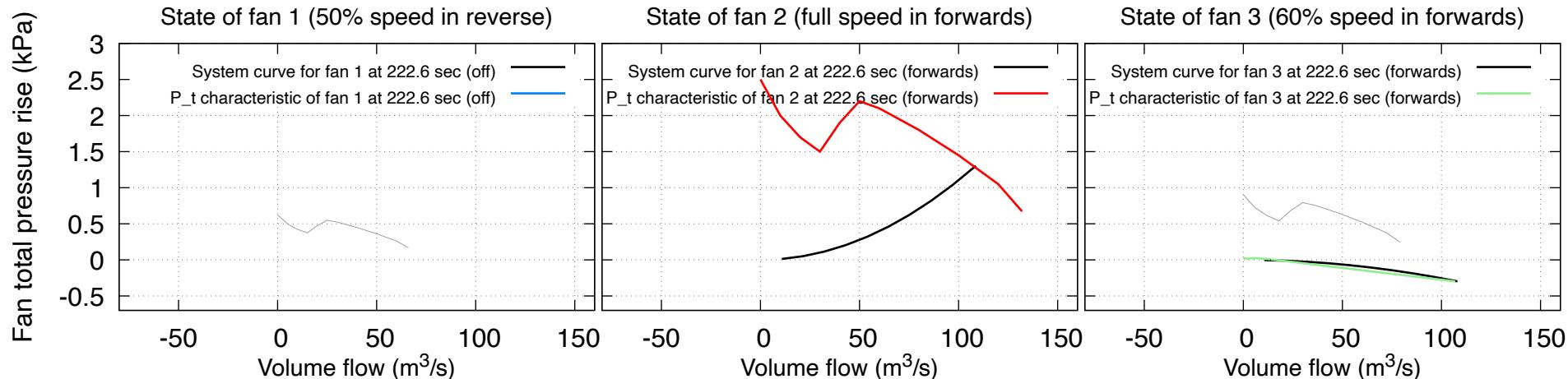
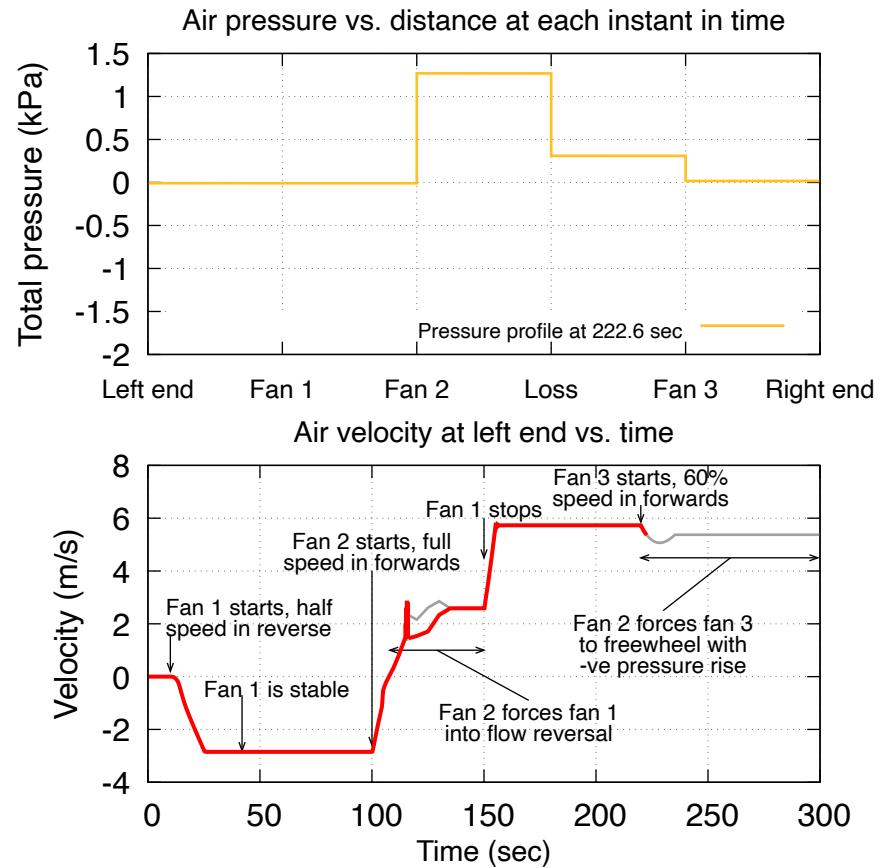
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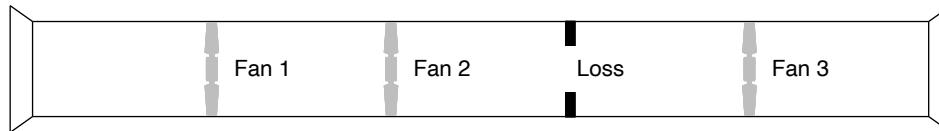
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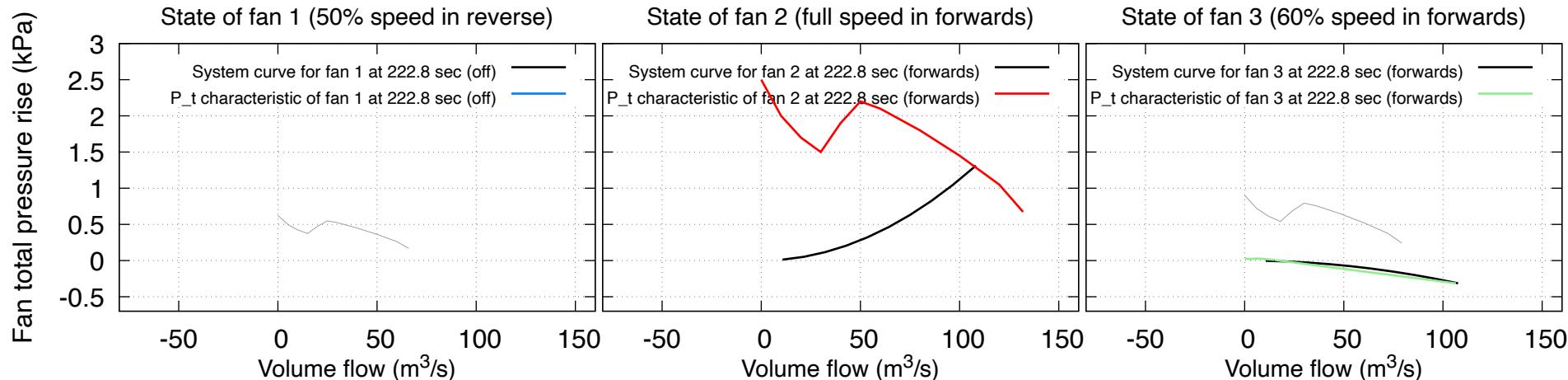
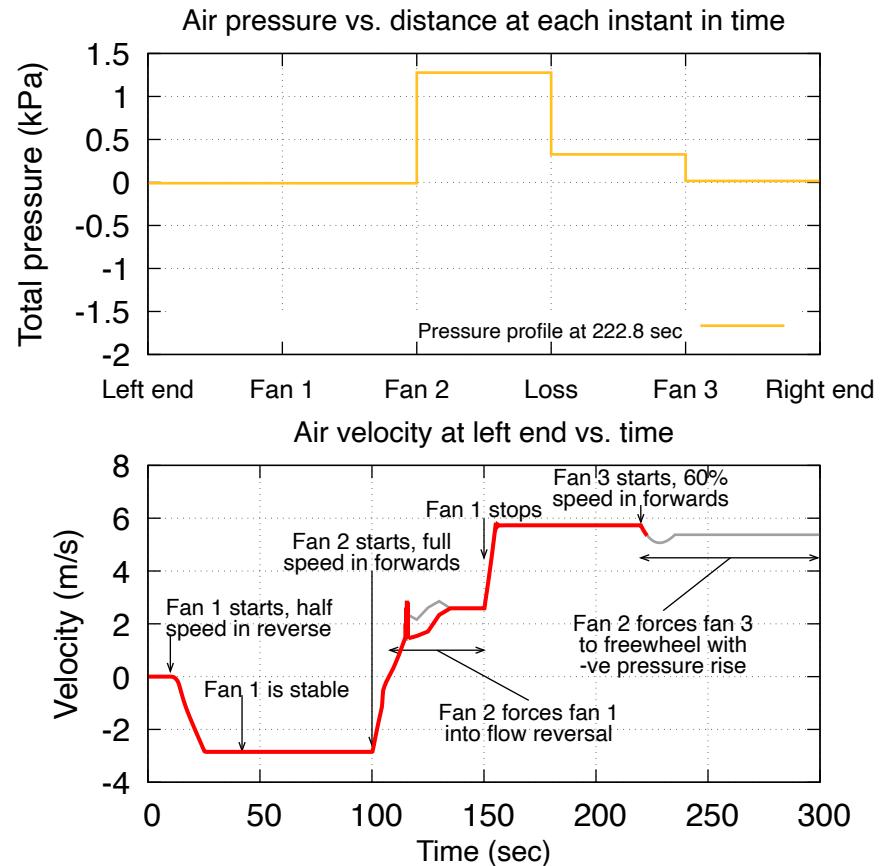
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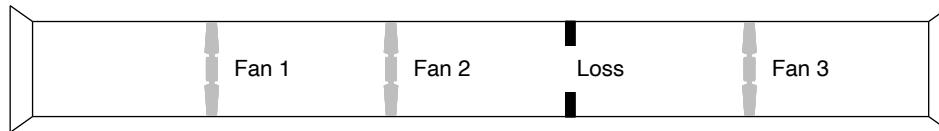
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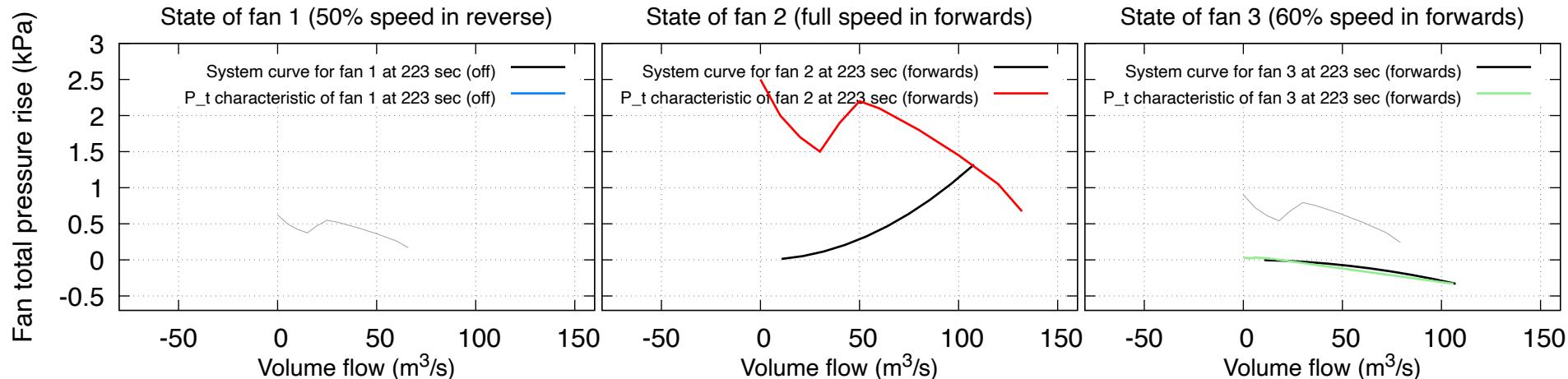
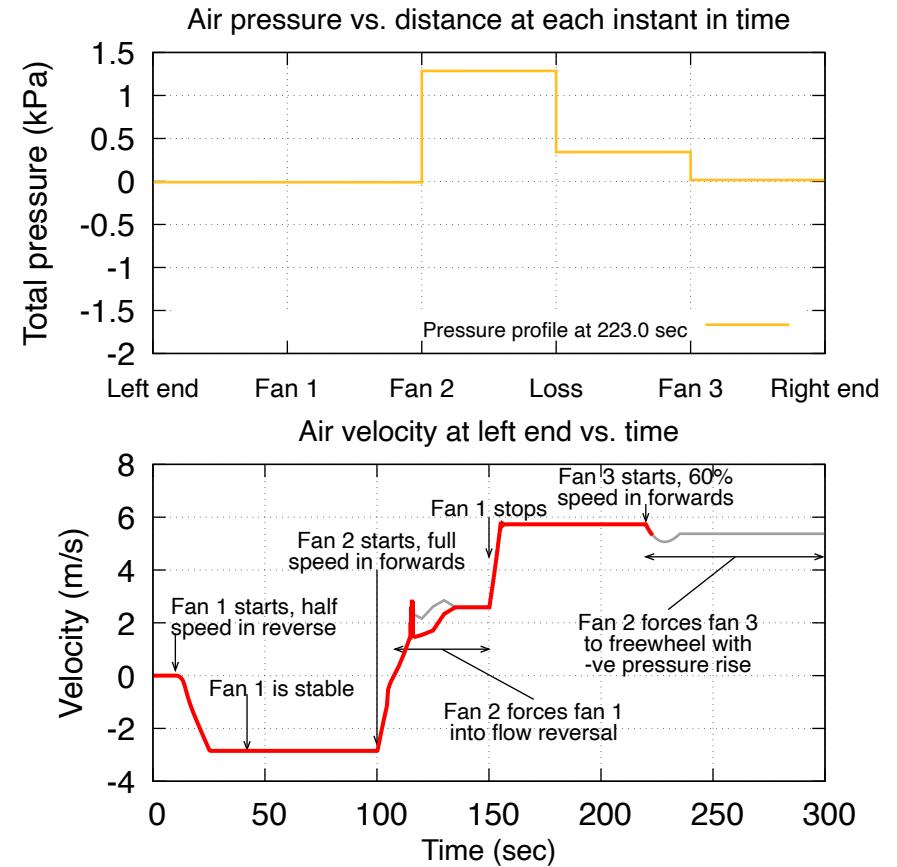
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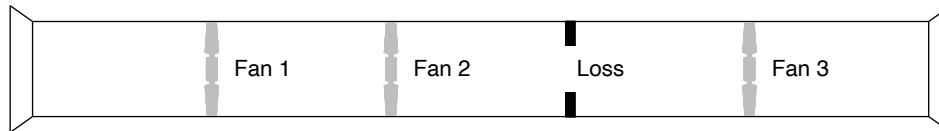
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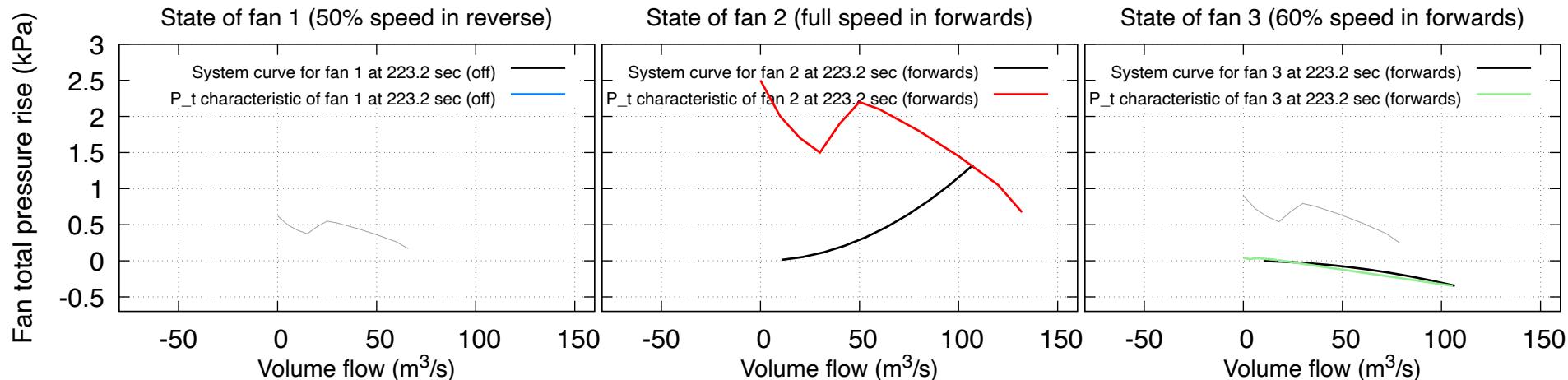
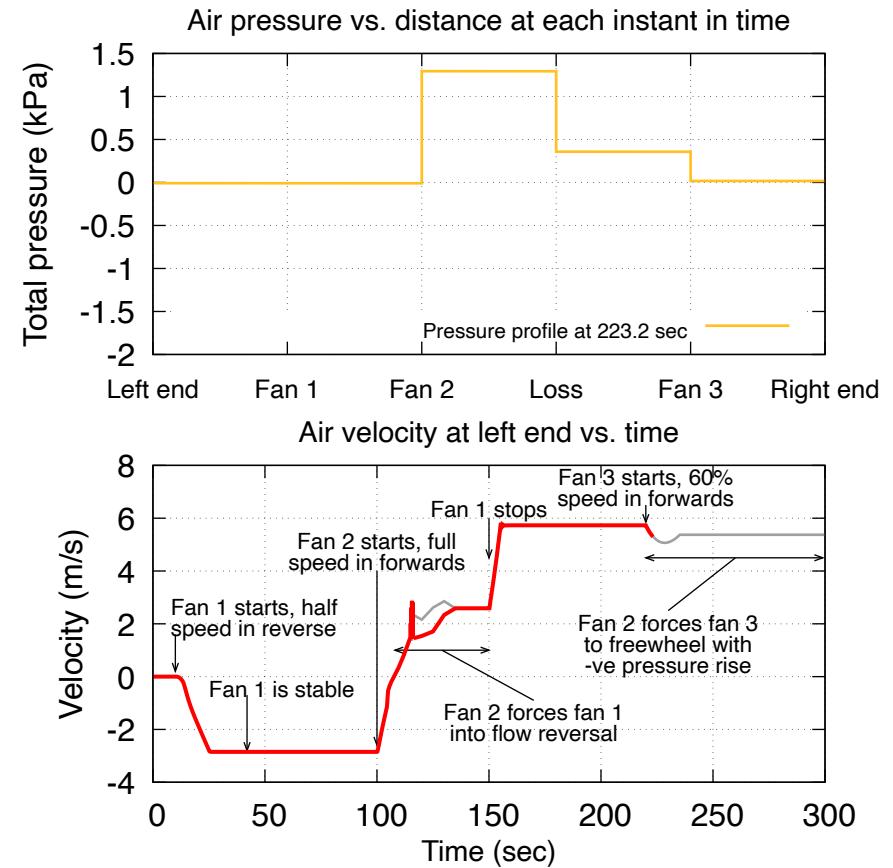
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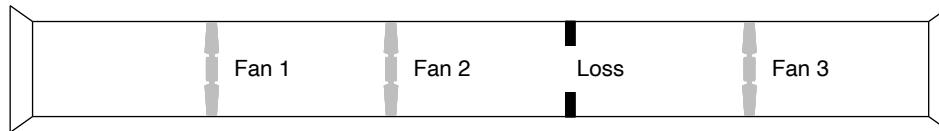
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



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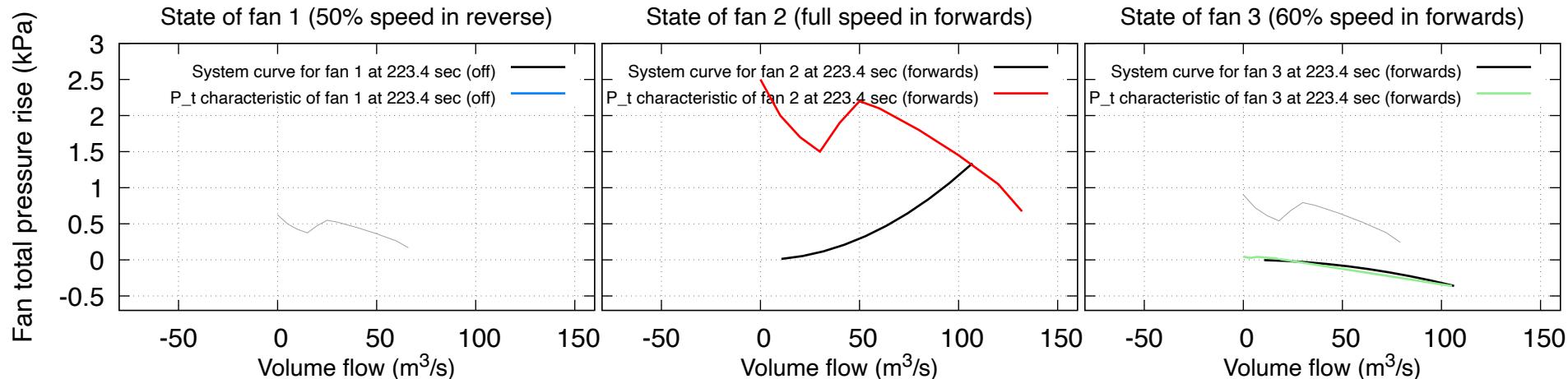
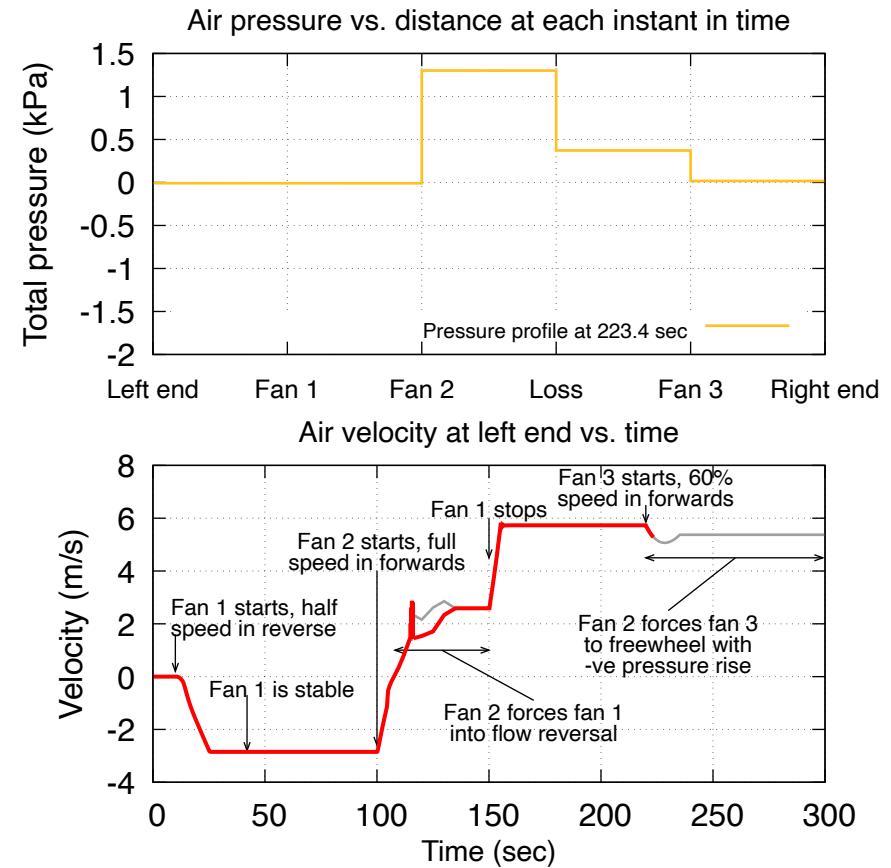
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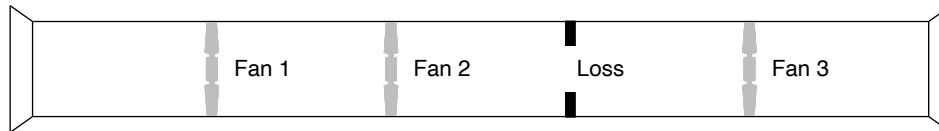
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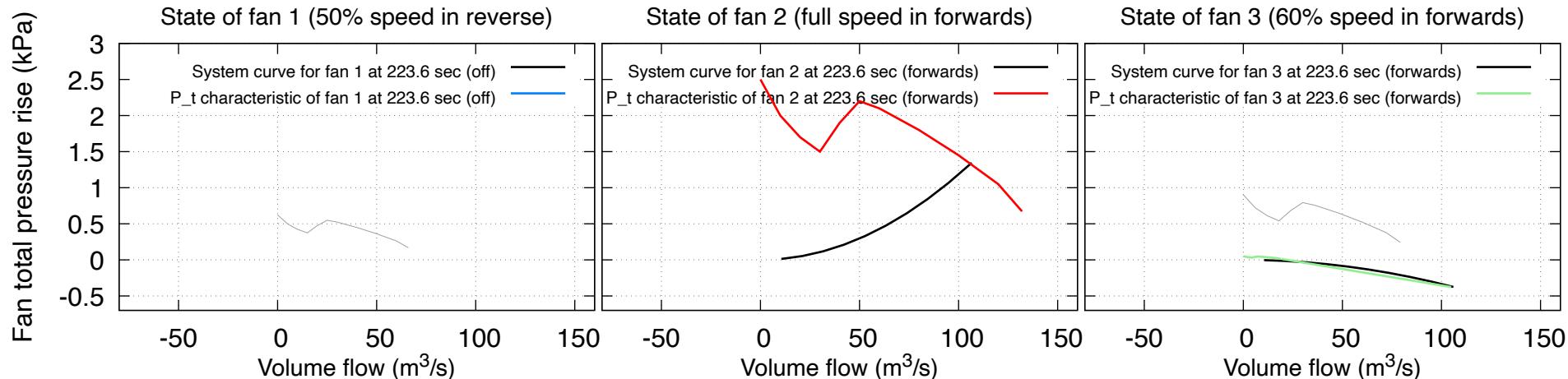
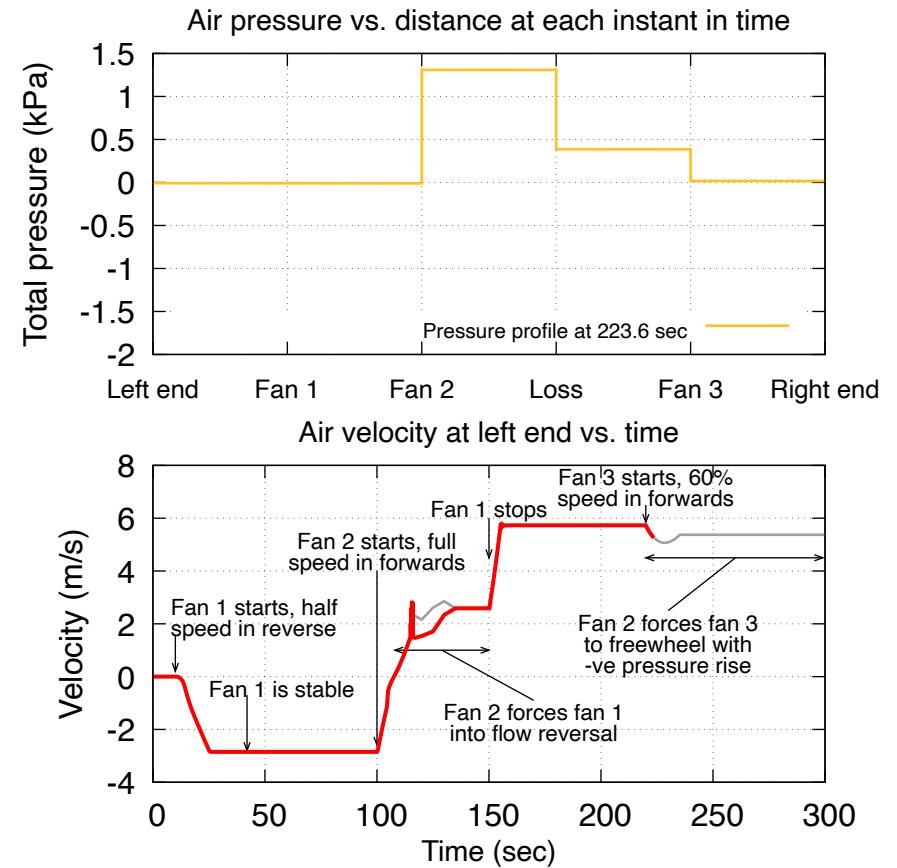
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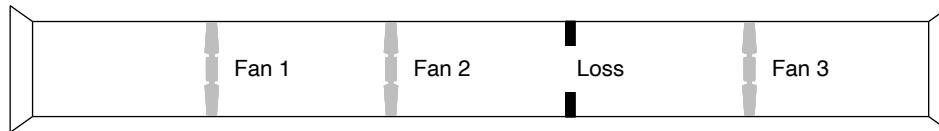
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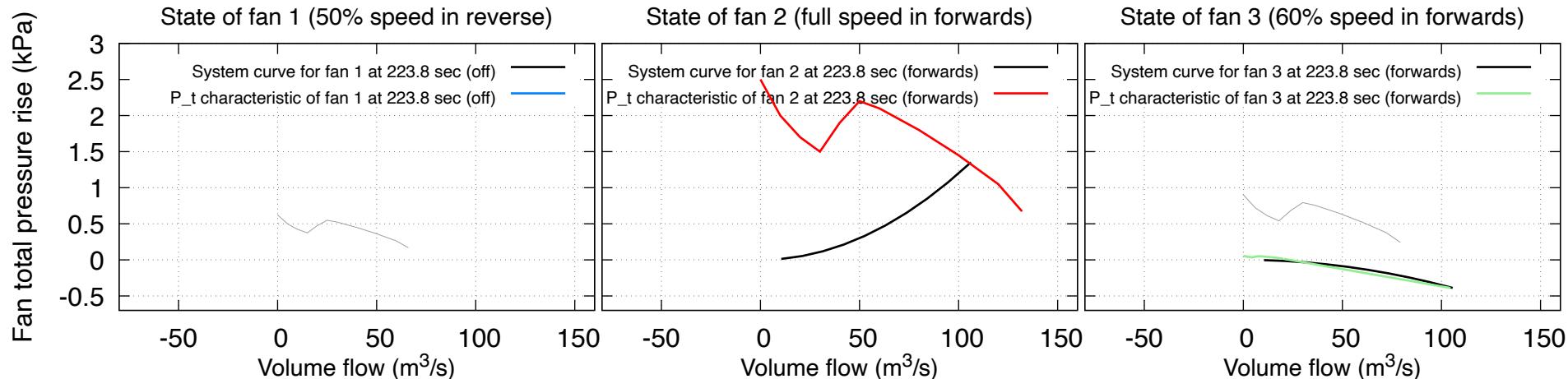
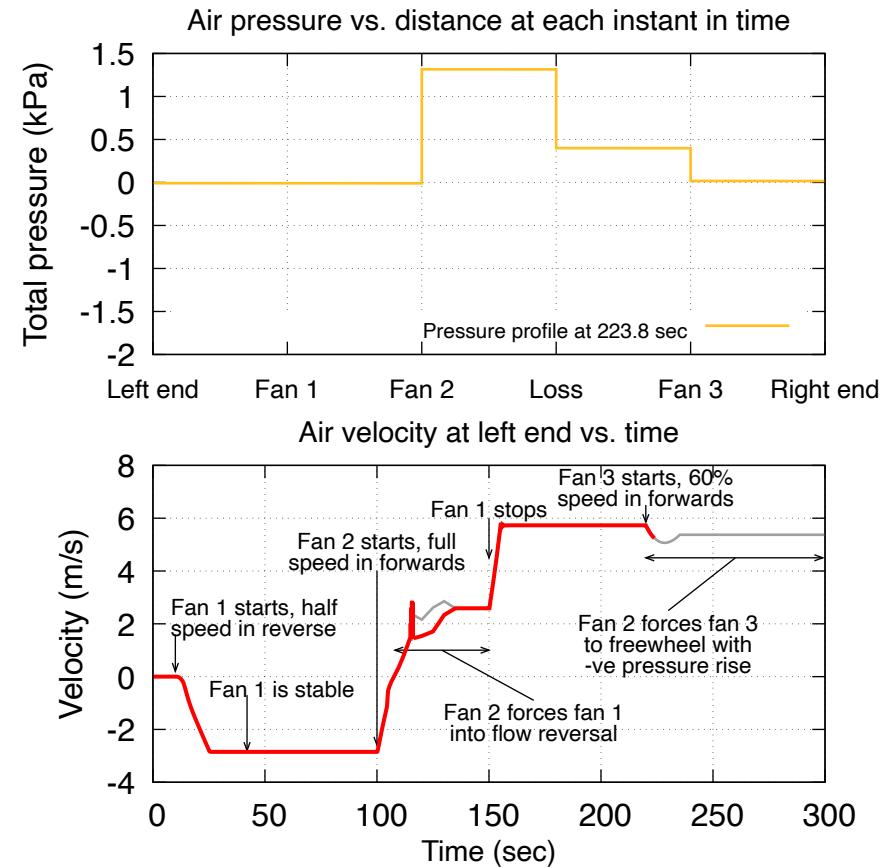
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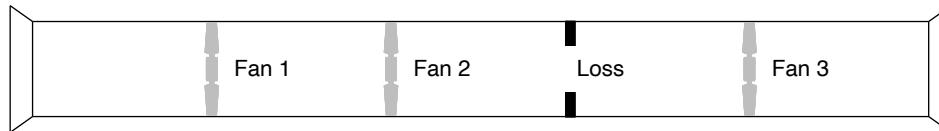
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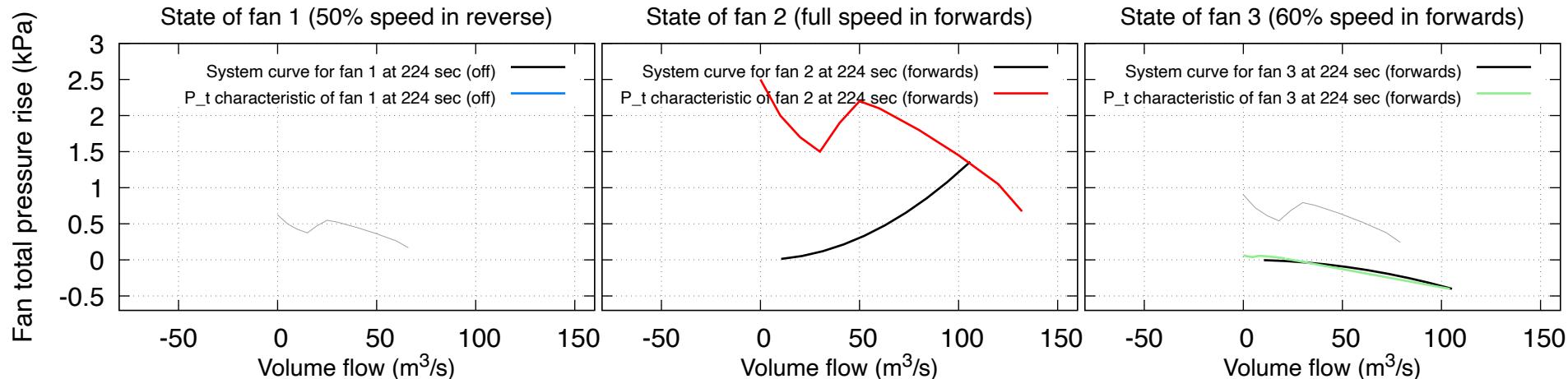
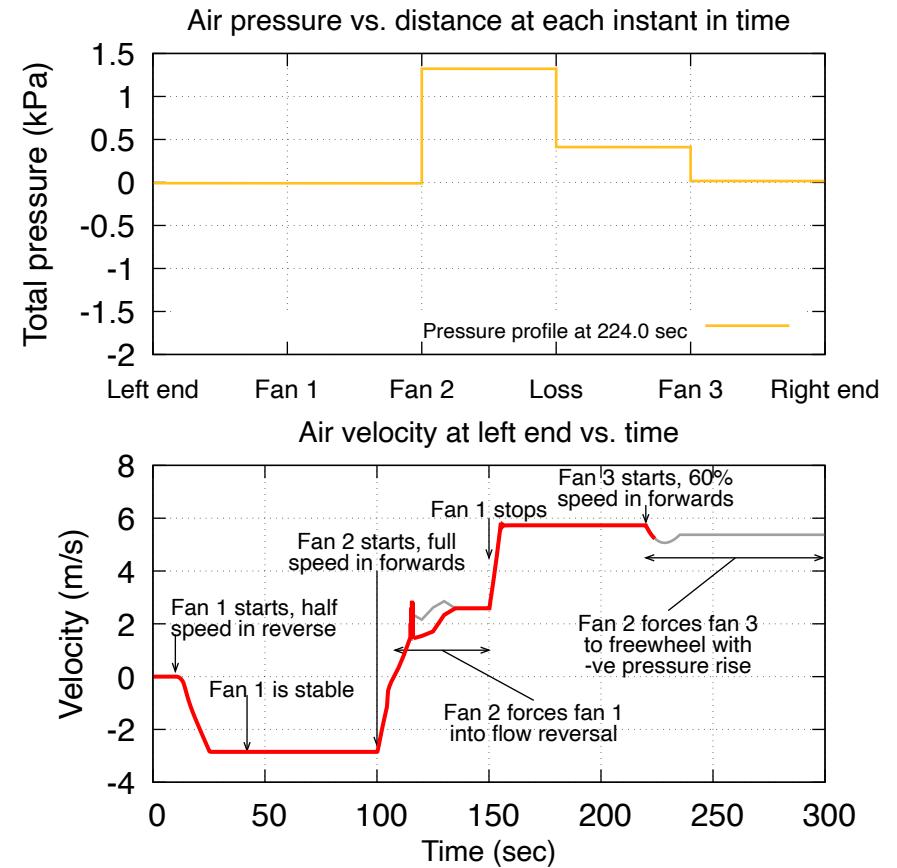
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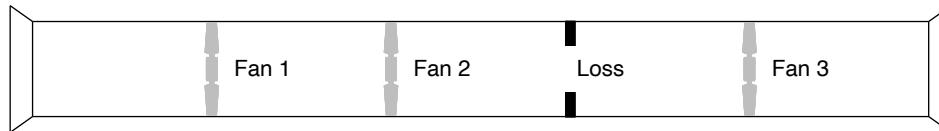
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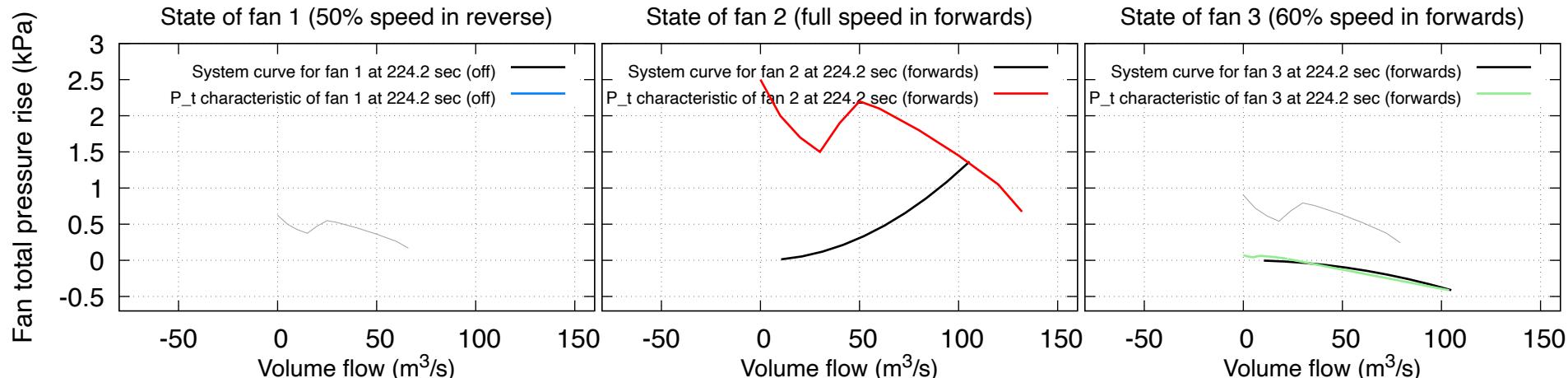
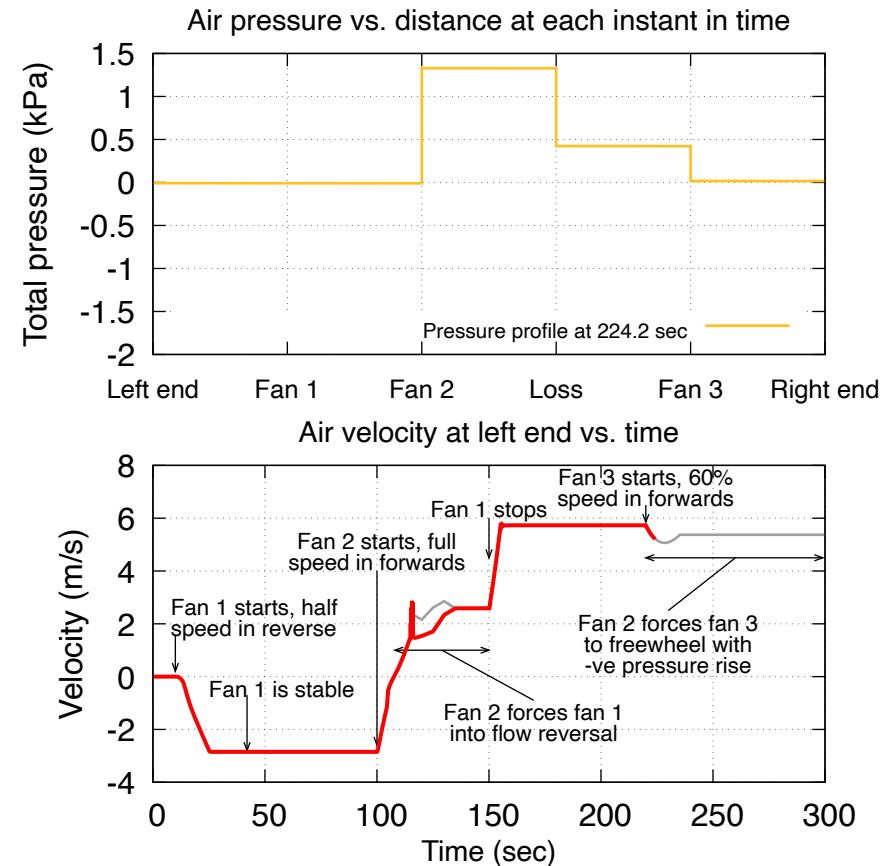
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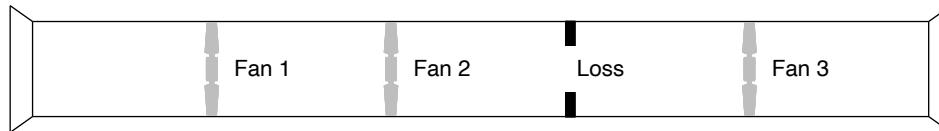
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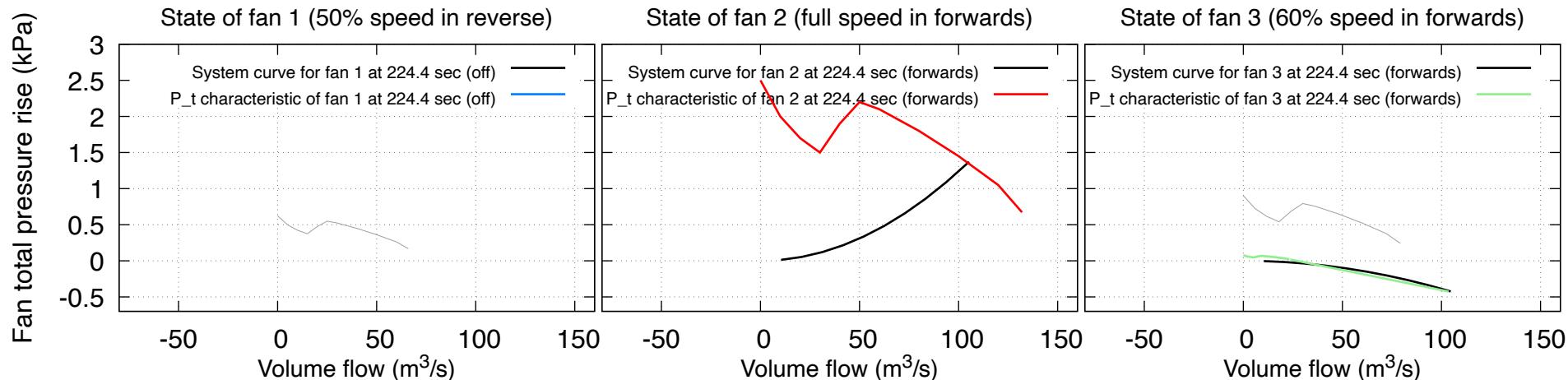
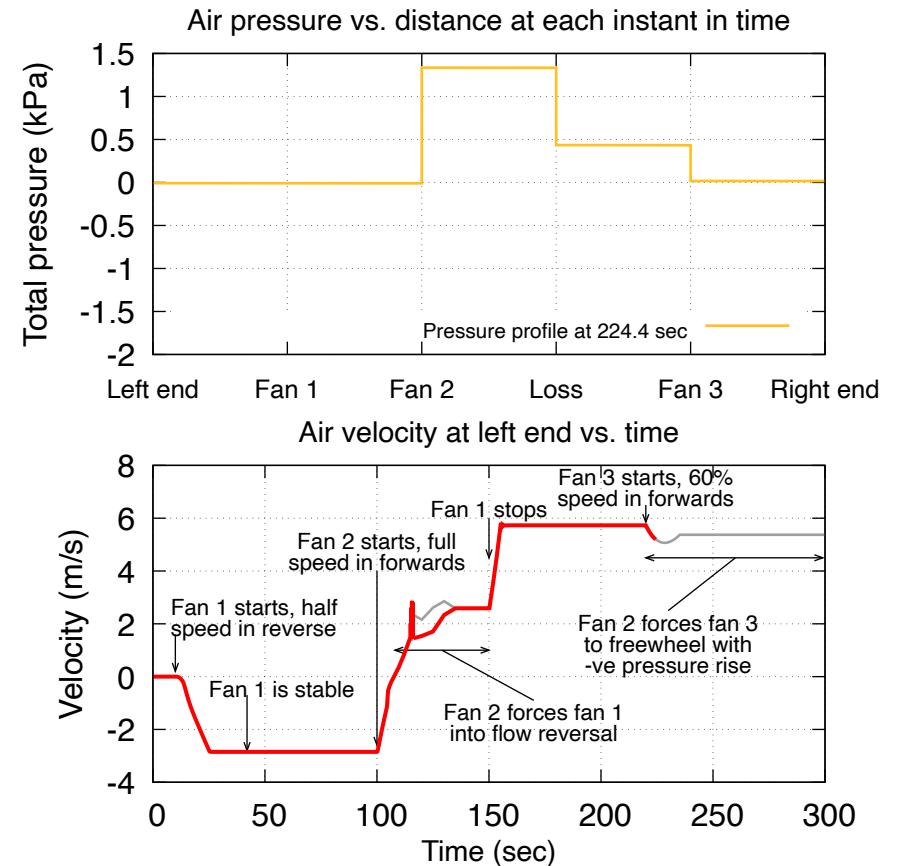
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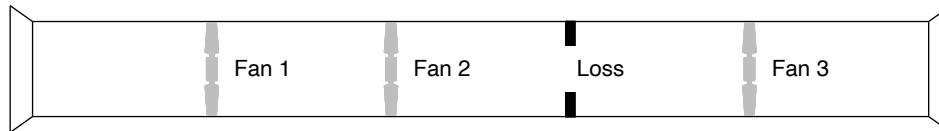
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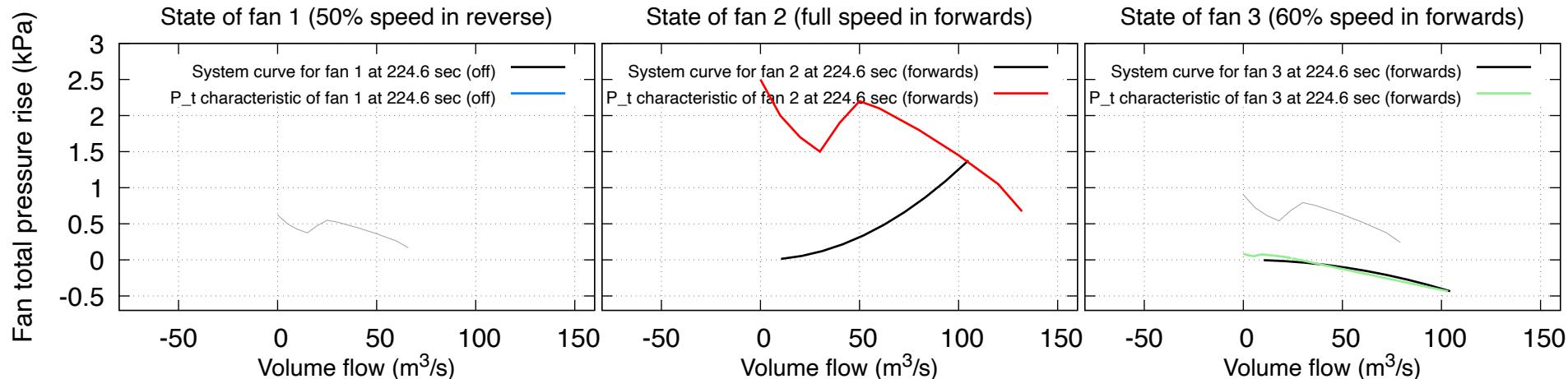
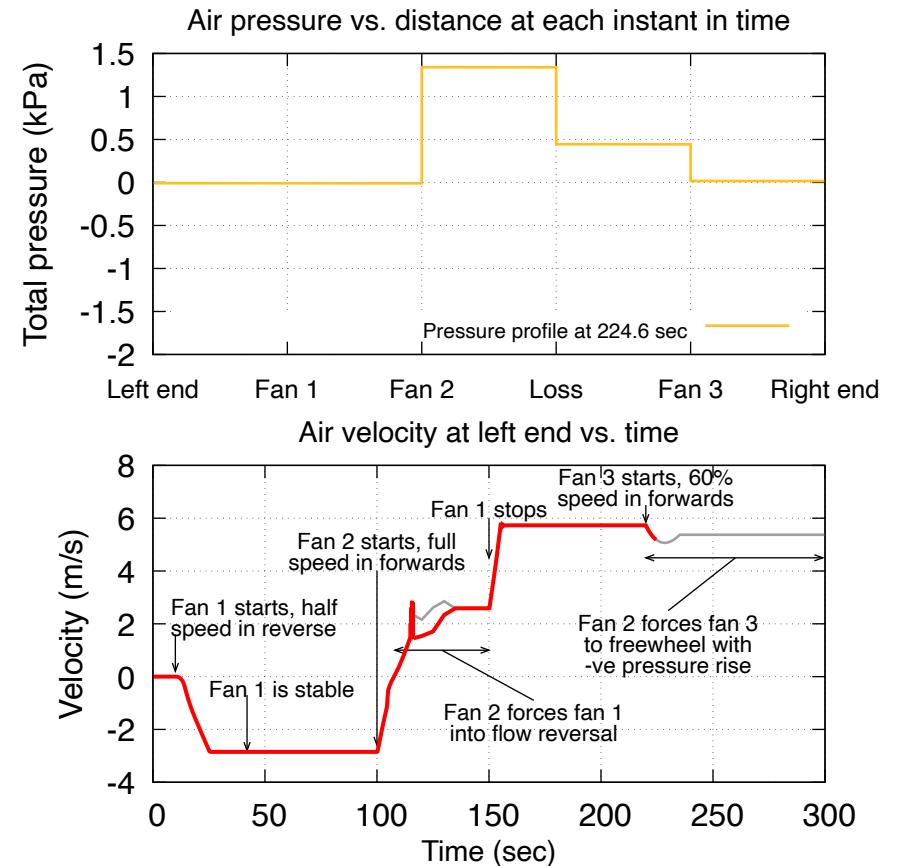
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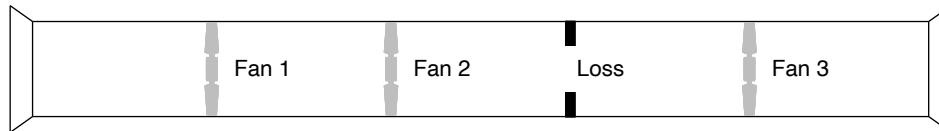
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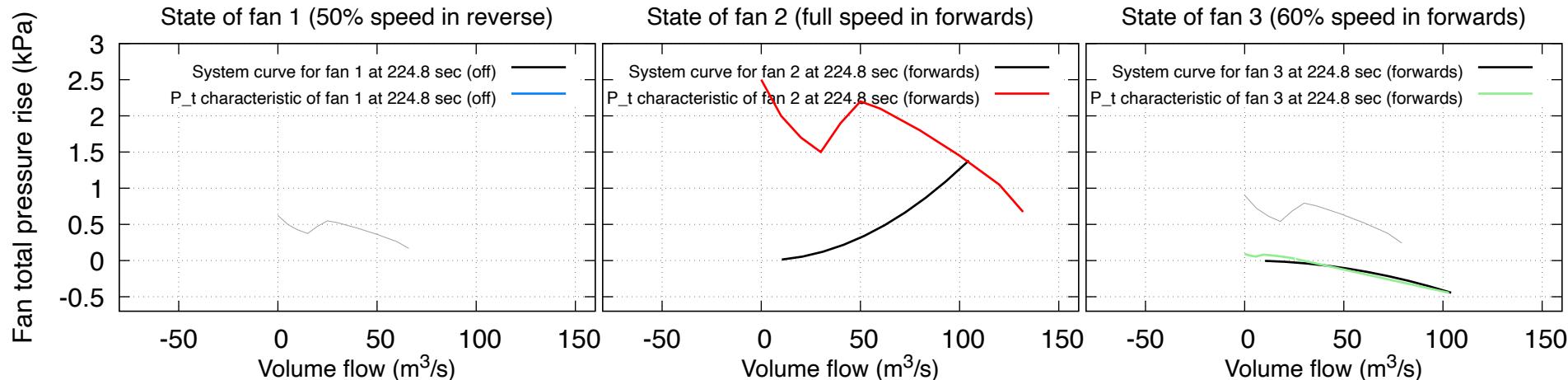
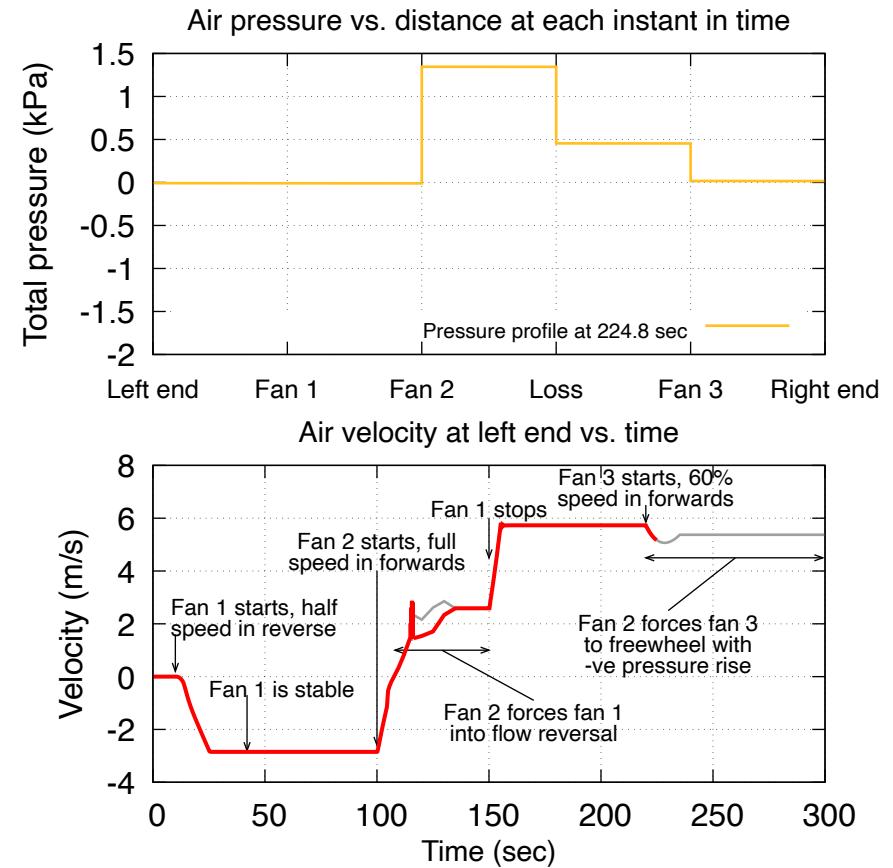
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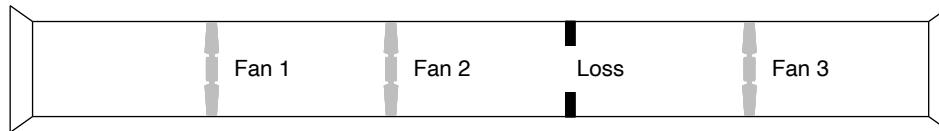
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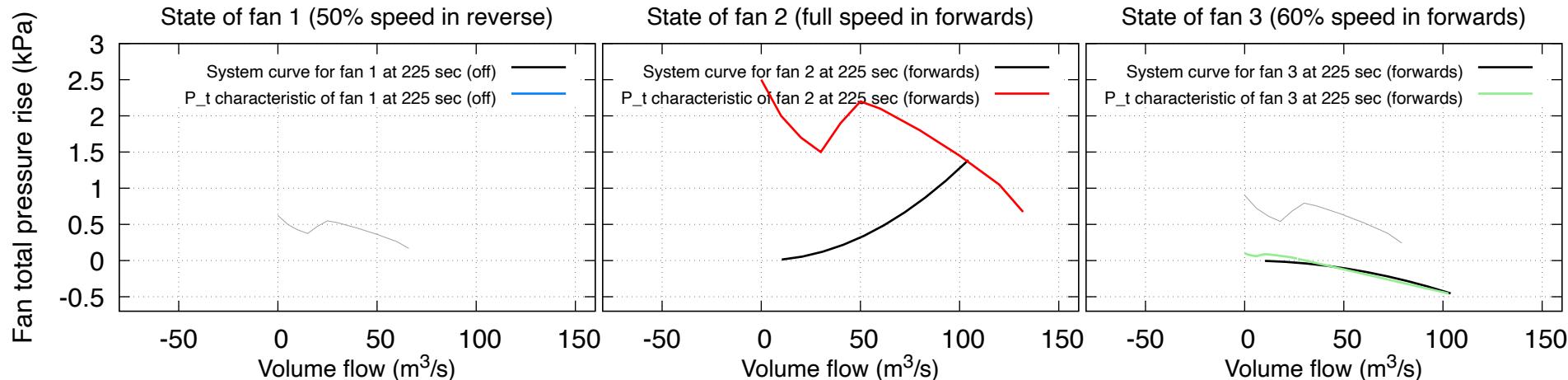
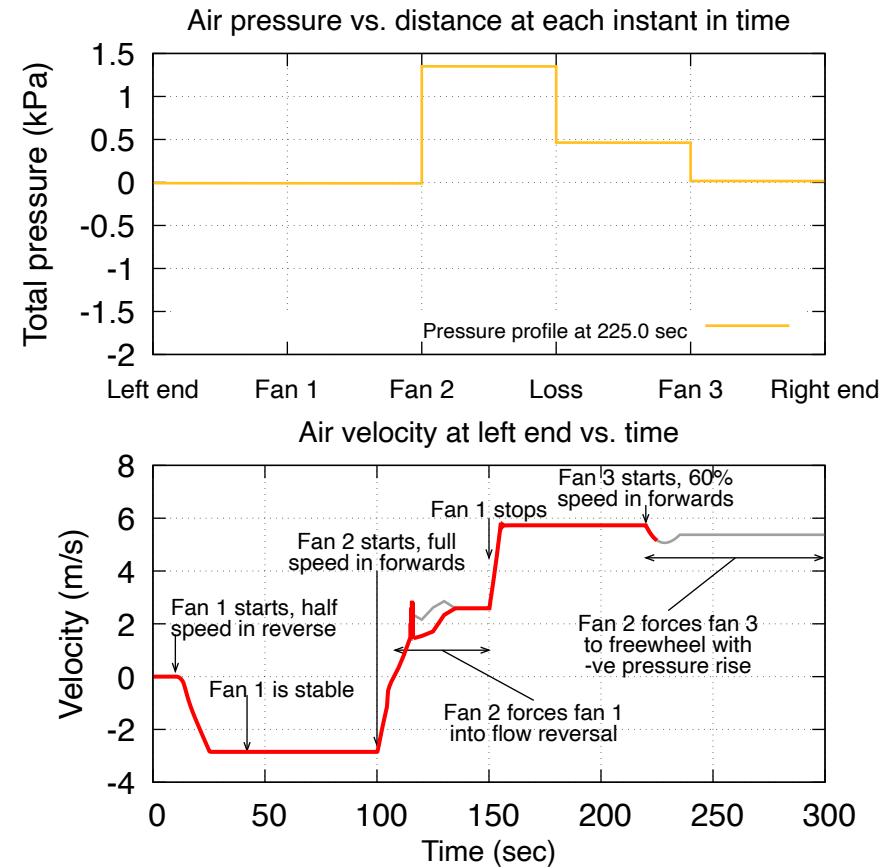
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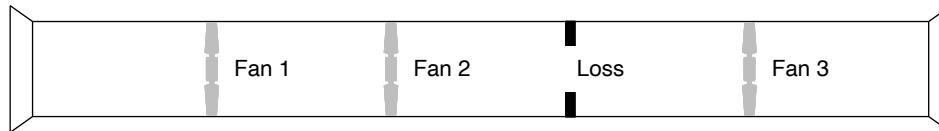
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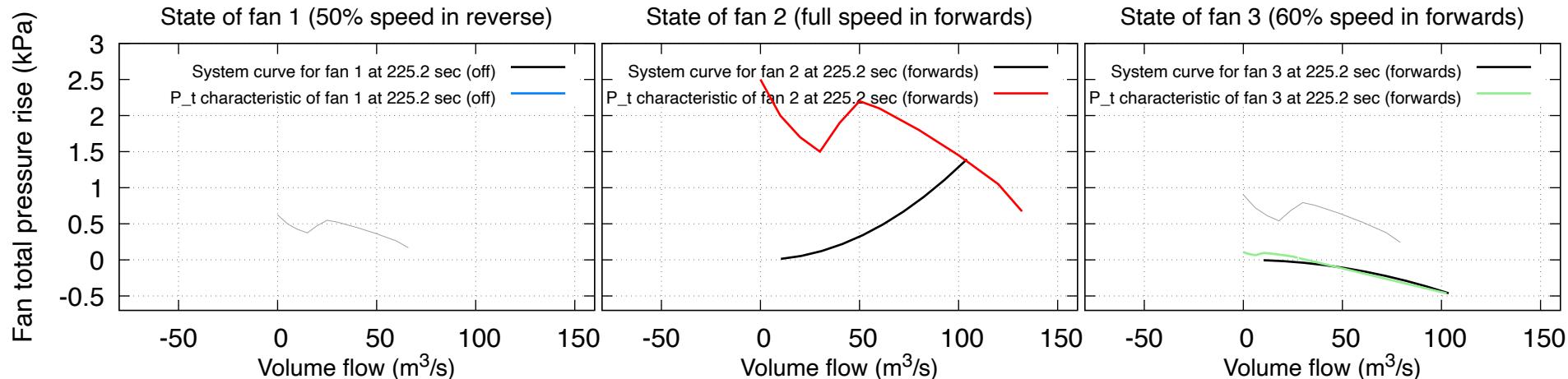
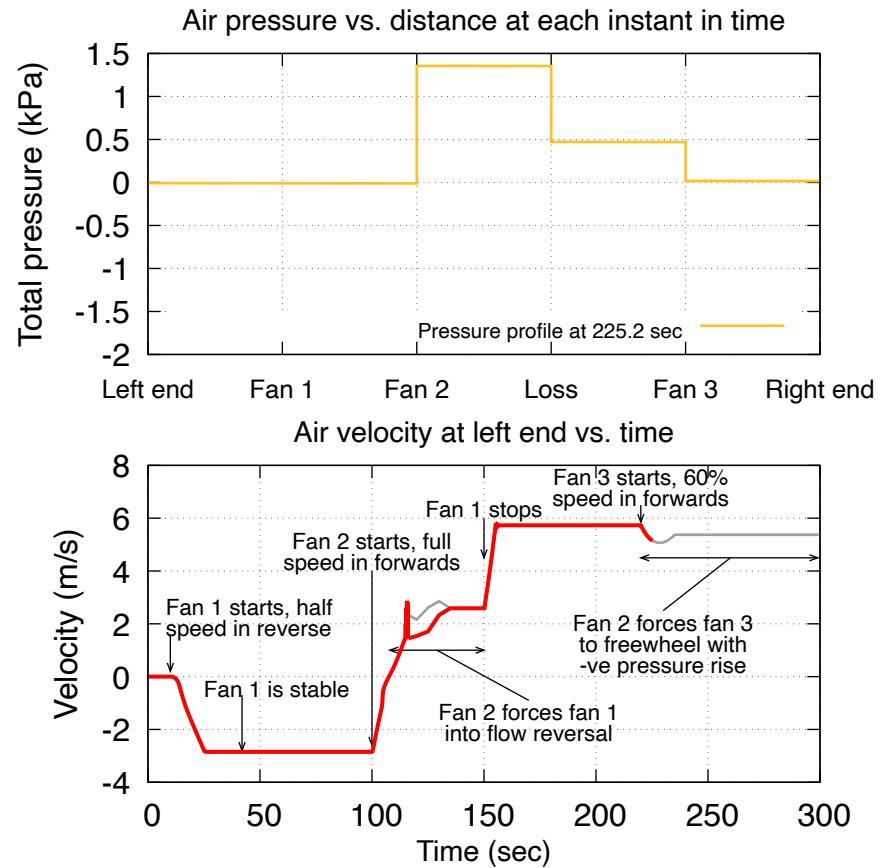
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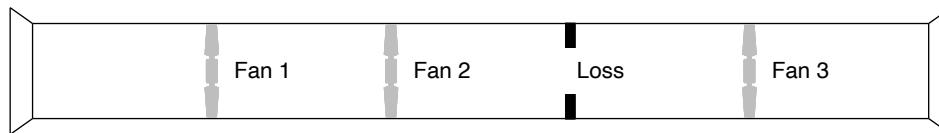
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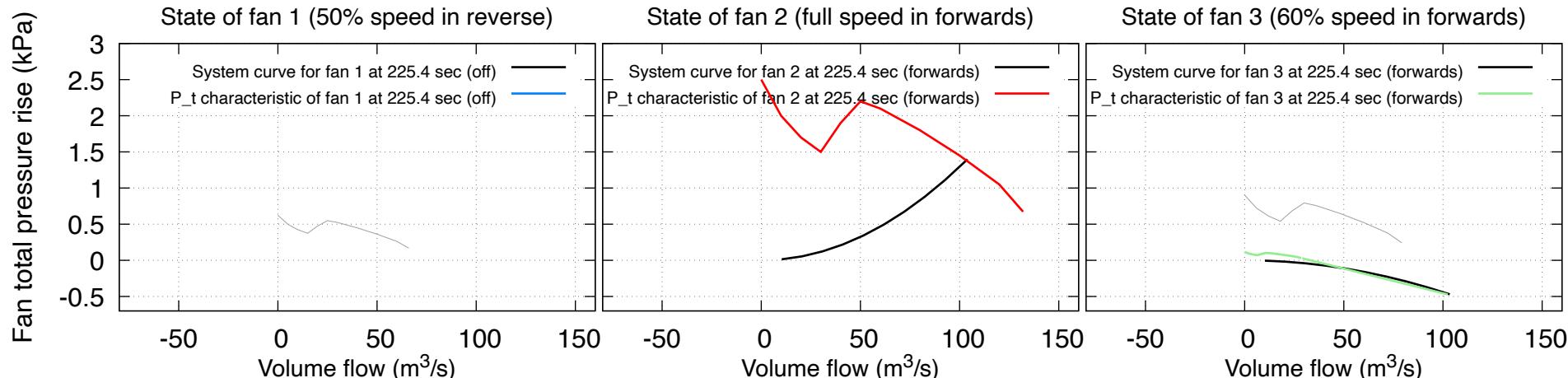
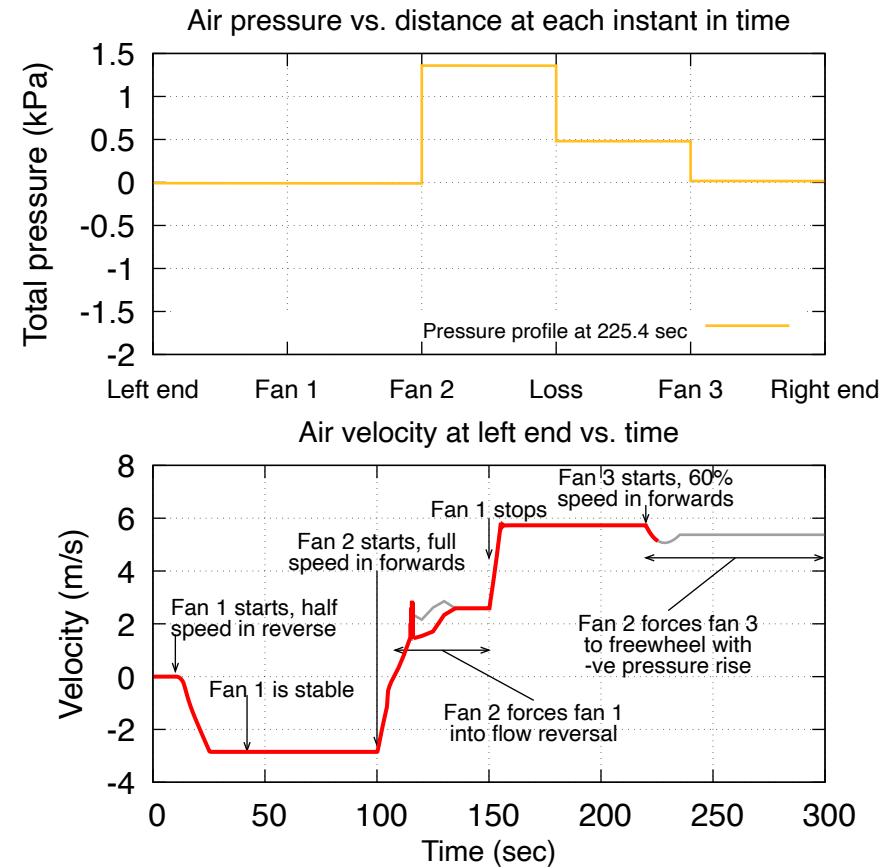
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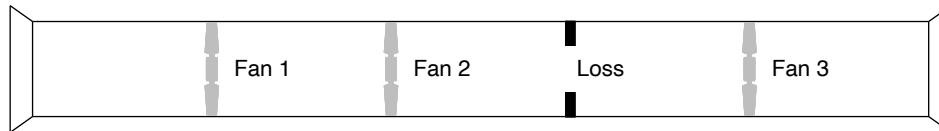
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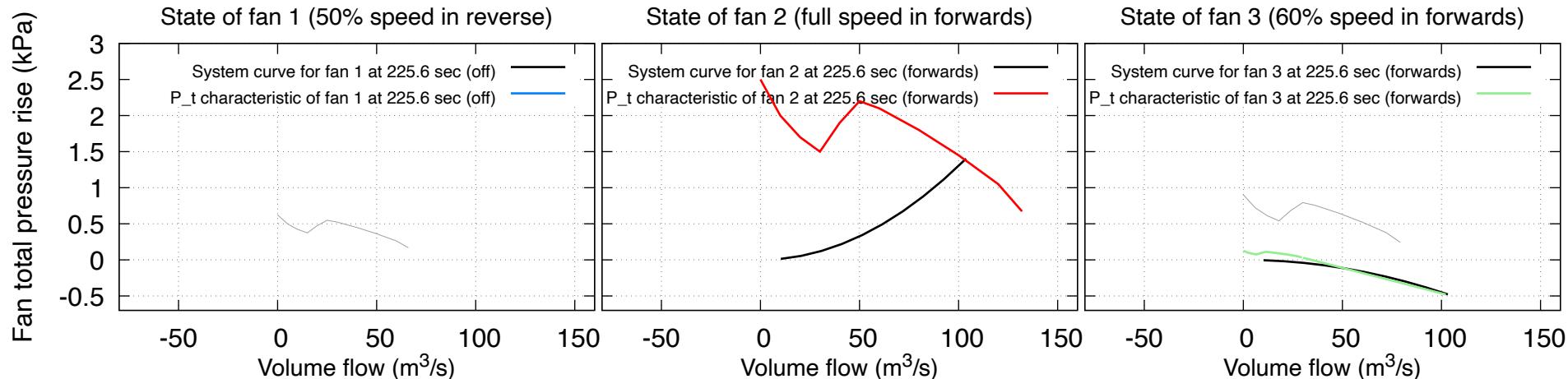
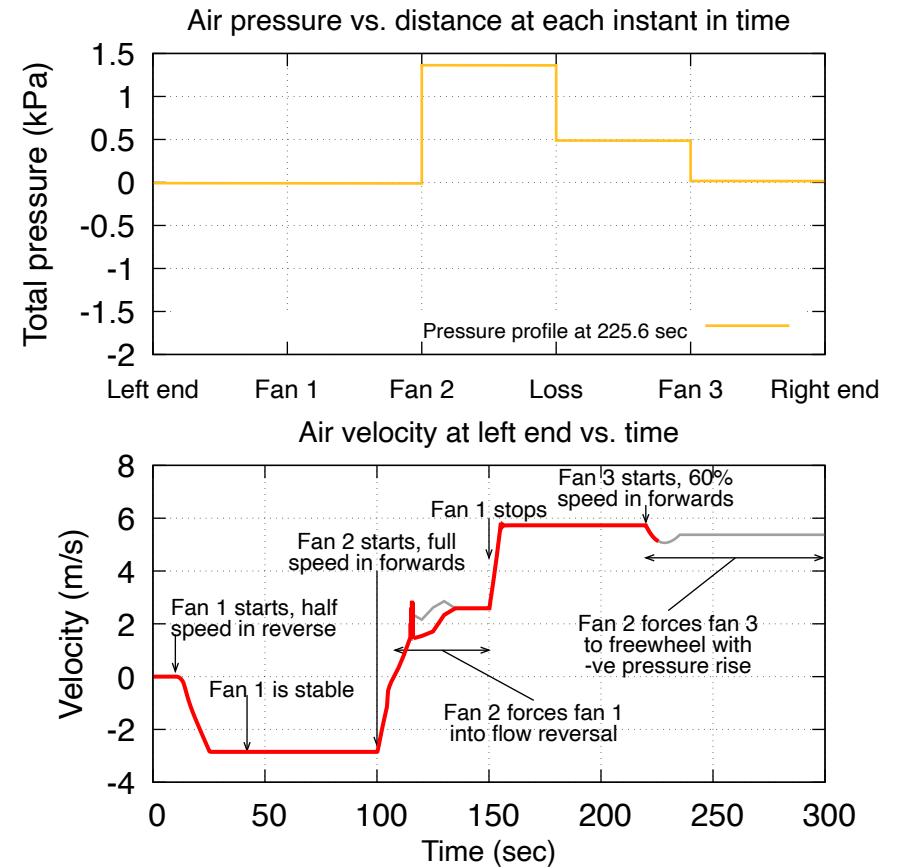
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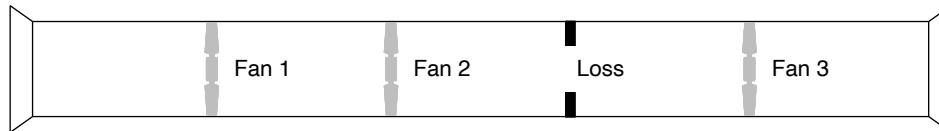
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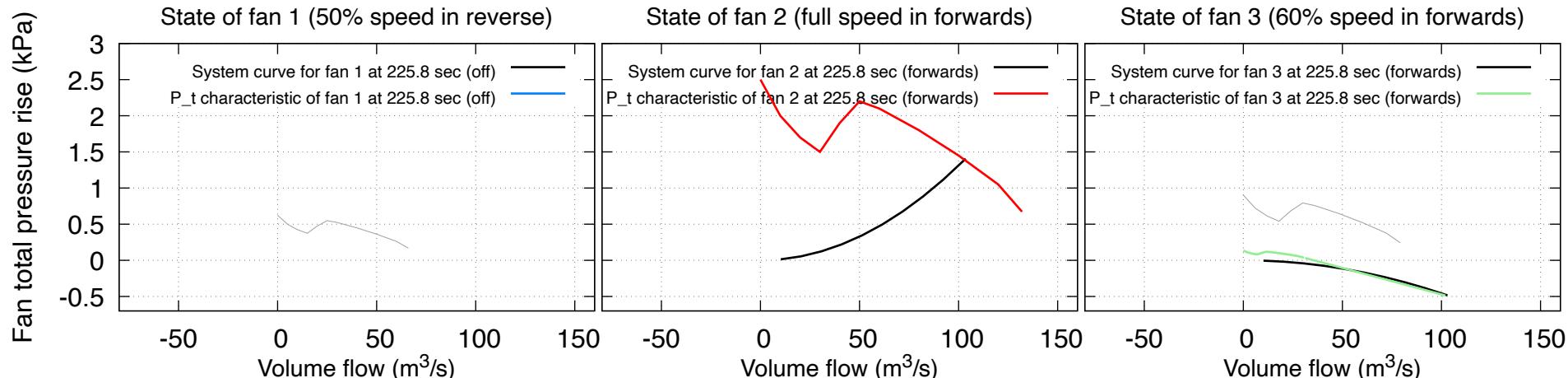
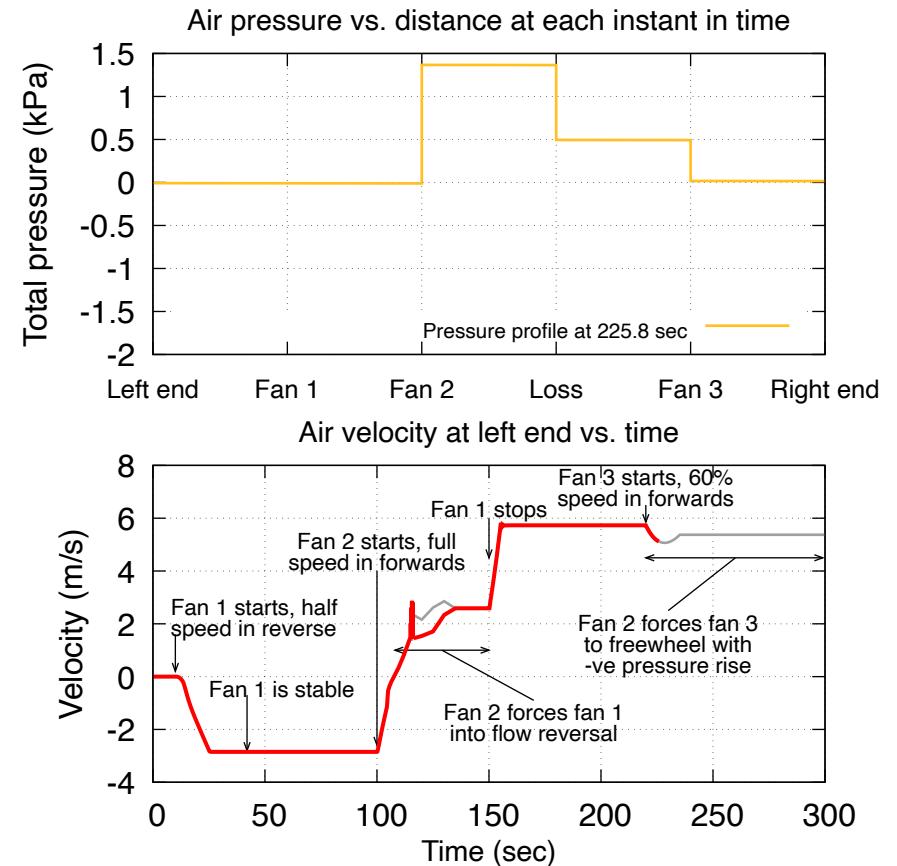
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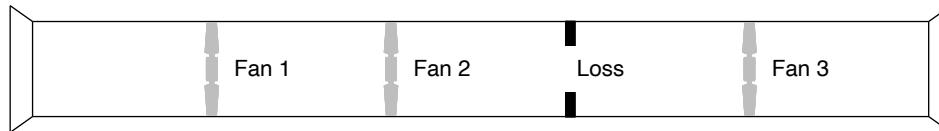
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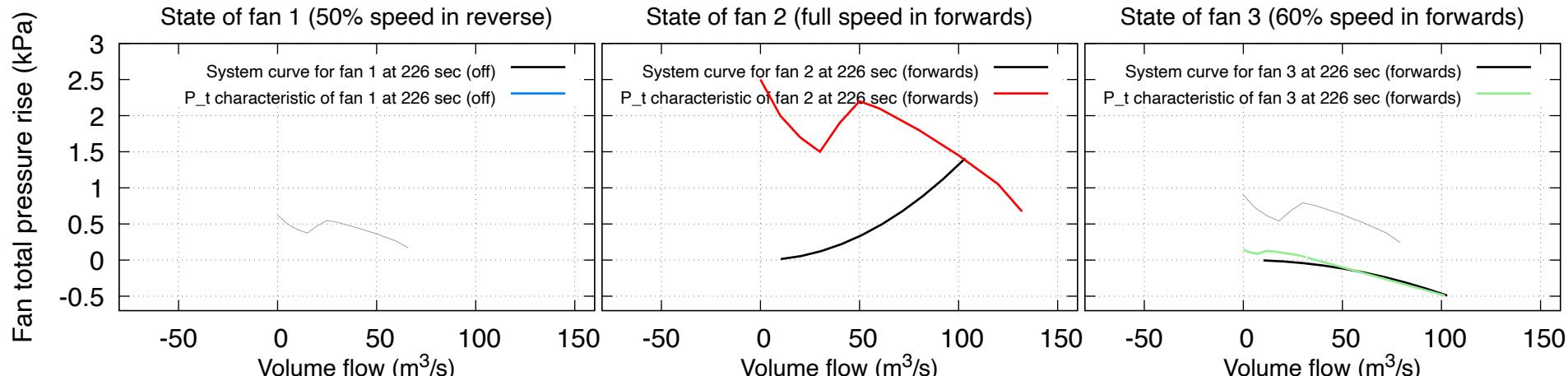
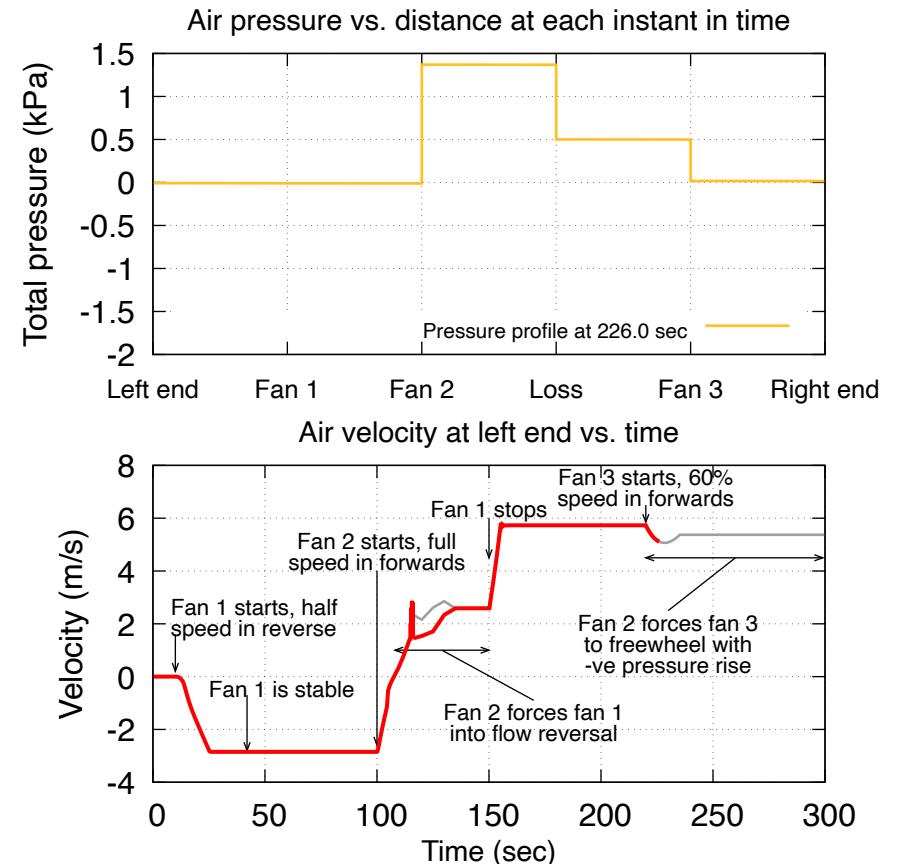
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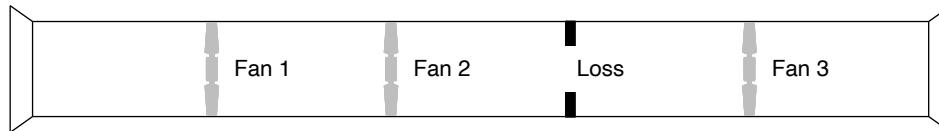
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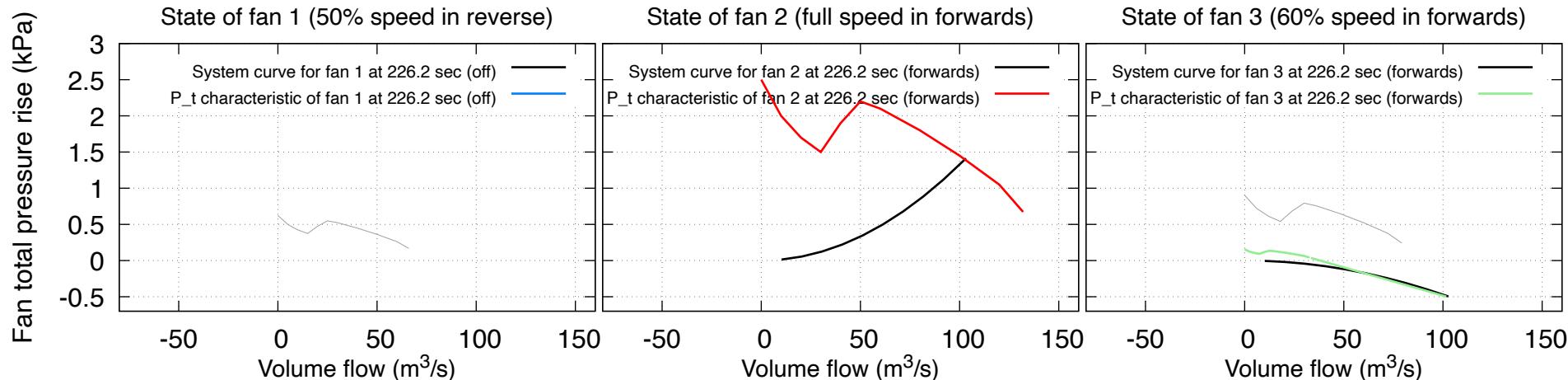
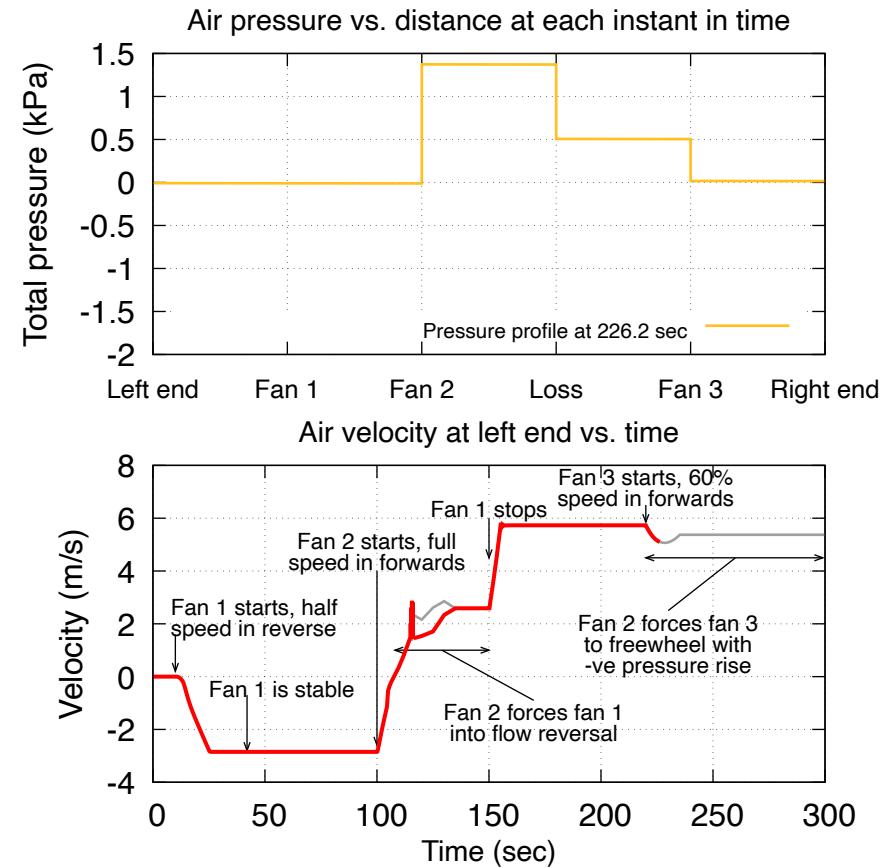
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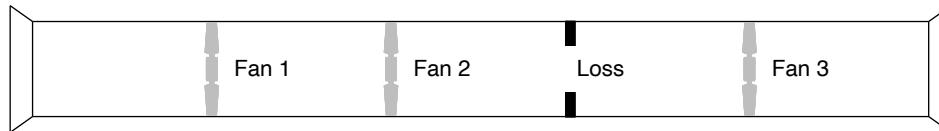
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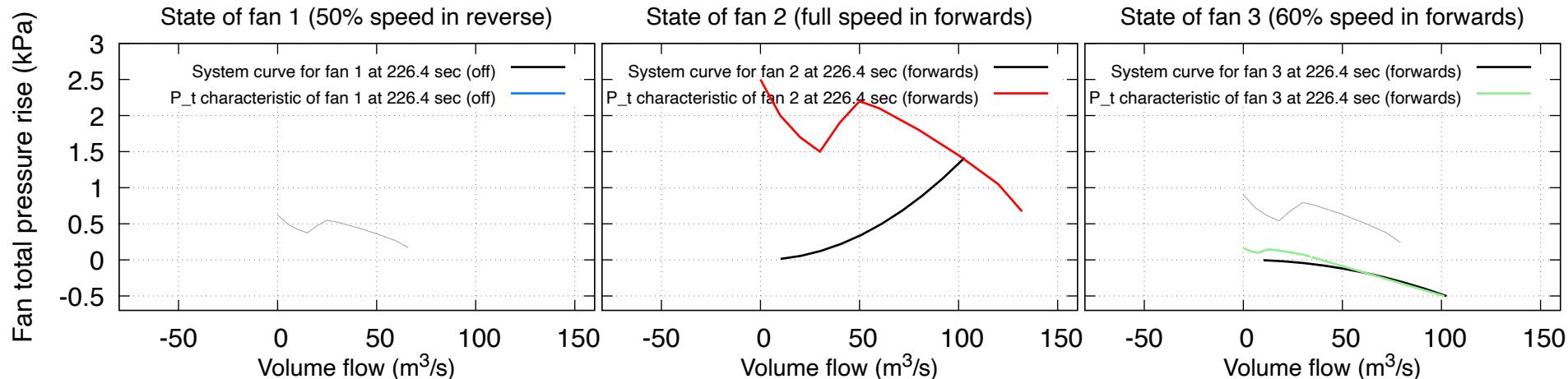
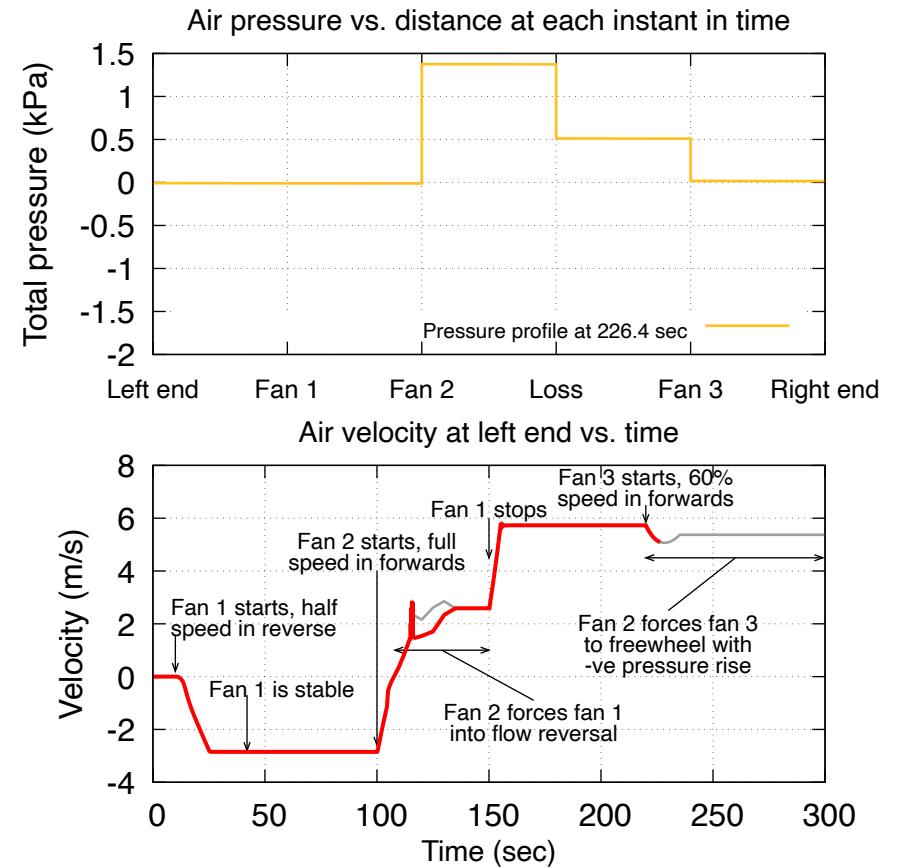
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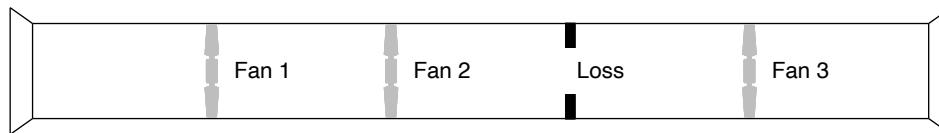
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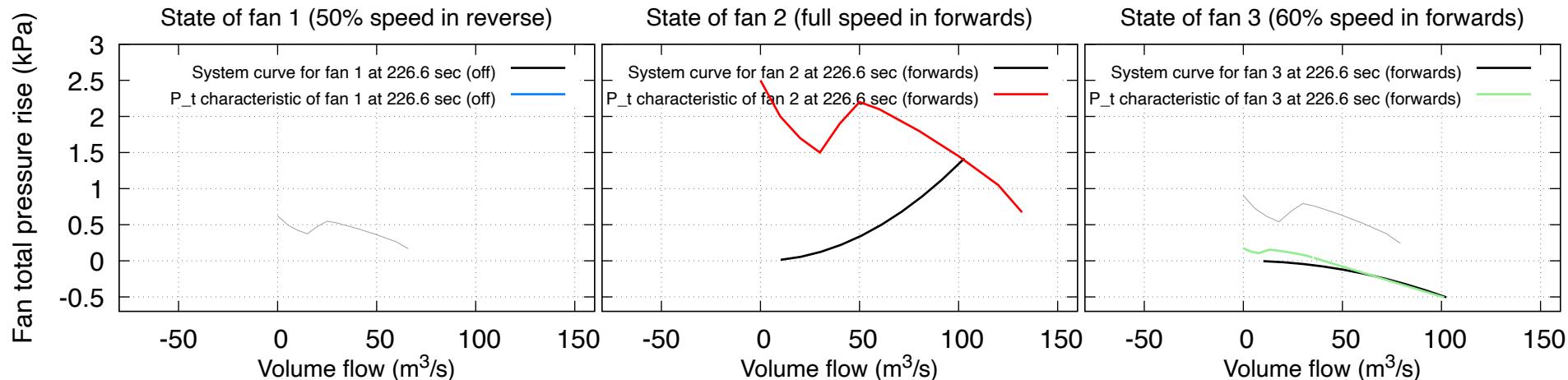
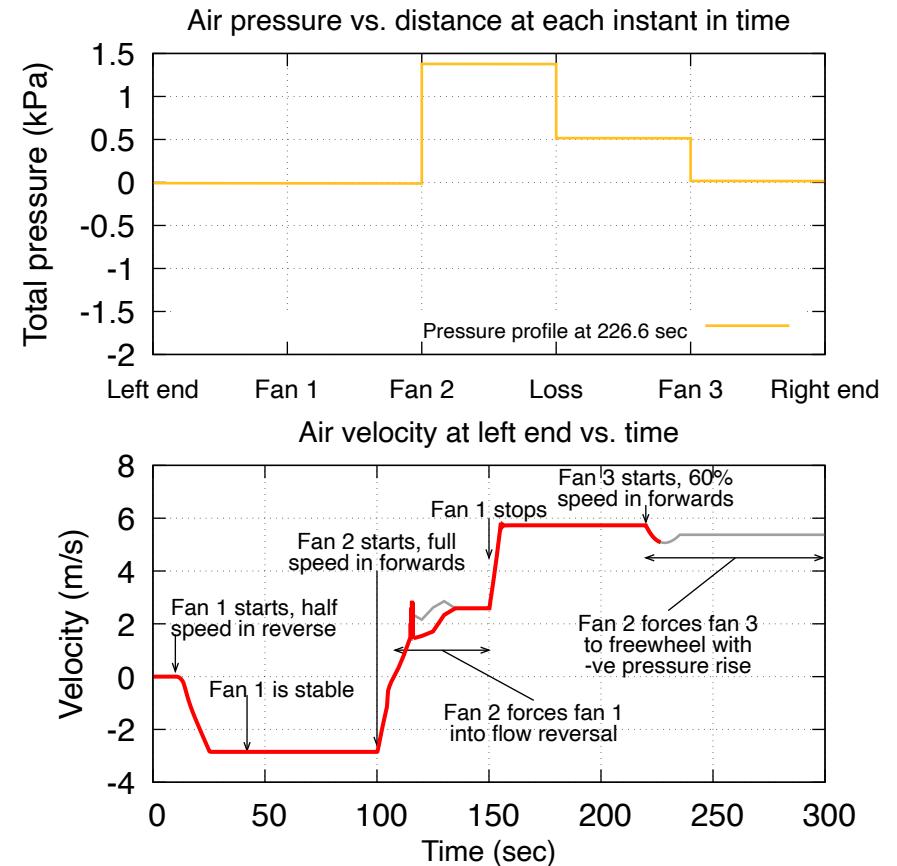
Fan 1 starts in reverse at half speed and ends up at a suitable duty point.

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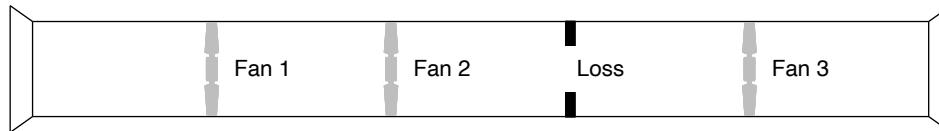
Fan 1 turns off, after which fan 2 moves to a better part of its characteristic.

Fan 3 starts in forwards mode at 60% speed. Fan 2 is generating so much more pressure than fan 3 that fan 3 is forced into the freewheeling part of its characteristic (which is also extrapolated) and ends up reducing the airflow.



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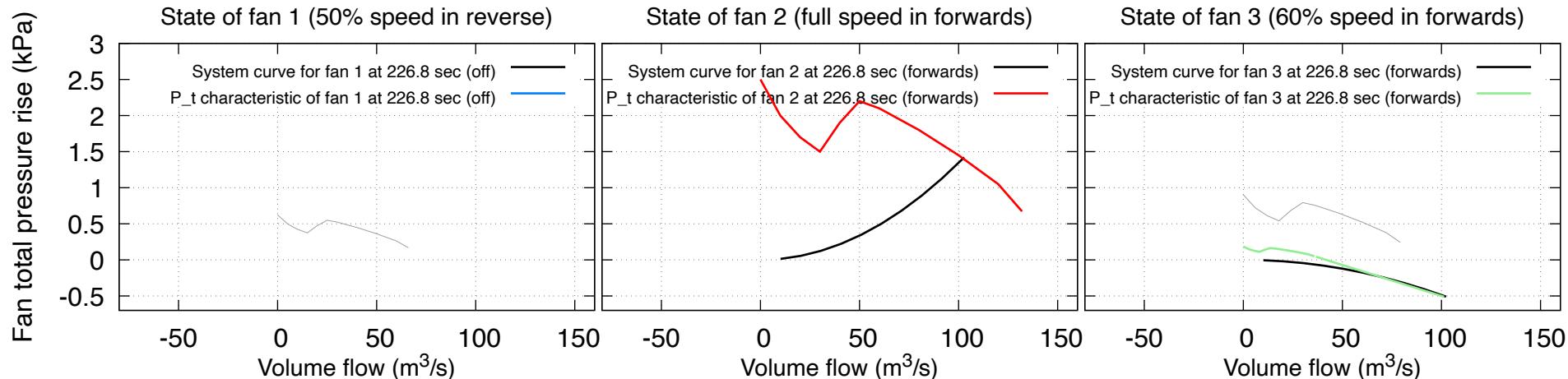
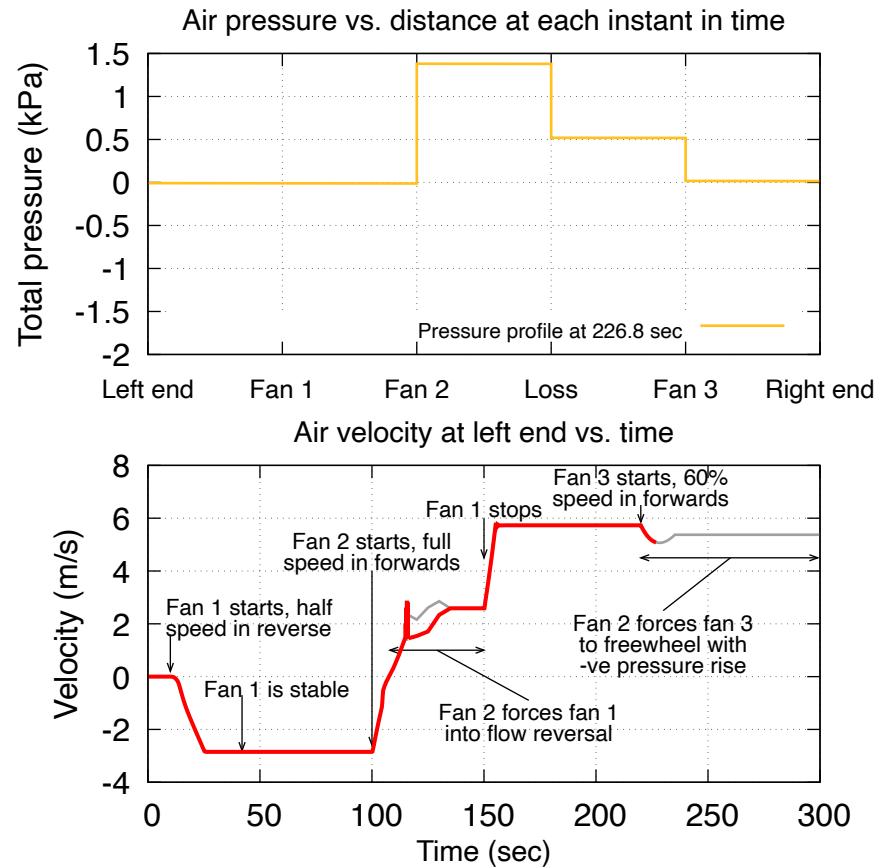
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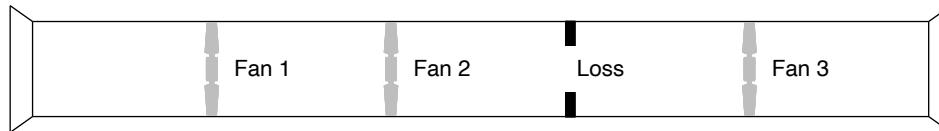
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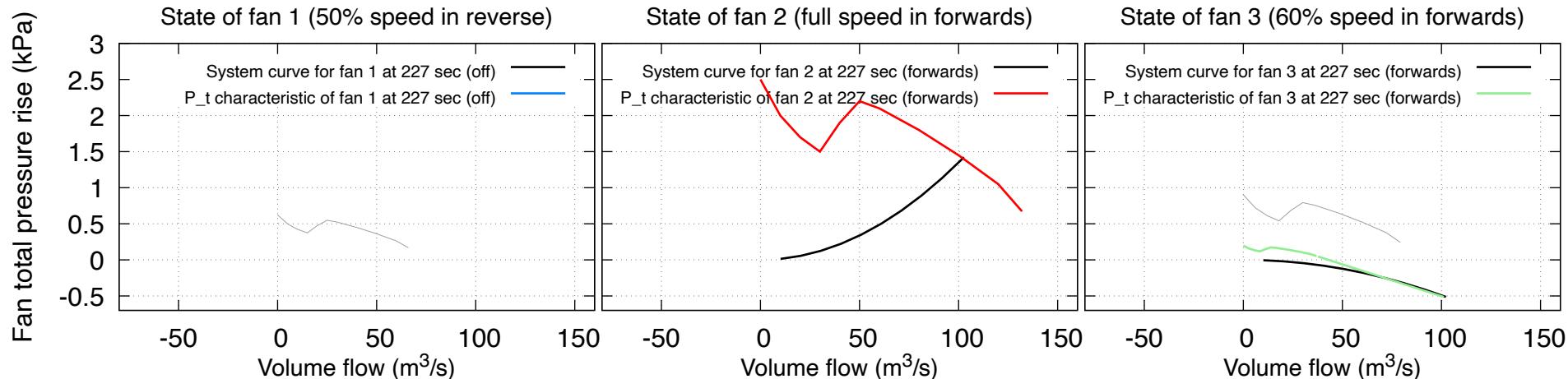
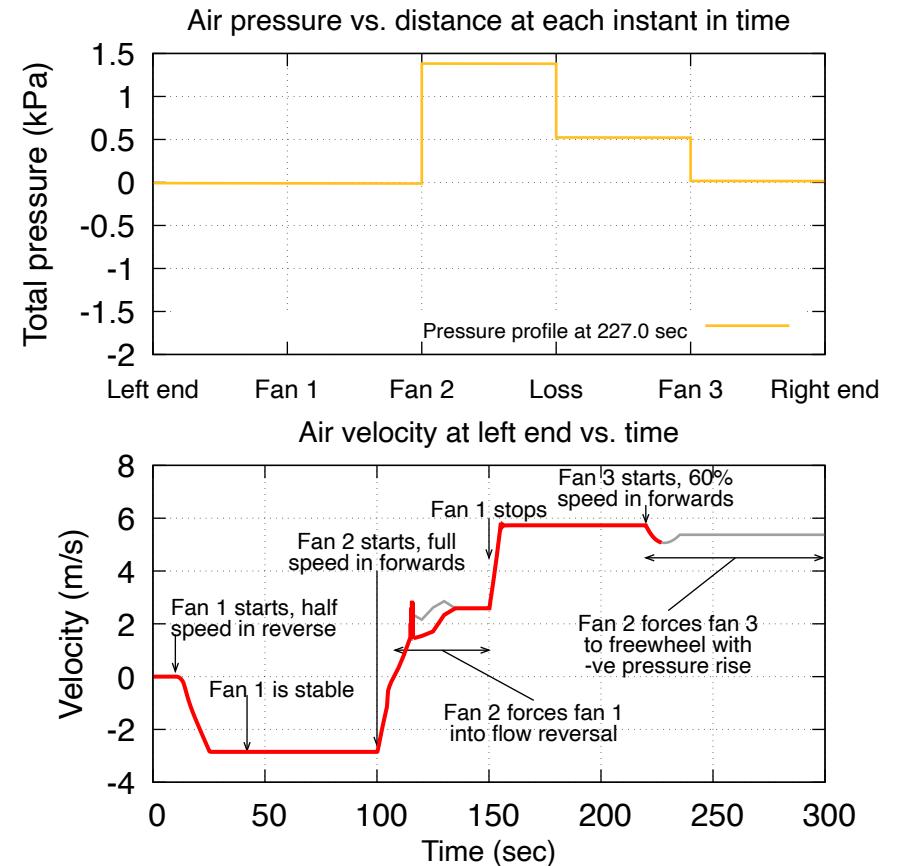
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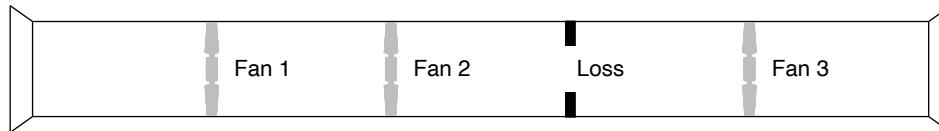
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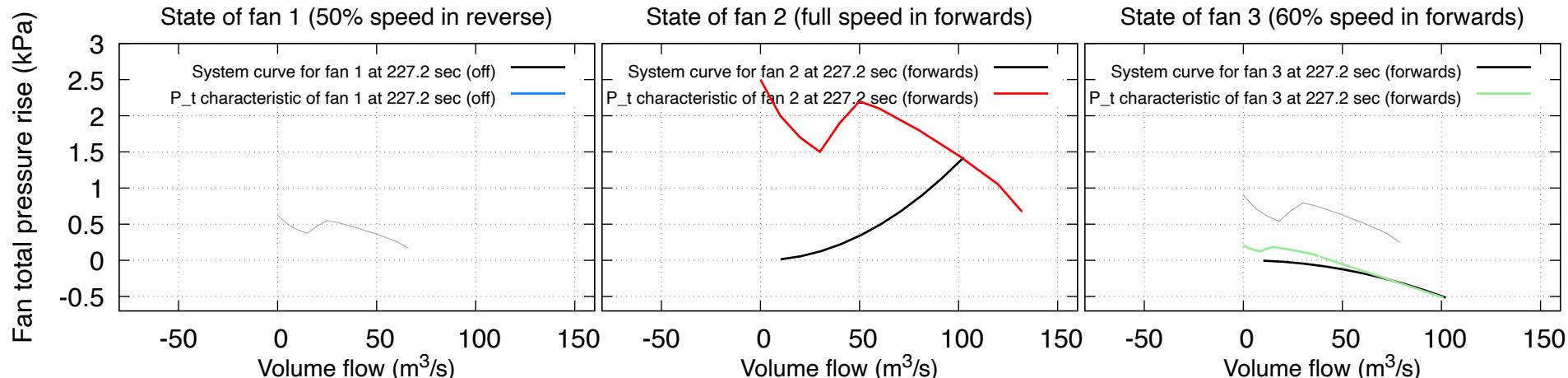
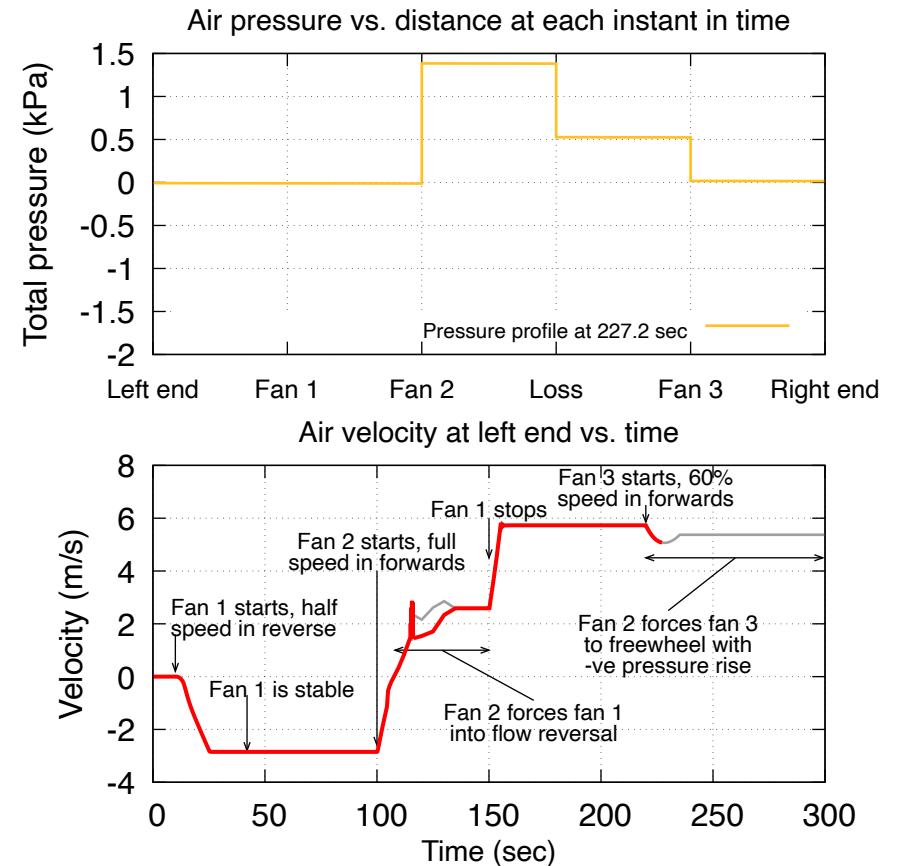
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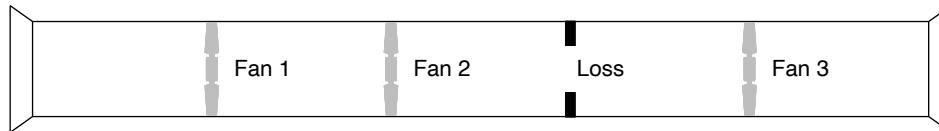
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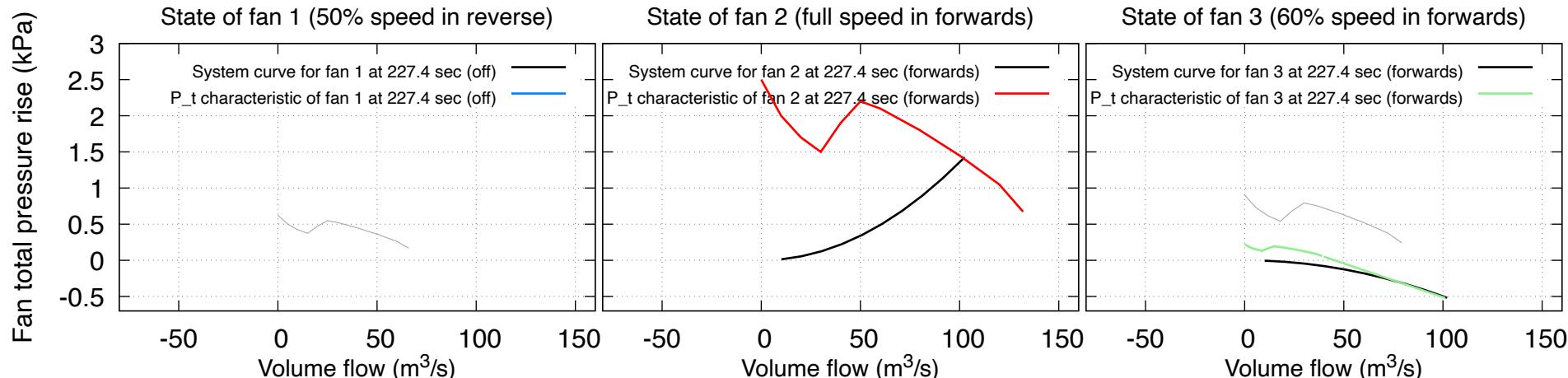
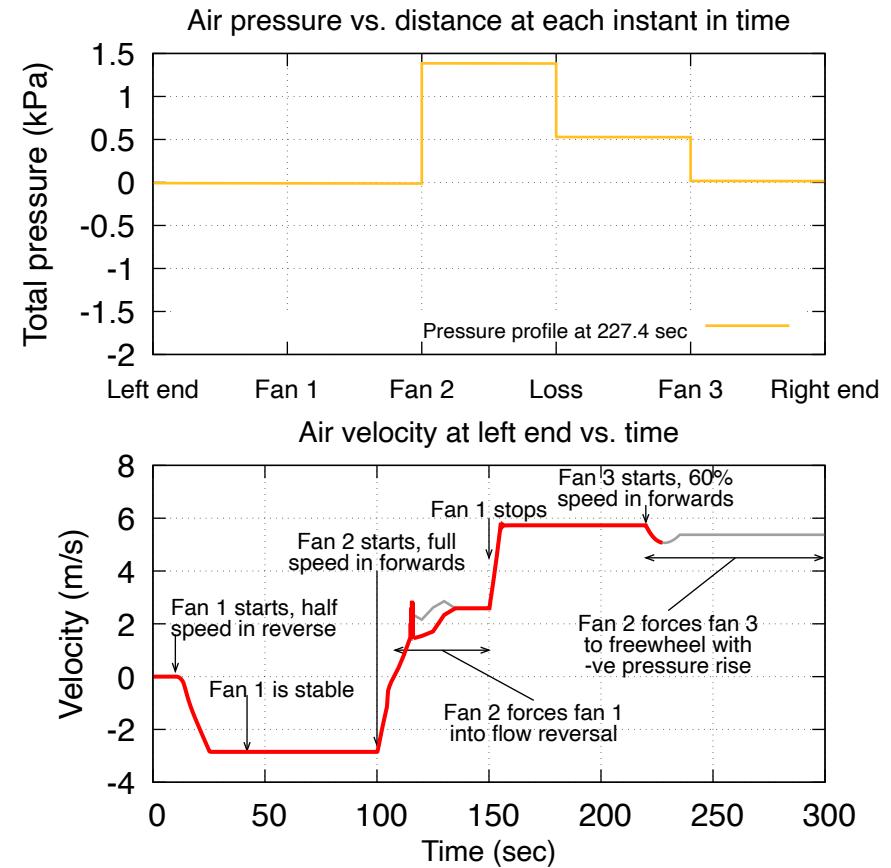
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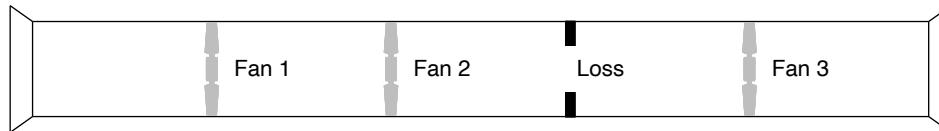
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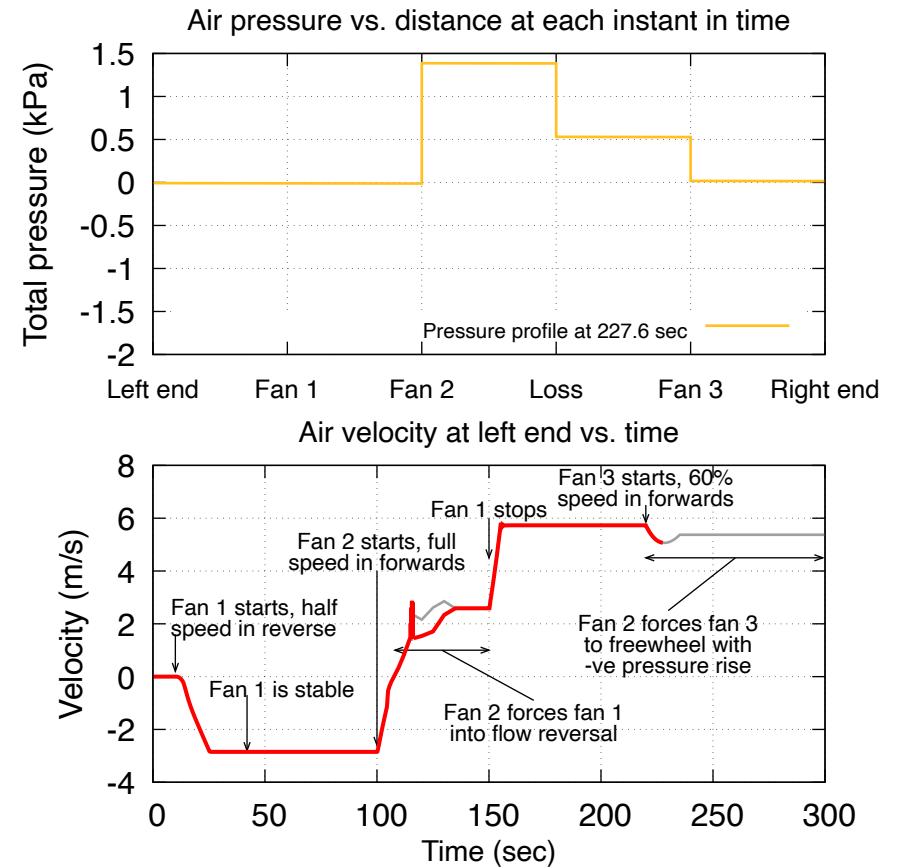
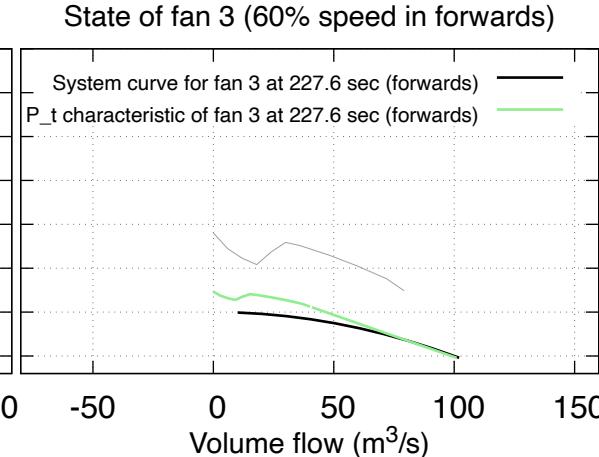
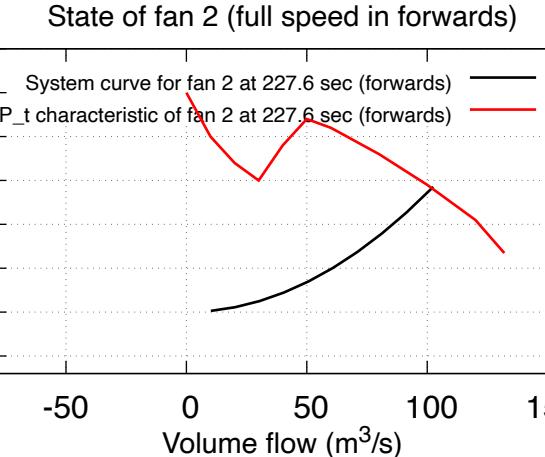
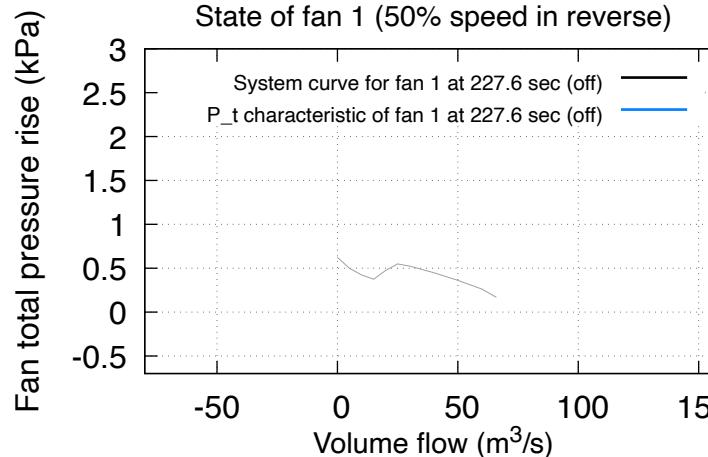
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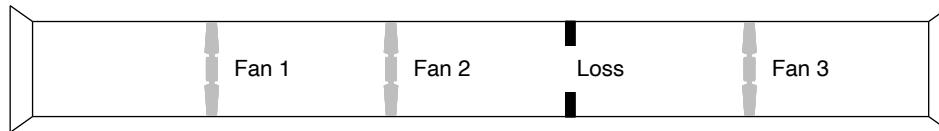
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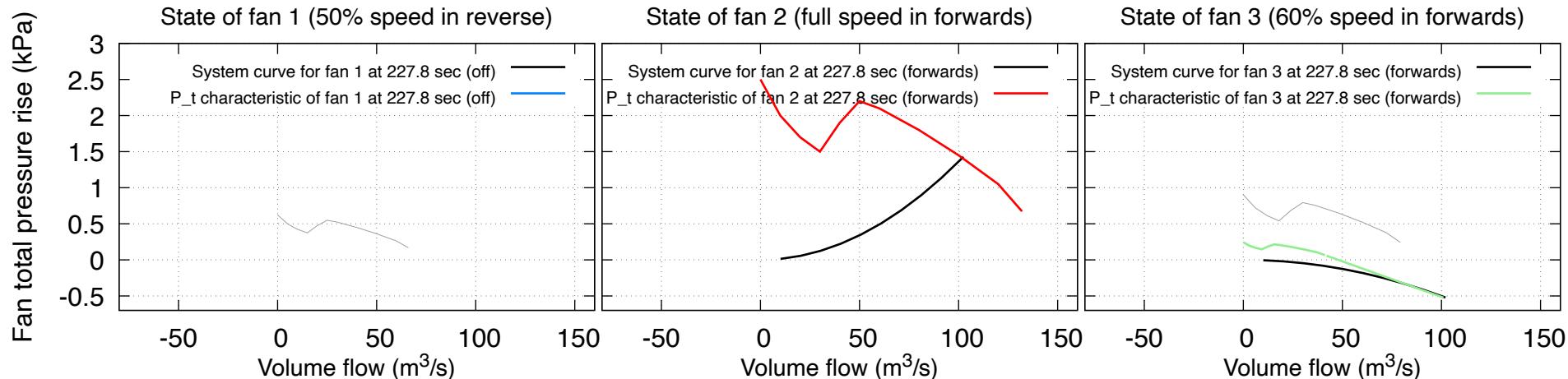
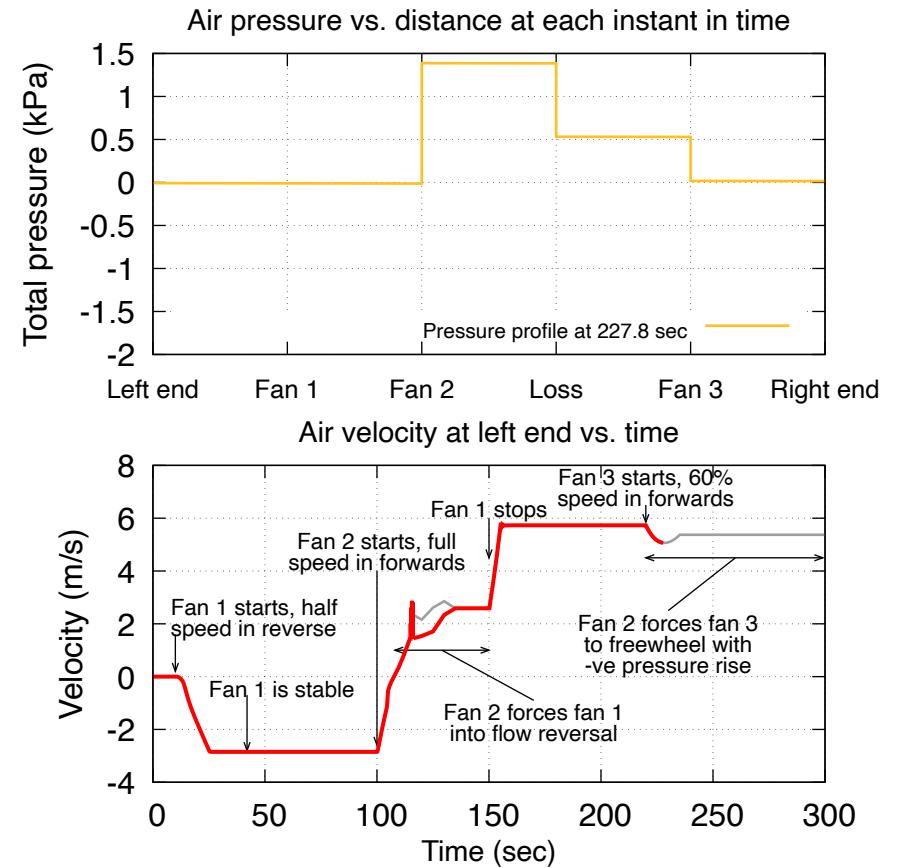
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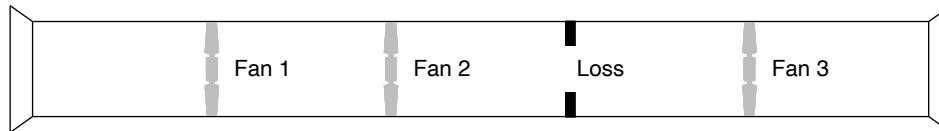
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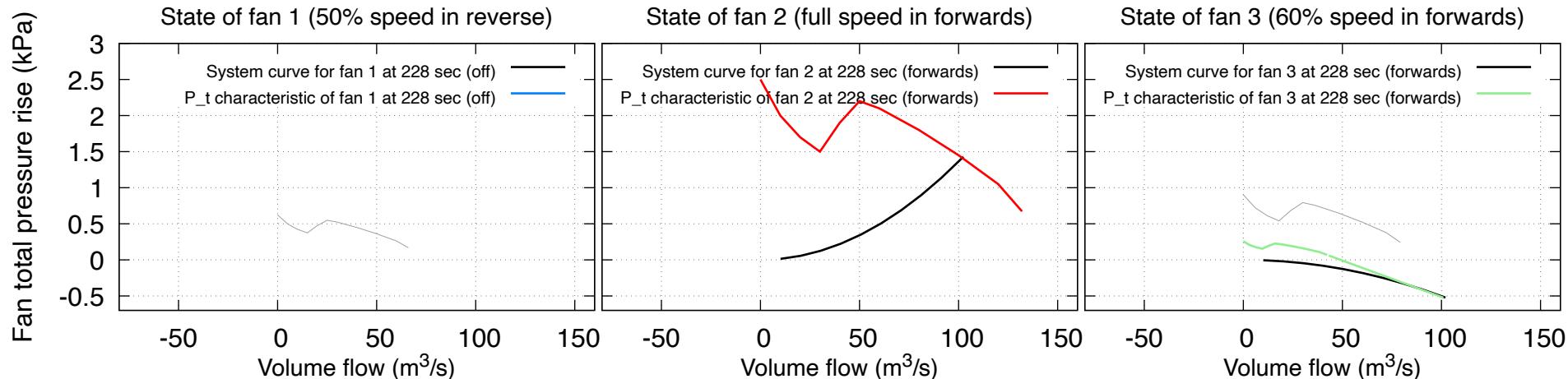
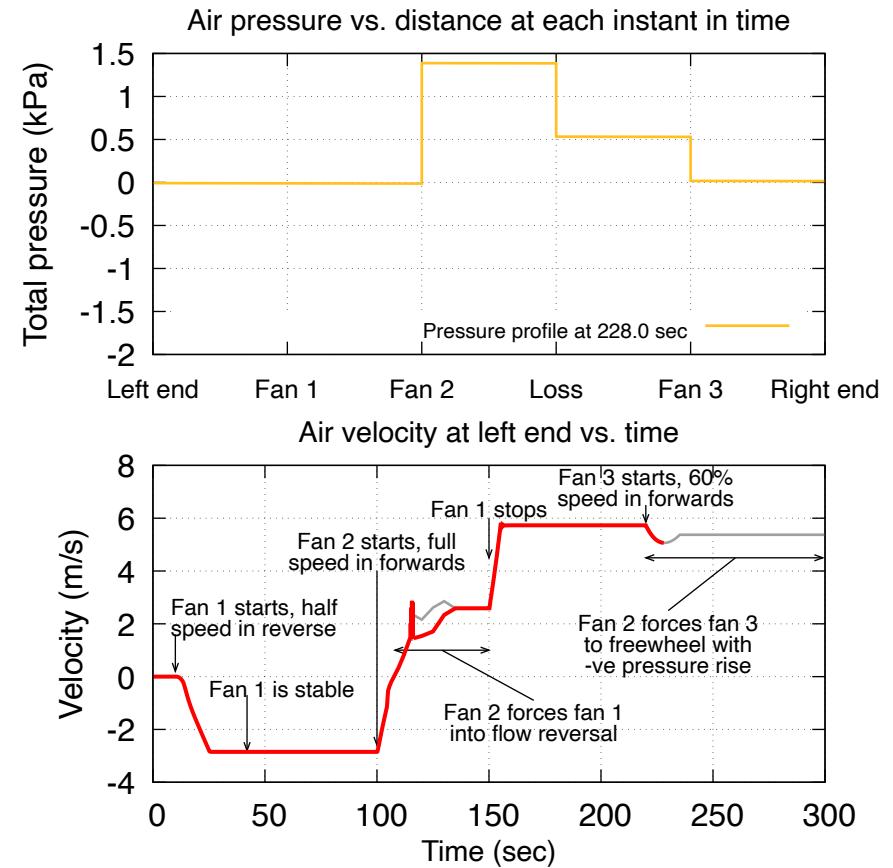
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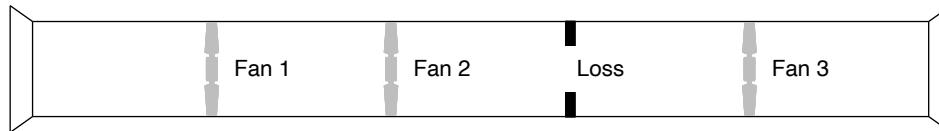
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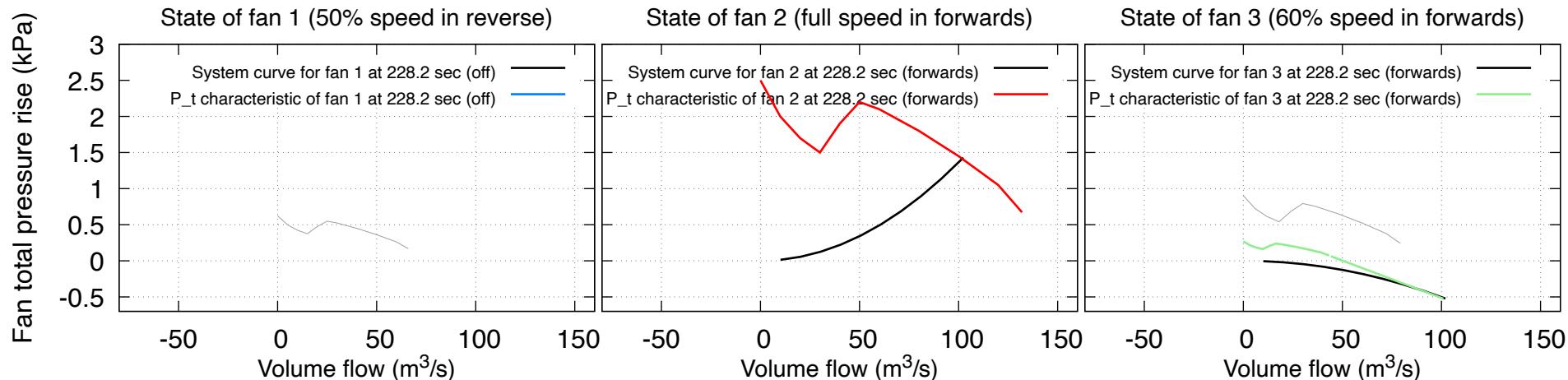
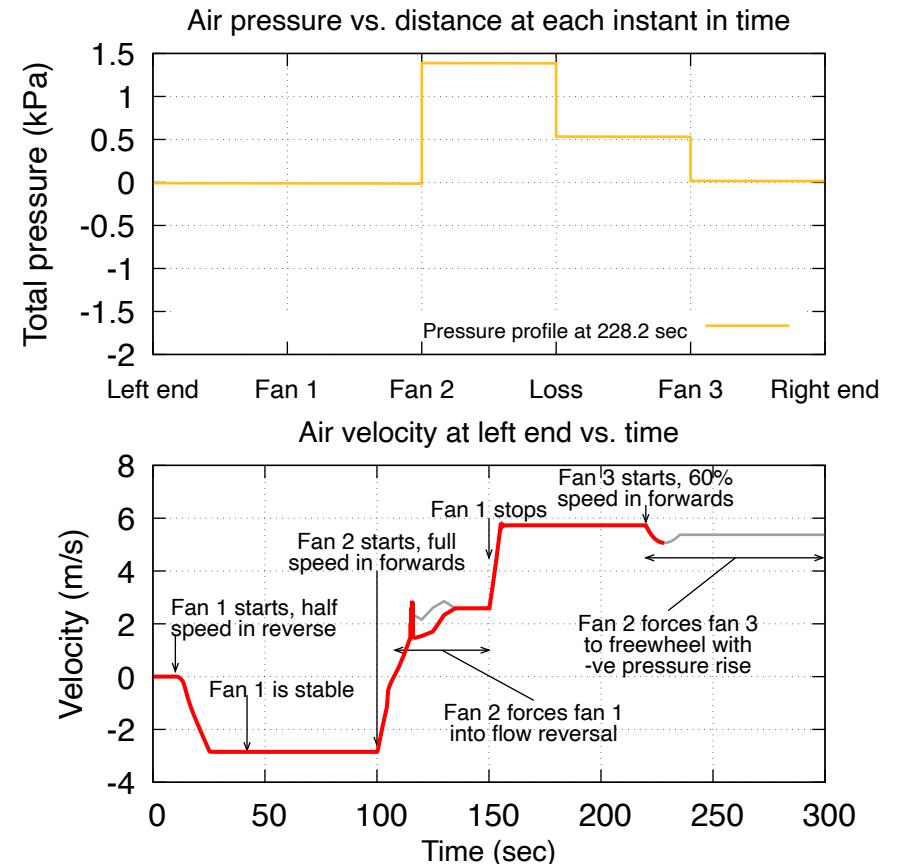
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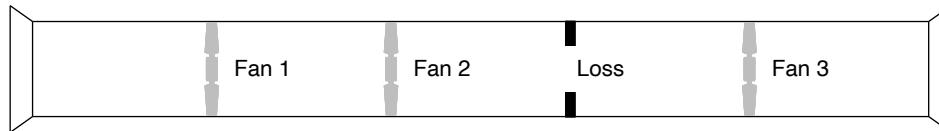
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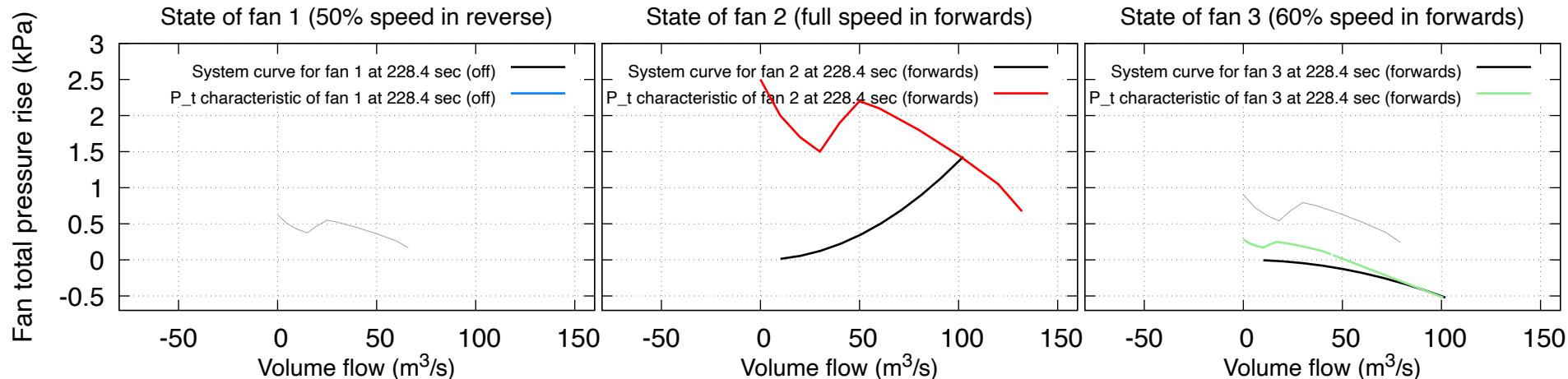
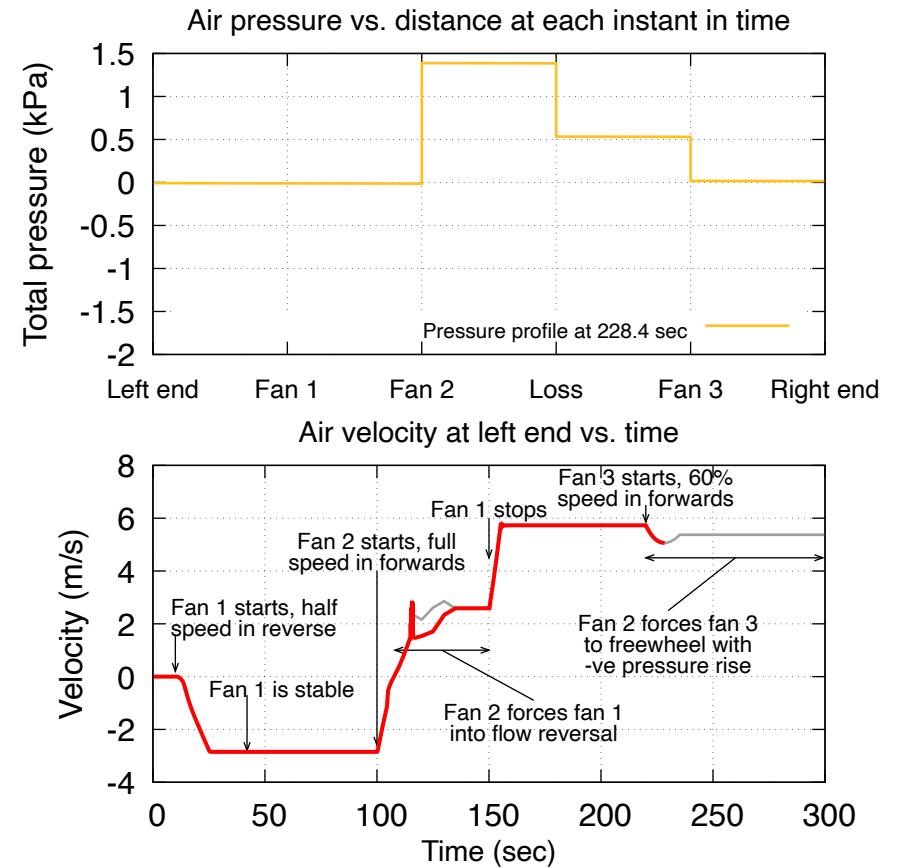
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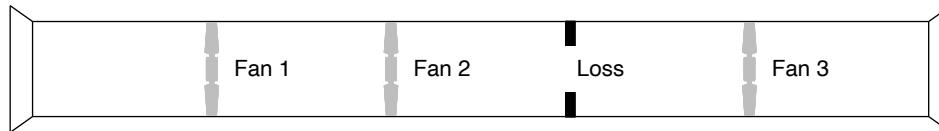
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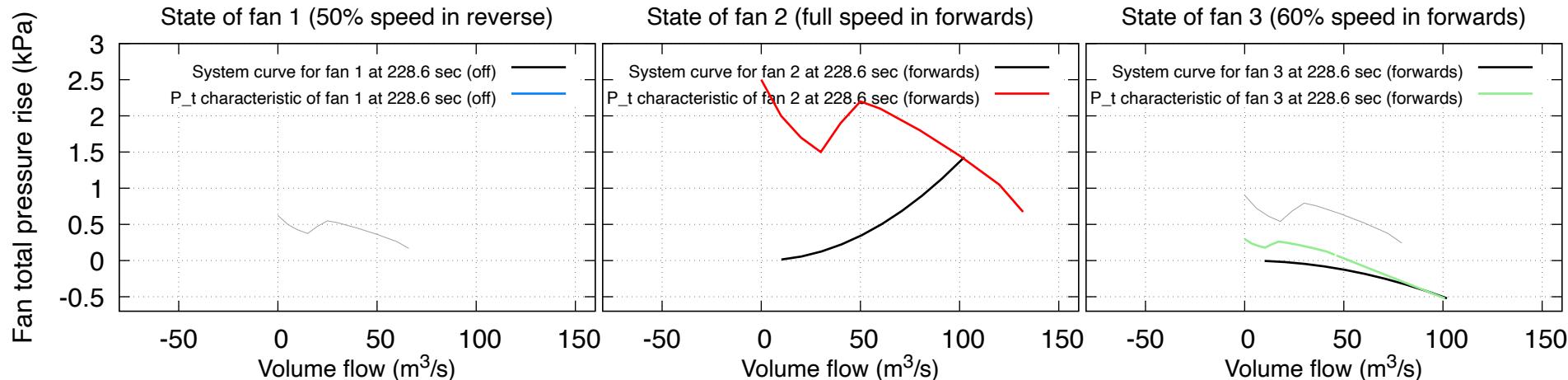
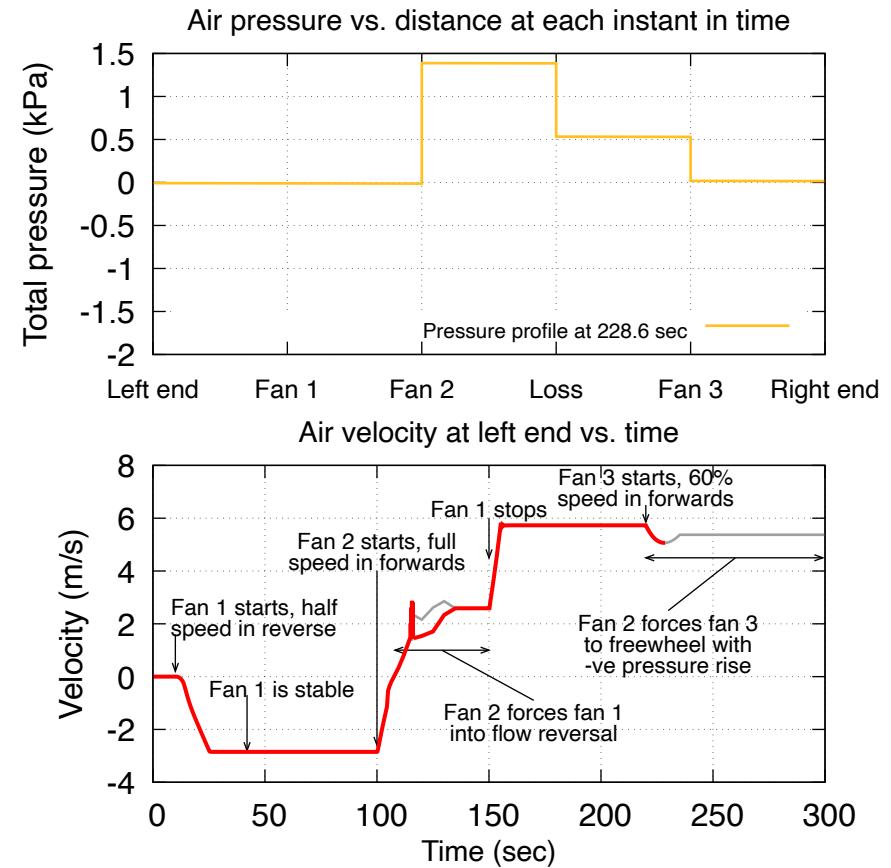
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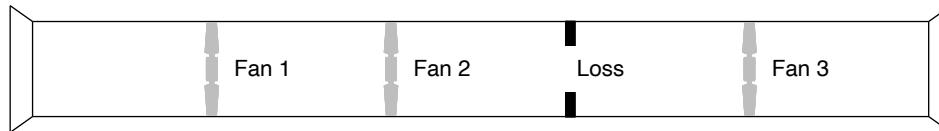
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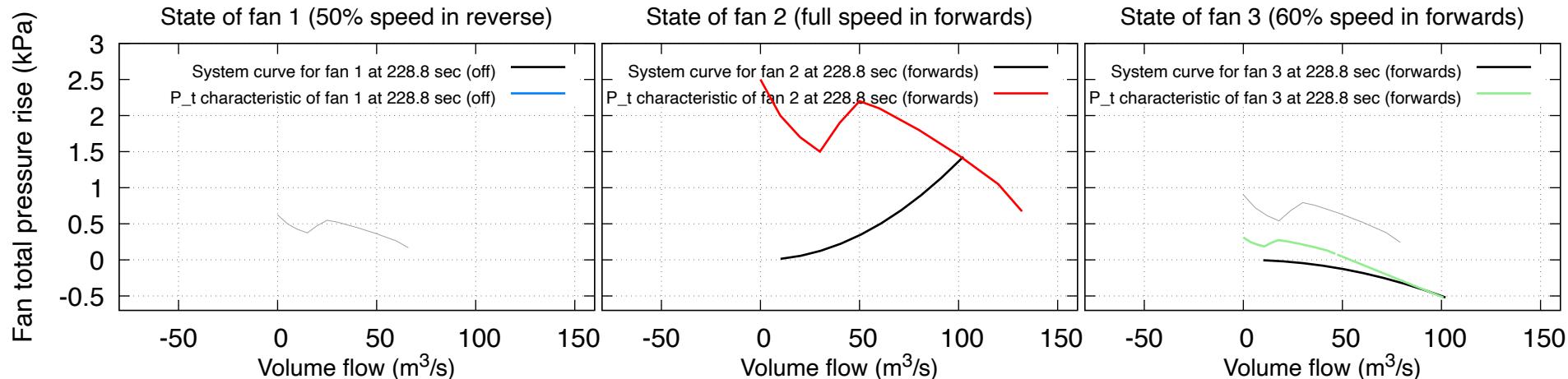
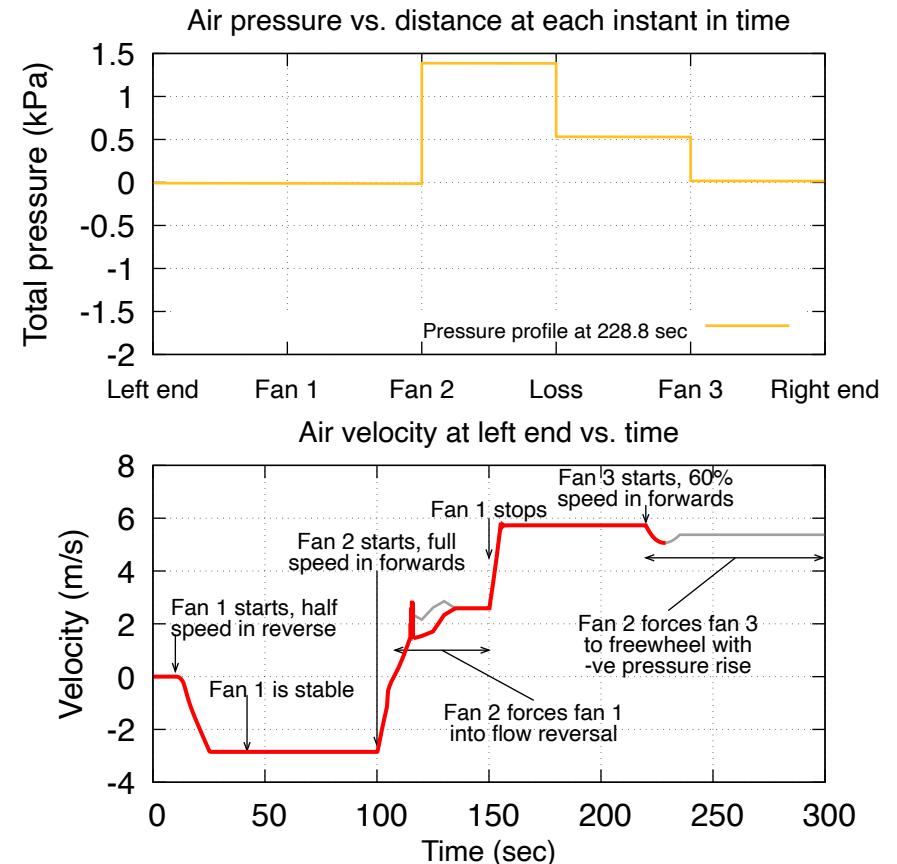
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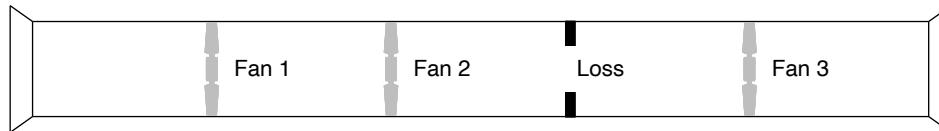
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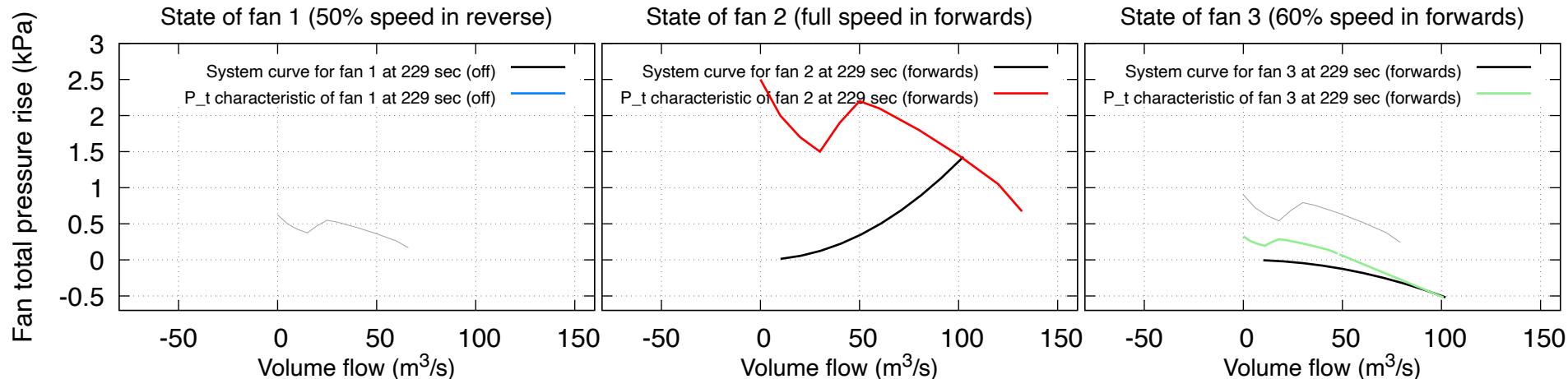
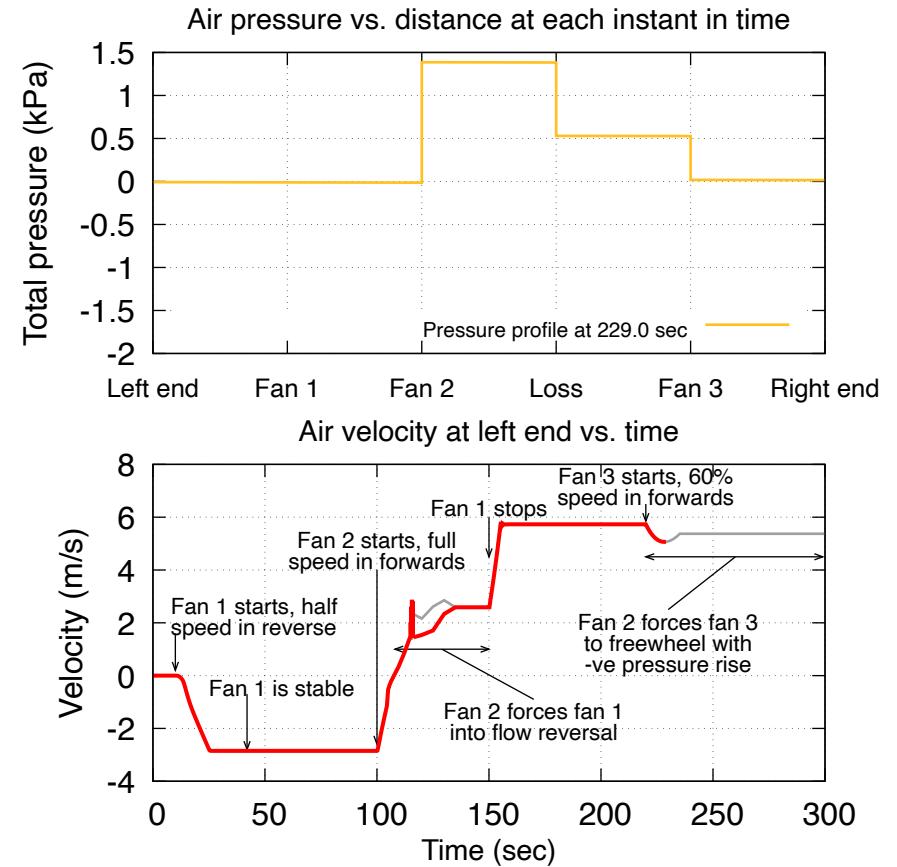
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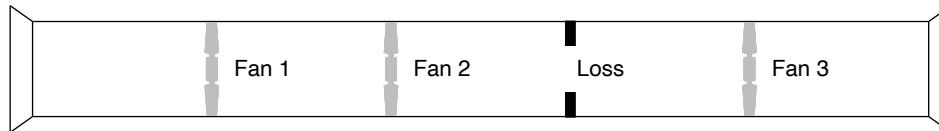
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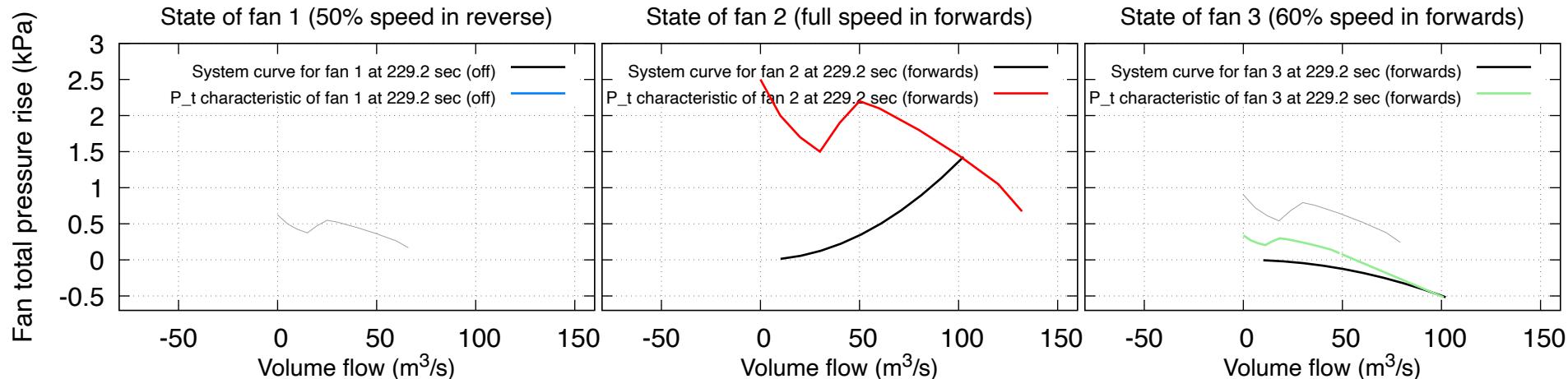
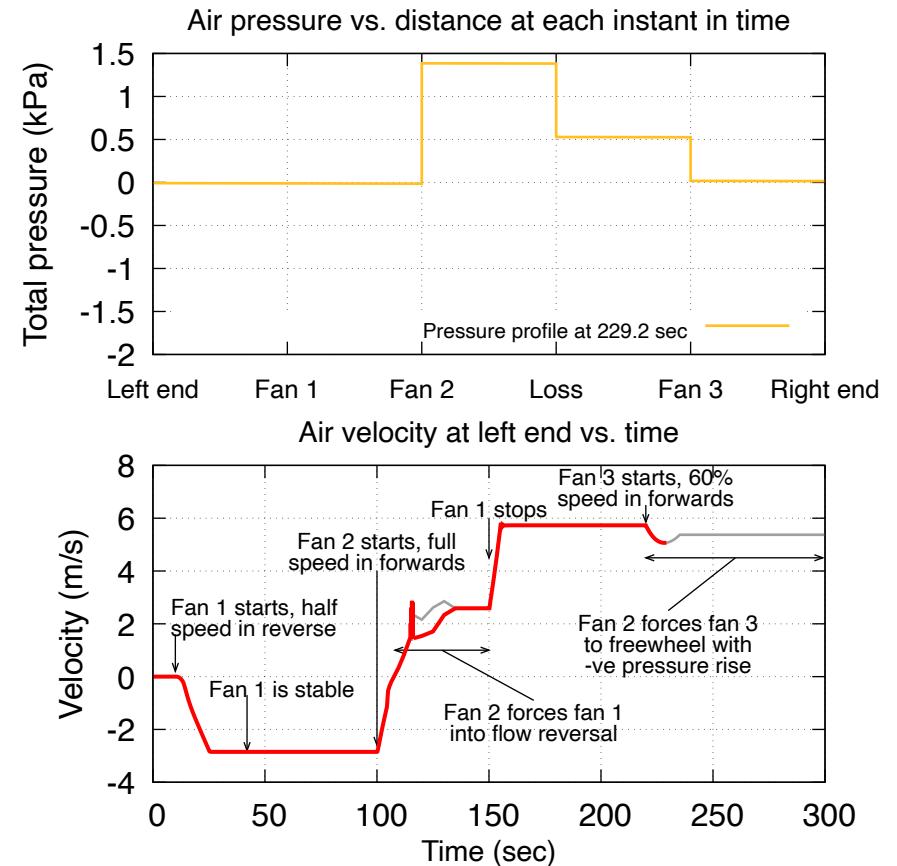
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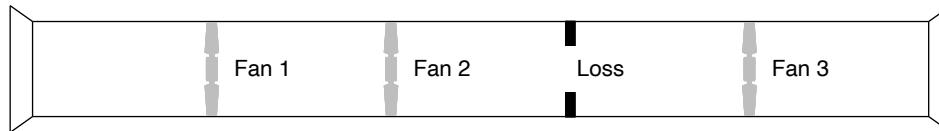
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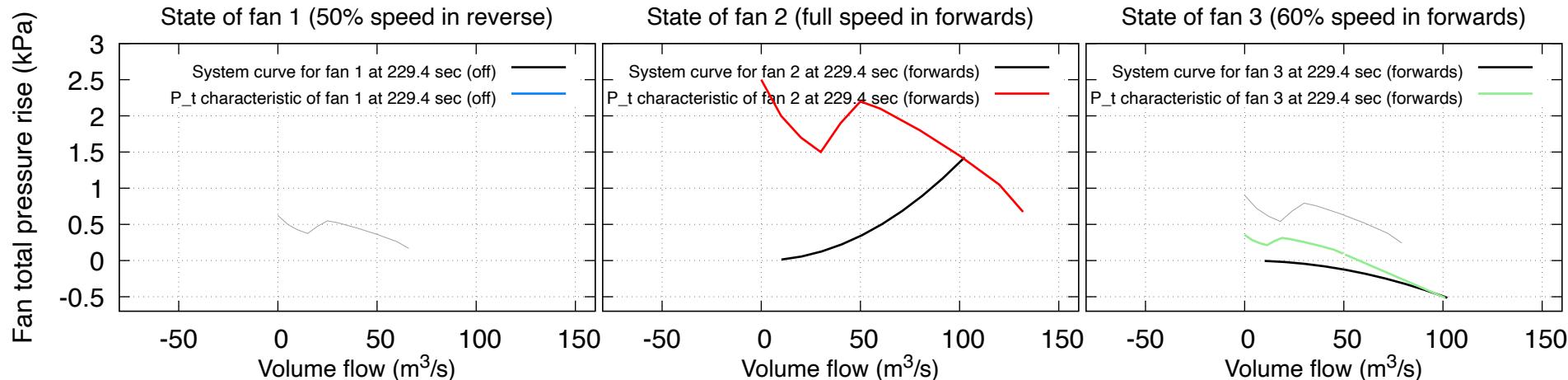
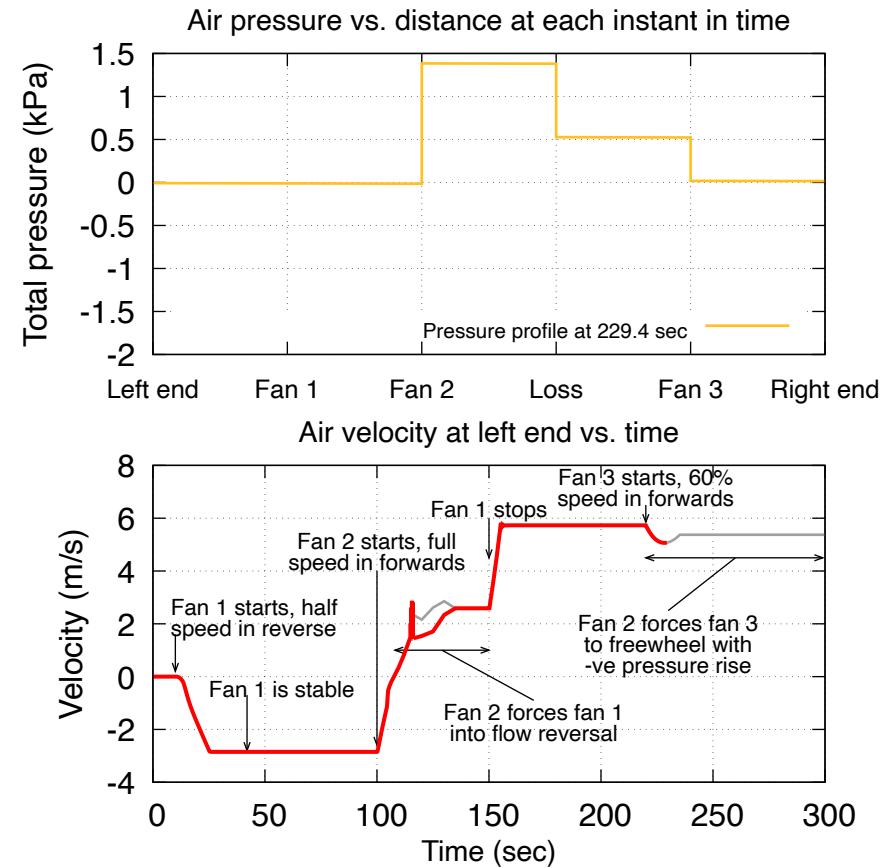
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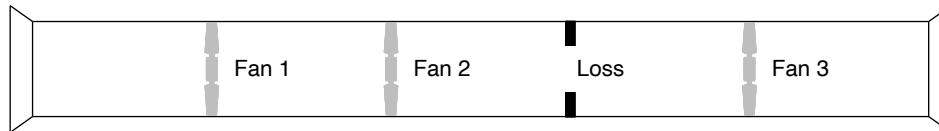
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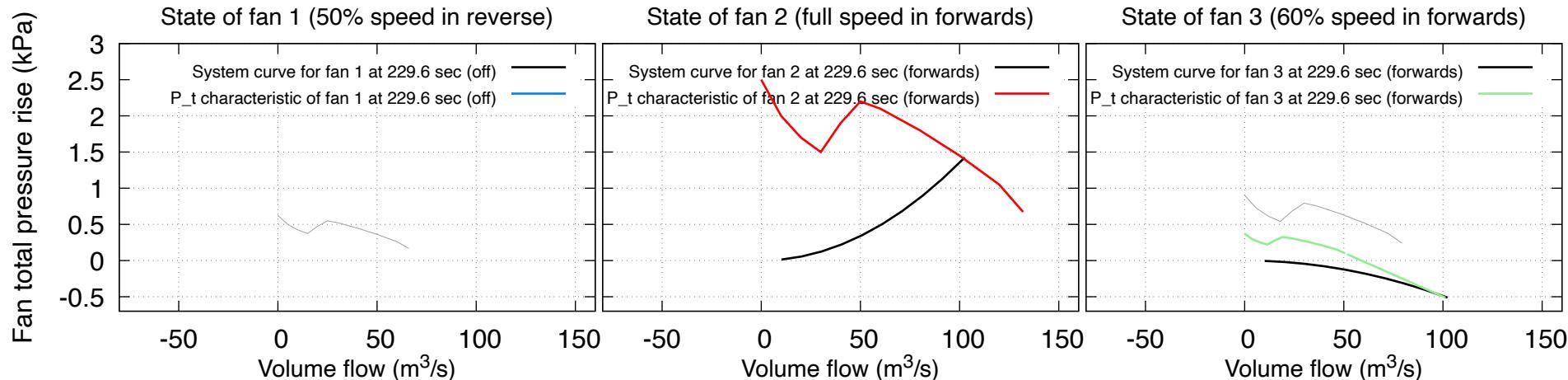
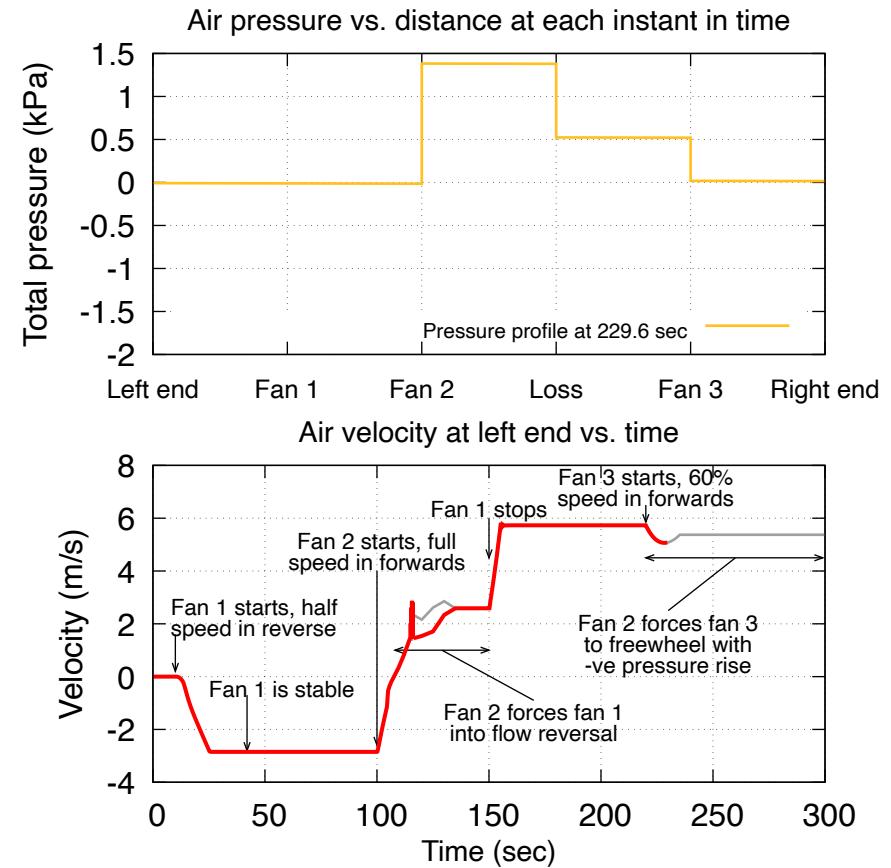
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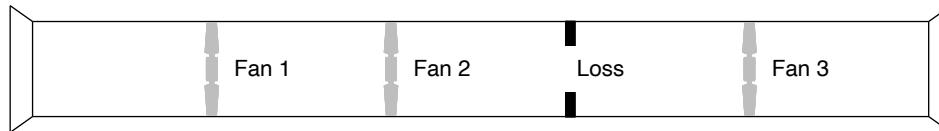
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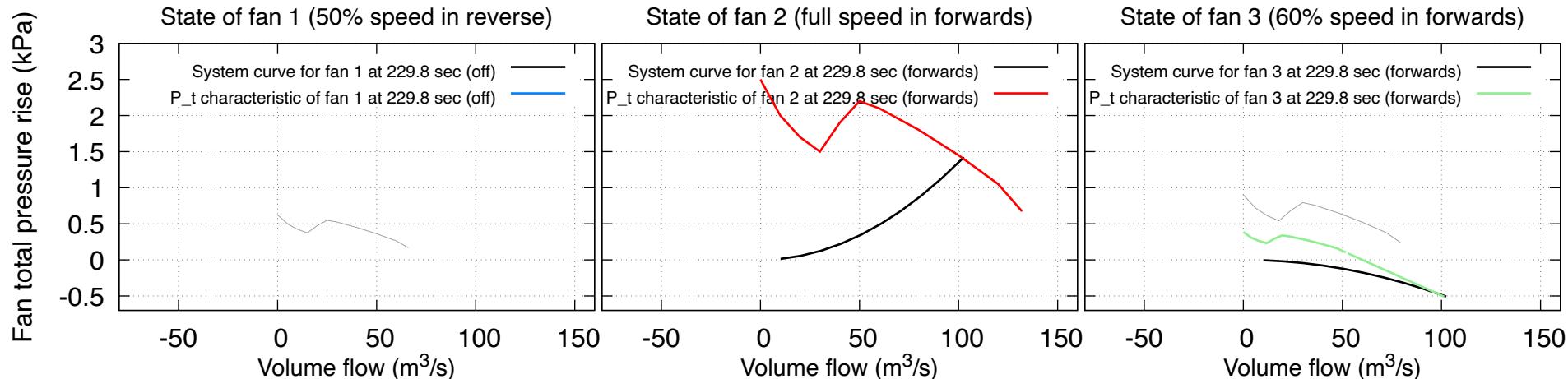
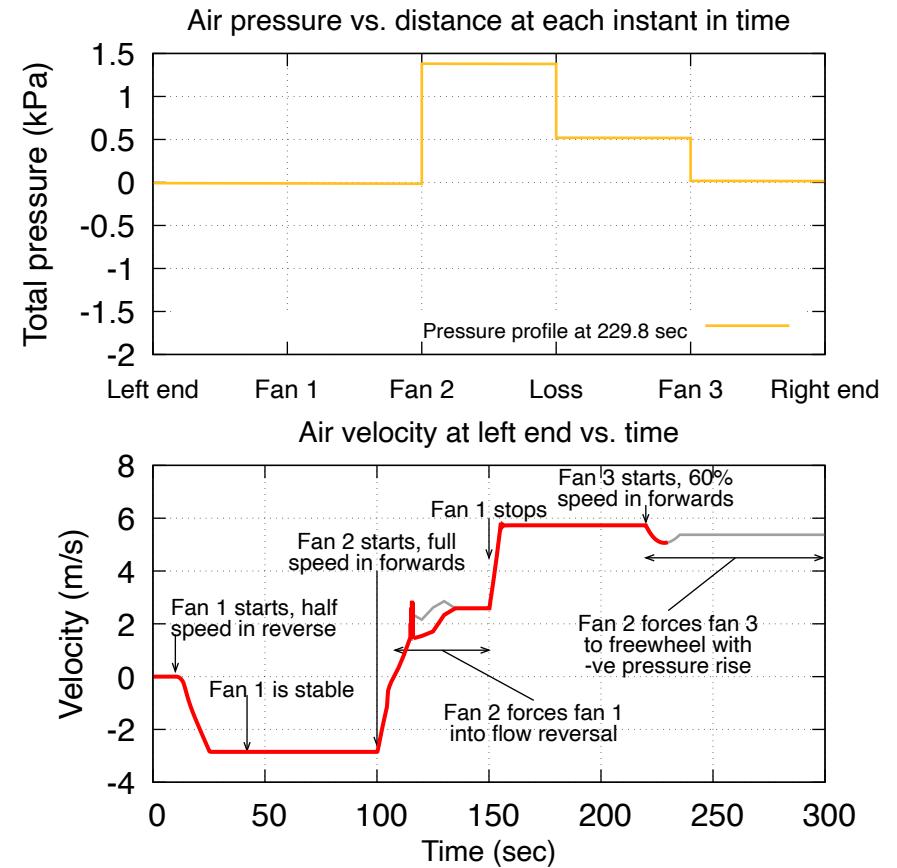
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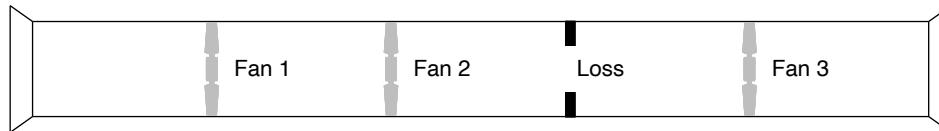
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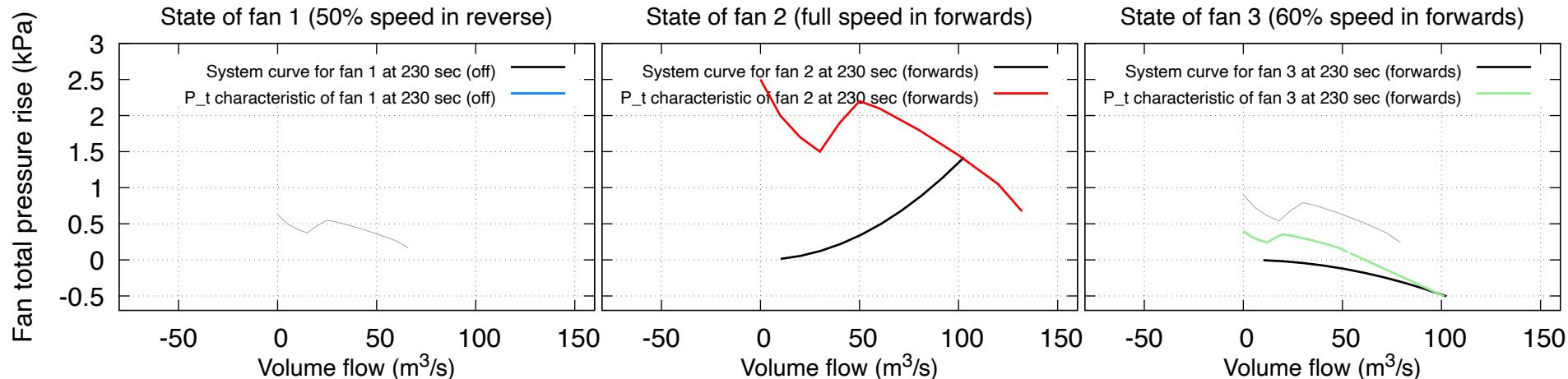
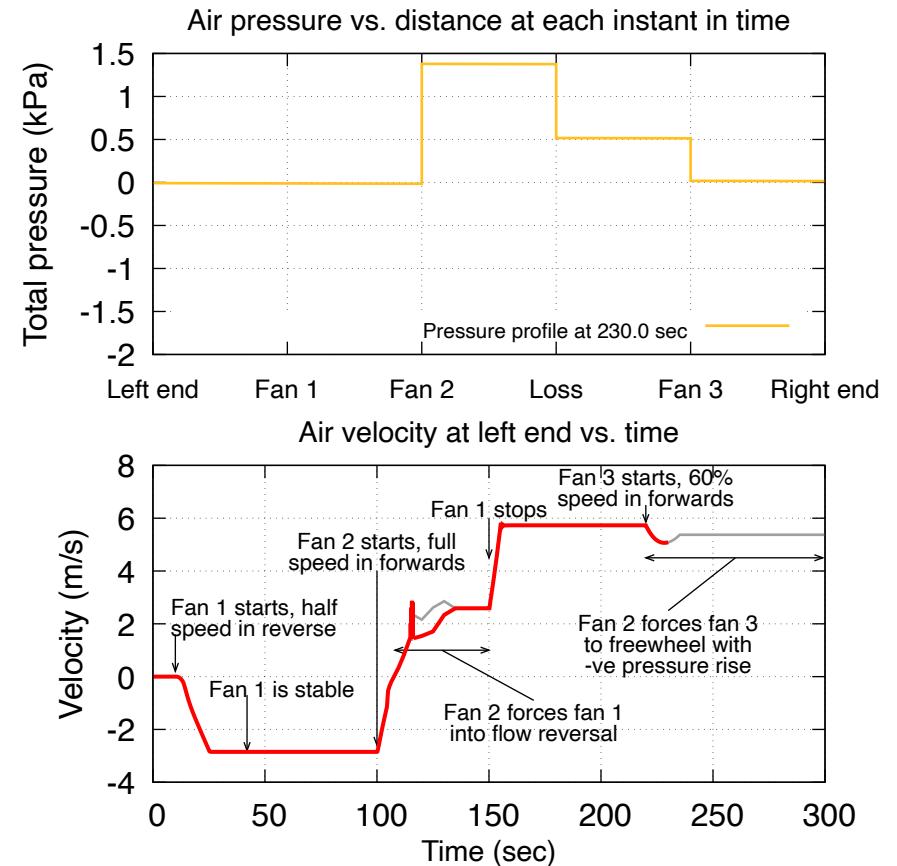
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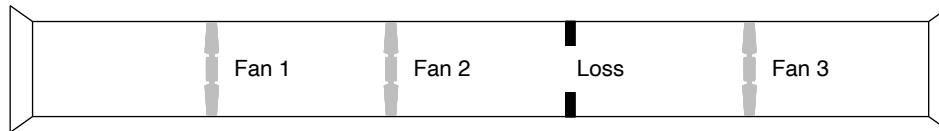
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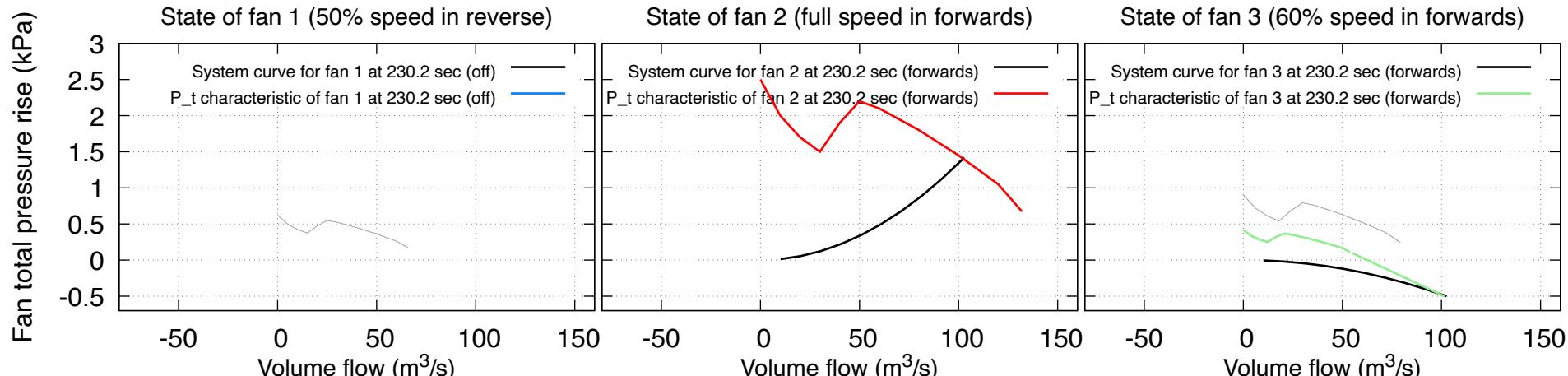
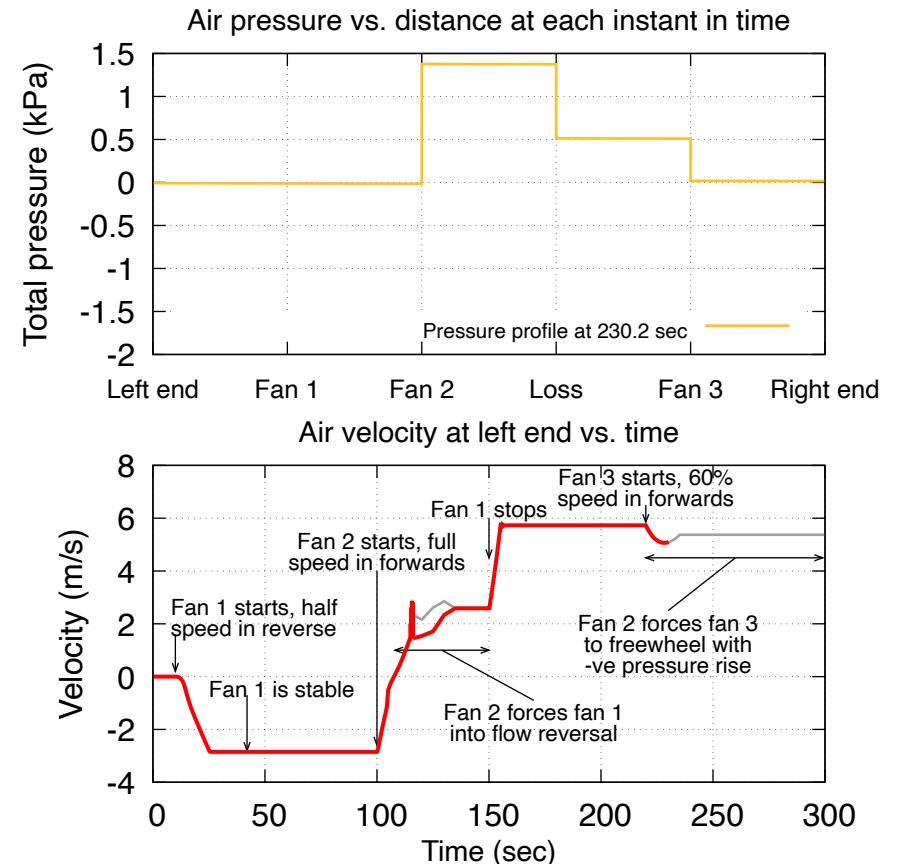
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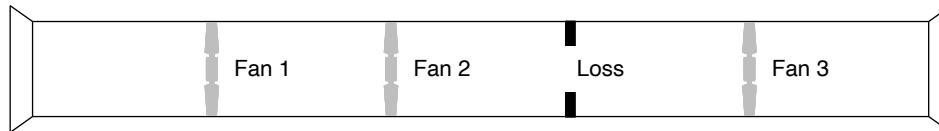
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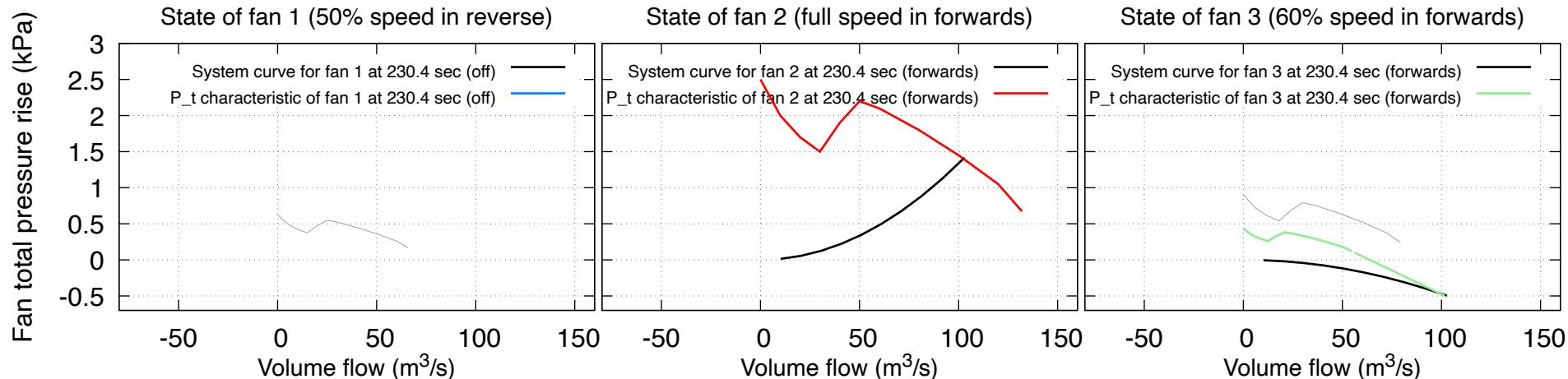
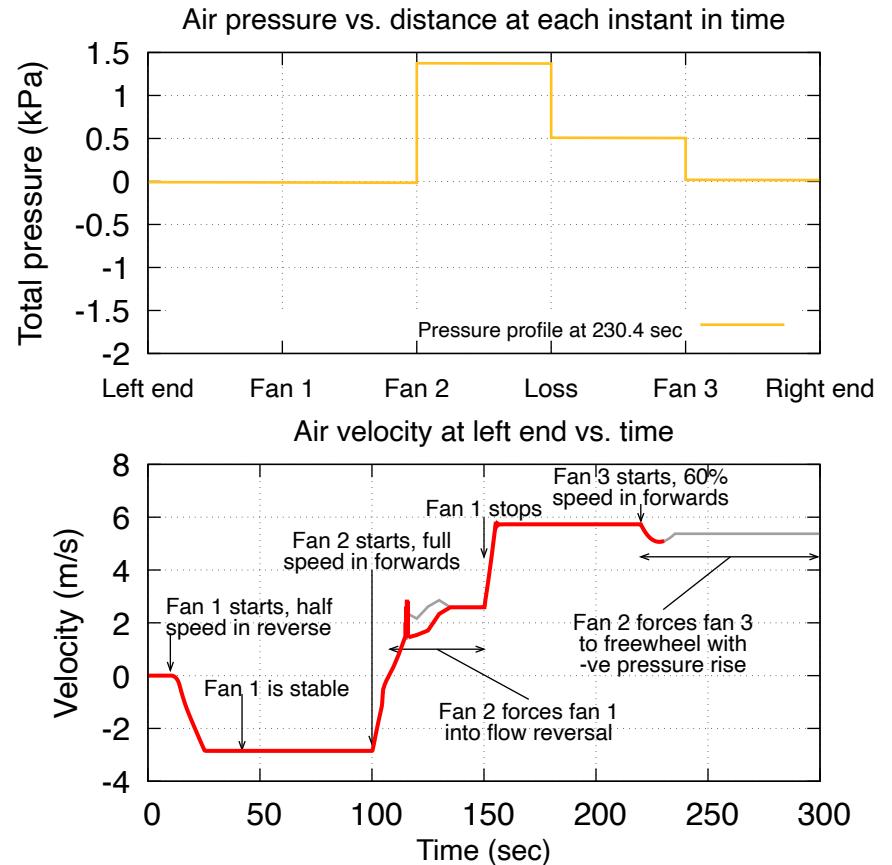
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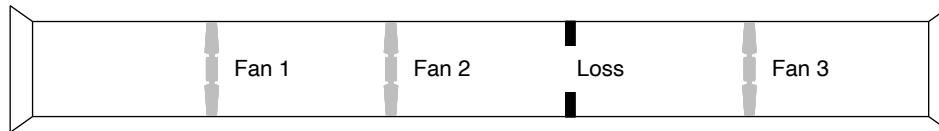
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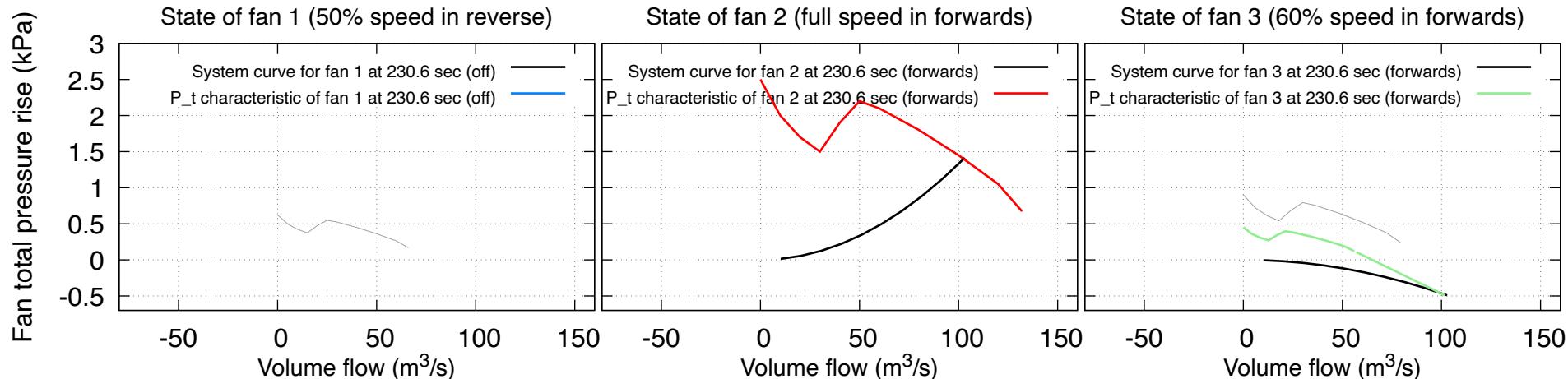
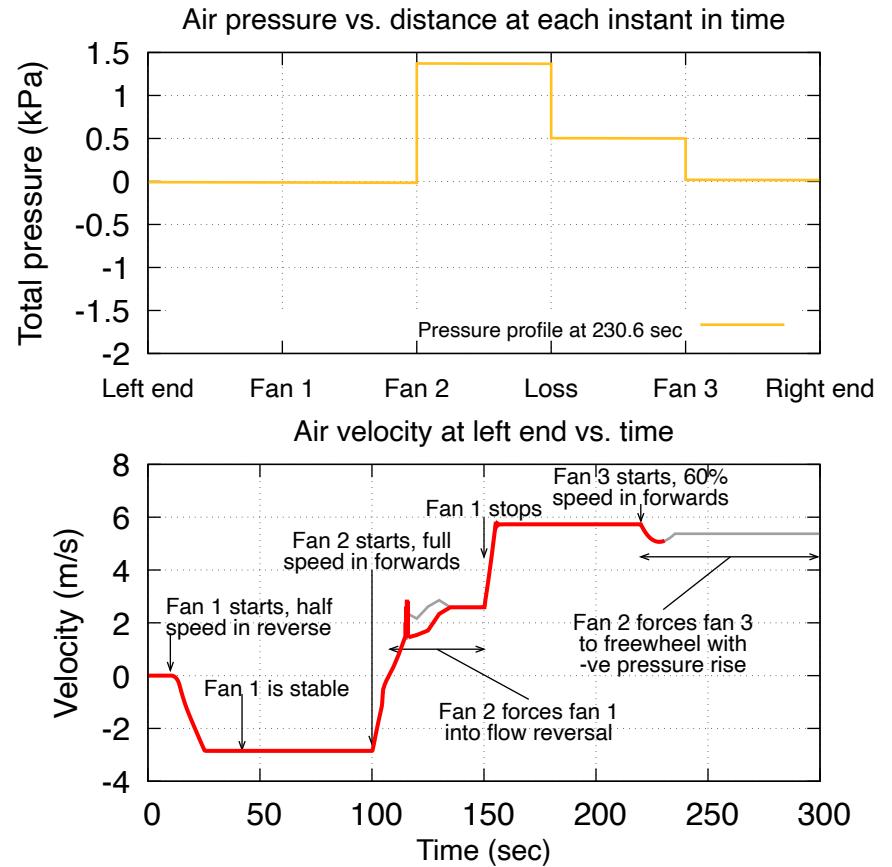
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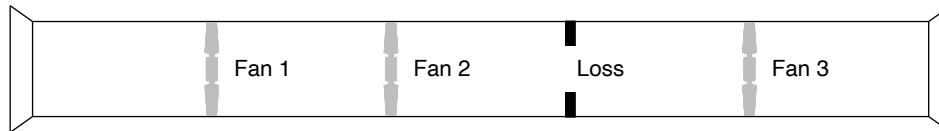
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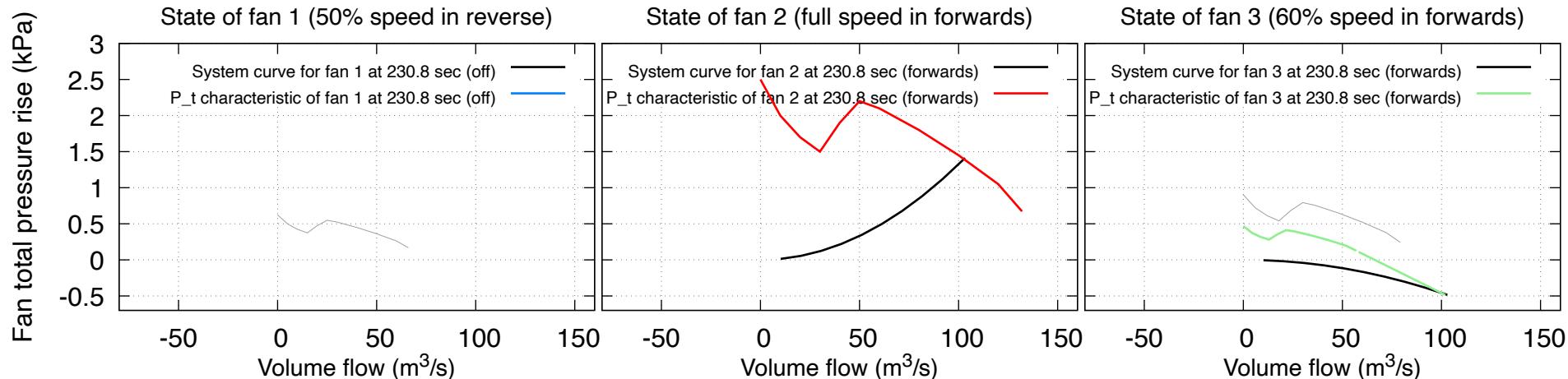
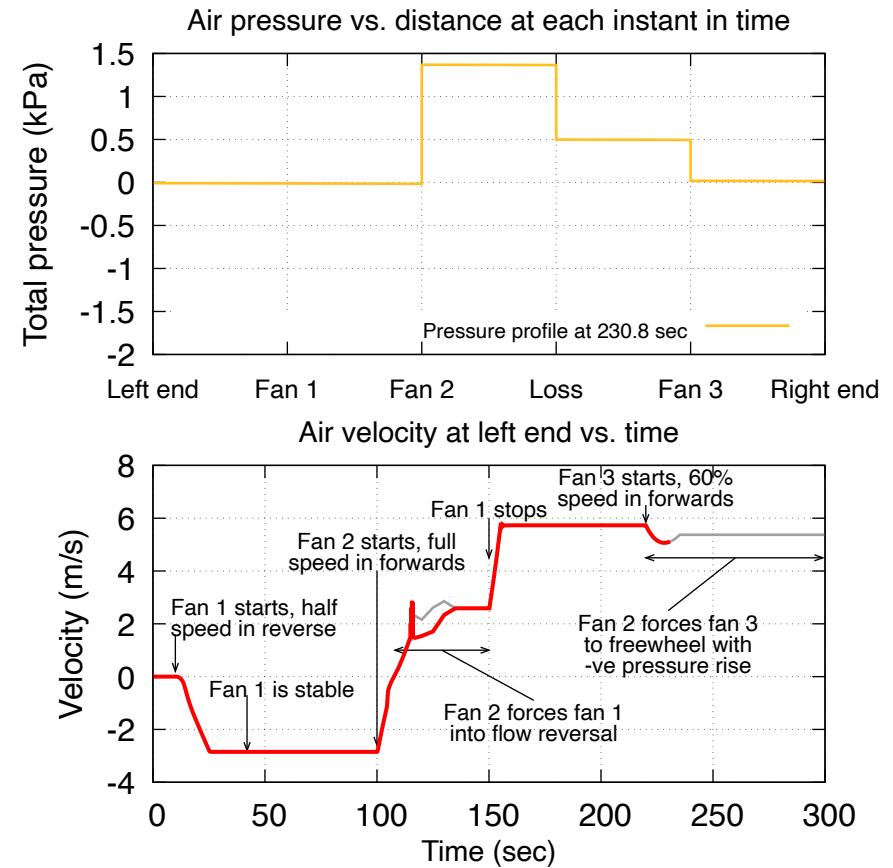
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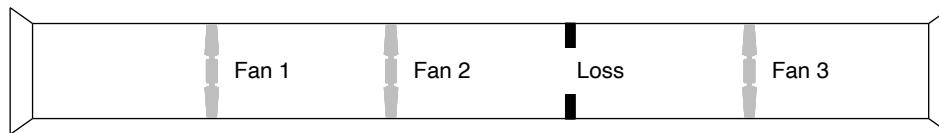
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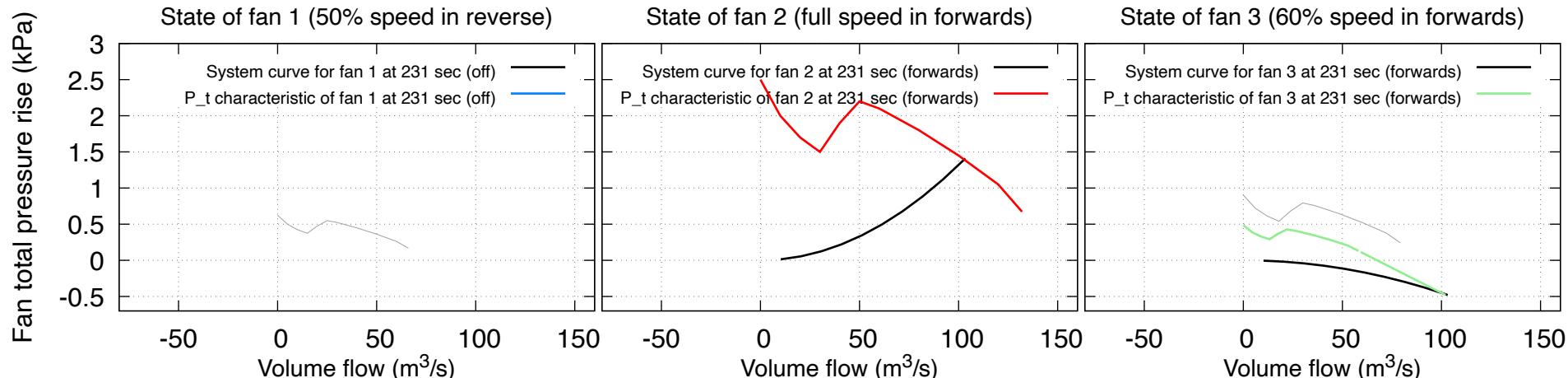
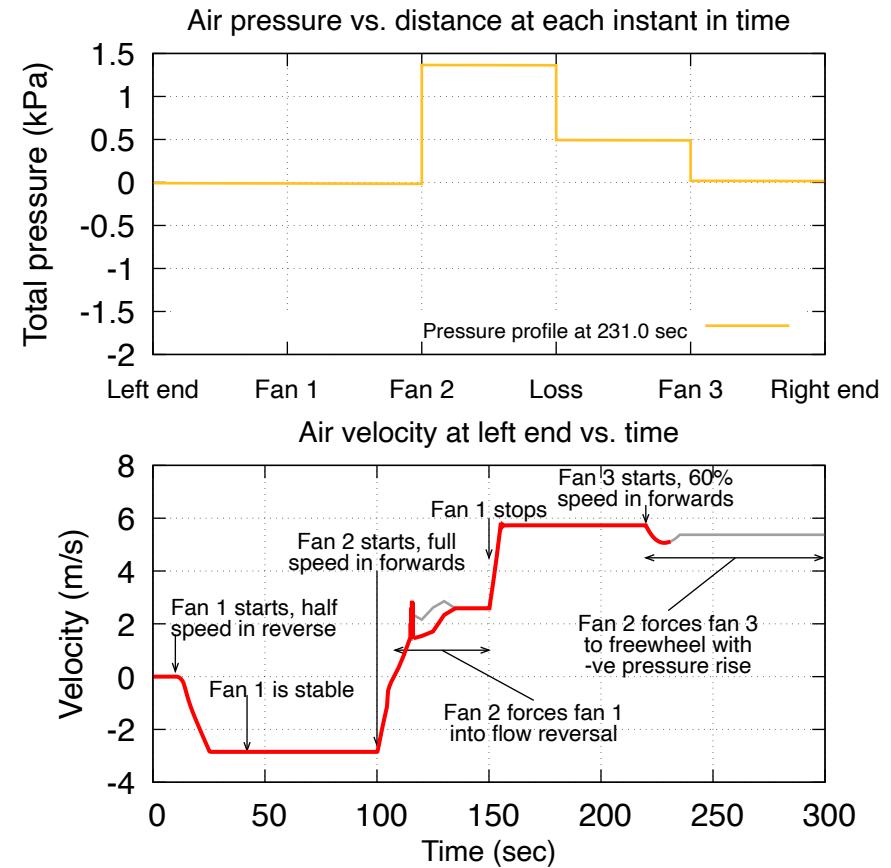
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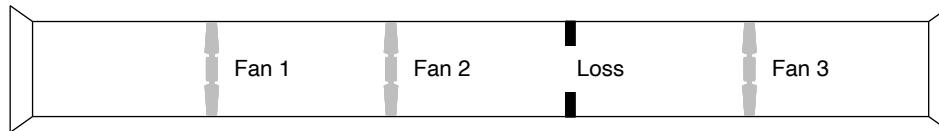
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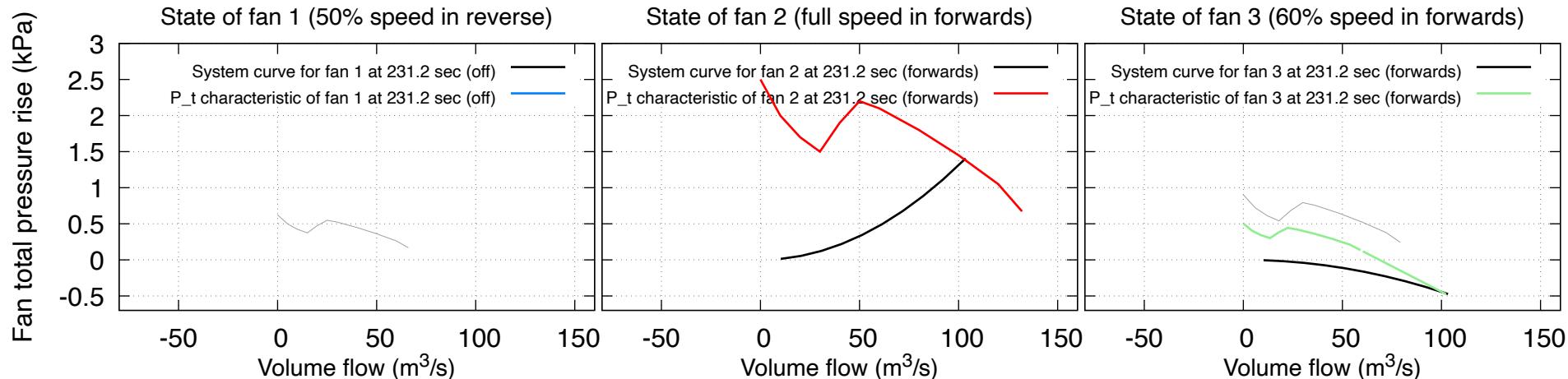
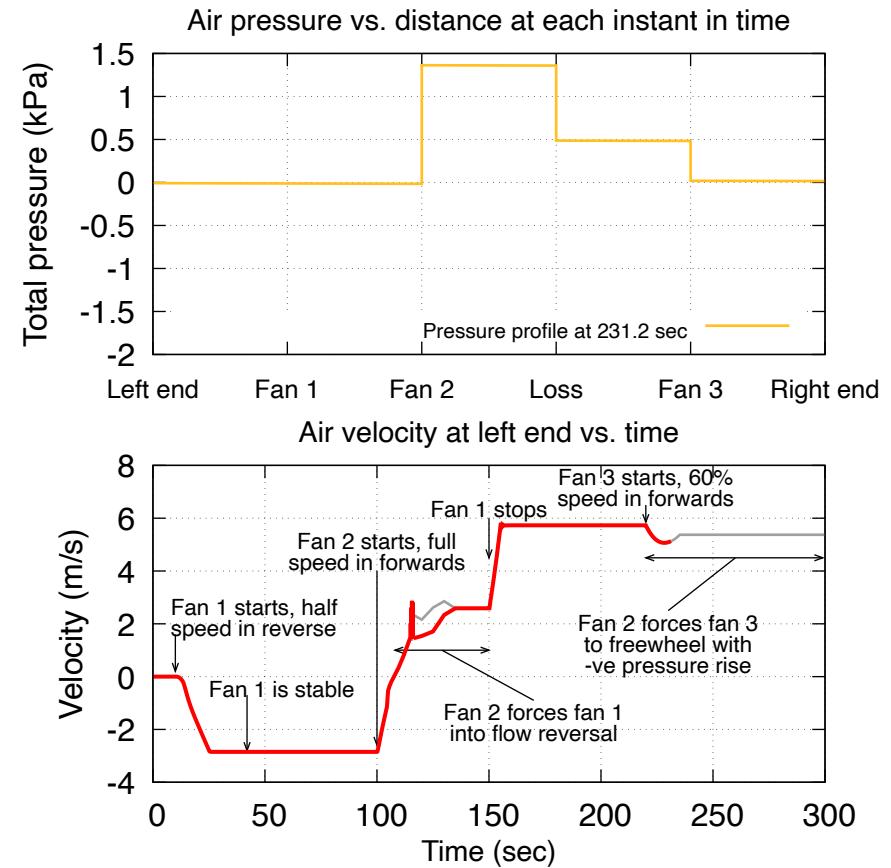
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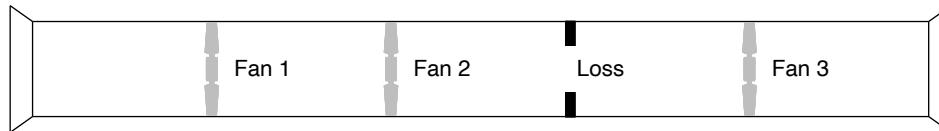
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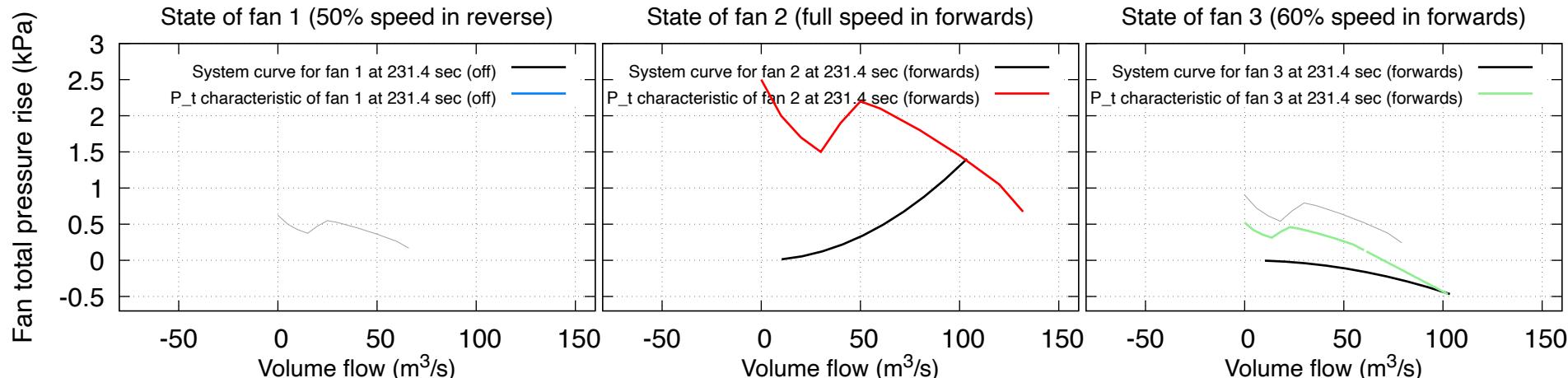
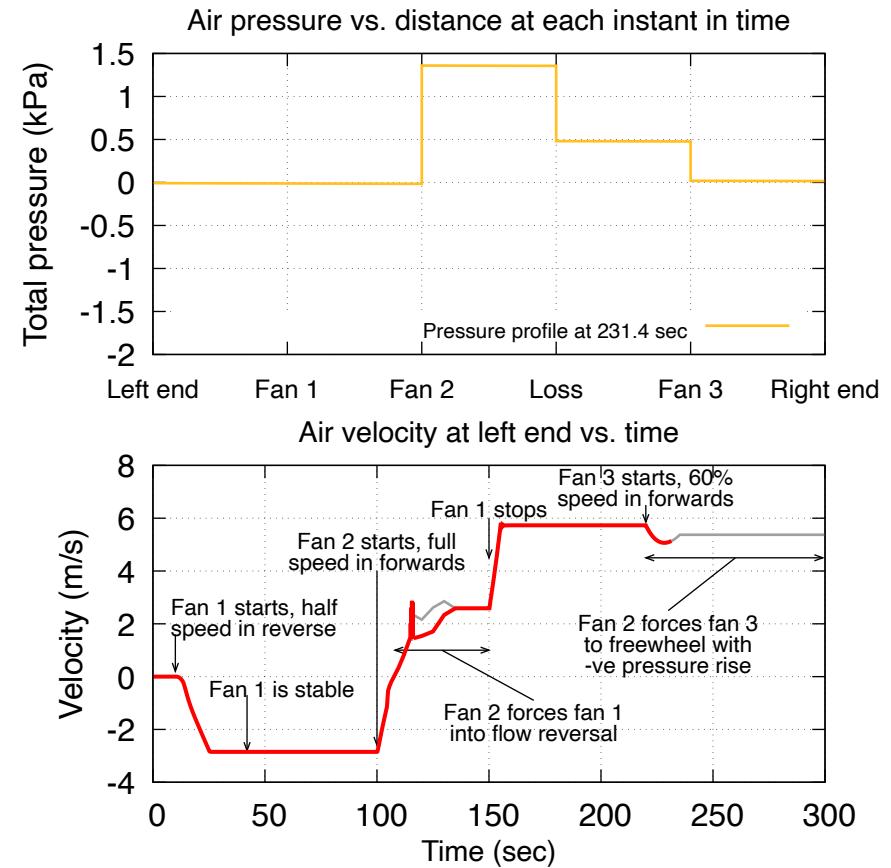
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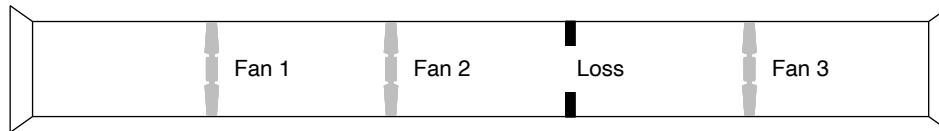
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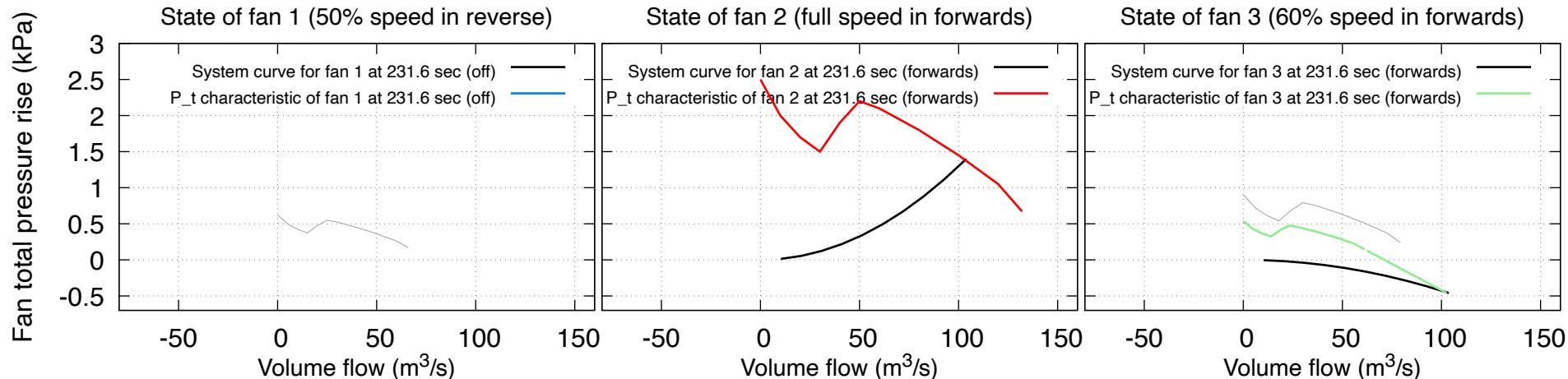
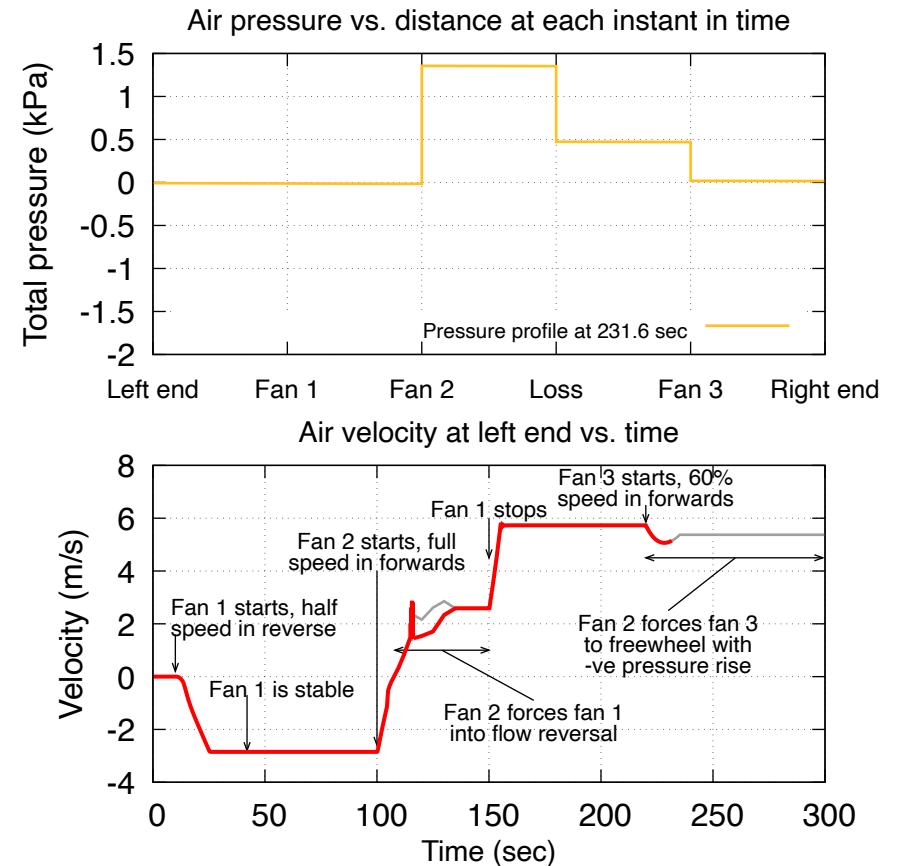
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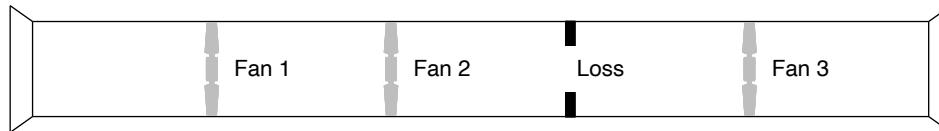
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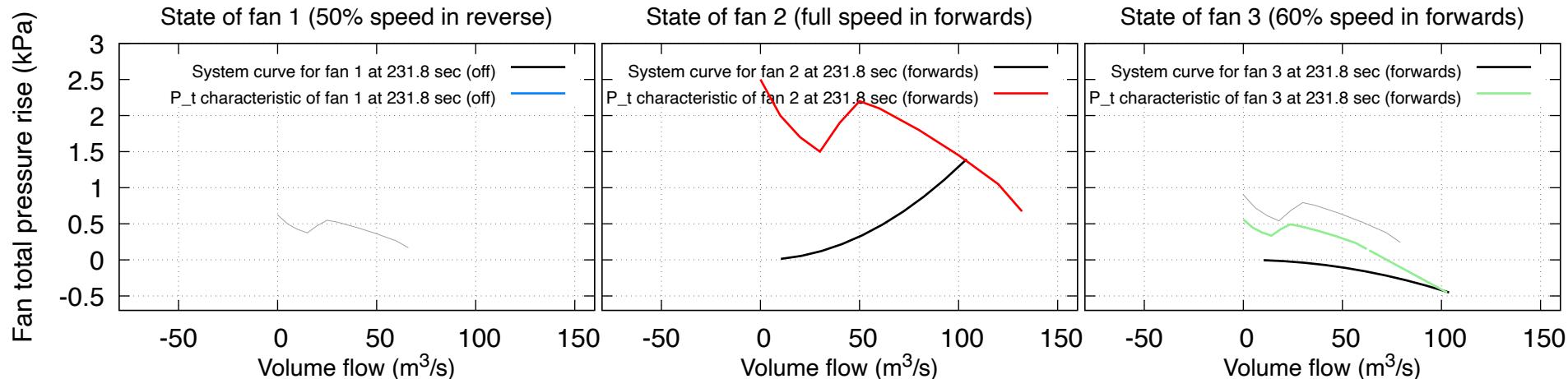
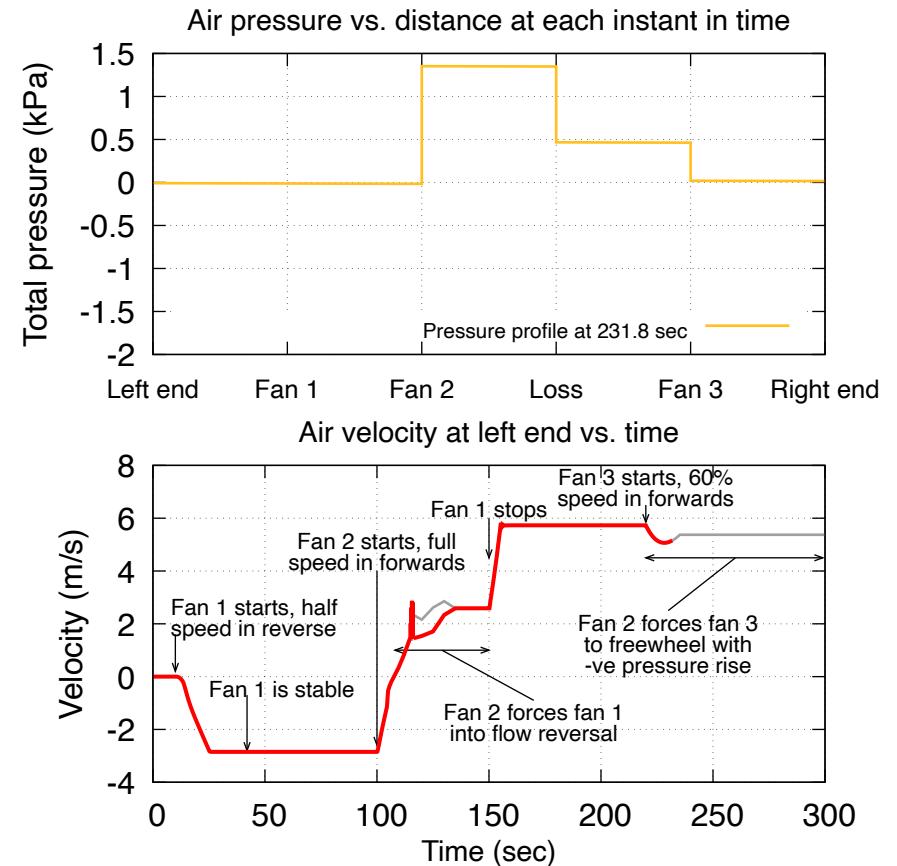
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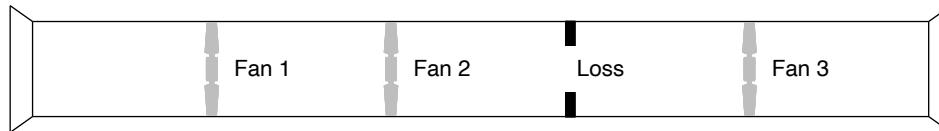
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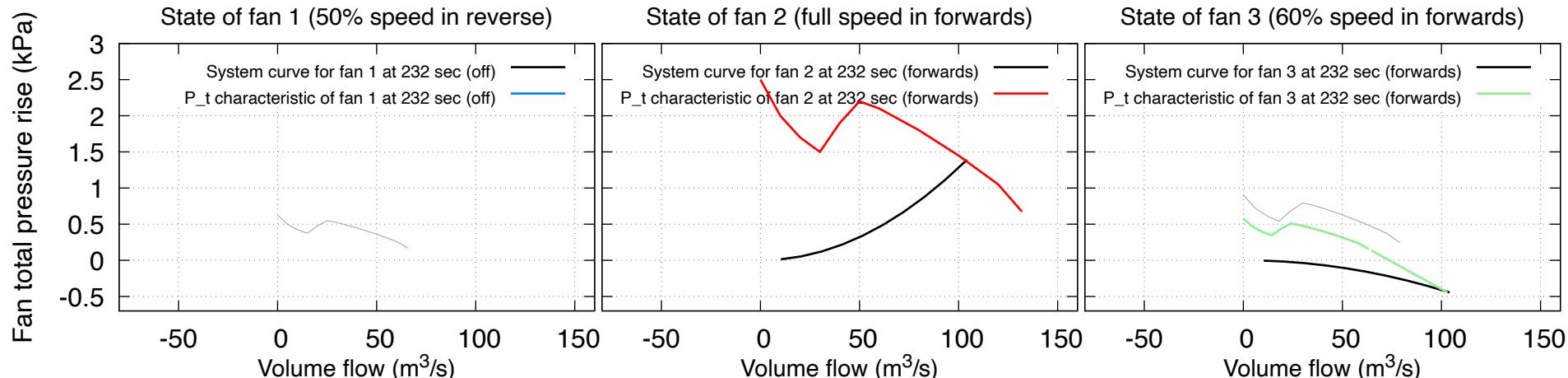
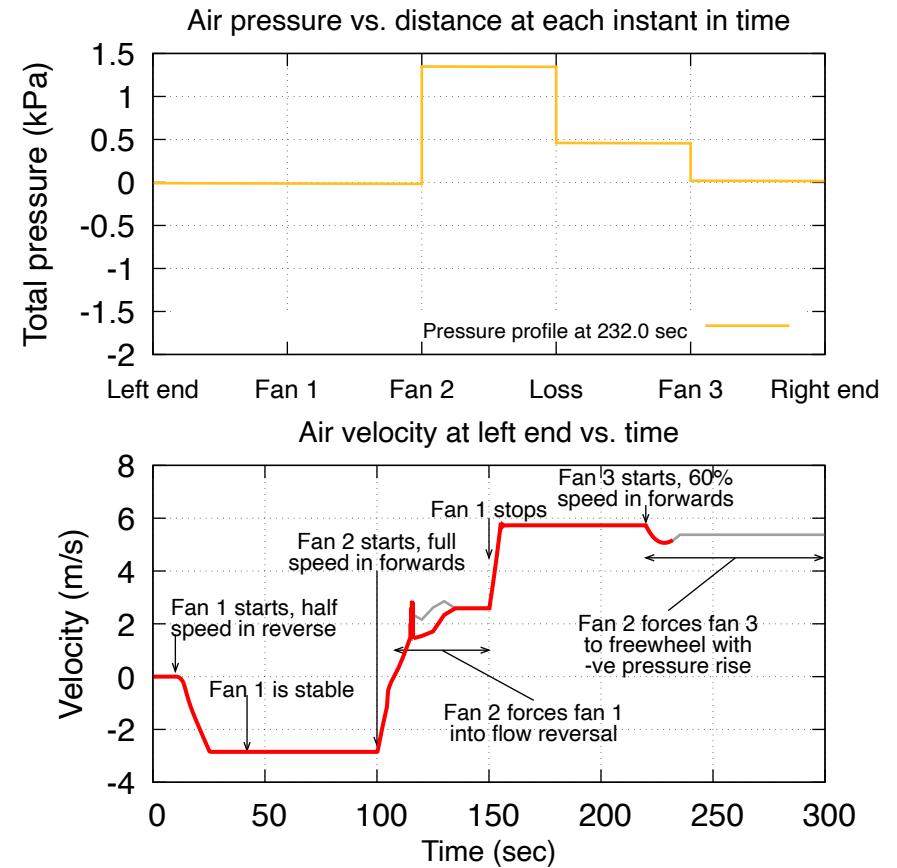
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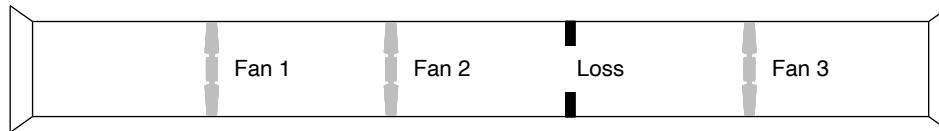
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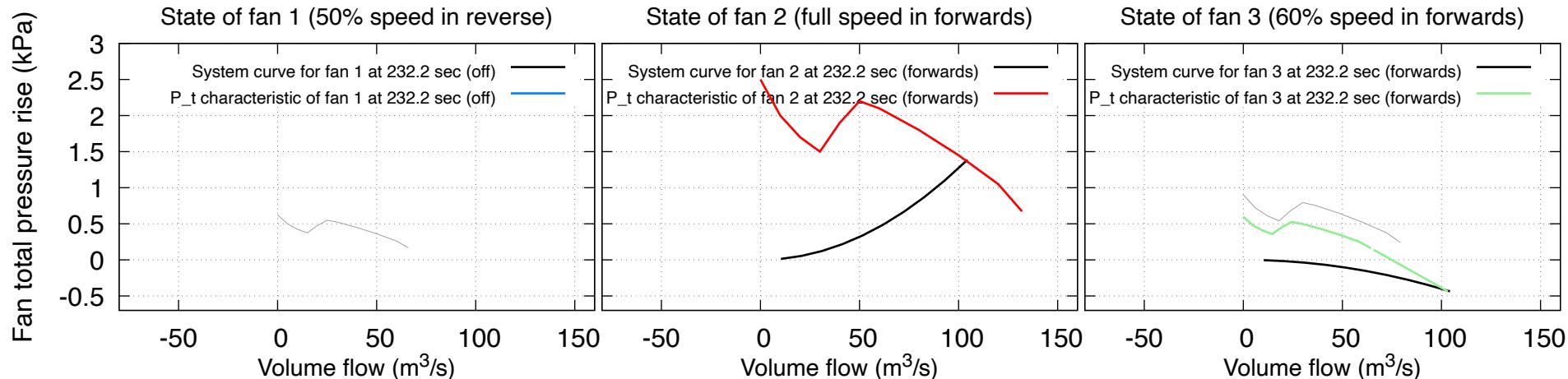
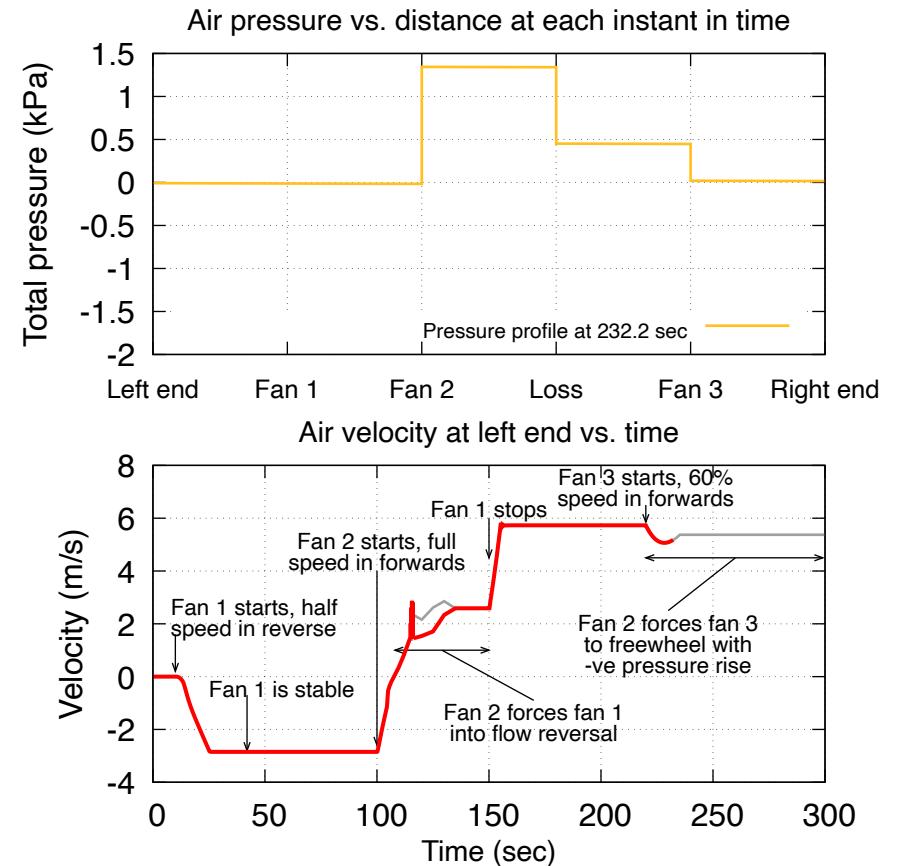
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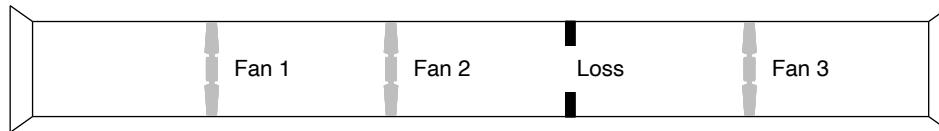
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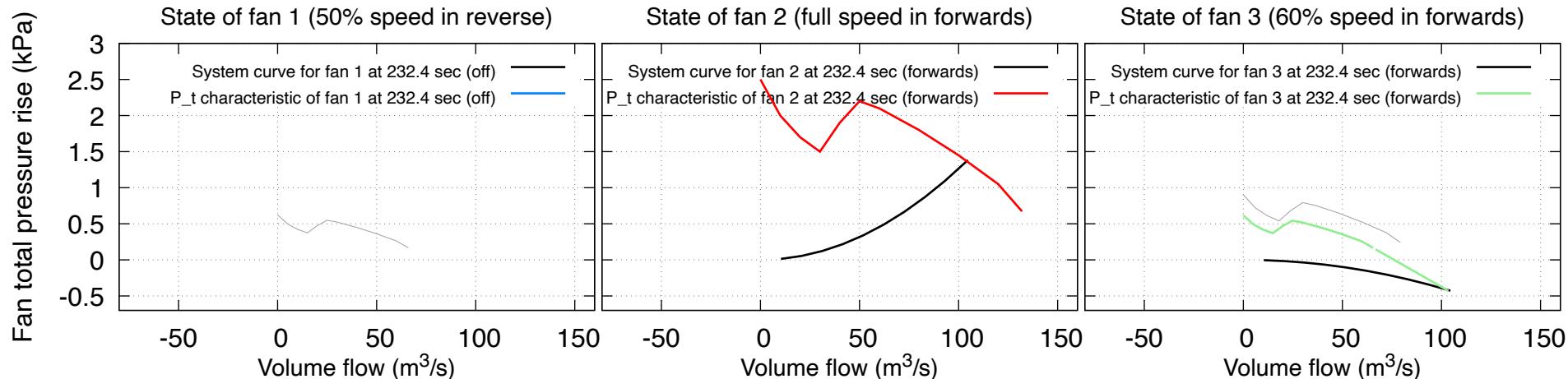
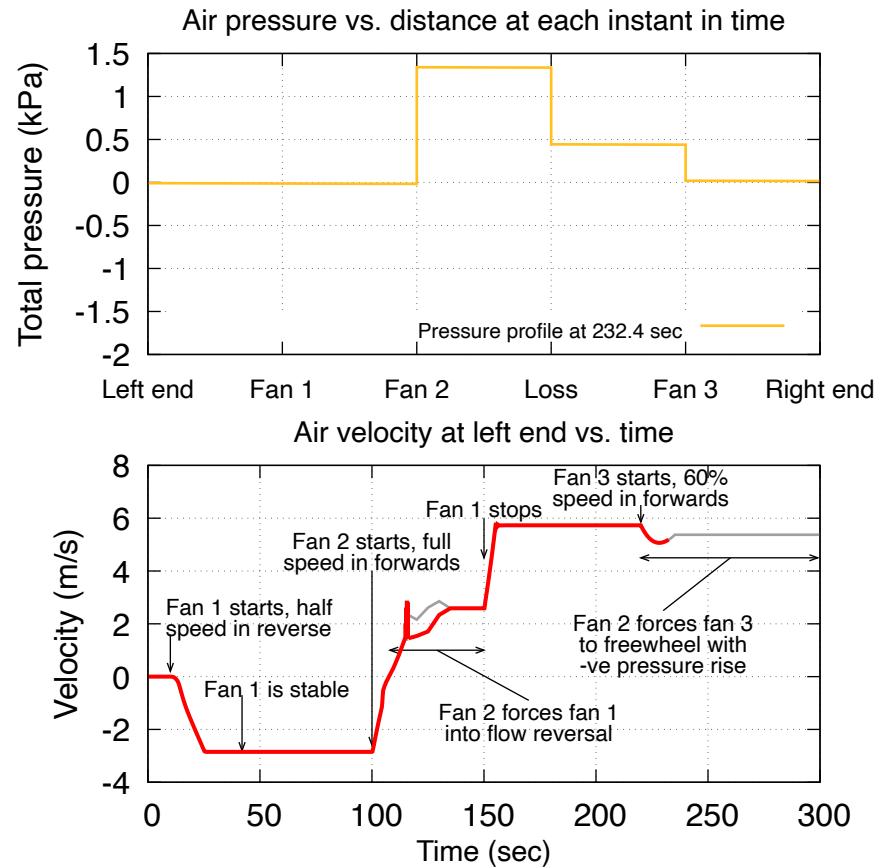
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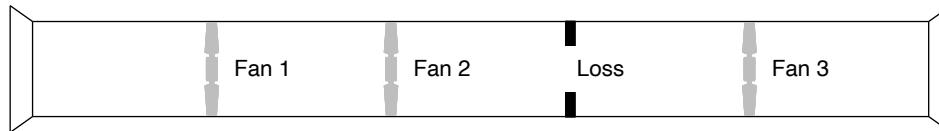
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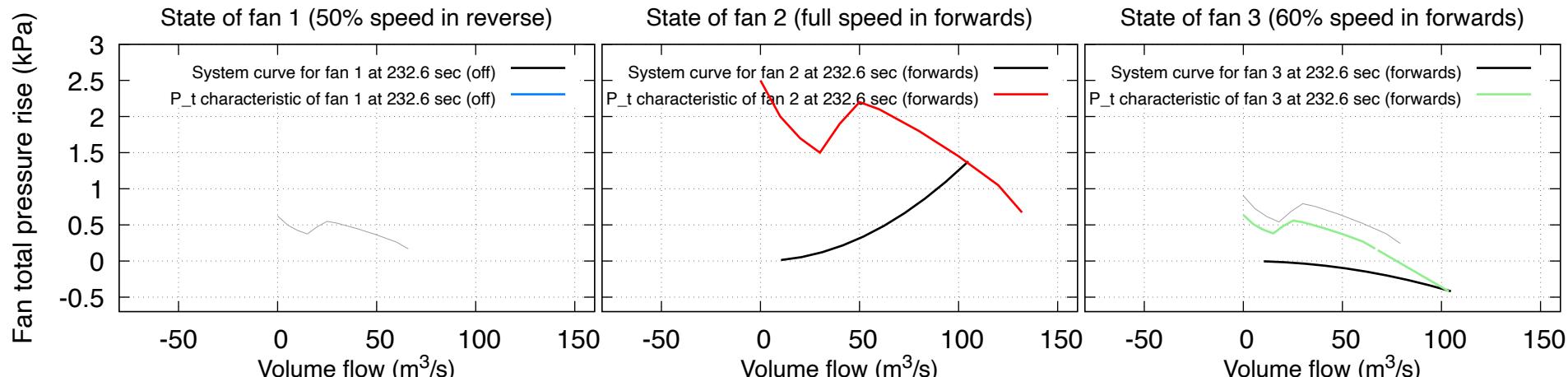
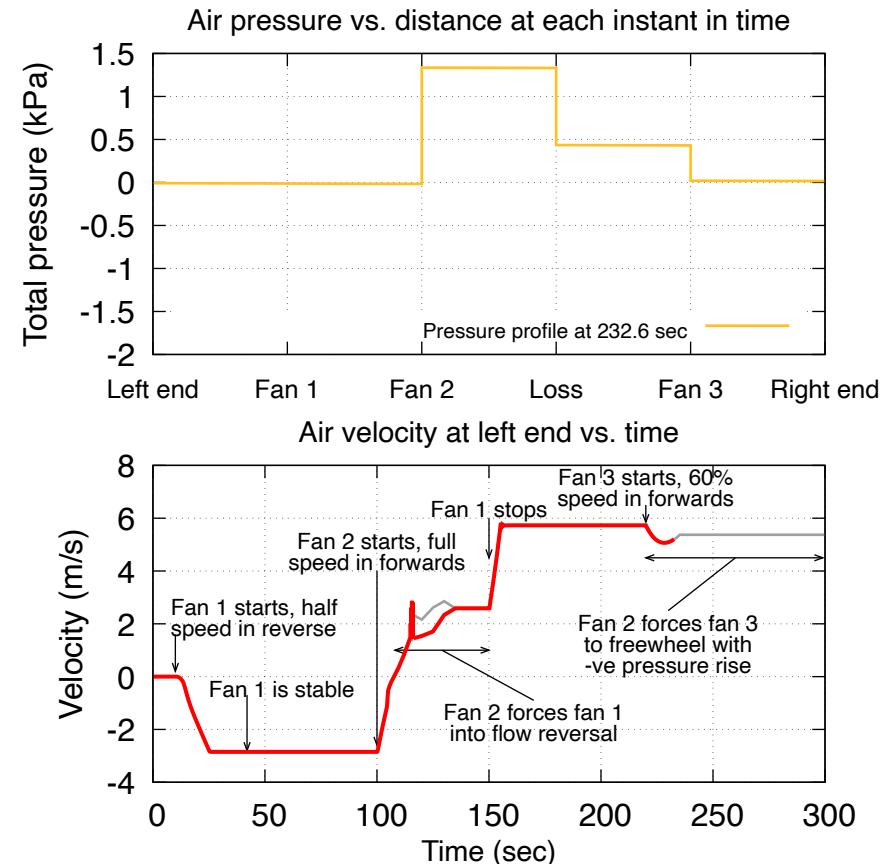
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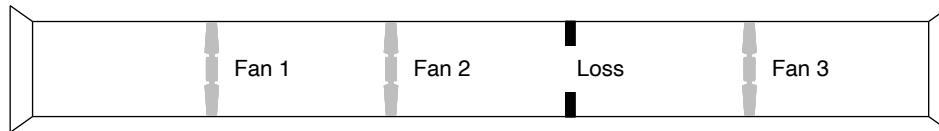
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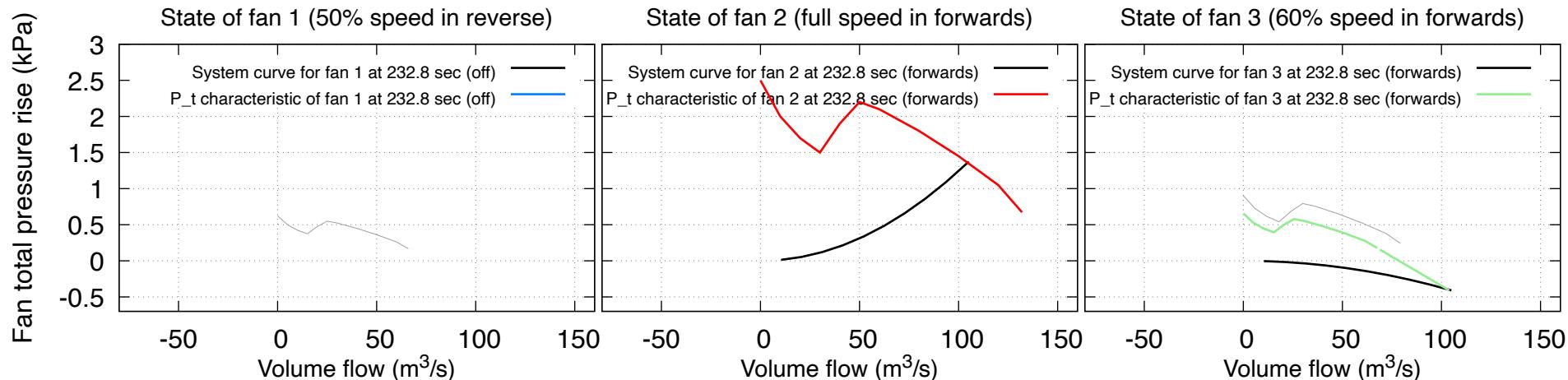
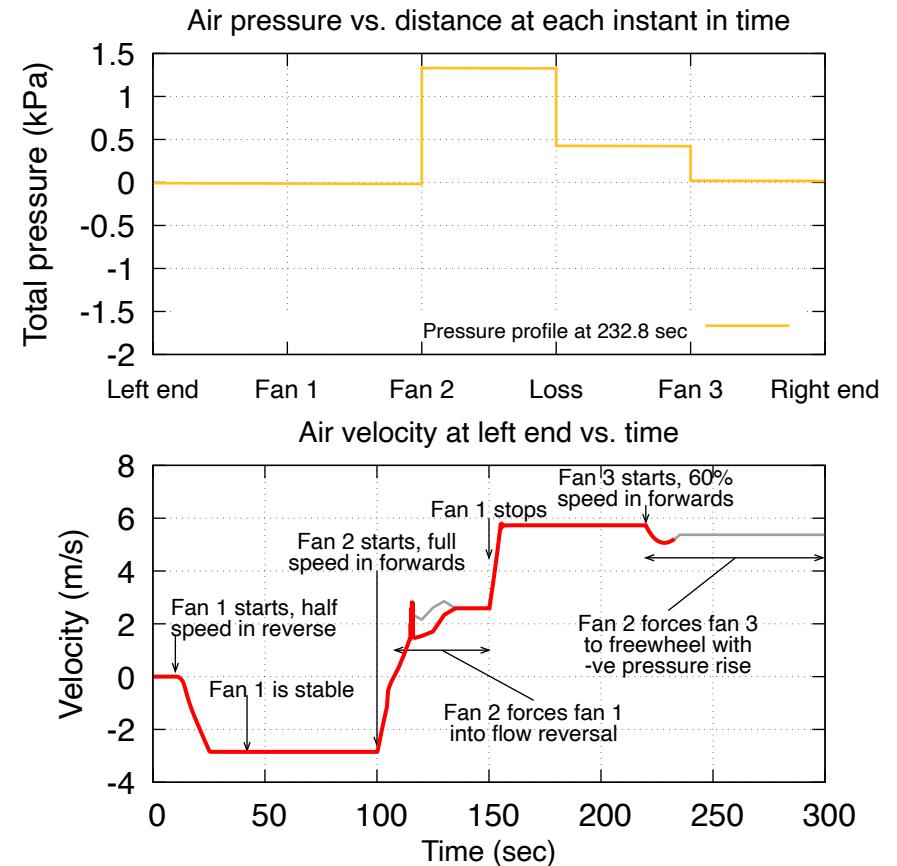
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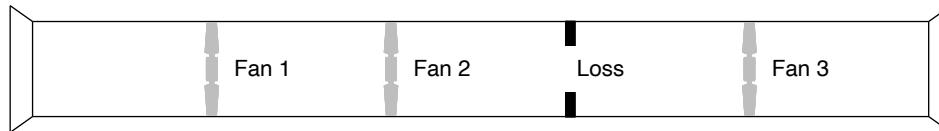
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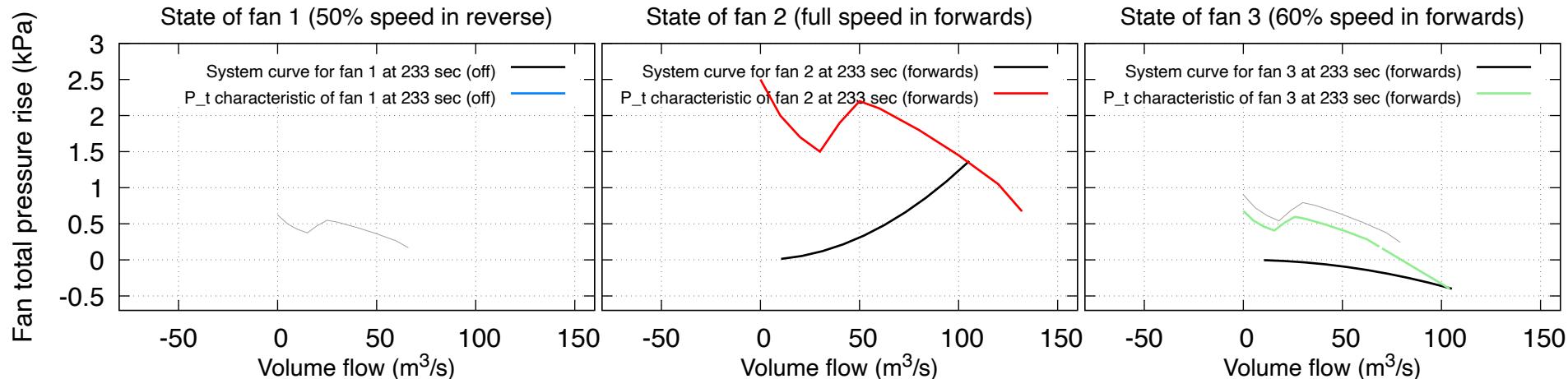
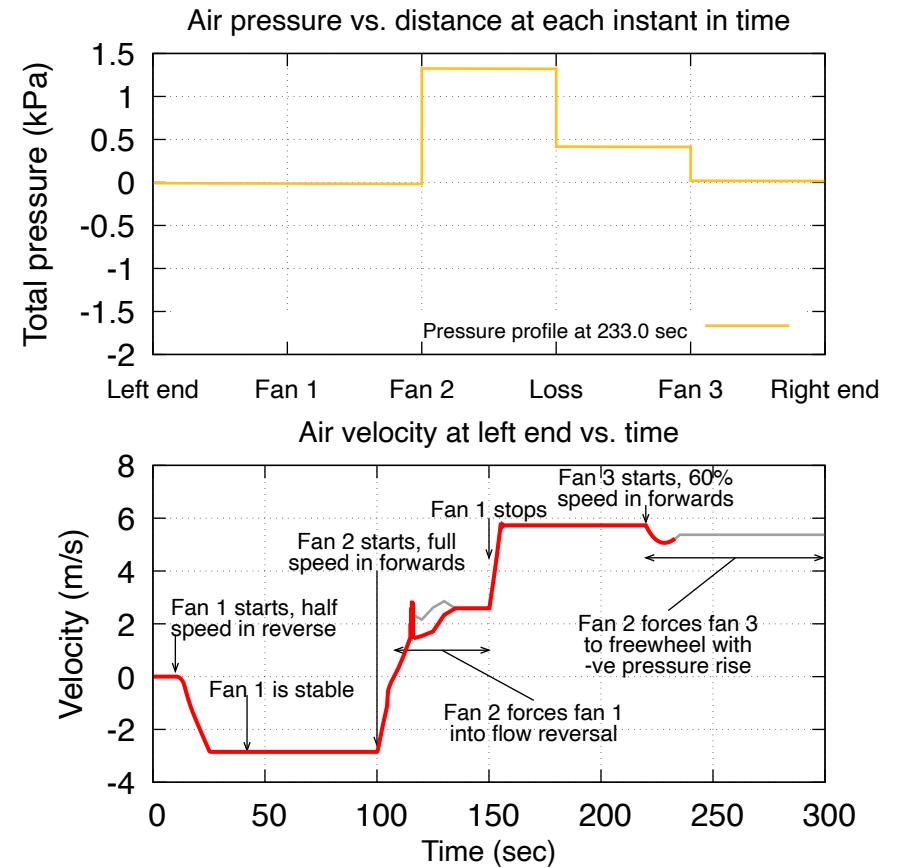
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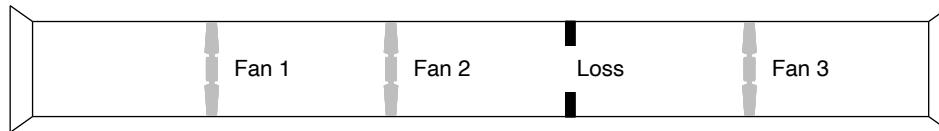
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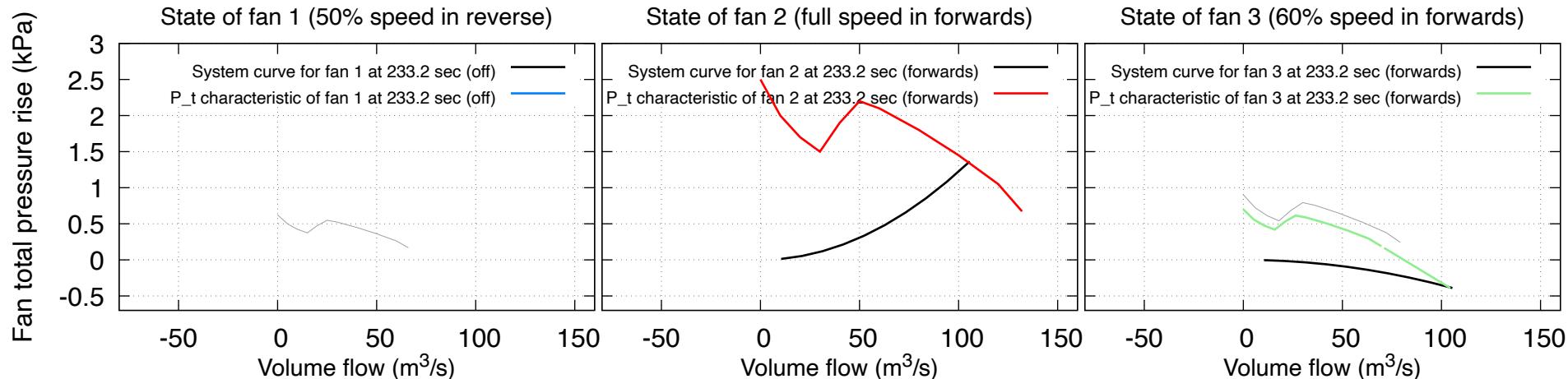
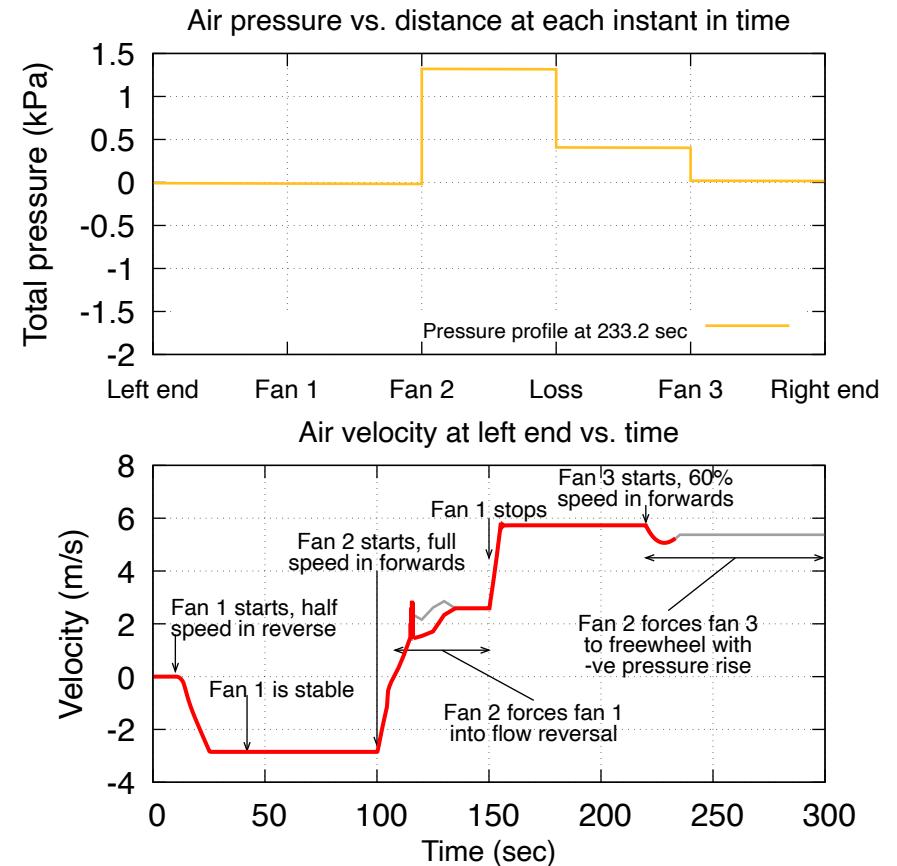
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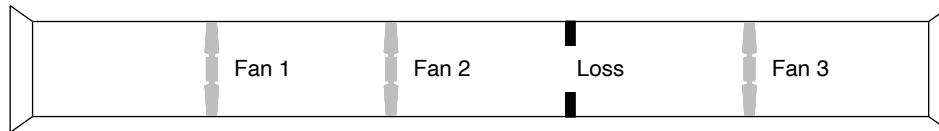
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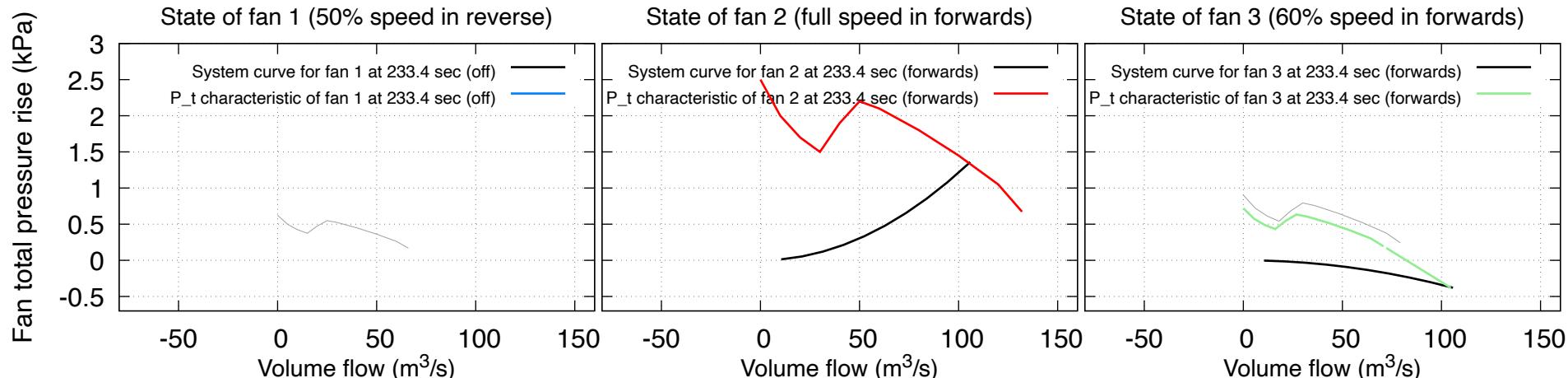
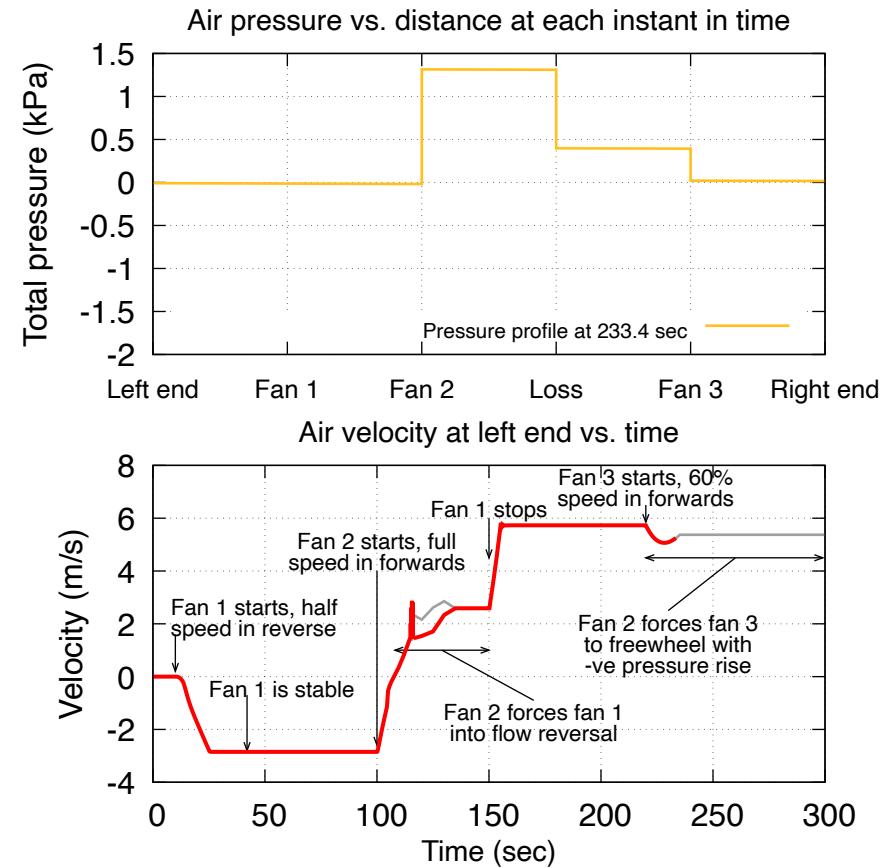
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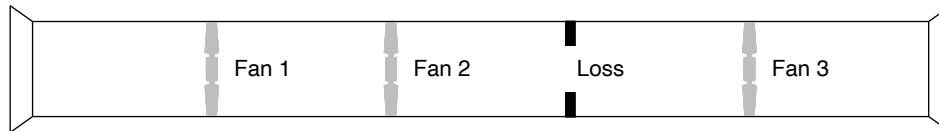
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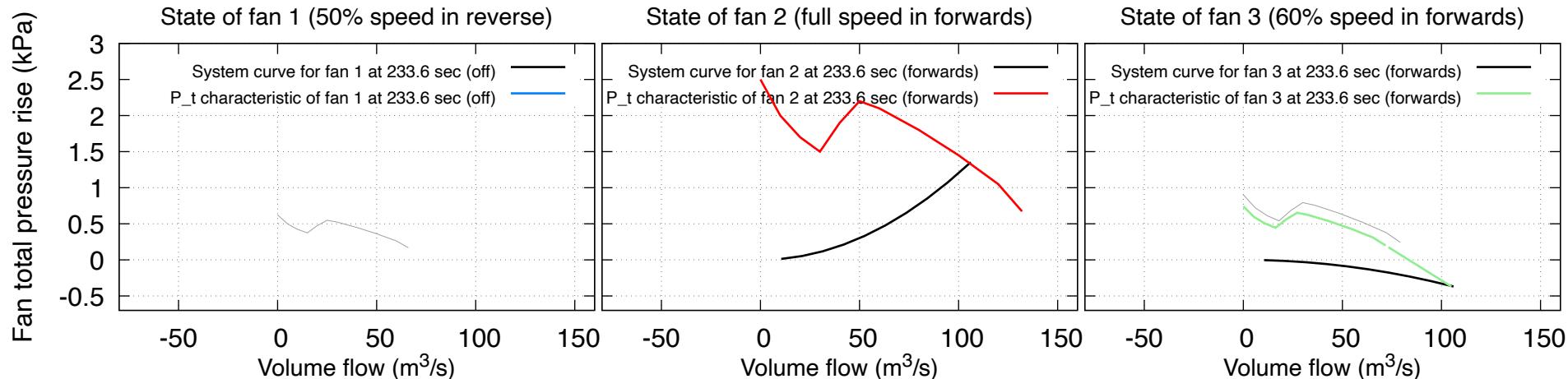
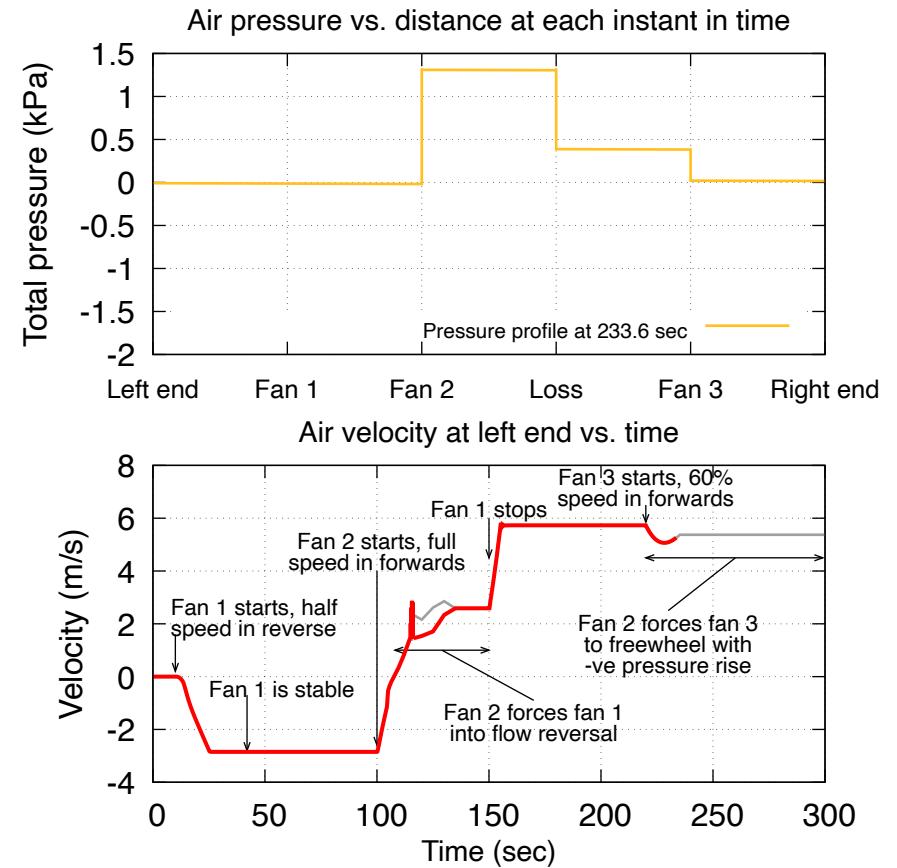
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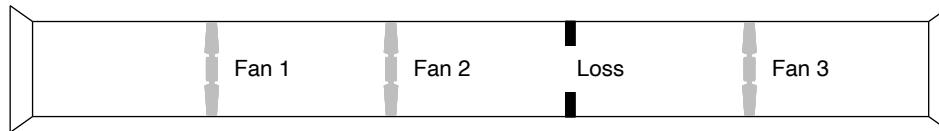
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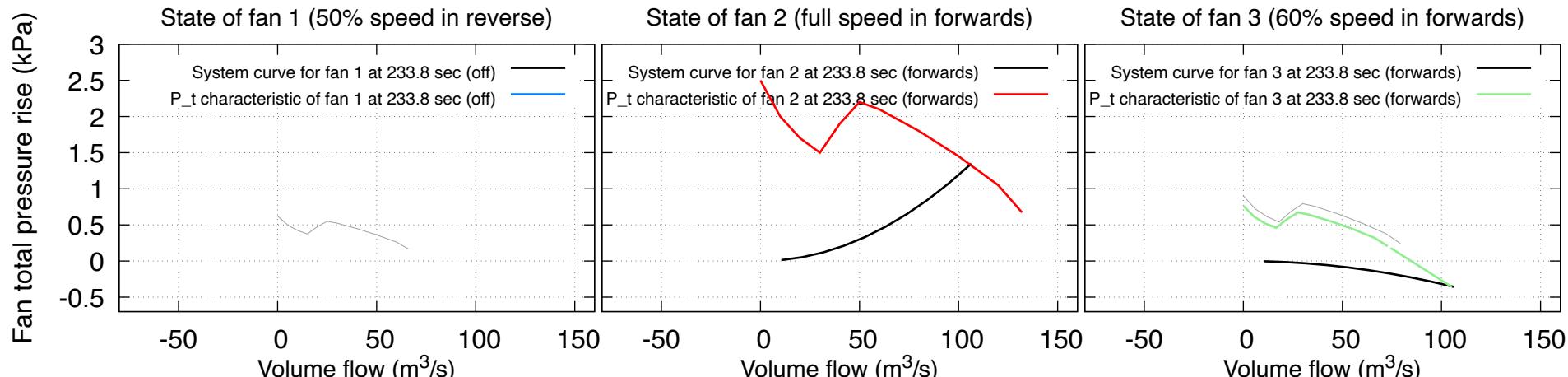
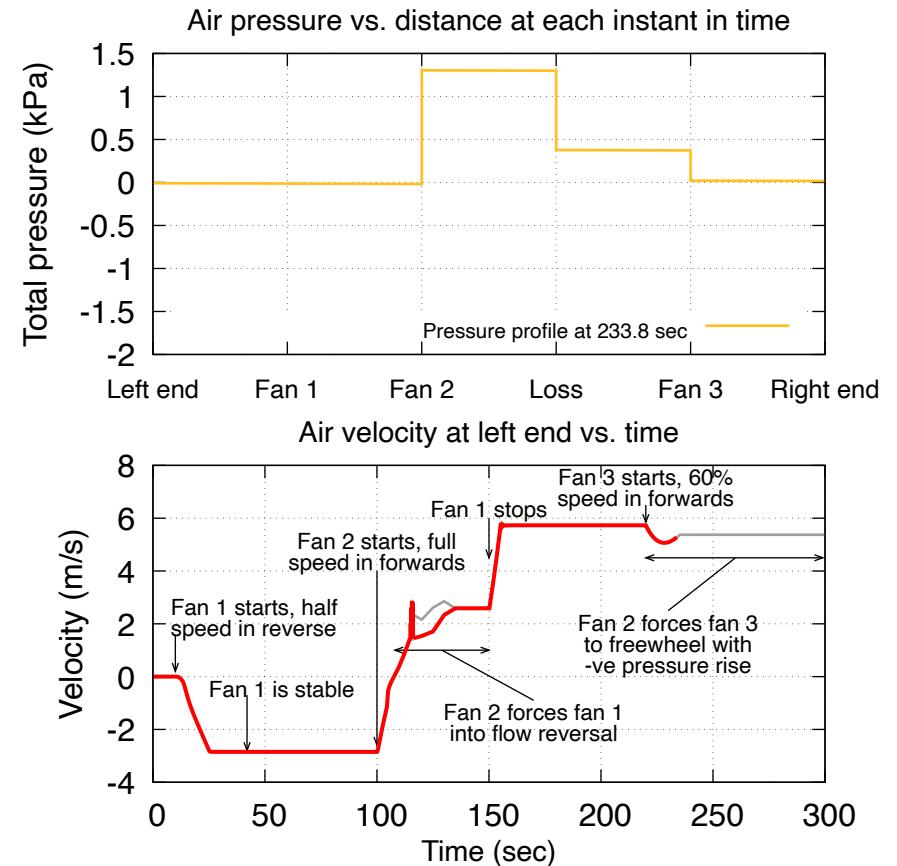
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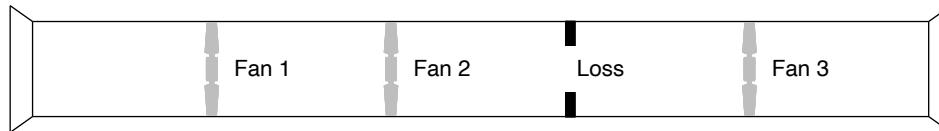
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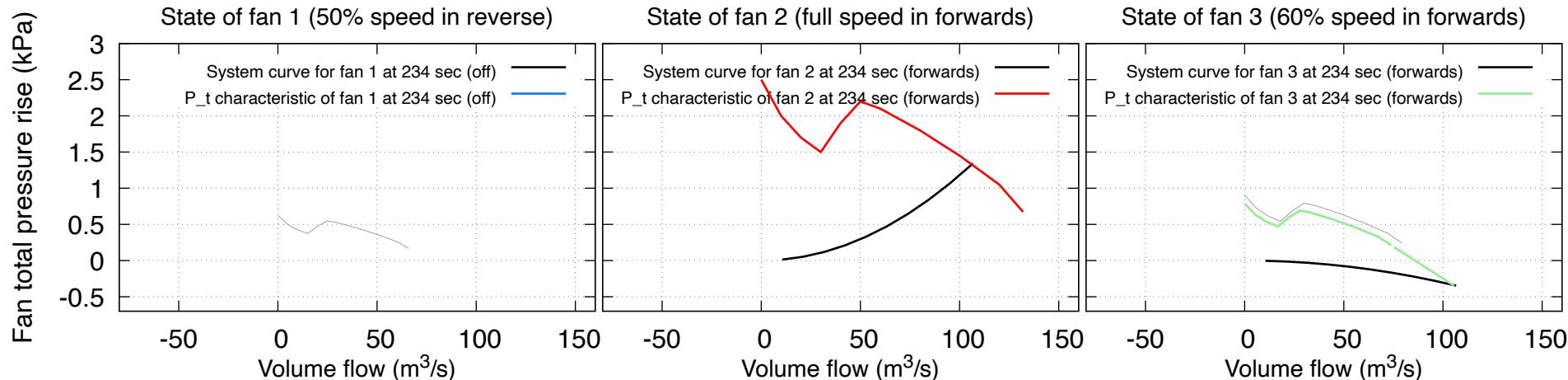
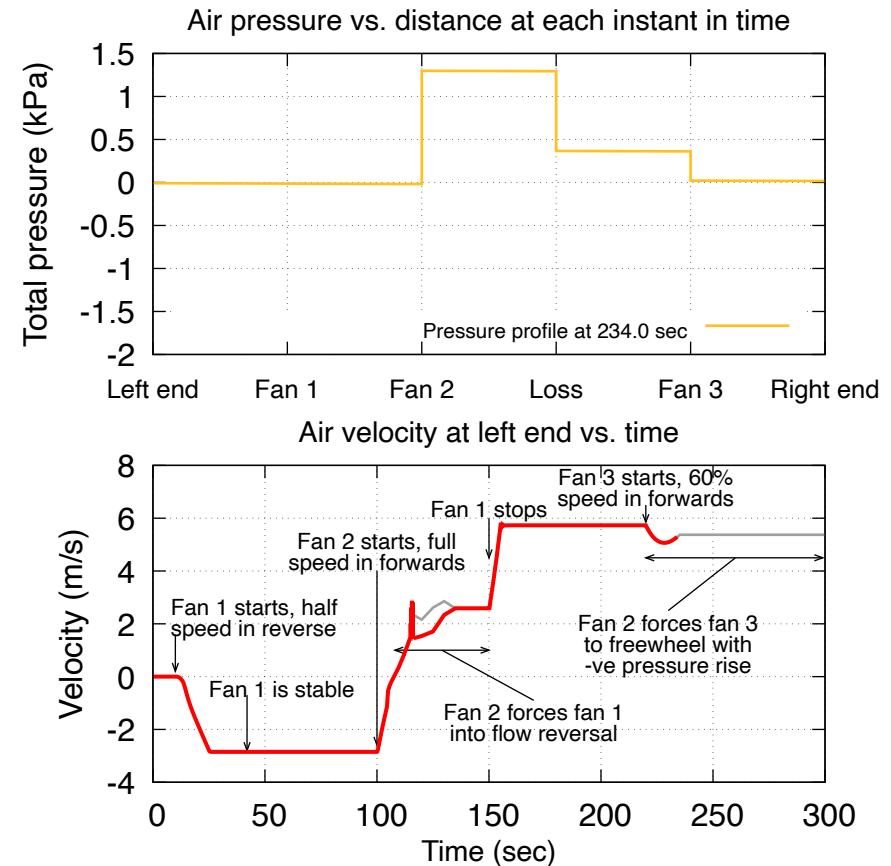
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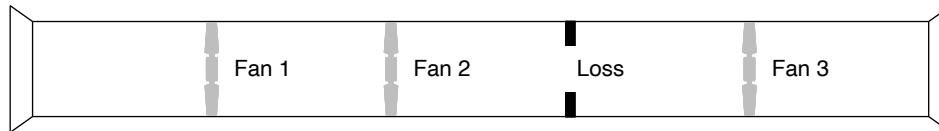
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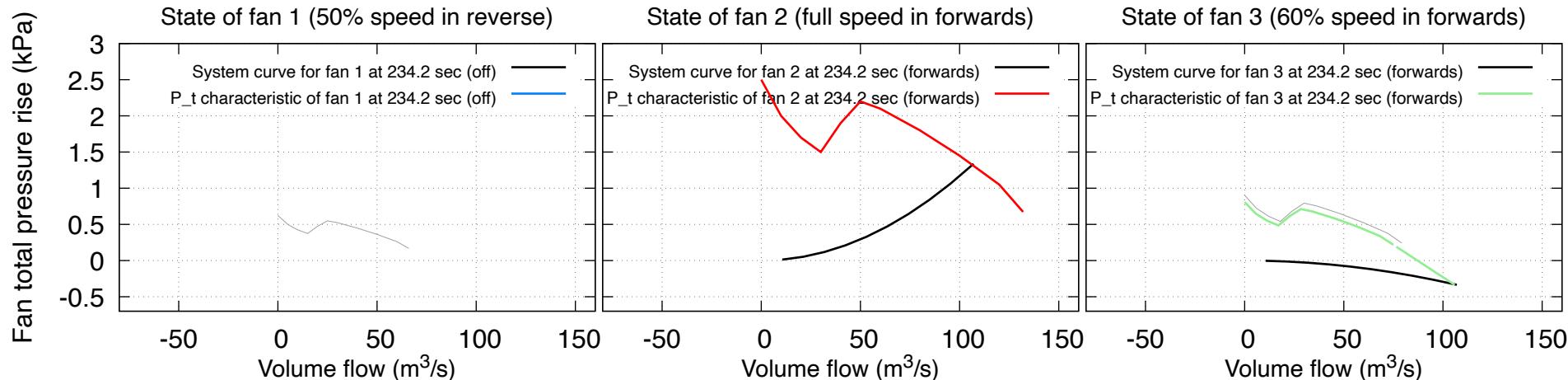
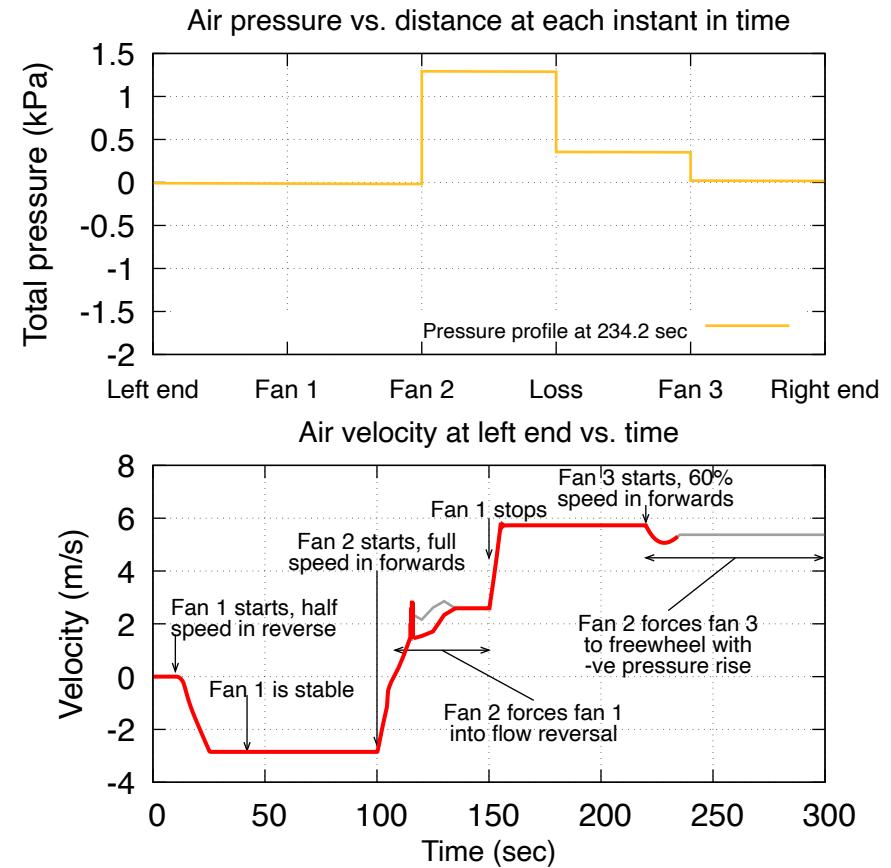
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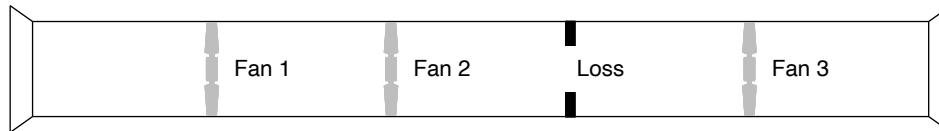
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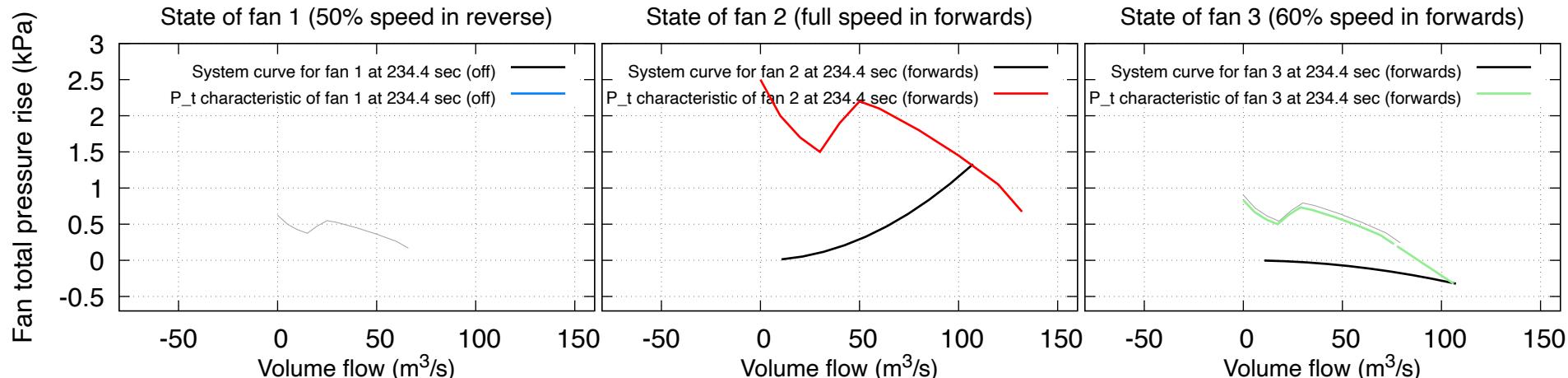
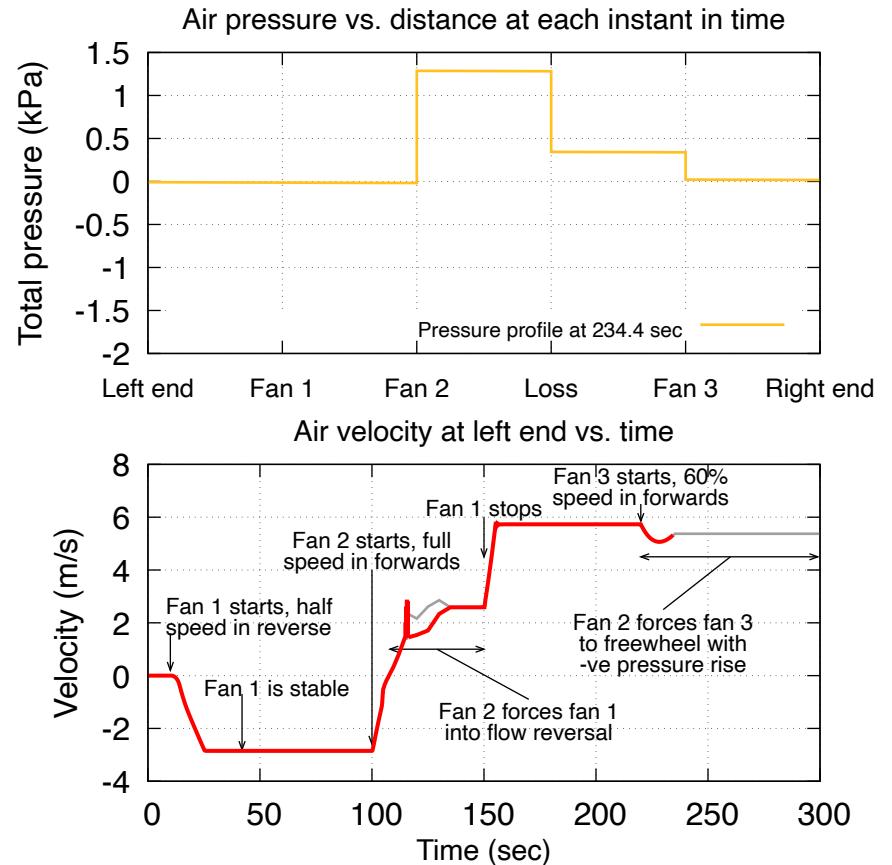
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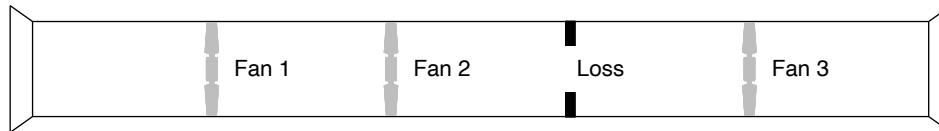
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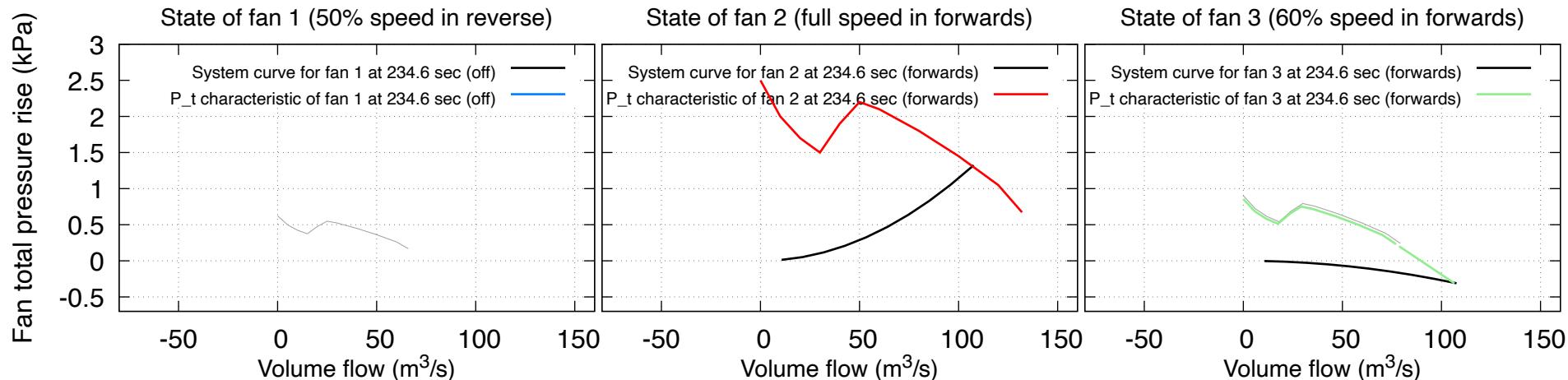
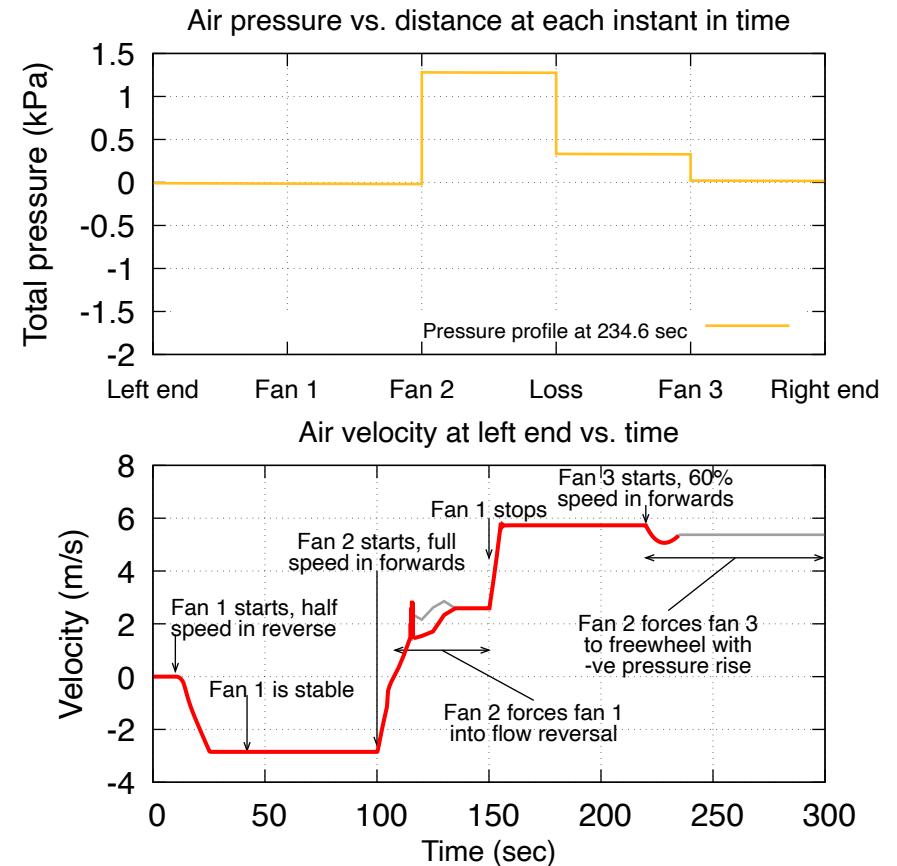
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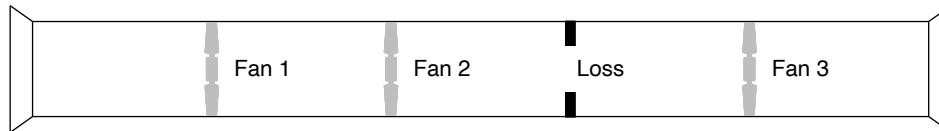
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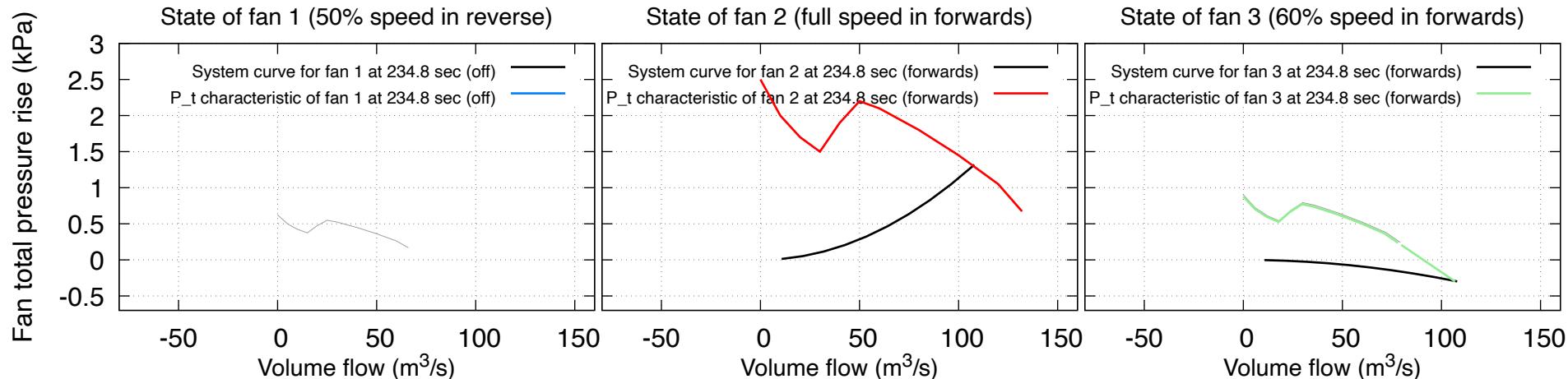
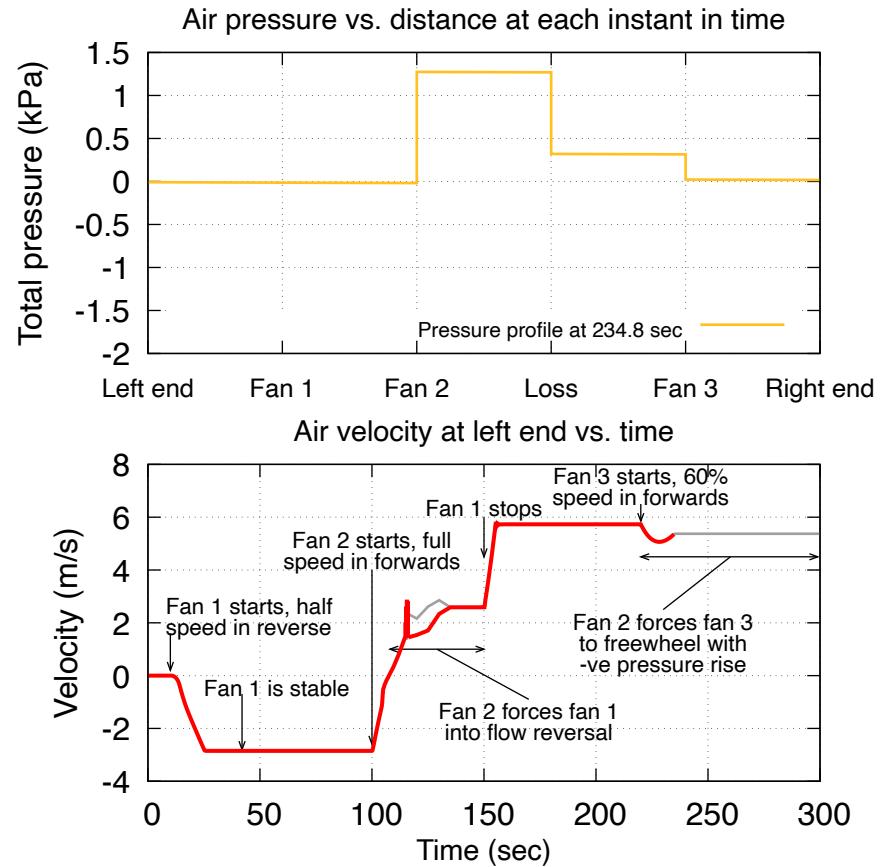
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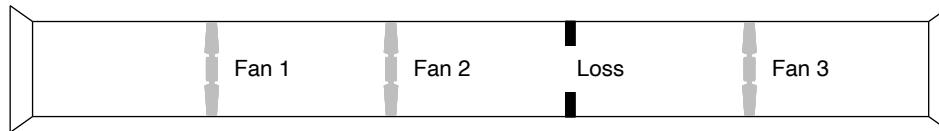
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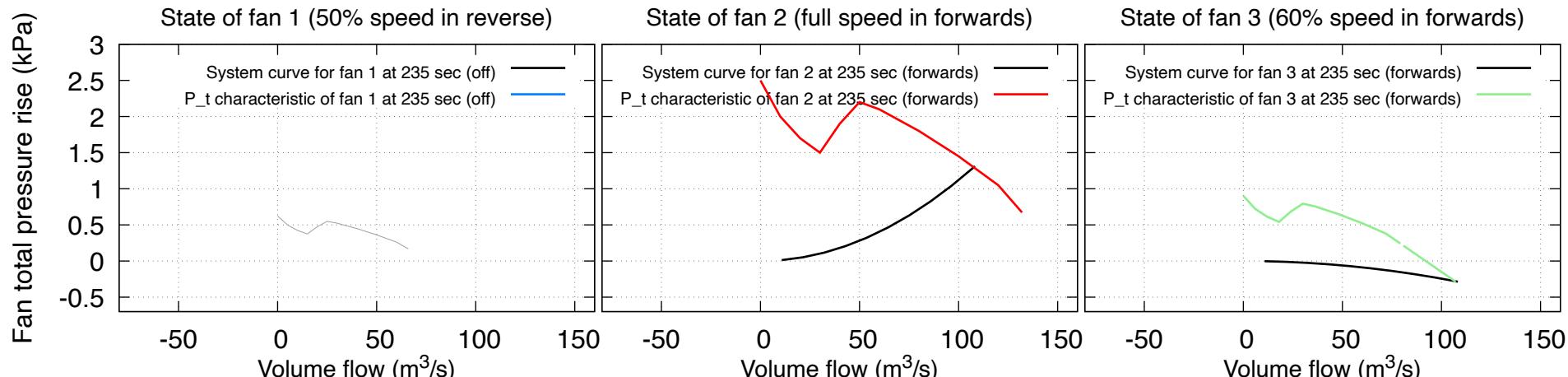
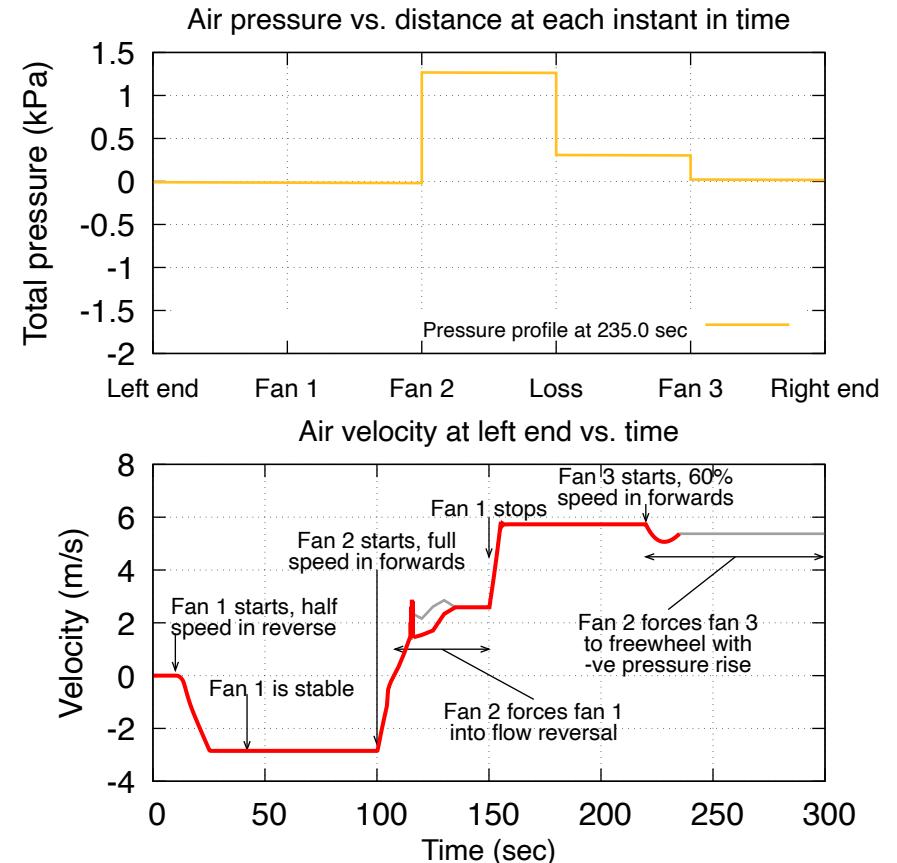
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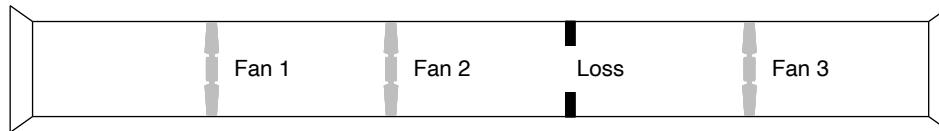
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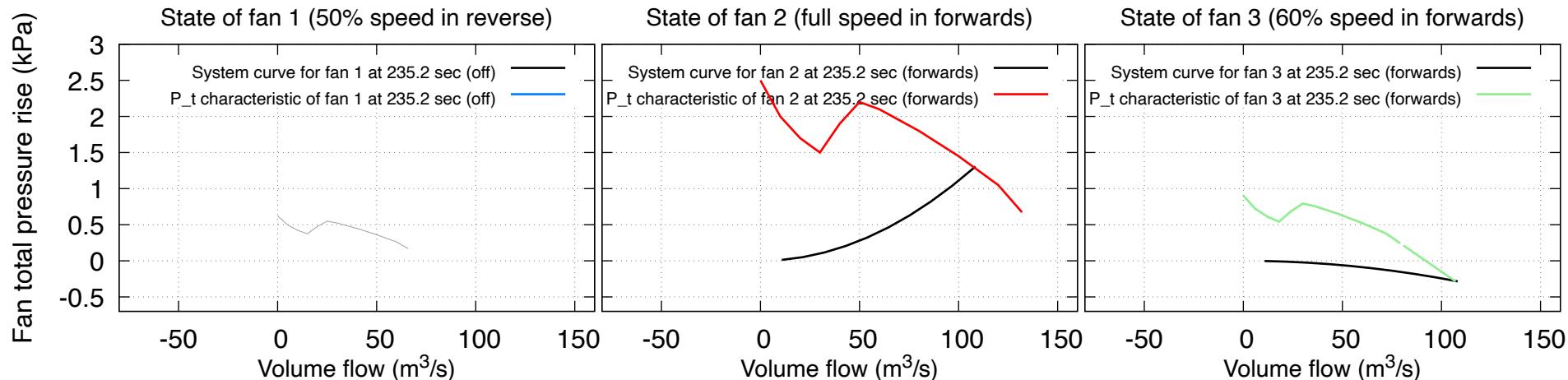
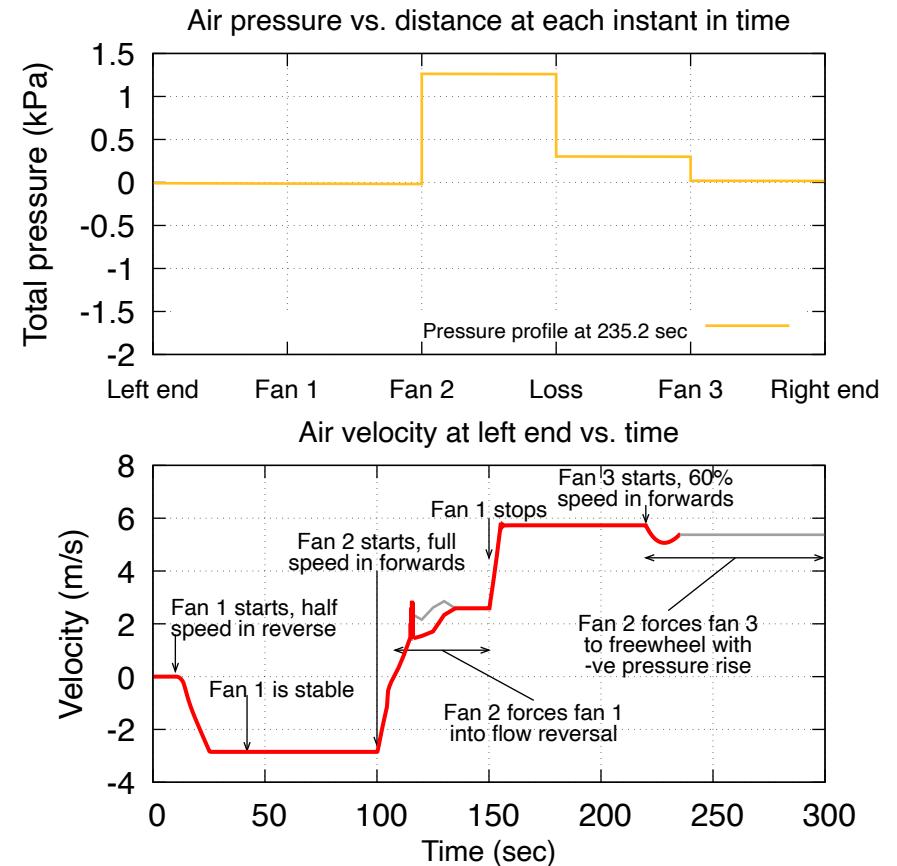
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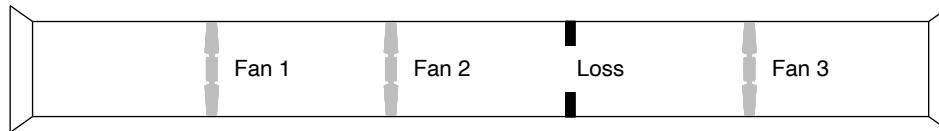
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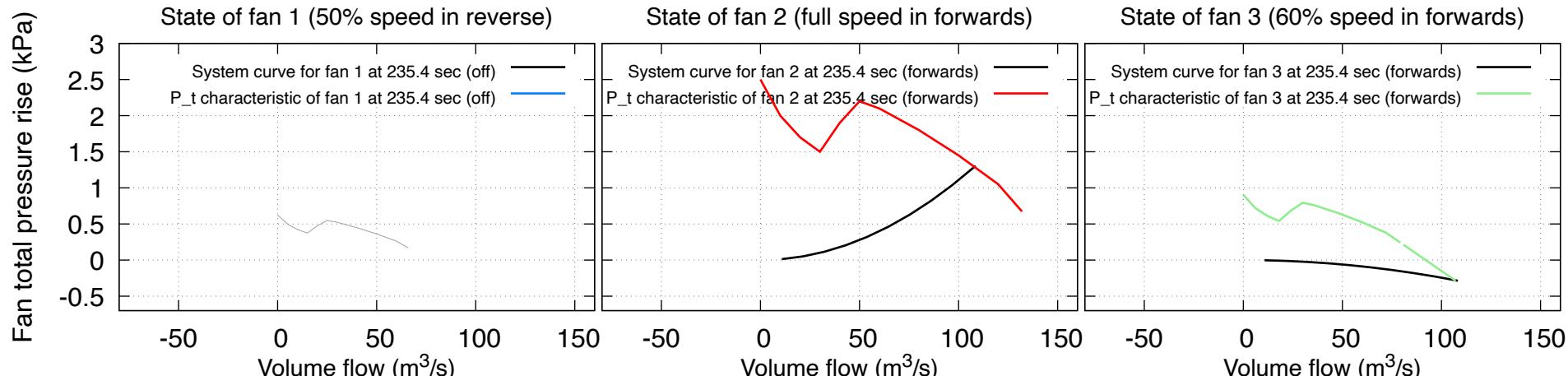
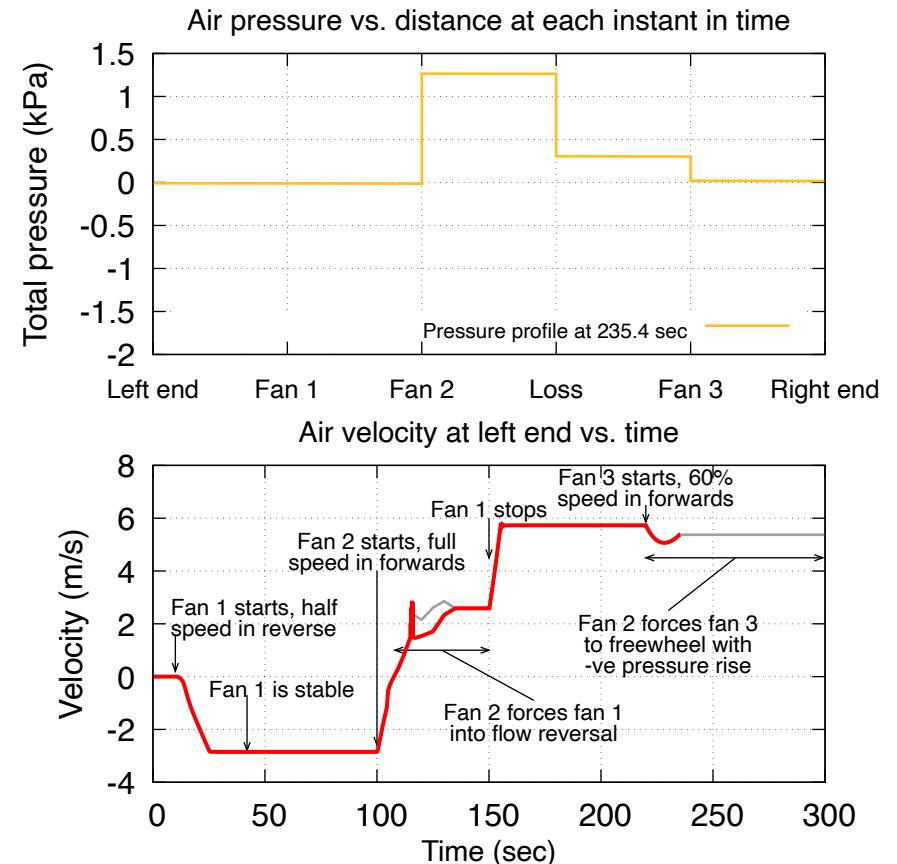
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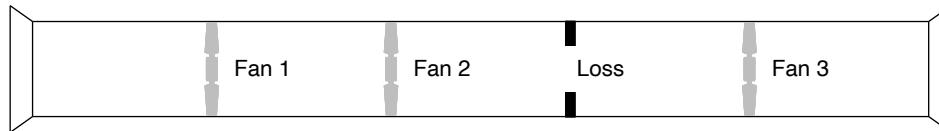
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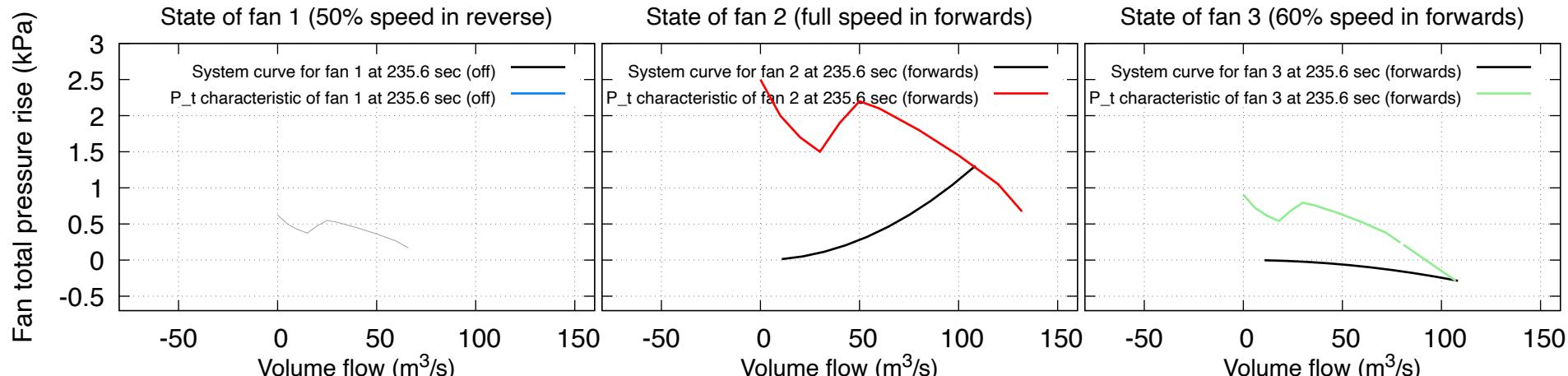
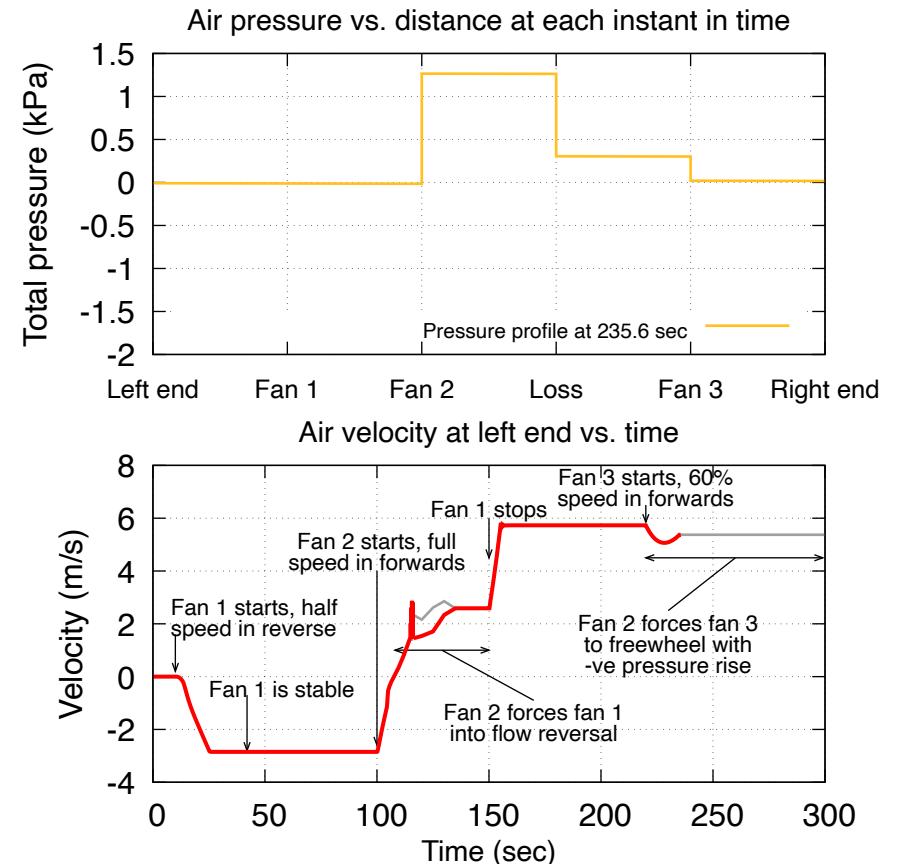
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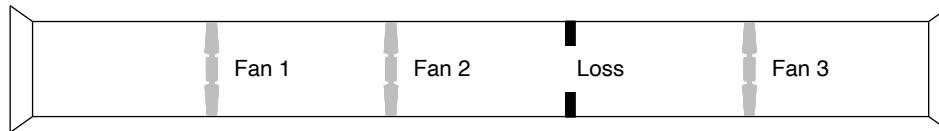
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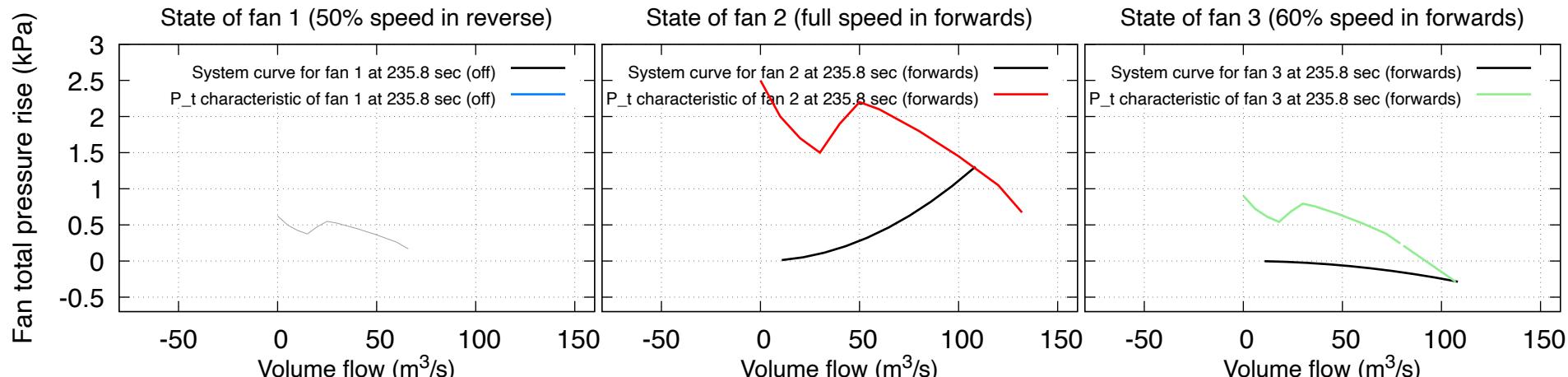
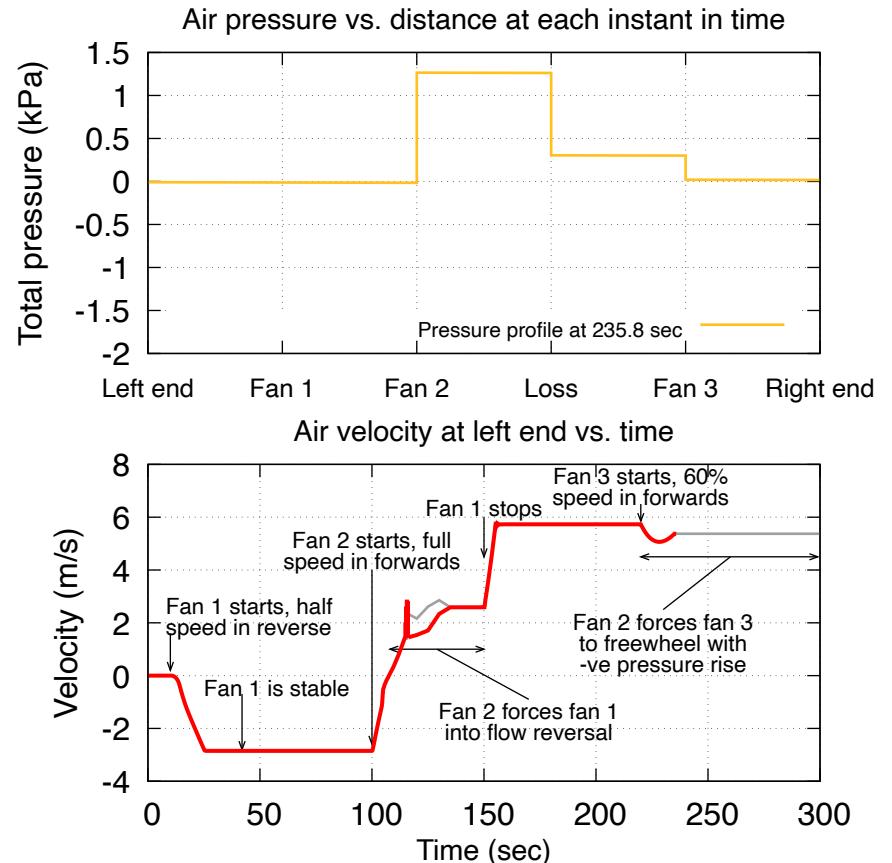
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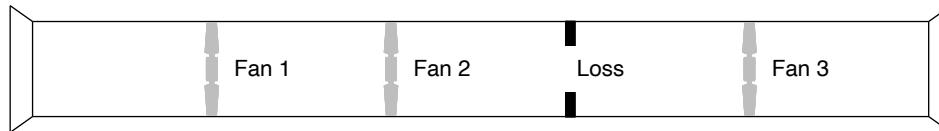
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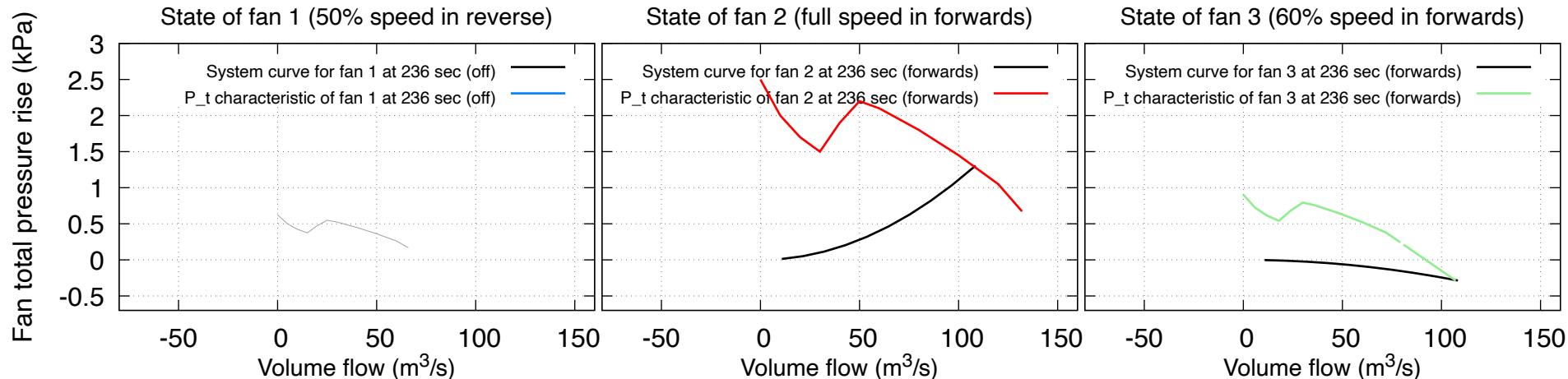
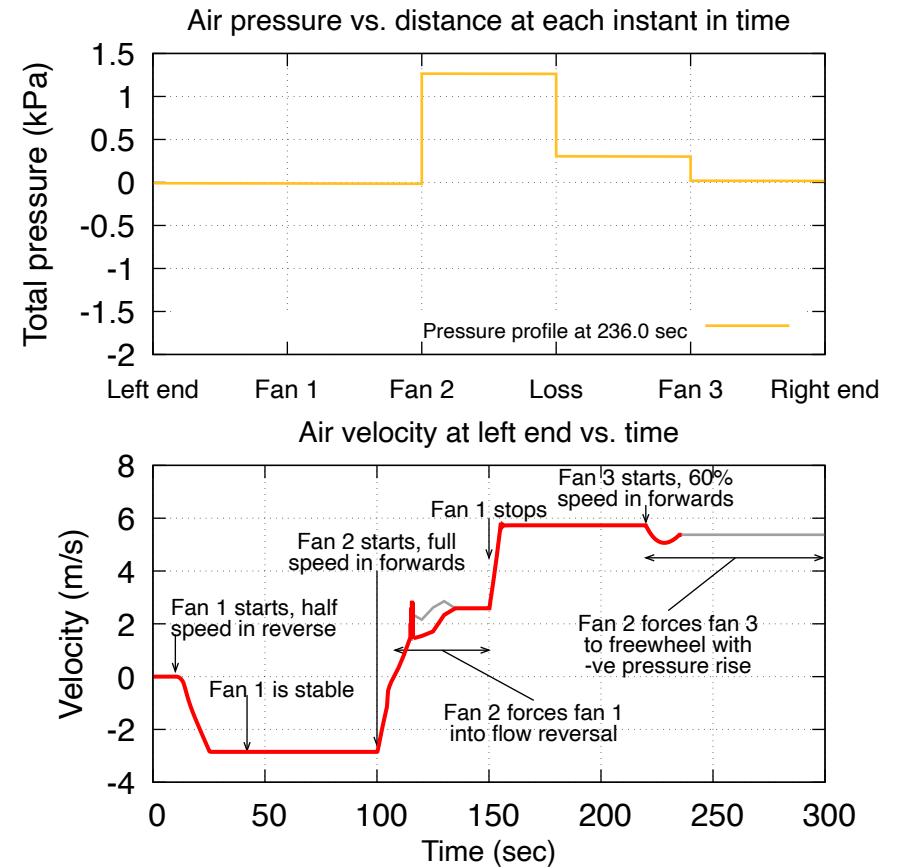
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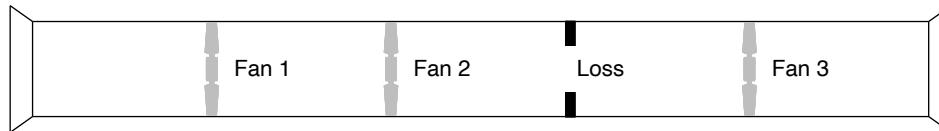
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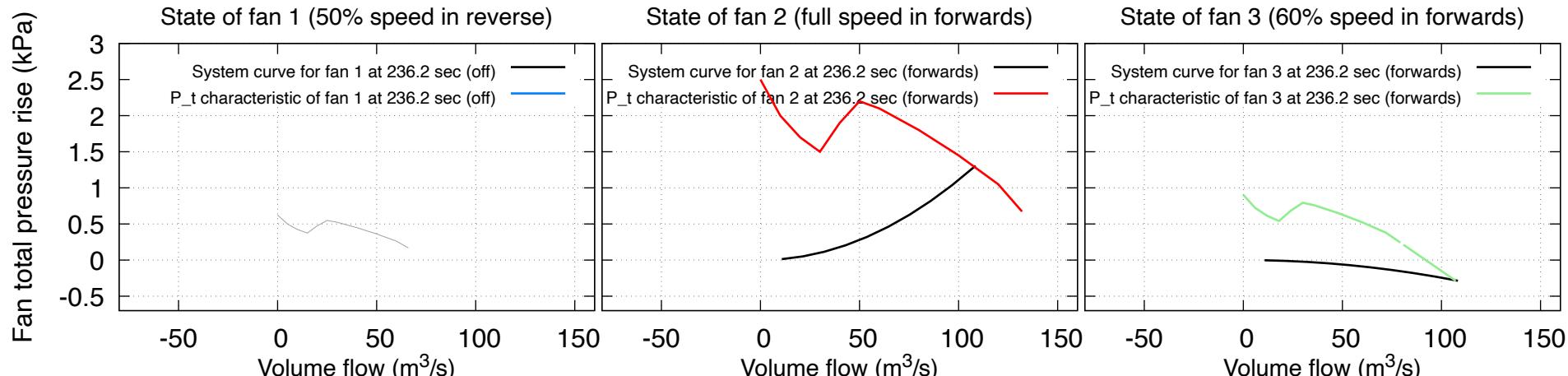
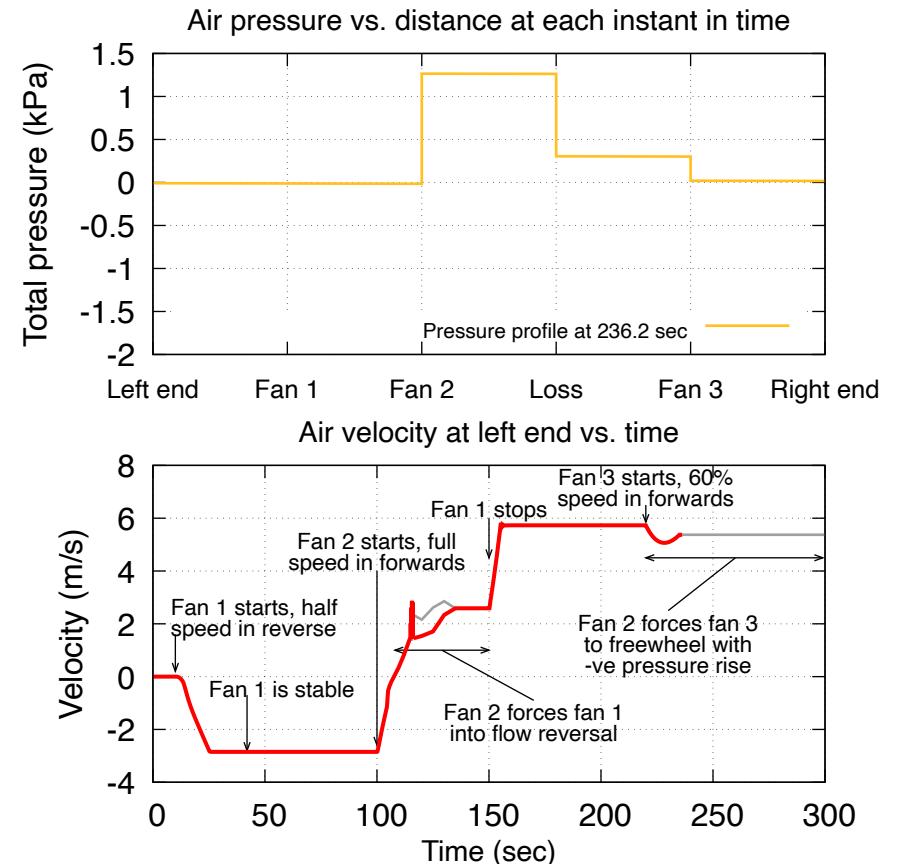
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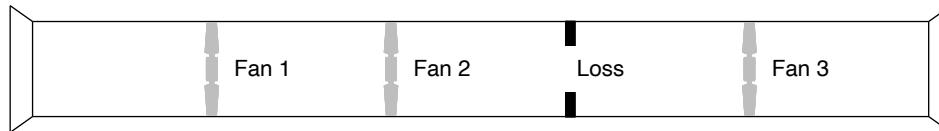
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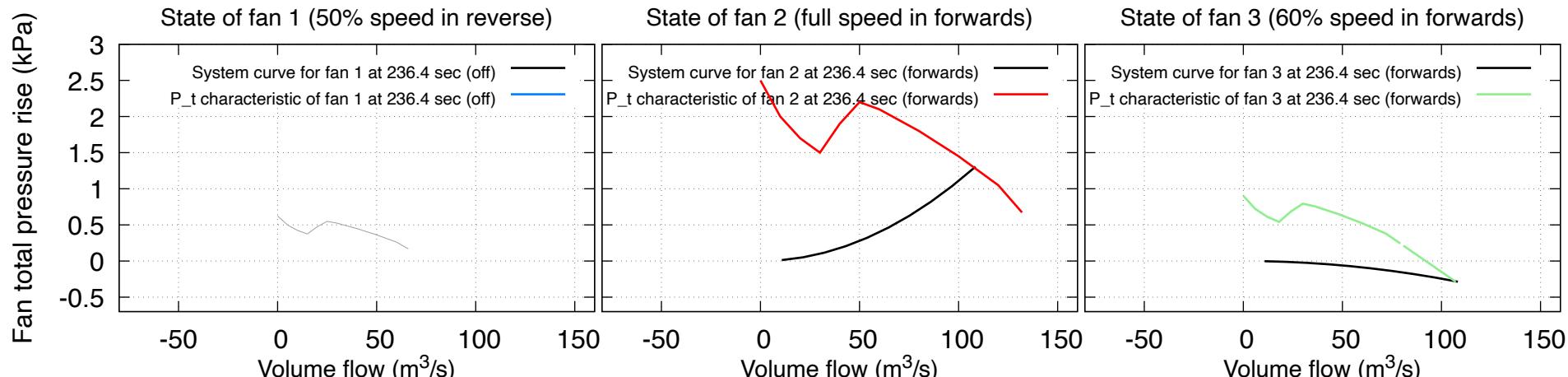
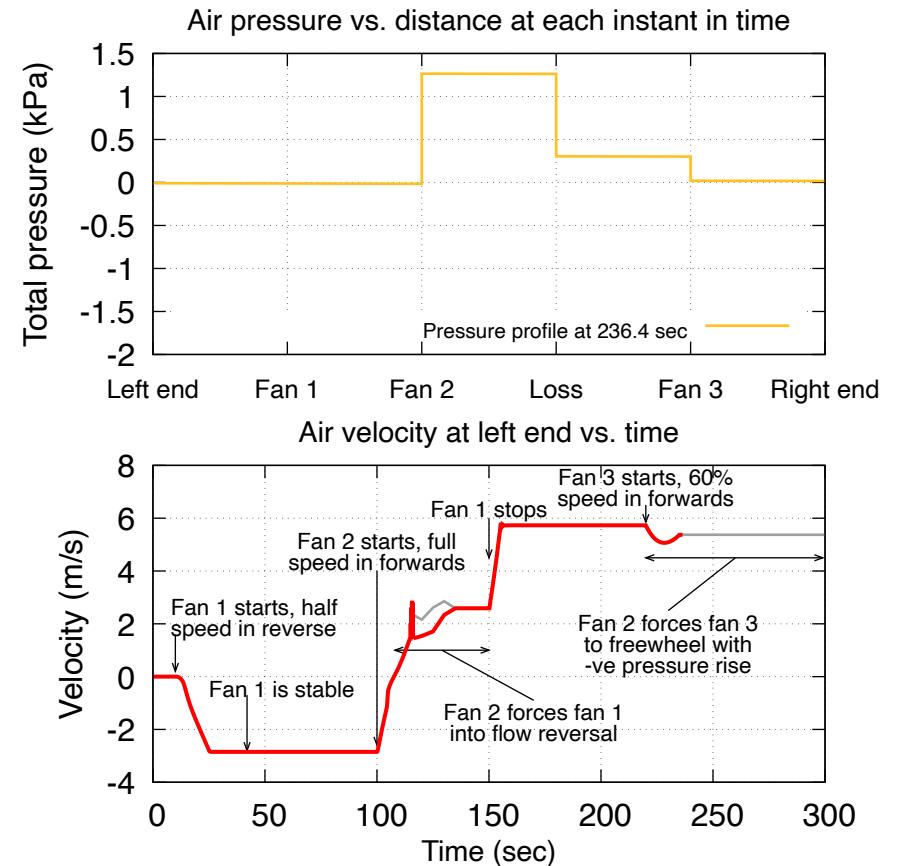
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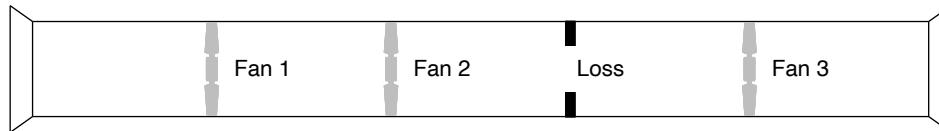
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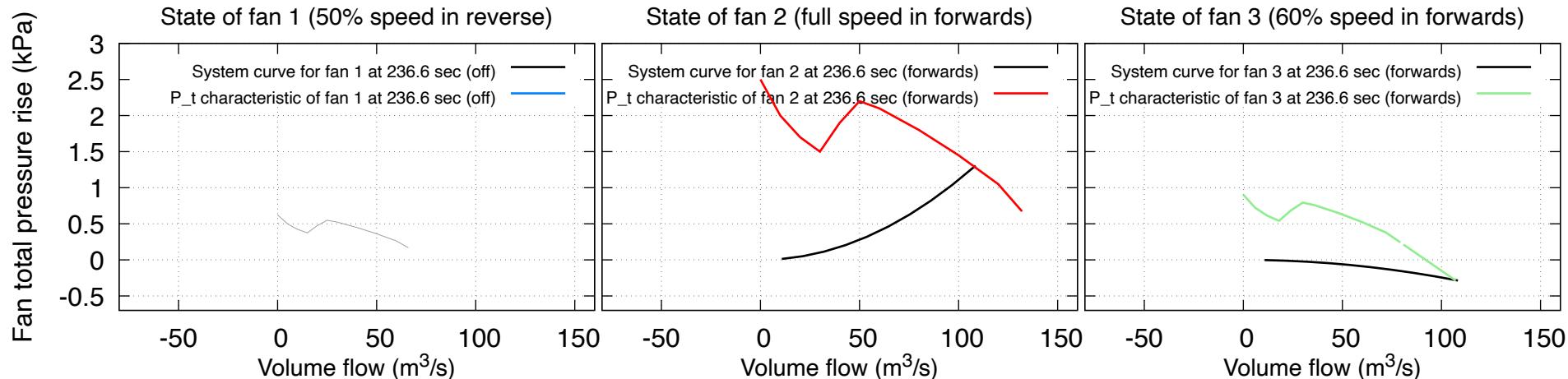
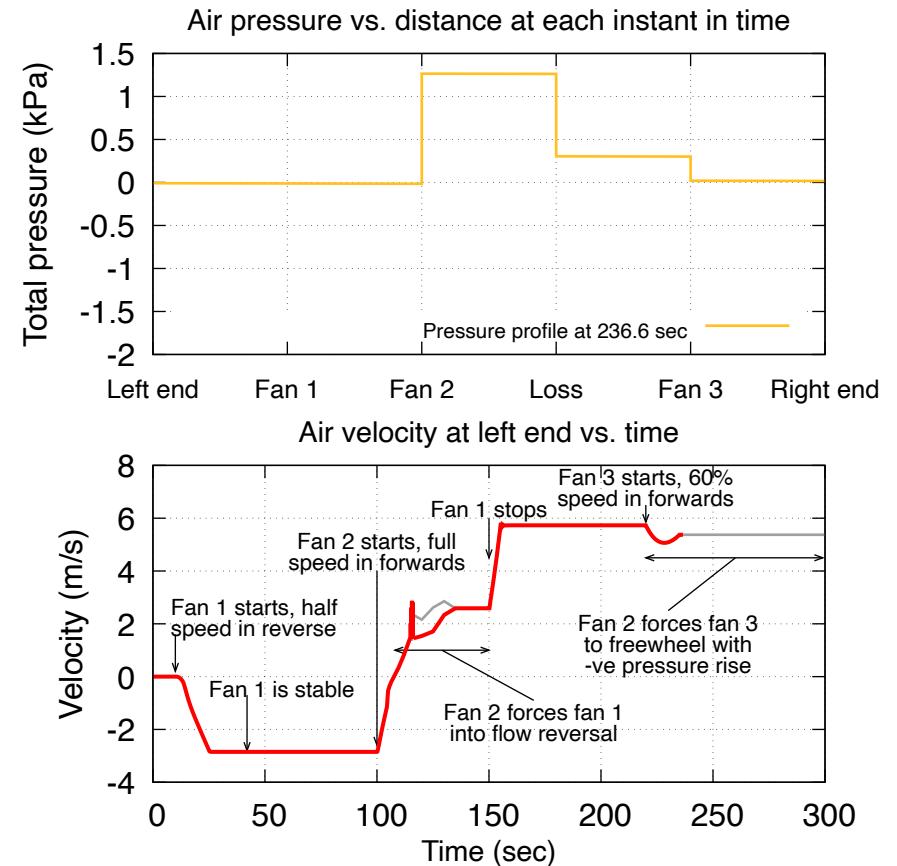
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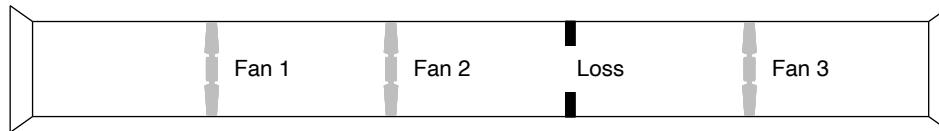
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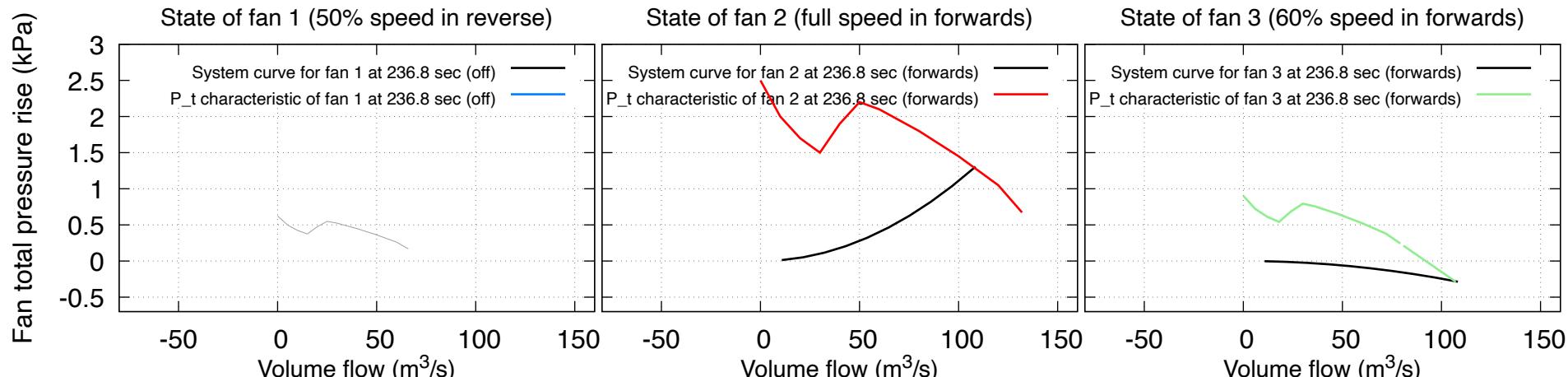
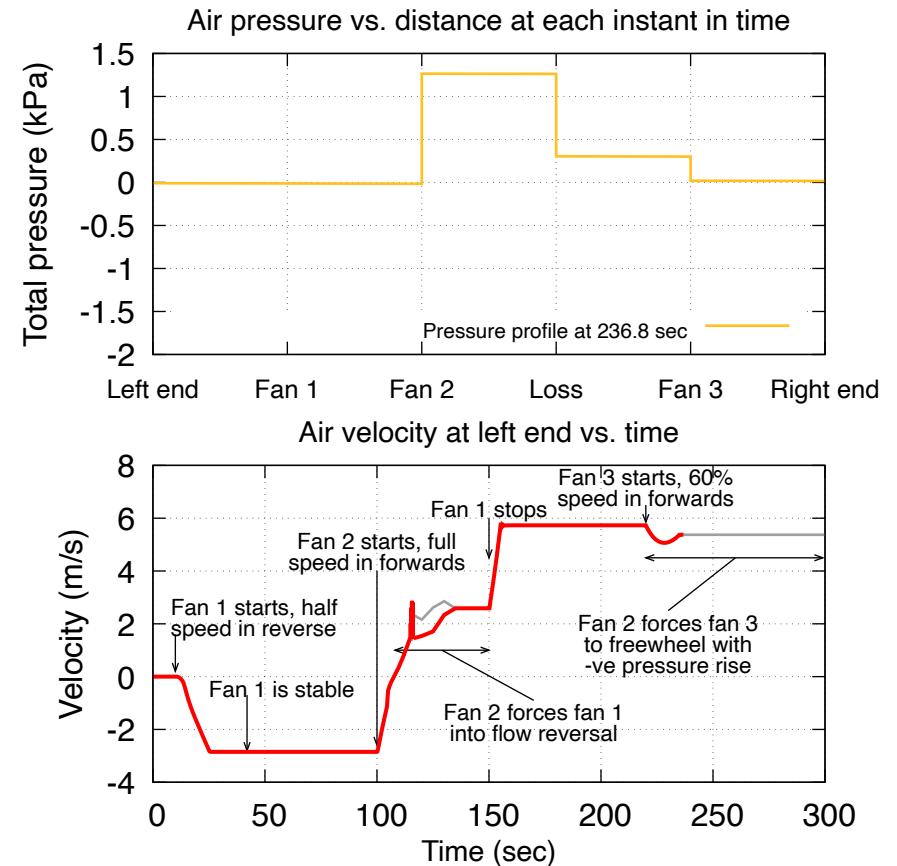
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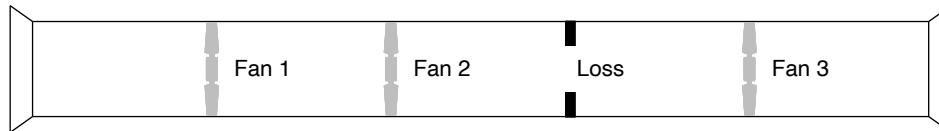
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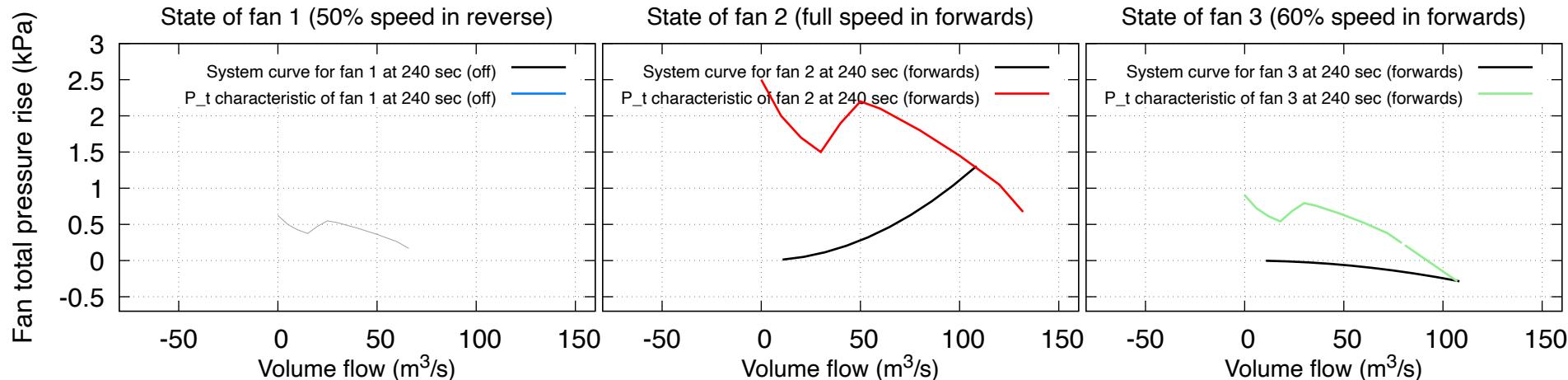
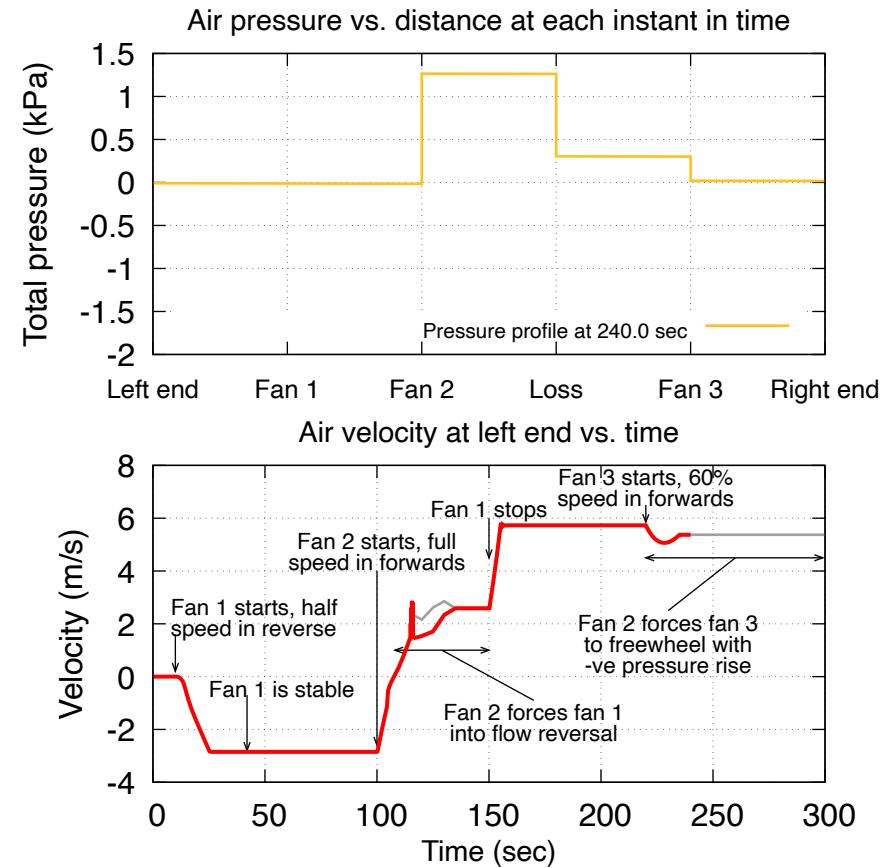
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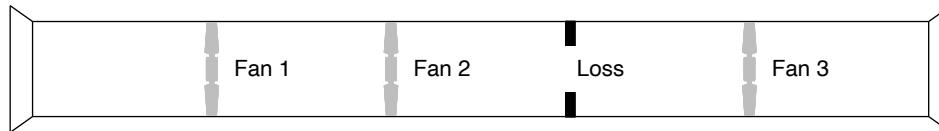
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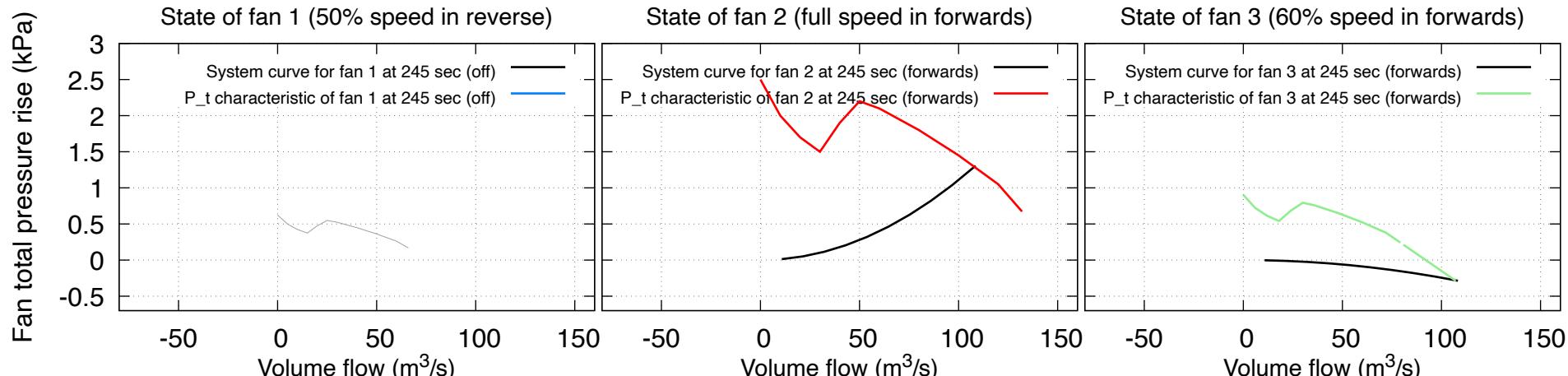
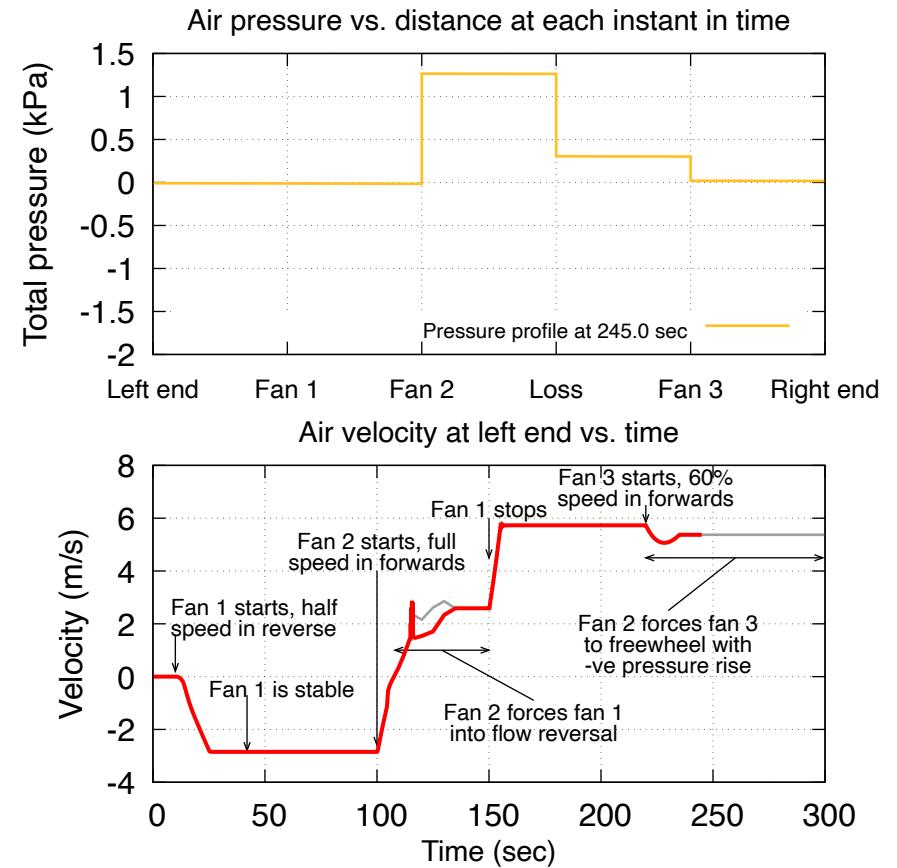
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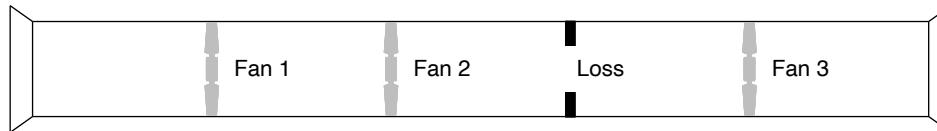
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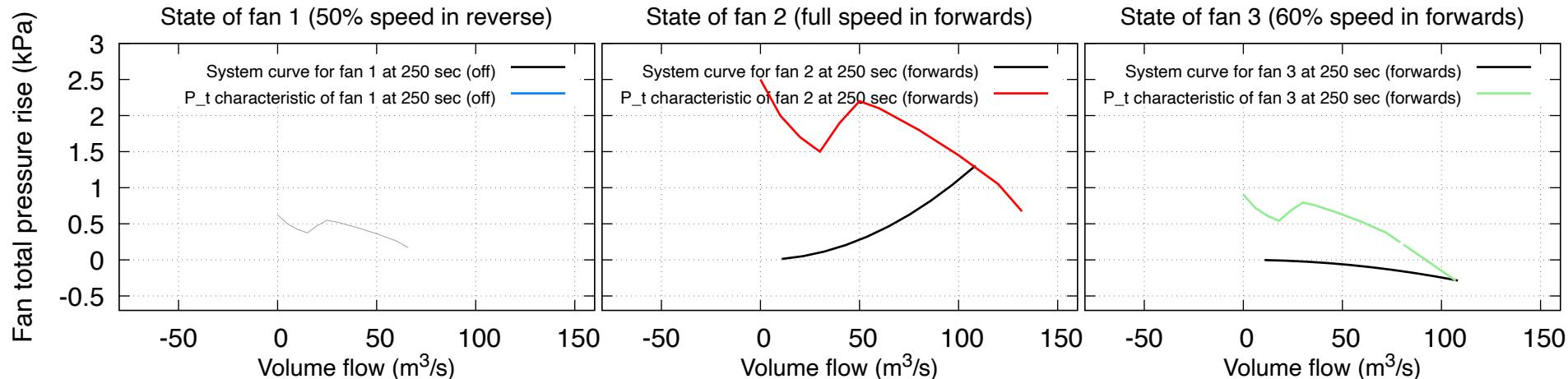
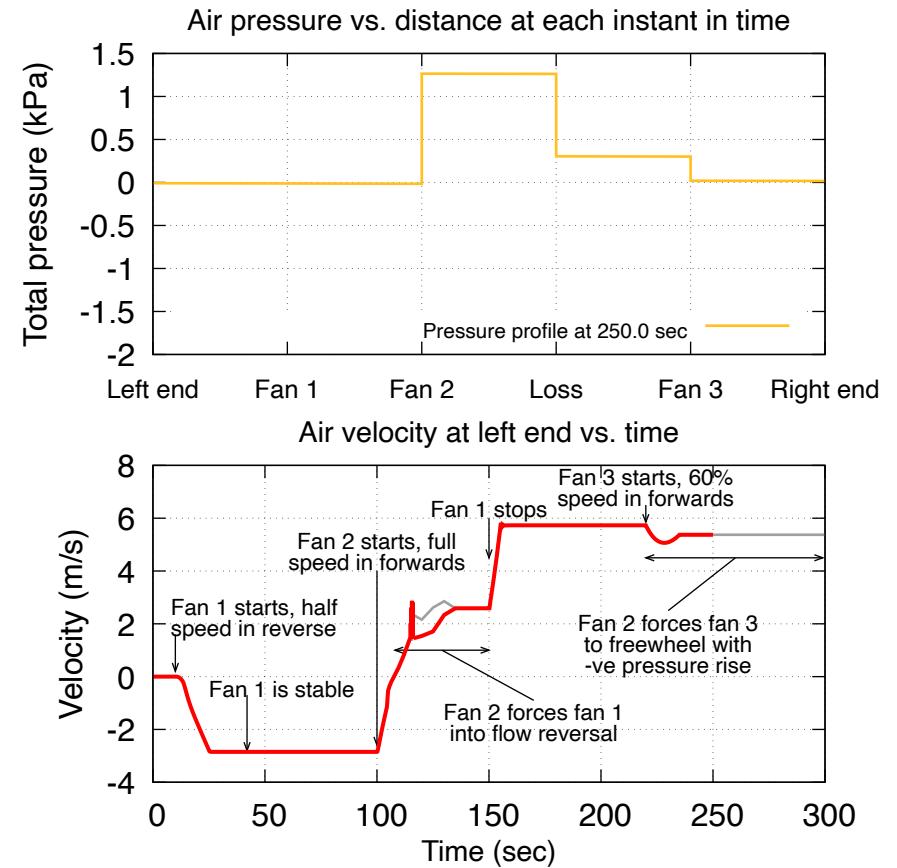
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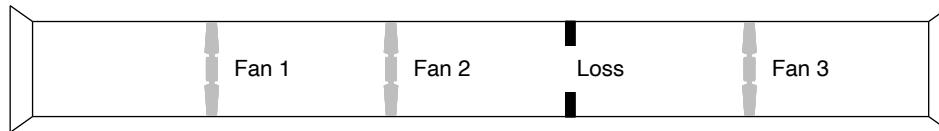
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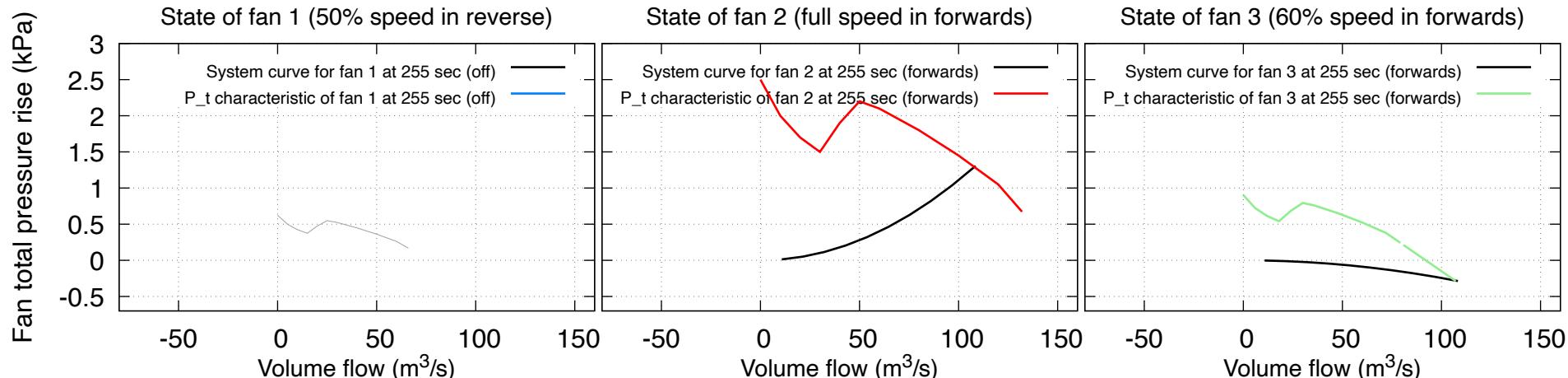
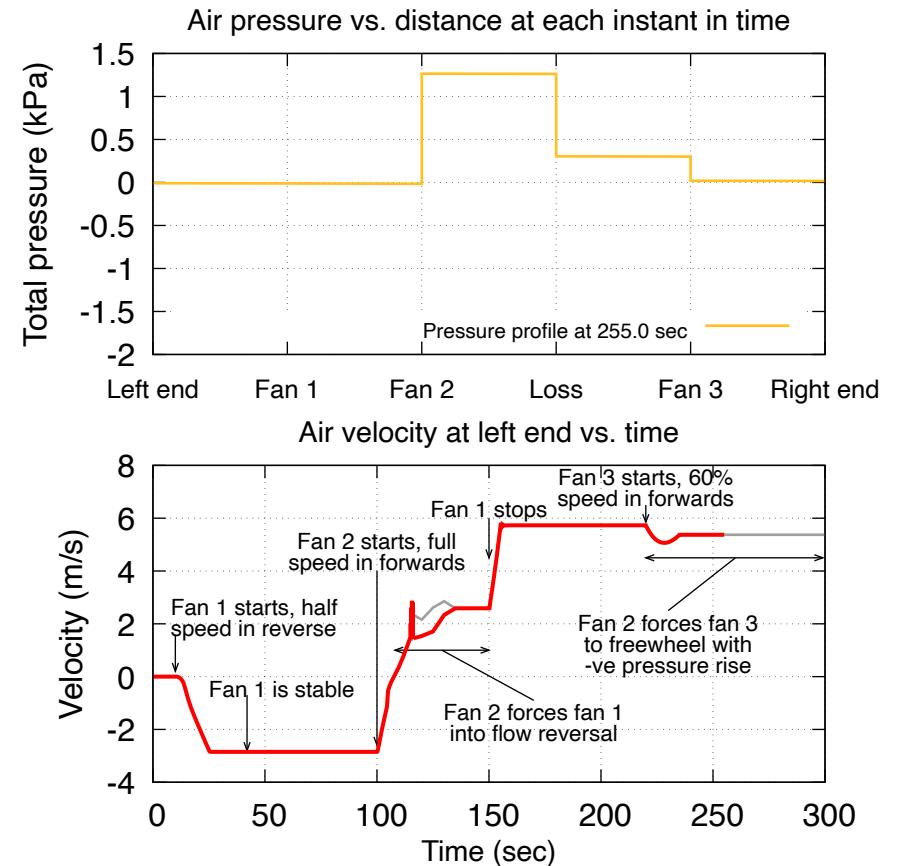
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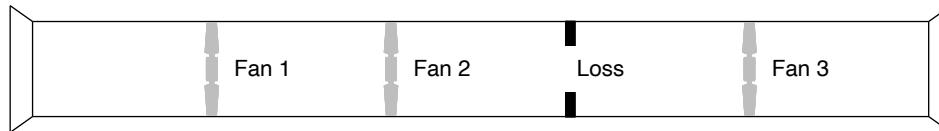
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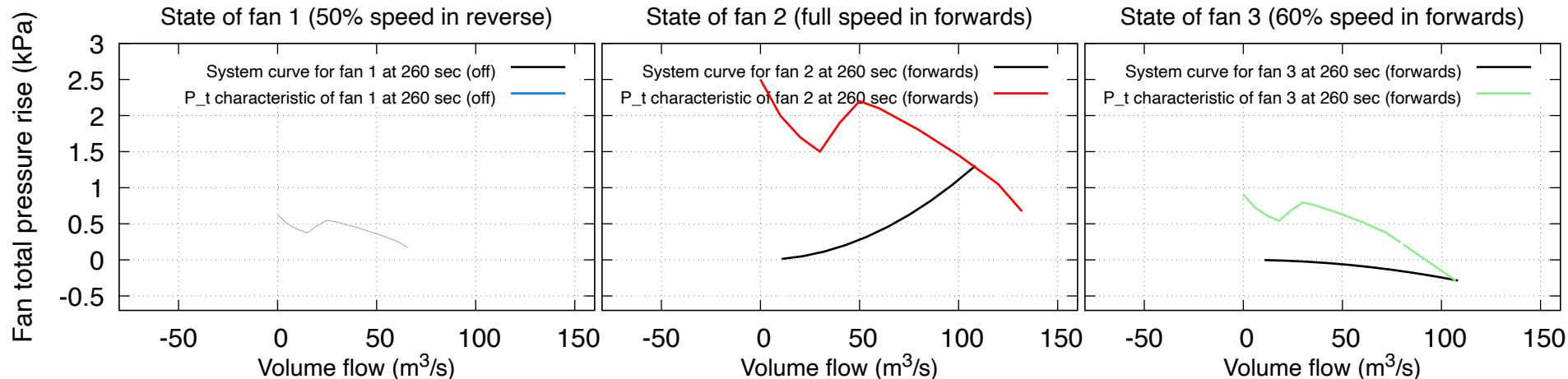
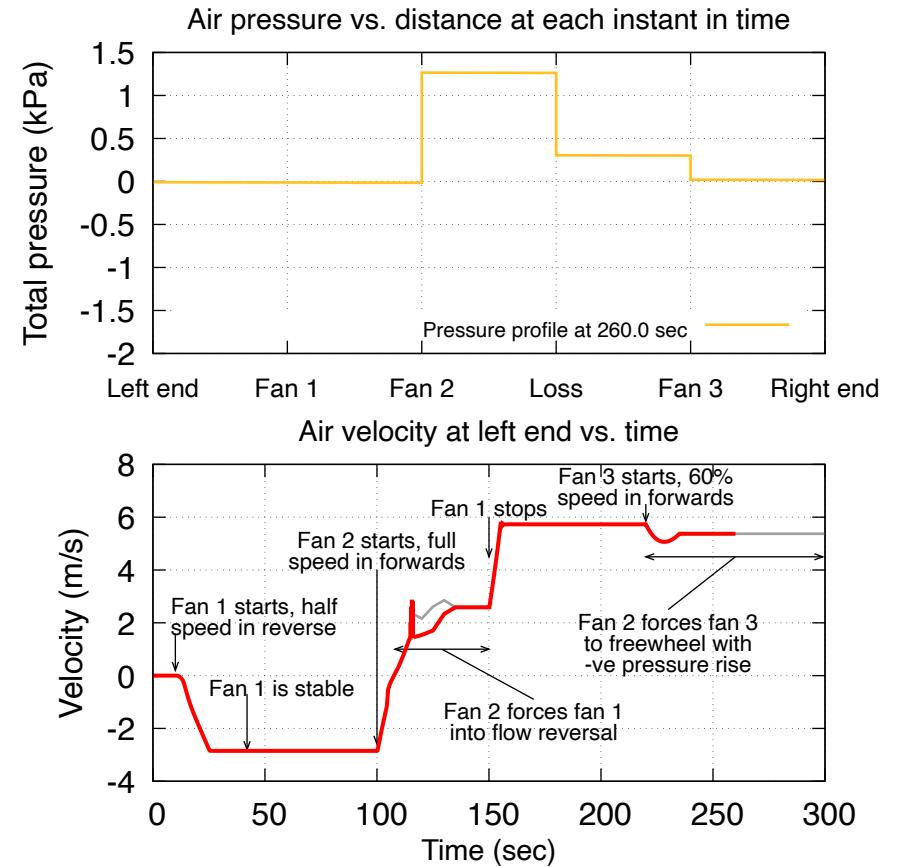
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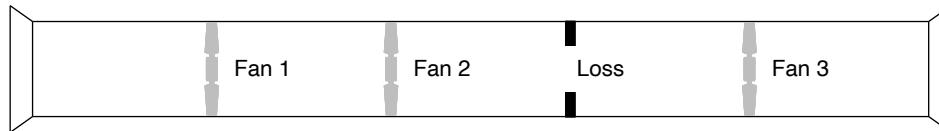
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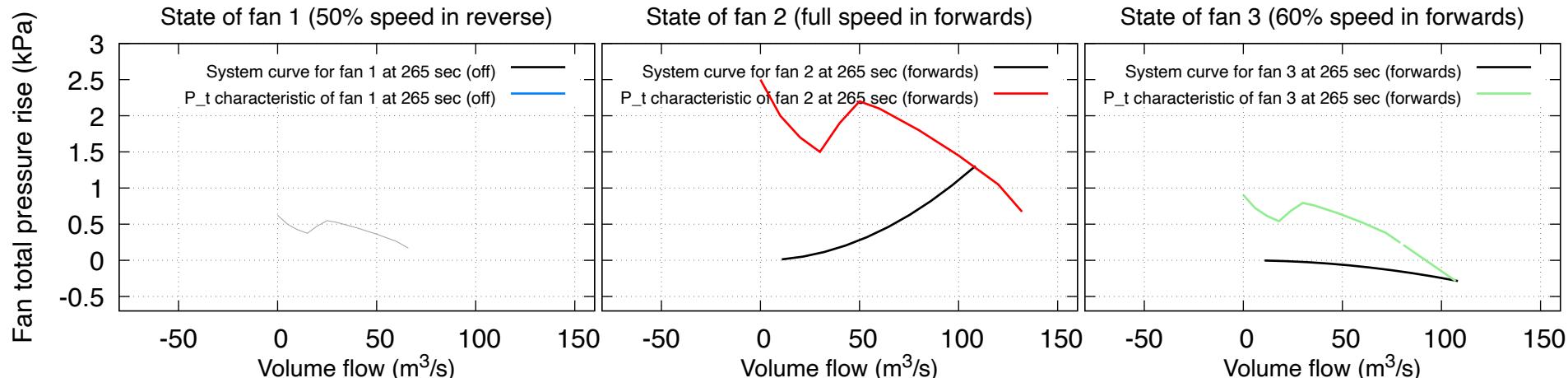
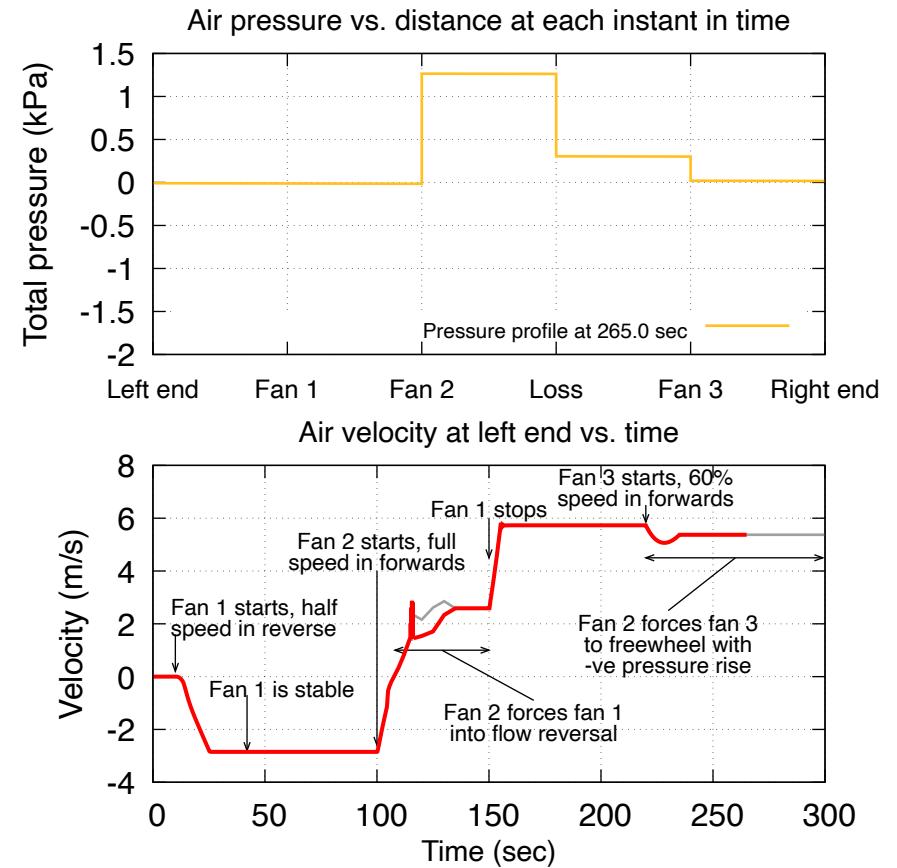
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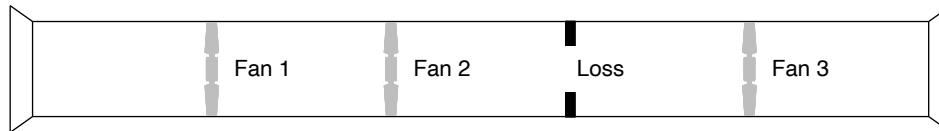
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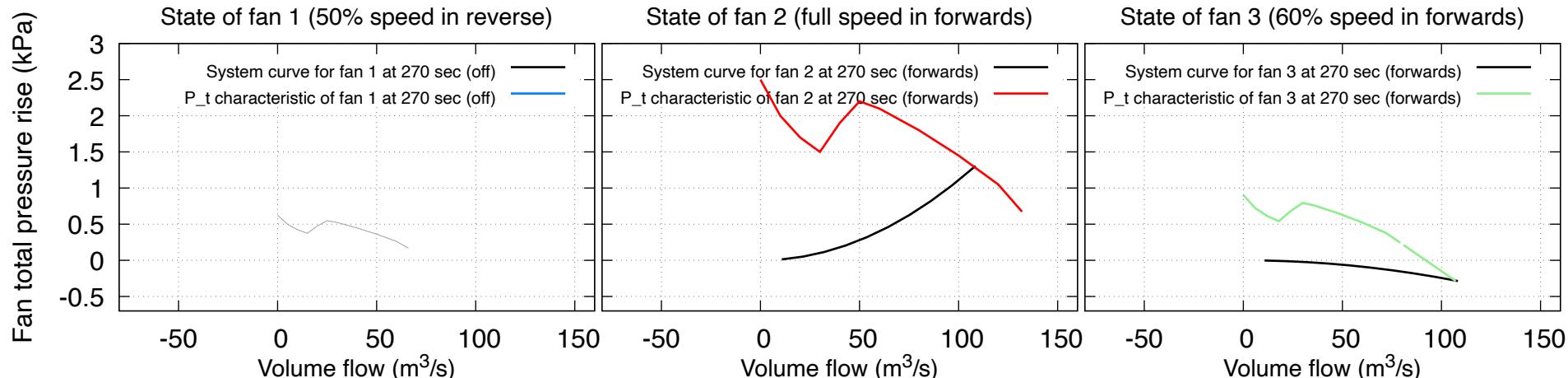
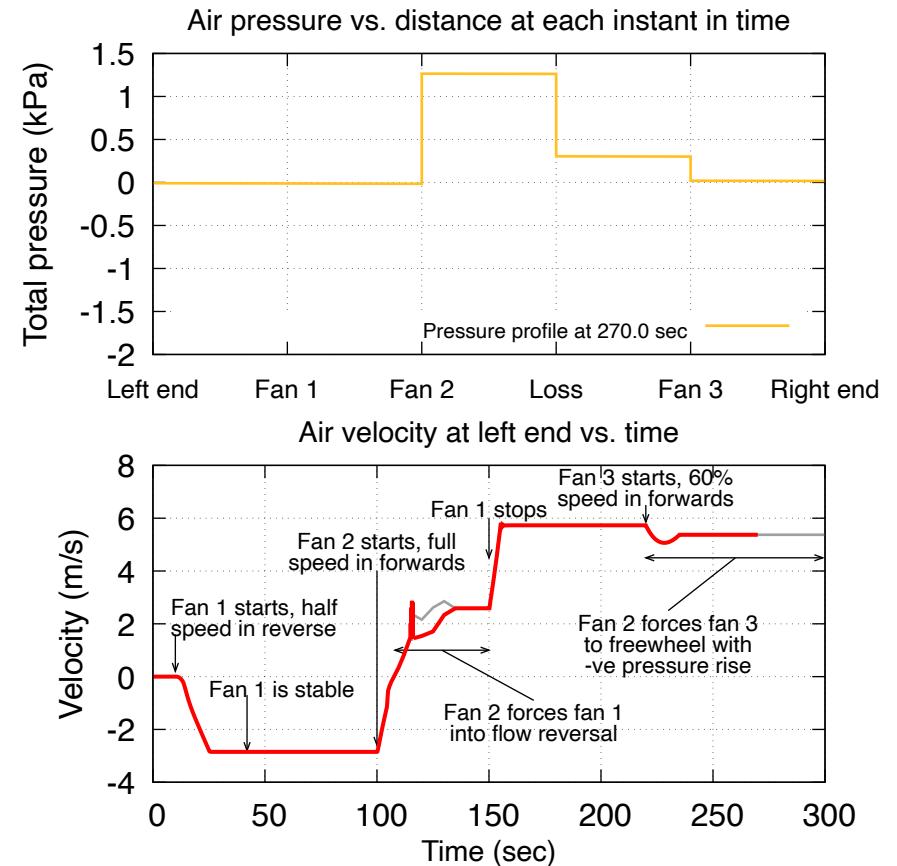
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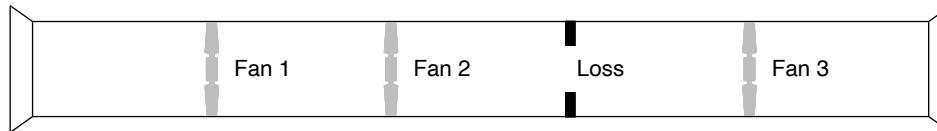
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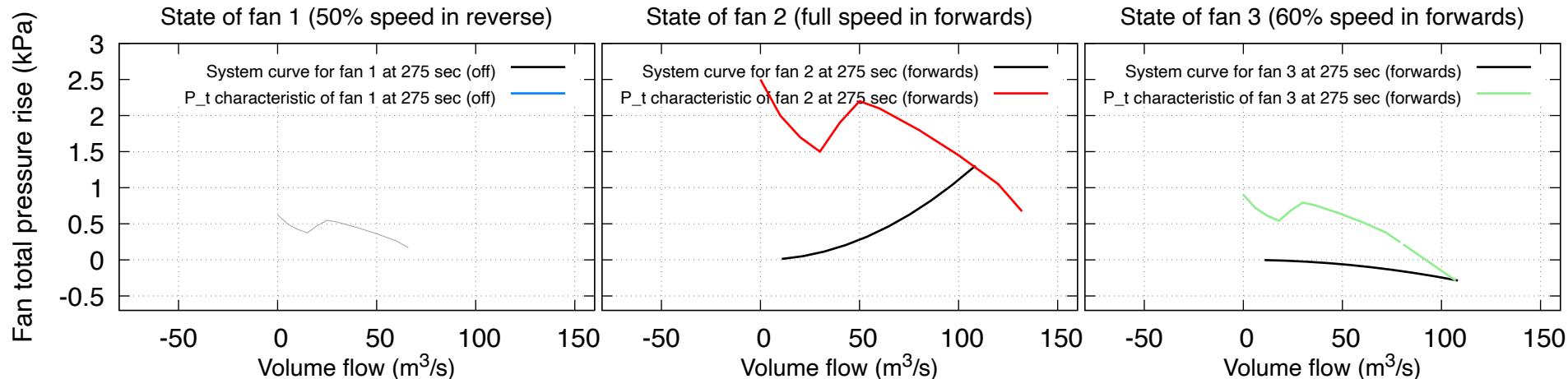
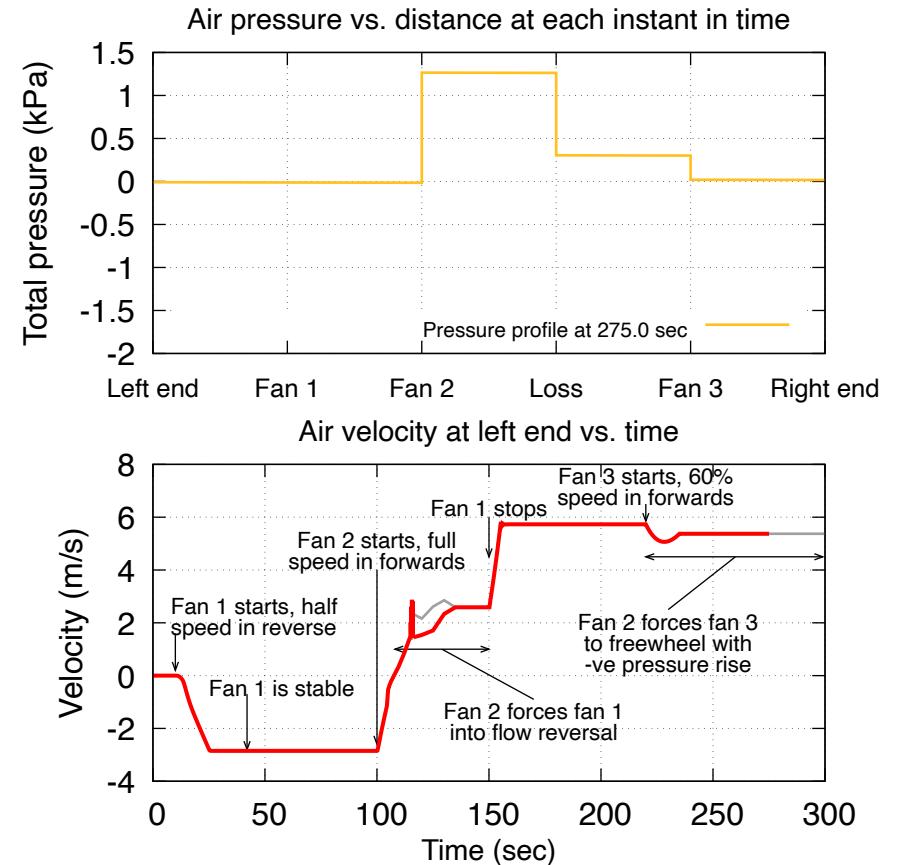
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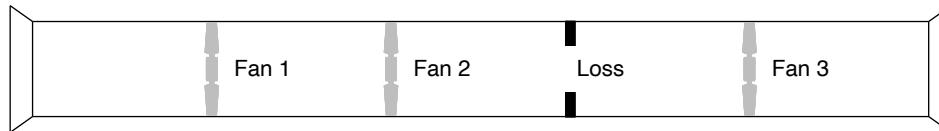
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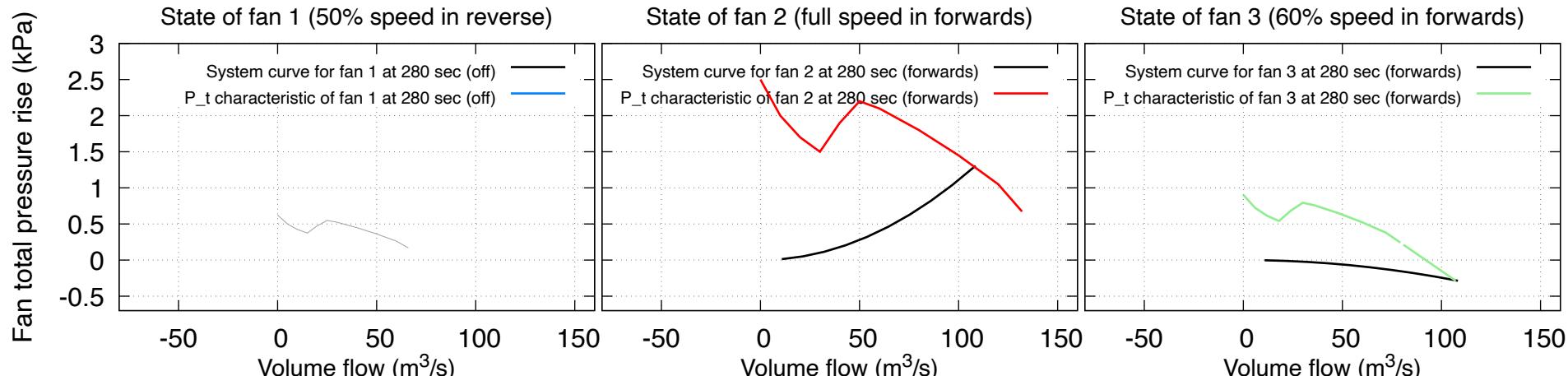
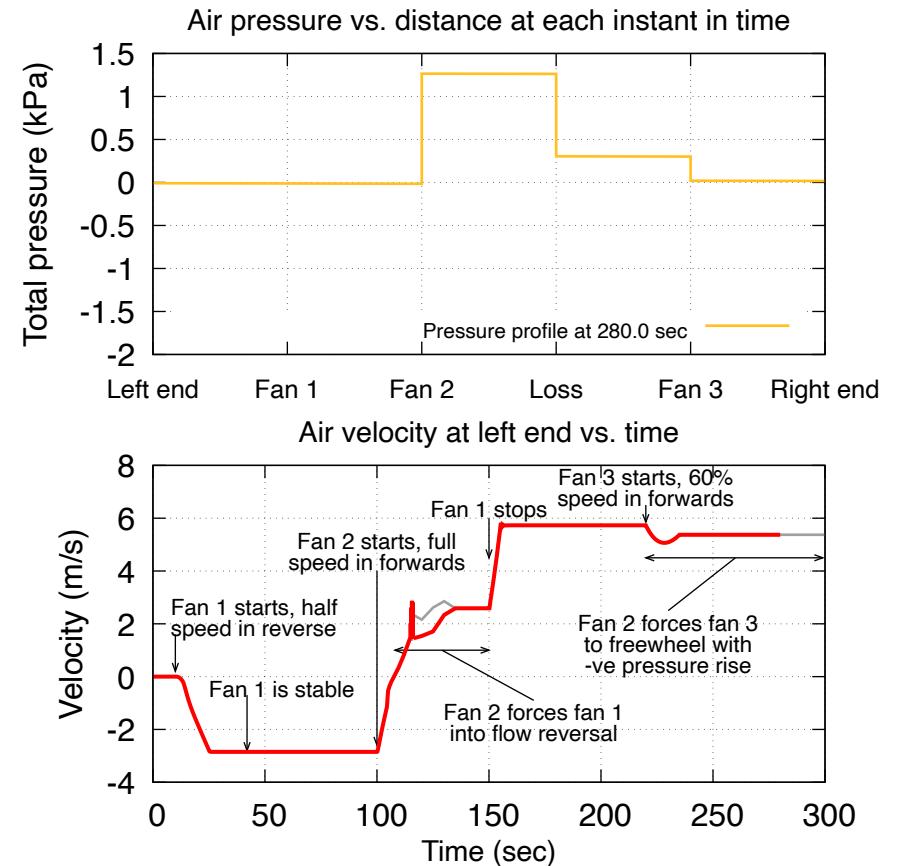
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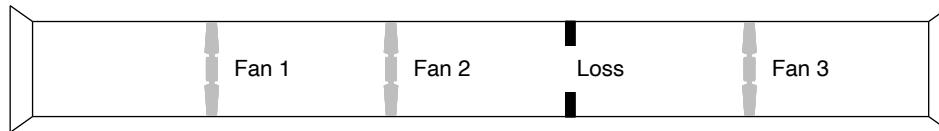
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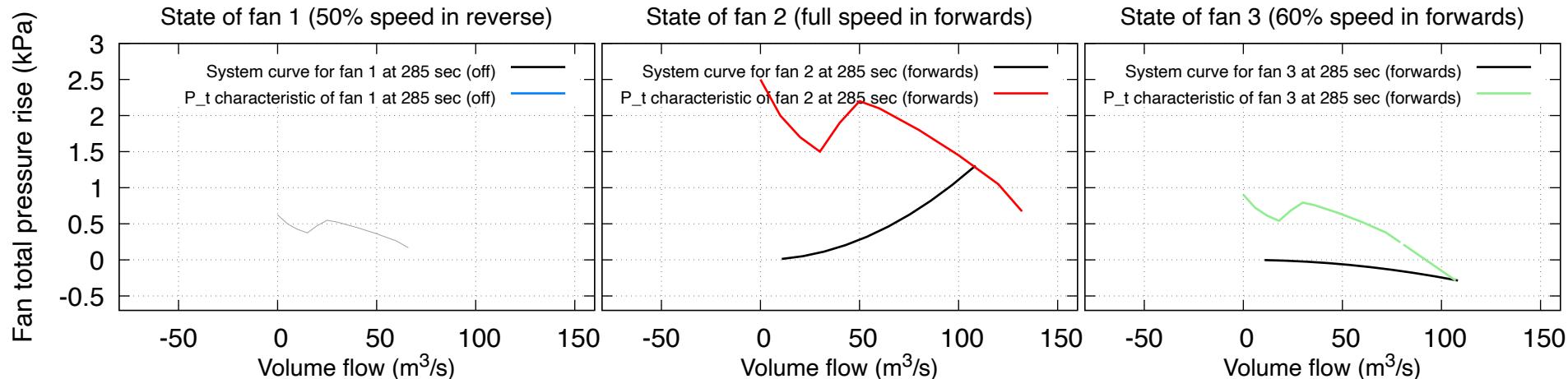
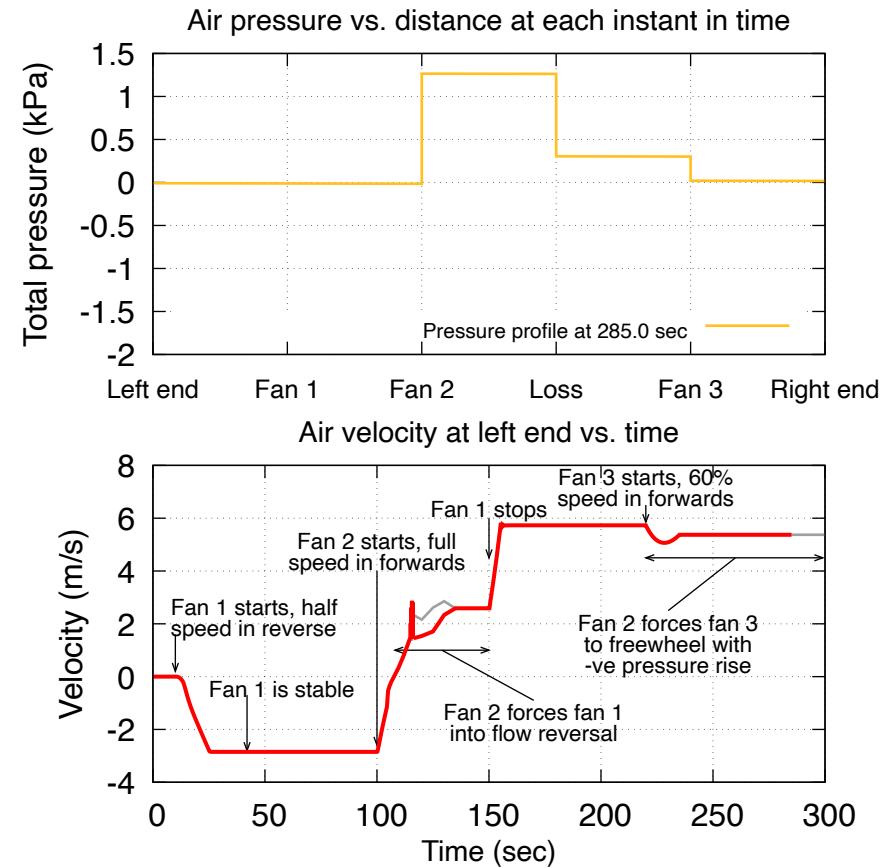
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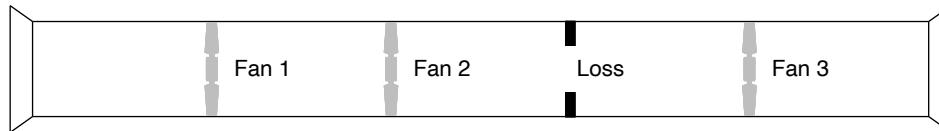
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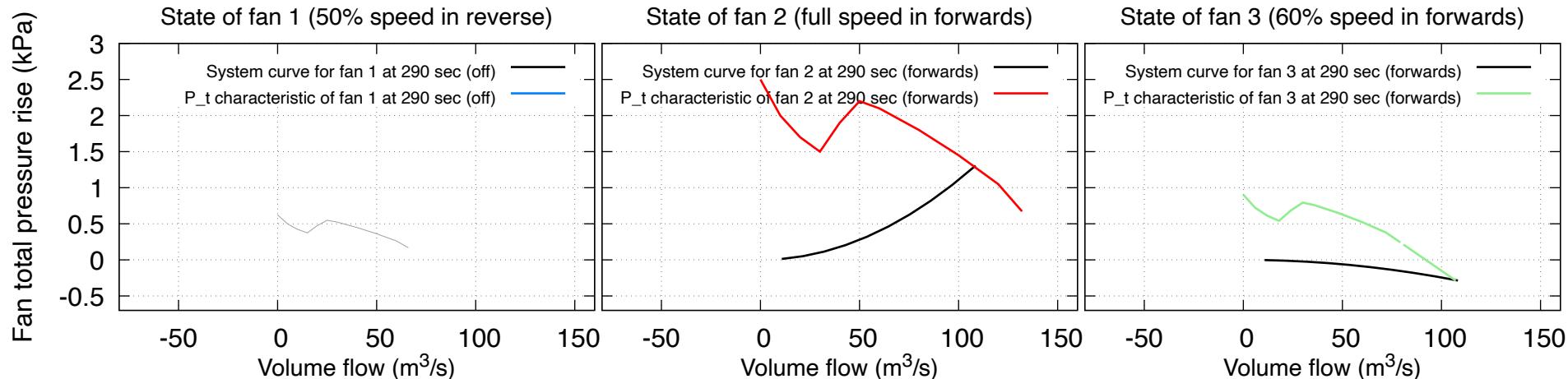
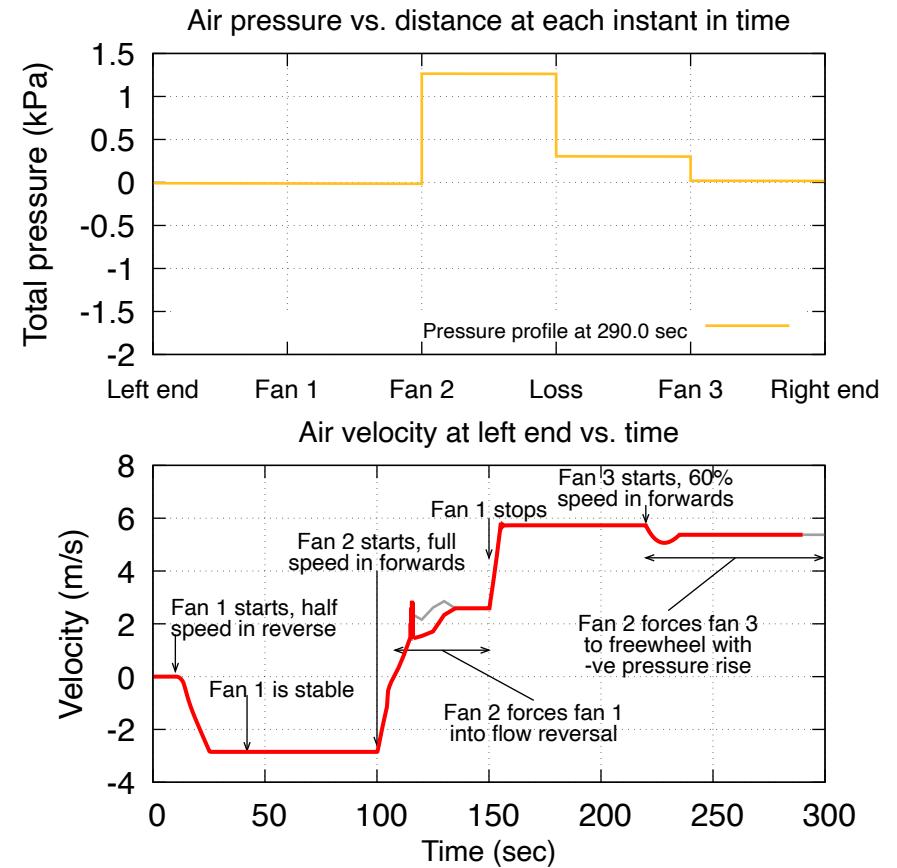
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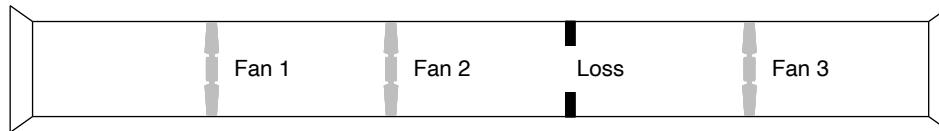
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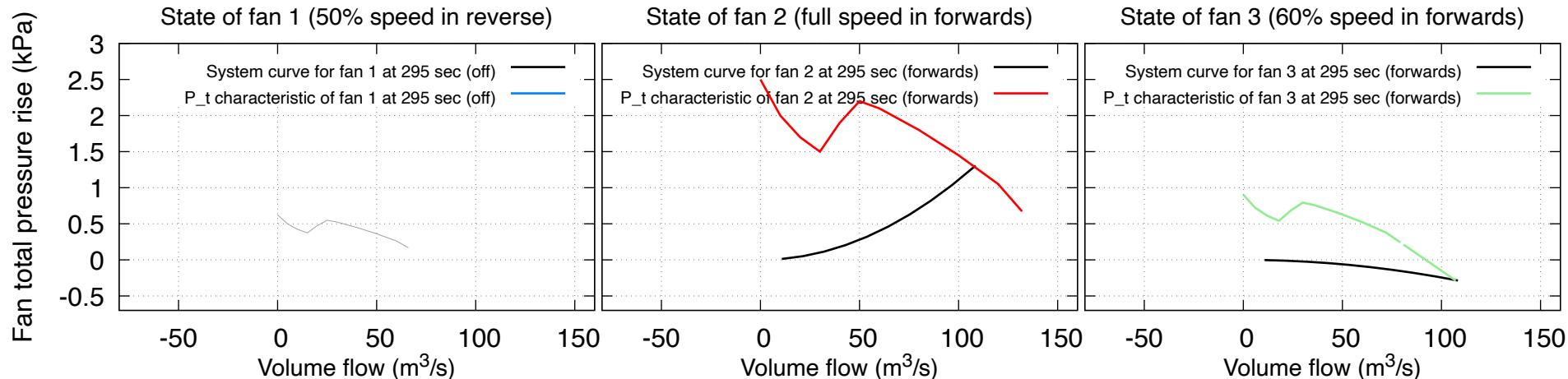
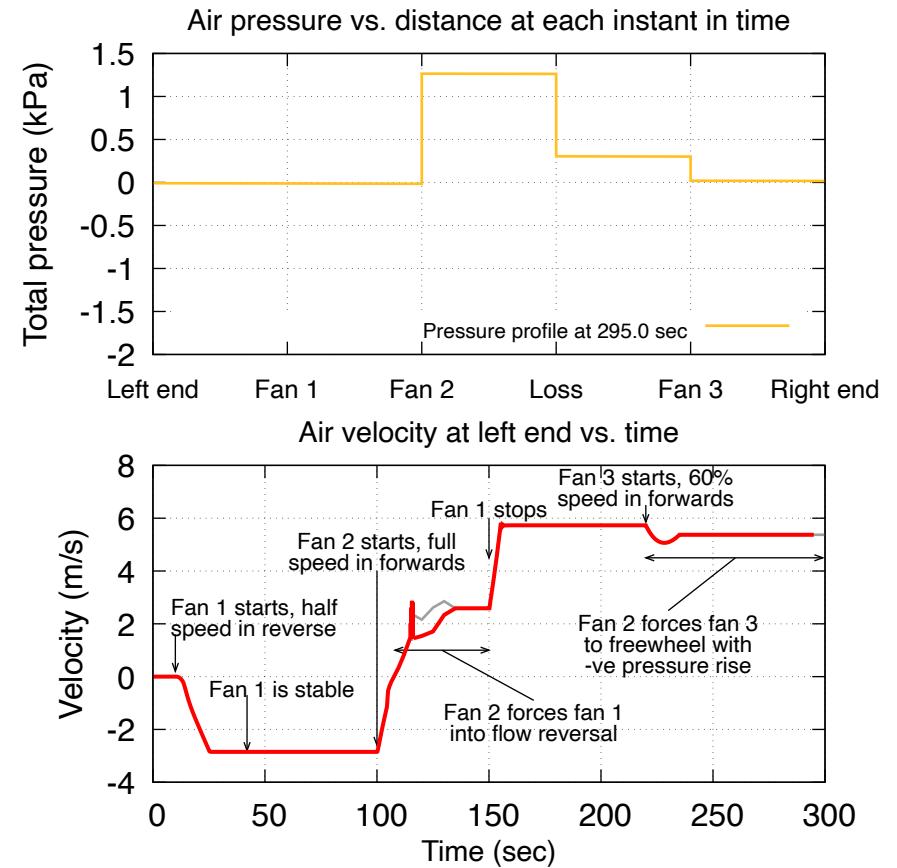
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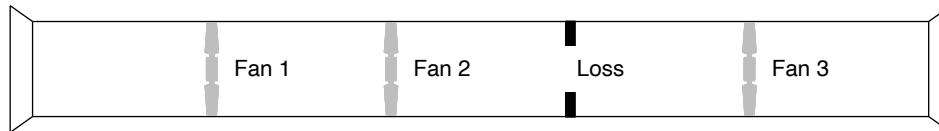
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