

Dash ability 2.0

Stage	Status	Last Update
Initial Design	DONE	30/06/2023
Core Design	DONE	04/07/2023



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One-Liner

Improving the dash ability. Making Dash a Thruster-centric mechanic.

Pillars

You are piloting a Mech

Build an arsenal of loadouts

Visceral High-octane asymmetrical combat

Overview

In this document, we take a look at ways to increase the influence of dashing in moment-to-moment combat as well as giving dashing greater variety across different mechs.

DESIRABILITY

Features and solutions throughout this document are marked with stars to indicate their desirability:

- ★ = MVP (must-have)
- ★★ = Premium quality (should have)
- ★★★ = GOTY quality (could have)

Features

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i-Frames ★

Issue

- Currently, Dash is used mostly for traversal and doesn't provide a significant advantage in combat.

Goal

- Give players a tangible, unique combat advantage when dashing.

Proposed Solution

- While dashing, the player's mech becomes invulnerable for a few frames (invulnerability frames or i-frames) between the start and the end of the dash movement.
 - This simulates the ability of the Mech to dodge incoming fire when moving at hyper-speed.



Diversification

- The number of i-frames for each dash will vary across Thrusters.
 - This allows for further Thrusters' diversification.

Mindset: cost/benefit

- The player gets i-frames as a benefit for the fuel cost of dashing.
 - Thrusters with more i-frames will have a higher fuel cost for dashing.

Player's Feedback

- i-frames invulnerability has to be clearly communicated to the player by means of:
 - VFX
 - SFX

Dash Stats

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Stats Domain★

Issue

- Dash stats are defined at Platform's level. However, all other movement stats are defined at Thruster's level. This results in a split responsibility when it comes to movement that is confusing for the player and takes away value from Thrusters.

Goal

- Increase Thrusters' value by giving them more functionality.

Proposed Solution

- Move the following stats from Platform to Thruster:
 - `sprintDeceleration`
 - `dashCooldown`
 - `dashGroundImpulse`
 - `dashAirImpulse`

Influence of weight★

Issue

- A Platform's weight has no direct influence on the dash ability.

Goal

- Allow Platforms to exert influence on the Dash ability based on their weight. This in turn:
 - creates a more realistic relationship between a mech and its Dash ability.
 - provides greater variety when mixing and matching mech's components.

Proposed Solution

- Allow the Platform's `weight` to affect Dash stats, the heavier the Platform the more "dampened" the dashing.
 - Dash stats to be affected by `weight` are:
 - `sprintDeceleration`
 - `dashCooldown`

- `dashGroundImpulse`
- `dashAirImpulse`
- `weight` will act as a divider of sorts to dash stats.
 - For example: $\text{modifiedDashStat} = \text{dashStat} / (a * \text{weight})$
where "a" is a coefficient that is different for each stat.
- Fine-tuning: potentially we will need a `weight` rebalancing pass across Platforms.

Modding ★★

Issue

- With the exception of `dashFuelCost`, the ability to dash cannot be improved by modding it.

Proposed Solutions

- Make the following dash stats moddable for **selected Thrusters**:
 - `dashCooldown`
 - `dashGroundImpulse`
 - `dashAirImpulse`
- As modding affects one stat at a time, different dash stats can be made available for modding on different Thrusters. For **example**:

⚠ This is just an example.	
Thruster	Moddable Dash Stat
Marathon Runner	<code>dashCooldown</code>
Jolt	<code>dashGroundImpulse</code>
Sidina	<code>dashAirImpulse</code>

- Balance against other moddable stats.
 - Extra care needs to be taken in this step, as players might have already invested modding points into Thrusters.
 - ★★★★★ Ability to re-spec mods for a particular component (Platform/Weapon/Thruster) **when new modding stats are introduced**.

Variety ★★★★★

Issue

- Currently, Dash stats lack variety across player mechs, with *only 3 variants* depending on the Platform's class: light, medium, and heavy.

Goal

- Implement greater variety across Thrusters by balancing dash stats on a per-Thruster basis.

Proposed Solution

- Re-balance dash stats to differentiate dashing **across Thrusters**.

Other improvements ★★★★★

Issue

- Dash is not as snappy as in the original Hawken, which is perceived as a desirable/defining characteristic.

Proposed Solution

- Re-balance dash stats to make it feel "snappier".
 - However, the extent of this will vary from Thruster to Thruster.

Quick 180° Rotation ★★

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Issue

- In the original Hawken players could perform a quick 180° rotation by moving backward while dashing. This is a cool, useful maneuver that allows for a number of interesting combat tactics, but it is currently missing from the range of movements in Hawken Reborn.

Video: quick 180° rotation in the original Hawken



Proposed Solution

- Addition of the ability to perform a quick 180° mech rotation.

Control System

Two possible solutions when it comes to control system:

1. Moving backward while dashing (Keys: S + Shift)
 - a. A Setting option allows toggling this behavior (i.e. when disabled, dashing backward will just dash backward as usual, with the mech still facing forward)



Invert Turn (a quick 180° rotation) is a toggleable option in the original Hawken.

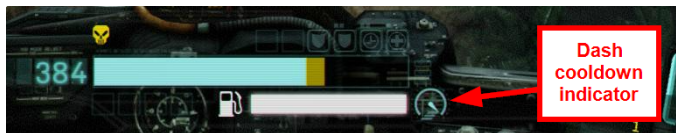
2. Using a dedicated key
 - This might be problematic when adding controller support as we might run out of controller buttons to assign actions to.

Dash Cooldown Indicator (UI) ★★☆☆

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Issue

- Currently, Dash has a constant 1.1 seconds cooldown (see [dashCooldown](#), a Platform stat) that is not visible to the player.
 - In the original Hawken, a small stopwatch-looking UI element would show the time passing before the player could dash again.



Video: Dash cooldown indicator in the original Hawken (watch in full-screen for max detail)



Proposed Solution

Addition of a new dash-cooldown UI element that shows the player the passing of time before they can dash again.

Force vs Impulse: investigation

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Issue

- Currently dashing applies an impulse to the mech, as opposed to a force.
 - Using a force-based system would make it easier to factor in weight when it comes to dampening the Dash effect.
 - A force-based system can potentially feel better for the player.

Goal

- Investigate the technical cost of switching to a force-based dash and its value in terms of gameplay.

Task Breakdown

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Must Haves (Min Quality)	Should Haves (Premium Quality)	Could Haves (GOTY Quality)
<ul style="list-style-type: none">i-Frames (investigation)<ul style="list-style-type: none">Offline prototype to investigate value added to gameplay. <hr/> <ul style="list-style-type: none">Stats Domain<ul style="list-style-type: none">Move the following stats from Platform to Thruster:<ul style="list-style-type: none">sprintDecelerationdashCooldowndashGroundImpulsedashAirImpulse <hr/> <ul style="list-style-type: none">Variety / Balance<ul style="list-style-type: none">Re-balance dash stats to differentiate dashing across Thrusters.Re-balance dash stats to make it feel "snappier". <hr/> <ul style="list-style-type: none">Influence of weight<ul style="list-style-type: none">Allow the Platform's weight to affect Dash stats <hr/> <ul style="list-style-type: none">Force vs Impulse: investigation<ul style="list-style-type: none">Investigate the technical cost of switching to a force-based dash and its value in terms of gameplay.	<ul style="list-style-type: none">Modding<ul style="list-style-type: none">Make the following dash stats moddable on Thrusters<ul style="list-style-type: none">dashCooldowndashGroundImpulsedashAirImpulse <hr/> <ul style="list-style-type: none">Quick 180° Rotation<ul style="list-style-type: none">Addition of the ability to perform a quick 180° mech rotation.	<ul style="list-style-type: none">Modding<ul style="list-style-type: none">Allow players to re-spec mods for a particular component (Platform/Weapon/Thruster) <hr/> <ul style="list-style-type: none">Dash Cooldown Indicator (UI)<ul style="list-style-type: none">Addition of a new dash-cooldown UI element that shows the player the passing of time before they can dash again.

Version History

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Version	Date	Comment
Current Version (v. 26)	Jul 27, 2023 16:40	Framais
v. 25	Jul 05, 2023 08:39	Framais
v. 24	Jul 04, 2023 15:40	Framais
v. 23	Jul 03, 2023 16:25	Framais Added Task Breakdown
v. 22	Jul 03, 2023 15:50	Framais
v. 21	Jun 30, 2023 14:24	Framais
v. 20	Jun 30, 2023 14:21	Framais
v. 19	Jun 29, 2023 13:58	Framais

v. 18	Jun 29, 2023 09:32	Framais
v. 17	Jun 29, 2023 09:32	Framais
v. 16	Jun 29, 2023 09:31	Framais
v. 15	Jun 29, 2023 09:17	Framais
v. 14	Jun 29, 2023 08:16	Framais
v. 13	Jun 29, 2023 08:13	Framais
v. 12	Jun 29, 2023 08:11	Framais
v. 11	Jun 29, 2023 08:10	Framais
v. 10	Jun 29, 2023 07:55	Framais
v. 9	Jun 29, 2023 07:52	Framais
v. 8	Jun 28, 2023 23:24	Framais
v. 7	Jun 28, 2023 15:19	Framais
v. 6	Jun 28, 2023 15:11	Framais
v. 5	Jun 28, 2023 15:03	Framais
v. 4	Jun 26, 2023 05:58	Framais
v. 3	Jun 23, 2023 15:59	Framais
v. 2	Jun 23, 2023 11:14	Framais
v. 1	Jun 23, 2023 11:14	Framais