HAYES TRAIL GUIDE

INSTRUCTION MANUAL FOR IMPROVING YOUR MOUNTAIN BICYCLING EXPERIENCE

HAYES
MRD IVA (INCREMENTAL VOLUME ADJUST)
• Allows customized ramp-up for specific conditions or rider preference.
• Spacers are self contained for easy, self tuning without losing parts.

DH AIR SYSTEM
• Provides low weight and smooth, sensitive top-out.

AVAILABLE FOR:
MATTOC PRO / EXPERT / COMP
DORADO PRO / EXPERT
Standard Dorado Air Spring, Pressure Comparison

Increasing pressure increases bottom out force....

...but also increases initial stroke reducing small bump sensitivity

- Dorado Air Spring 40 psi
- Dorado Air Spring 55 psi
- Dorado Air Spring 70 psi
- Dorado Air Spring 85 psi
- Dorado Air Spring 100 psi
Dorado Air Spring 40 psi + IVA Spacers

Reducing air Volume increases bottom out force....

...without affecting initial spring rate....

...but mid-stroke can lack support during low-speed events (brake dive, cornering, technical descents)
Dorado Air Spring comparison Standard vs. IVA 2 spacers installed

With IVA at 40psi you can achieve the same bottom-out force as standard Dorado Air spring at 70psi...

...This allows lower initial spring rate compared to increasing pressure alone
Comparing Dorado Standard Spring with

IRT (Initial Rate Tune)

And

IVA (Incremental Volume Adjust)
Dorado Air Spring with IVA or IRT, Equal Pressure

- IVA and IRT have higher bottom-out for a given pressure
- However, IRT is linear, whereas the IVA creates a more progressive curve
- IRT has improved mid-stroke support compared to IVA
- With equal main air pressures the initial spring rate is the same.

Graph showing force vs. displacement for different configurations:

- Red: Dorado Air Spring 40psi with IRT 70psi
- Blue: Dorado Air Spring 40psi with IVA
- Black: Dorado Air Spring 40psi
Dorado Air Spring with IVA or IRT, Equal Bottom-out Force

IRT has improved mid-stroke support compared to IVA

IRT and IVA have lower initial spring rate compared to standard air spring

- Dorado Air Spring 40psi with IRT 70psi
- Dorado Air Spring 40 psi with IVA
- Dorado Air Spring 70psi
What’s the bottom line?

**STD (Standard) vs. IVA (Incremental Volume Adjust)**

IVA adds end stroke control and a simple tuning ability.

**STD (Standard) vs. IRT (Infinite Rate Tune)**

IRT offers better support with low set-pressures while maintaining the linearity to bottom.

**IVA (Incremental Volume Adjust) vs. IRT (Infinite Rate Tune)**

Key advantage of IRT is it maintains or even improves small bump compliance and builds good support in the mid-stroke (cornering and braking loads) while keeping linearity thru bottom-out.

IRT requires more user knowledge, intended for the sophisticated rider/racer.
What technology is best for me?

**IRT (Infinite Rate Tune)**

IRT Allows rider to maintain mid-stroke support while reducing initial spring force.

**Who is it for:**

Riders and racers who have more extensive understanding of air spring function who want to custom tune spring rate for more sensitive initial stroke AND more supportive mid-stroke.

**IVA (Incremental Volume Adjust)**

IVA allows rider to tune end-stroke control simply by adjusting air volume using integrated piston spacers.

**Who is it for:**

Riders who want to custom tune the air spring for more sensitive initial stroke OR more progressive end-stroke.