



# MISHIMOTO



# ENGINEERING REPORT

**2018+ Jeep Wrangler JL 3.6L Performance Intake | SKU: MMAI-JLP-18S**

By Ye Liu, *Mishimoto Engineer*

## REPORT AT A GLANCE

- **Goal:** Create a direct-fit, high-quality intake for the 2018 Jeep Wrangler JL V6.
- **Results:** The Mishimoto performance intake showed consistent power and torque gains over the RPM range of 3400 to 6500, with max gains of 10.8 hp and 11.4 lb/ft. The intake retains the stock lower airbox and fresh air ducting, with an additional inlet port on the airbox lid for extra airflow. The Mishimoto performance intake is 36% less restrictive on average compared to the stock intake when tested on our flow bench.
- **Conclusion:** The Mishimoto performance intake is a great upgrade for the JL 3.6L owners looking for performance gains and intake sound improvement. Created for off-roaders, the Mishimoto intake provides both oiled and dry filter options and is compatible with most aftermarket snorkel products.

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DESIGN OBJECTIVES

The design requirements assigned to this project are as follows:

- Performance gain over stock intake while maintaining safe air/fuel ratio without custom tuning
- Durable design that will last the lifetime of the vehicle
- Easy bolt-on installation without any permanent modification done to the vehicle
- High-quality intake tone
- Compatible with aftermarket snorkels

MATERIAL SELECTION

The material used for the rotational-molded airbox and intake tube is XLPE (Cross-Linked Polyethylene) plastic. XLPE material demonstrates high-impact strength, excellent heat resistance, and is UV-stable.

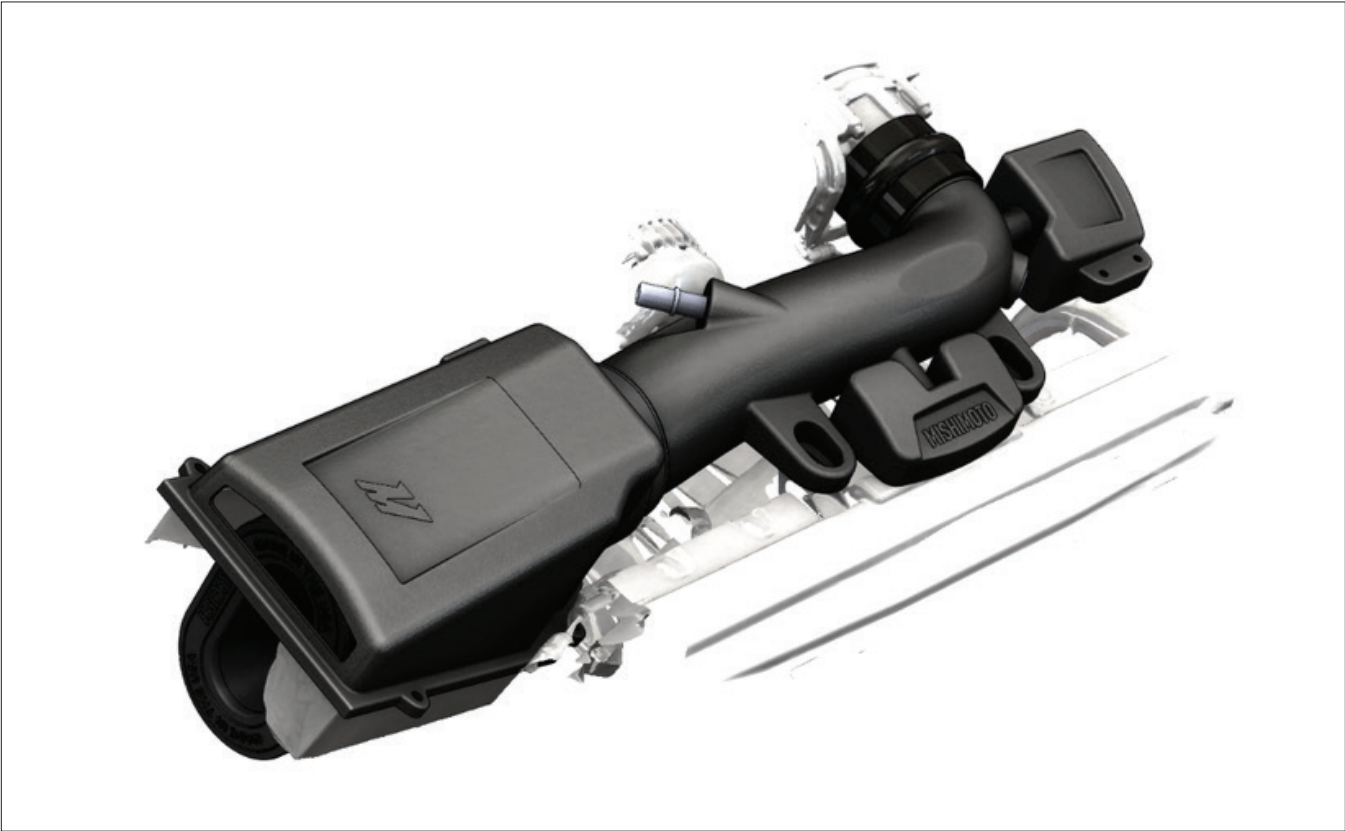


FIGURE 1: Mishimoto intake 3D render

DESIGN AND FITMENT

The Mishimoto performance intake developed for the 3.6L Pentastar engine shares the same airbox lid and filter design as the 2.0T models. The design retains the lower half of the stock airbox for compatibility with aftermarket snorkel products that connect to the inlet port located on this component while replacing the panel filter and airbox lid to accommodate an oversized high-flow conical filter.

The Mishimoto intake tube is designed for maximum airflow and doubles the cross-sectional area compared to the flattened stock intake tube. The intake tube also incorporates two Helmholtz resonators, which are dyno-proven to increase mid-range torque. It bolts to the fan shroud using the original hardware and pre-installed rubber grommets and inserts.

PERFORMANCE TESTING

Performance testing was carried out on our in-house Dynojet dynamometer. Testing day temperature was 81–82°F and humidity was at 32–37%. All dyno runs were conducted in 4th gear. The Mishimoto intake created consistent power gains with almost identical air/fuel ratios compared to stock. The dyno results, both performance gains and air/fuel ratios, can be found in Figure 3 below. The results shown are average data curves of multiple dyno

runs. We do not take the highest or lowest dyno runs to prove artificial gains. Flow bench testing (Figure 4) also showed that the Mishimoto intake is 36% less restrictive than the stock intake. What this means is that the engine will “breathe” much easier with the Mishimoto intake, and that there is considerable potential for more power gains when the vehicle is custom tuned.



FIGURE 2: Mishimoto intake installed

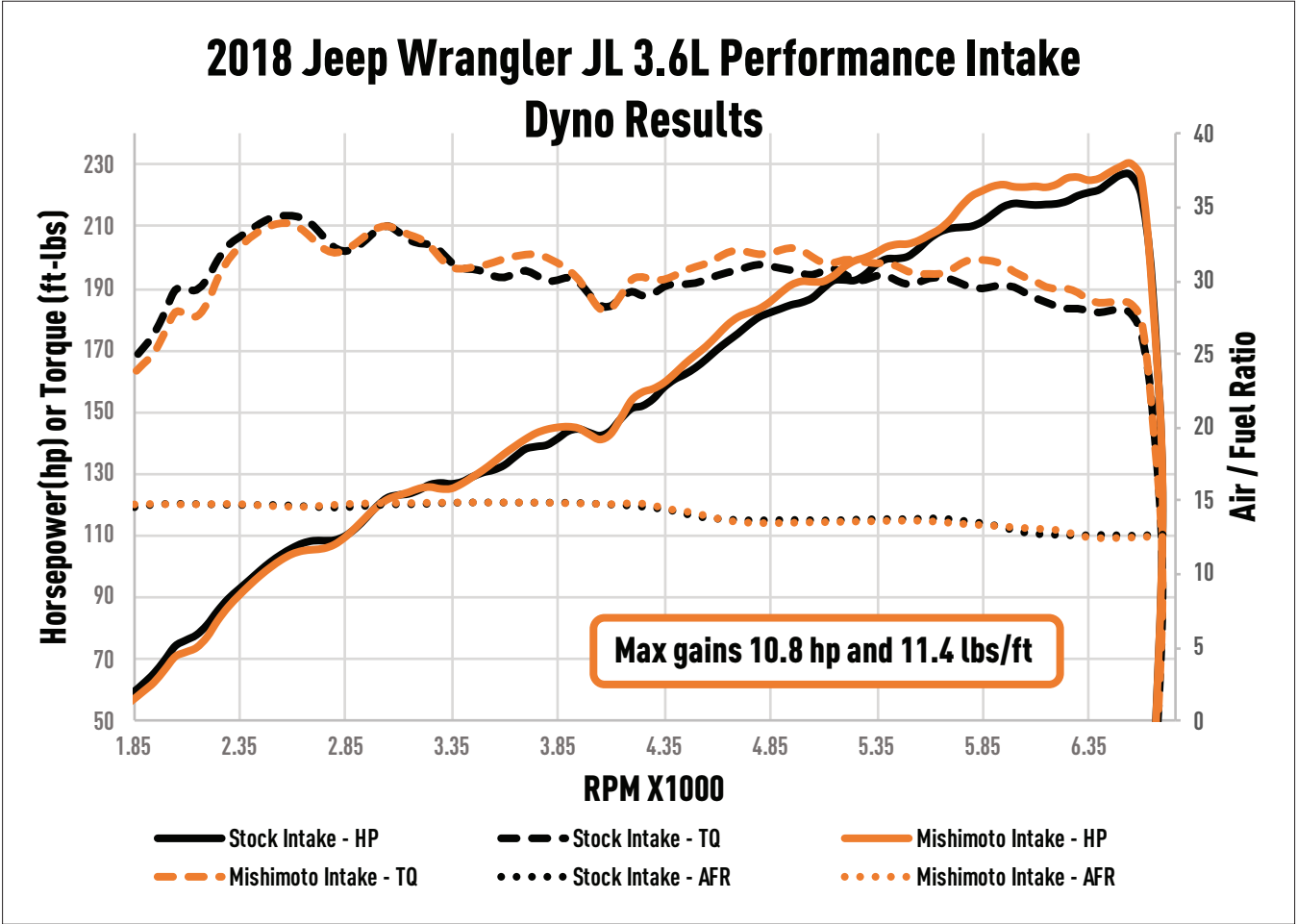


FIGURE 3: *Dyno results*

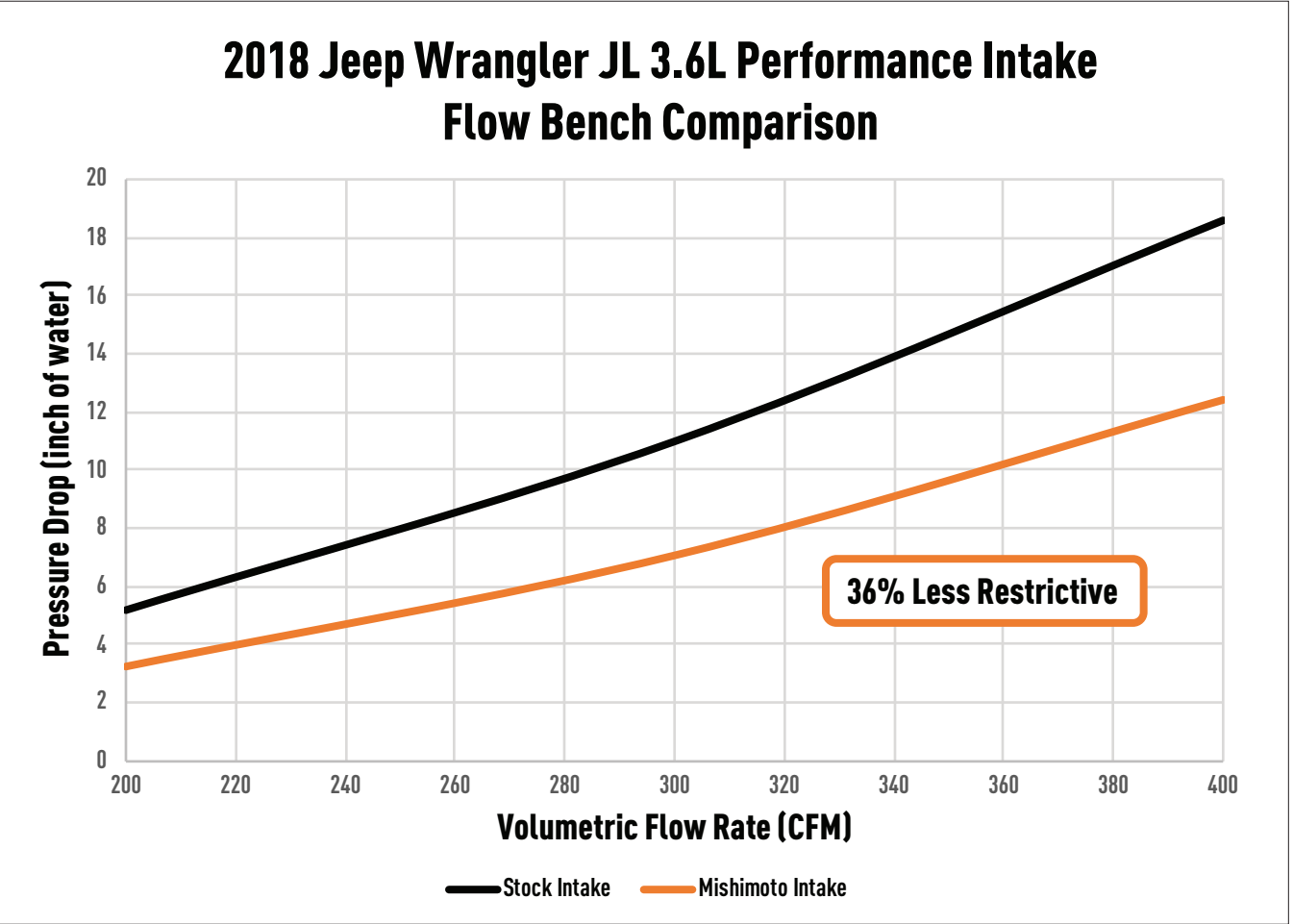


FIGURE 3: *Flow bench results*

#### INSTALLATION NOTES

The Mishimoto performance air intake is an excellent bolt-on upgrade for the 2018 Jeep Wrangler JL 3.6L and can be installed on a stock vehicle without any permanent modification or custom tuning. The intake is also compatible with most aftermarket snorkels that connect to the stock lower airbox.

*Ye Liu*

Ye Liu  
Mishimoto Product Engineer

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## CONTACT US

### EMAIL

For sales and technical  
questions please contact  
[support@mishimoto.com](mailto:support@mishimoto.com)

### BY PHONE

USA: 877.466.4744  
International: +1.302.762.4501  
Fax: 302.762.4503

### MAIL

Mishimoto  
7 Boulden Circle  
New Castle, DE 19720

### VISIT

Mishimoto.com  
Mishimoto.co.uk  
Mishimoto.eu

