

INSTRUCTIONS

MODEL:

The Idaho™ *The Colorado™* *Heads*

FITS:

2019 Polaris AXYS 850

The Idaho™ Head
PUMP GAS PERFORMANCE

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Contents List



BILLET IDAHO HEAD:

Pre-assembled Head Assembly:

- (1) Base O-Ring (between halves)
- (2) Tower O-Ring
- (1) Water fitting O-Ring
- (1) 1/8 NPT x 5/16 Barb fitting
- (does not include cylinder gaskets)

BILLET COLORADO HEAD:

Pre-assembled Head Assembly:

- (1) Base O-Ring (between halves)
- (2) Tower O-Ring
- (1) Water fitting O-Ring
- (1) 1/8 NPT x 5/16 Barb fitting
- (does not include cylinder gaskets)

RE-CUT IDAHO HEAD:

Complete head assembly

(does not include cylinder gaskets)

User Manual

GENERAL SAFETY

1. ALWAYS wear your seatbelt (if applicable), helmet, and PPE when operating your vehicle.
2. Clutching, belts, motor, exhaust components and drivetrain may be HOT enough to burn you. Do not touch until vehicle has had sufficient time to cool. Wear proper PPE to prevent burns.
3. Clutching, belts, motor, exhaust components and drivetrain may be sharp. Wear proper PPE to prevent laceration.
4. ALWAYS follow the safety suggestions of your owner's manual.

GENERAL

1. Print entire instruction manual. In the print settings, you can choose to print multiple tiles per page (we suggest 4-6). However, the tunnel-cut-pattern needs to be printed full size.

OPERATION

1. ALWAYS allow your vehicle to reach proper operating temperatures before driving. Refer to your owners manual.
2. Your Polaris comes with ECU-programmed "break-in". During this time, your SideKick may not perform at the optimum level. Once break-in is complete, you will likely notice more power and cleaner engine performance. During break-in, expect your snowmobile to run rich.
3. Because of excessive oiling, during break-in mode, you will need to replace your plugs more frequently. After break-in mode, replace plugs AT LEAST every 500 miles for maximum performance.
4. The SideKick turbo kit is a HIGH PERFORMANCE accessory. Proper fuel and maintenance is critical (see "FUEL")
5. High performance machines are more prone to belt failure. ALWAYS carry a spare belt, and understand how to change/replace your belt BEFORE you get out in the field. Properly inspect your belt and clean your clutches before each ride.
6. **ANY "DET" or Detonation codes are not acceptable.** If you get a DET code during normal operation, you likely have bad gas. Drain all of the fuel, and replace with fresh fuel from a different source. If the problem continues, immediately contact your dealer.
7. SideKick is calibrated for operation above 5,000 feet. Use below that elevation is at your own risk.
8. Check coolant levels after the first 10 minutes of operation. Coolant system may need to be bled.
9. **VERIFY YOUR SETTINGS!** It is YOUR responsibility to verify your sled setup (including fuel-mode, clutching, fuel, etc) against the tune definitions. Running any BoonDocker tune without the correct sled setup may cause severe damage or injury. Tune definitions are included in the README and the NOTES for each tune. Verify <http://downloads.boondockers.com>

User Manual

FUEL

1. The SideKick is a HIGH PERFORMANCE accessory. Proper fuel is critical.
2. ALL KITS are initially calibrated for a 50/50 mix from BoonDocker. Using any other blend or straight pump gas may cause engine failure.
3. 50/50 Mix tunes require an exact 50% mix of 91-octane (up to 10% ethanol, and 50% 100LL Av-Gas. Using a 50/50 mix of 91/110 race gas is also acceptable.
4. When available (coming soon for Patriot 850) - Pump Gas tunes REQUIRE 91-octane fuel (or higher). Non-ethanol fuel is recommended. DO NOT use fuel with >10% Ethanol. If you're concerned about the quality of pump fuel, mix NO MORE than 15% Av-Gas. Using higher octane than required will cause poor performance.
5. When available (coming soon for Patriot 850) - AV-Gas tunes REQUIRE 100LL (or higher), Av-Gas tunes: INTERCOOLER REQUIRED.
6. USE ONLY THE FUEL DESIGNED FOR YOUR KIT!
7. Fuel degrades with time. Fuel stored in plastic containers should be used within two weeks. Fuel in the tank of your vehicle will also degrade. DO NOT run fuel from any previous season or extended period of non-operation. .
8. Operating your vehicle with old/degraded fuel may cause engine failure
9. Operating your vehicle with the incorrect fuel for your tune may cause engine failure.

CLUTCHING & CLUTCH MAINTENANCE

1. A primary-clutch puller is REQUIRED for clutching installation. If you do not have one, you can have your dealer install the clutching. BoonDocker sells clutch pullers, and most dealerships also stock them, some even rent them.
2. Our clutching is engineered and validated for the SideKick. Using other clutching may cause a loss of performance, and is not supported or suggested.
3. Clutch springs wear out over time. We suggest replacing clutch springs every 500 miles.
4. Clutch maintenance is CRITICAL on high performance machines. We suggest you clean your clutches after each ride: Remove the belt. Use compressed air to blow any remaining debris from the clutch internals. Use a red scotch-brite pad to loosen any rubber/debris from the clutch-sheave faces. Dampen a rag with acetone and wipe the clutch sheave faces. Inspect belt for damage and/or wear.
5. Weights may ship pre-loaded, or may be blank. Load weights 2-3-3-2 (from heel to toe). Total weight should be approximately 73g per weight for 50/50 SideKick. Please refer to the "README" file for your tune to verify settings.
6. Any clutch-weight modification MUST be done to all three weights in unison. DO NOT run unbalanced weights. Additionally, the magnets are polar. To change weighting, pull ALL magnets from the weights (all holes), align in a stack, and repopulate weights with magnets to preserve polarity. DO NOT just add one weight without preserving polarity of the entire magazine of weights. Failure to preserve polarity will lead to magnets being 'thrown' from weights and potential clutch damage and/or personal injury.
7. Turbocharged Polaris Patriots are expected to turn 8550 +/- 100 RPM's. Use provided adjustable weights to keep RPMs at recommended levels.
8. Adjusting peak RPM is possible by adding/removing weight from the toe.

Prep Work Area



Verify kit contents against included contents list.

Prep Work Area



Remove side-panels and hood. If your kit is intercooled, please disconnect power for pump.

CAUTION: Do not attempt to perform a head-swap unless the snowmobile is cool to the touch. Steps in these instructions include access to coolant. Hot coolant can cause severe injury.

Initial Teardown



Remove body-panel-dart from PTO side. Remove clutch tool from panel.

Initial Teardown



Allow panel to flex, so you can access the bolts that secure the clutch-guard.

Initial Teardown



Use a 10mm socket to remove the clutch guard

Initial Teardown



Lay the clutch guard/oil tank to the side. Restrain the tank to prevent damage to tank. Do not strain oil line.

Initial Teardown



Remove spark plug caps. Remove spark plugs.

Initial Teardown



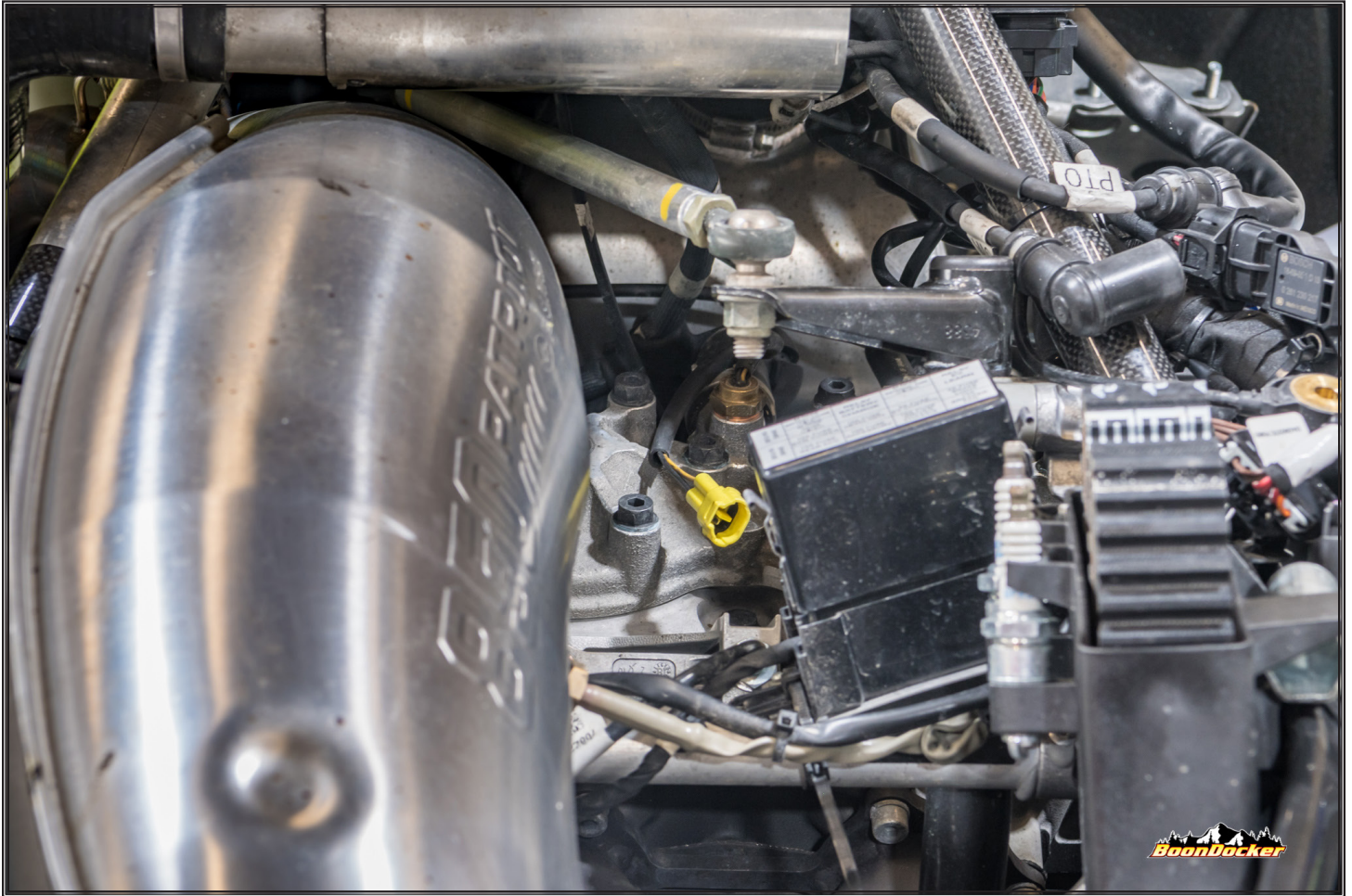
Remove the cap on the coolant reservoir to prevent a vapor-lock and allow for easy draining of coolant.

Initial Teardown



Using a 13mm socket, remove the "Knock" sensor from the stock head.

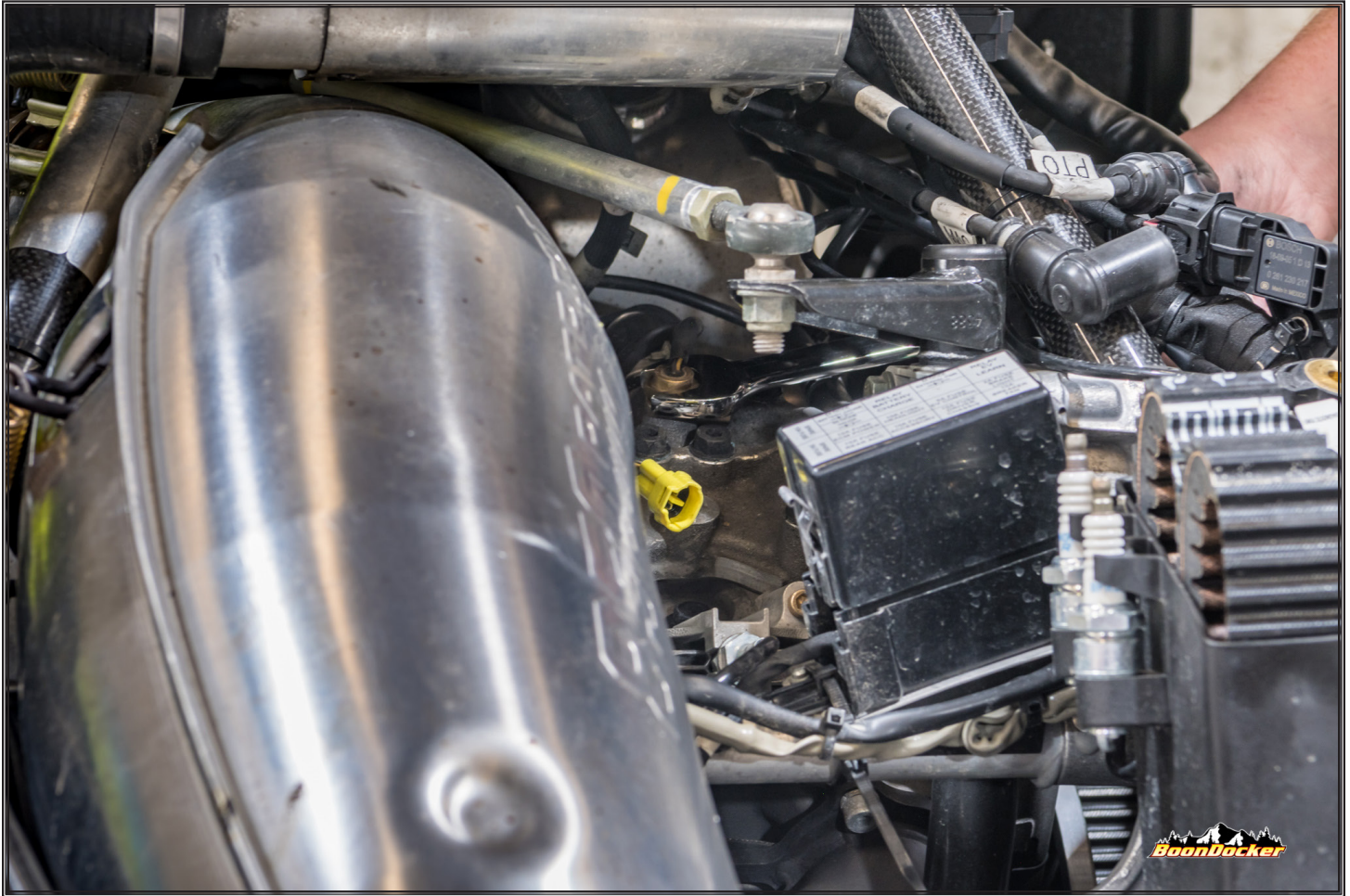
Initial Teardown



BoonDocker

Remove wire-relief (cut zip-tie and remove for later) from water-temp-sensor. Disconnect water-temp-sensor probe wiring from harness (yellow connector).

Initial Teardown



Using a 19mm box-end wrench, loosen the water-temp-sensor probe.

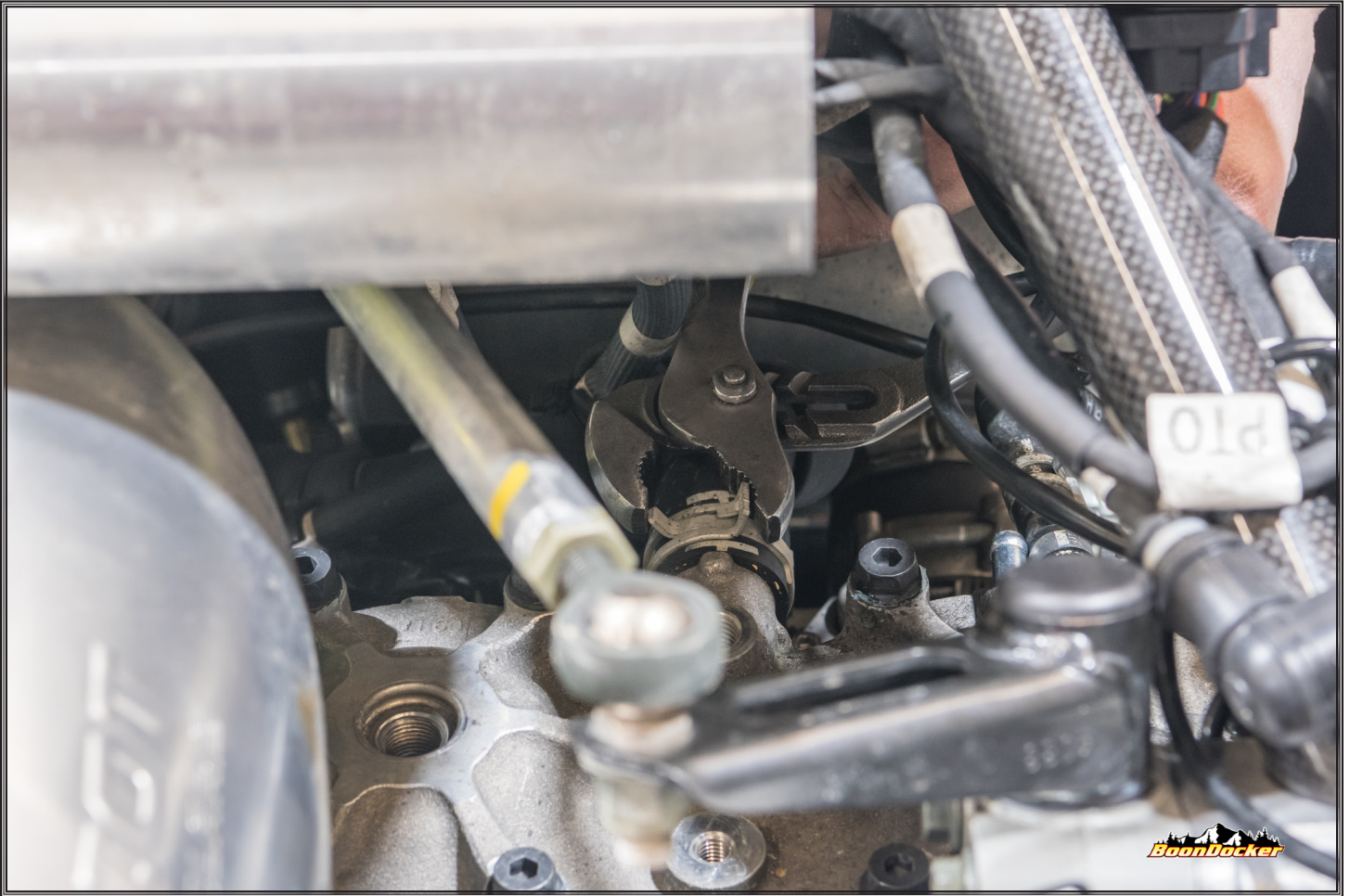
CAUTION: Carefully loosen probe. Be prepared with a fluid extractor. Coolant will rush out of this orifice if you pull the sensor all the way out. We suggest slowly loosening, while using the fluid extractor to collect the seepage. Once the sensor is out, use the fluid extractor, through the sensor-orifice, to drain the coolant down through the head.

Initial Teardown



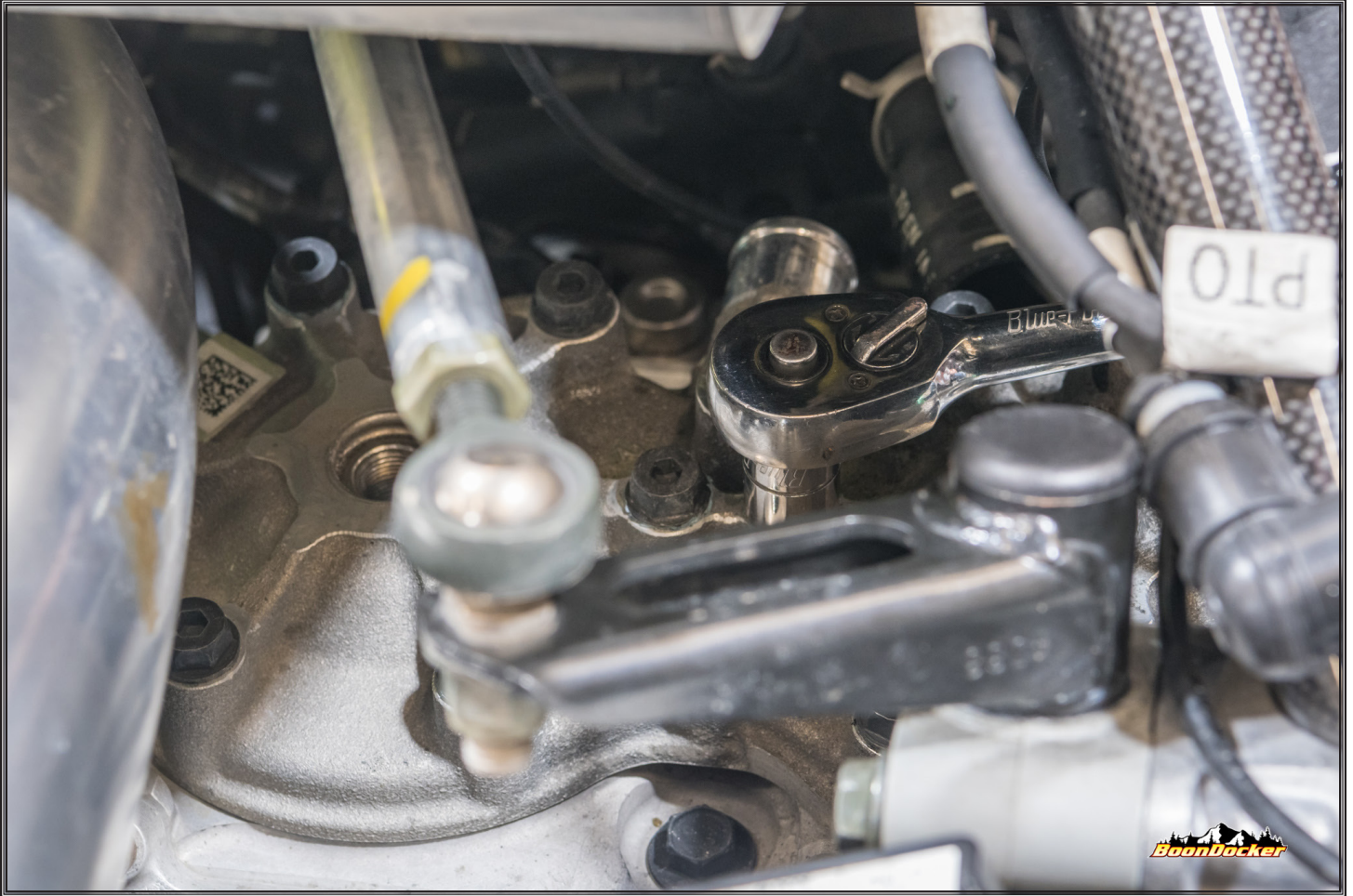
Slide hose clamp from the coolant-return line away from the head to allow removal of the line from the head. Remove line from head.

Initial Teardown



Slide hose clamp from the coolant-feed line away from the head to allow remove of that line from the head. Remove line from head.

Initial Teardown



Using a 13mm socket, fully loosen all head bolts. Remove all bolts except the one under the pipe. That bolt needs to come out with the head.

BE CAREFUL: Do not allow the one remaining bolt to drag across the piston and/or cylinder. If the bolt drags, it is likely that your new head will not properly seal.

Inspect



Using compressed air, blow out ALL bolt holes. Fluid in any of these bolt holes will cause hydro-lock and an incorrect torque reading on re installation.

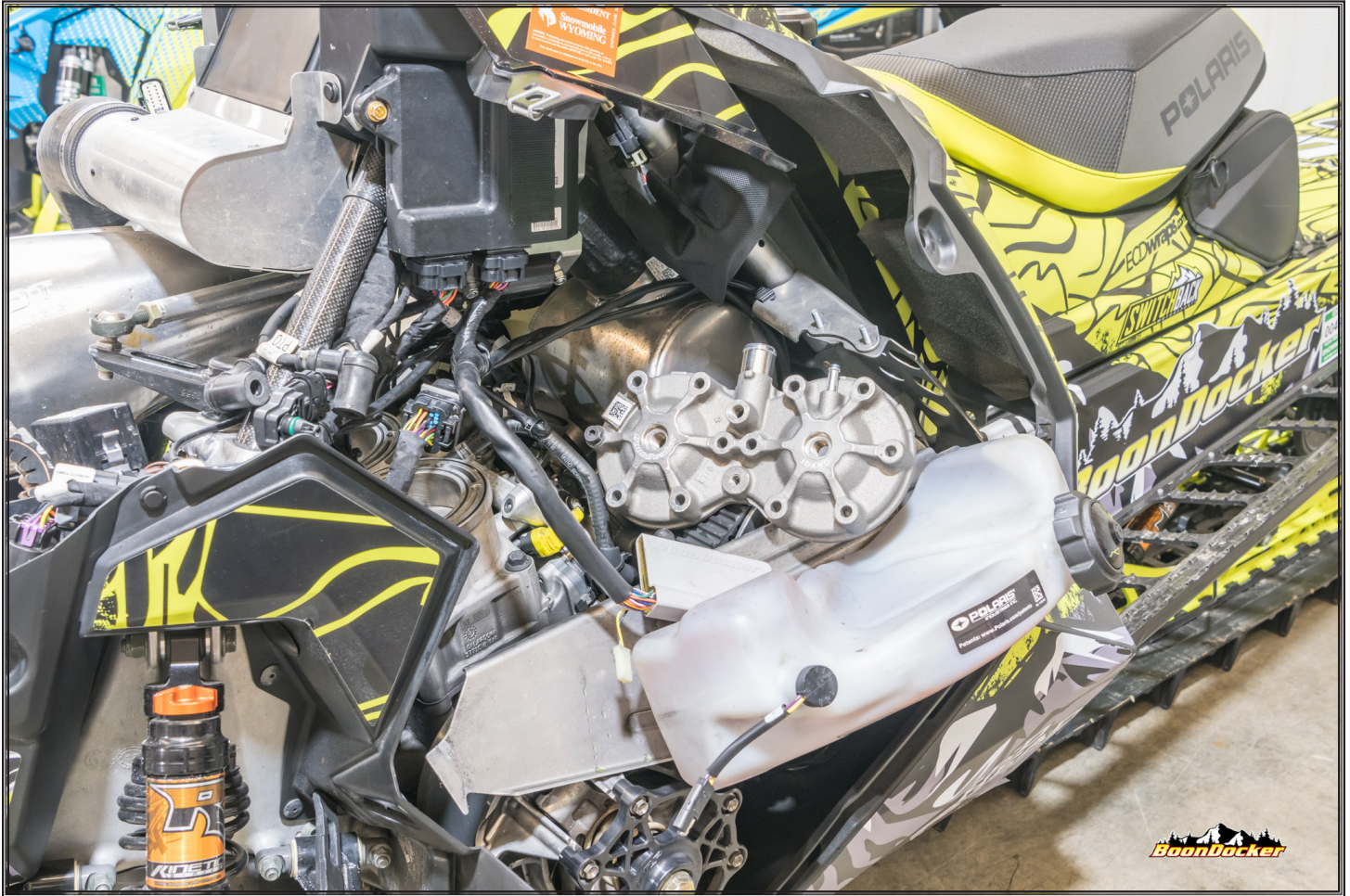
WARNING: Do not allow foreign debris to enter the cylinder, combustion chamber, or water jacket.

Inspect



Inspect both O-rings. Any damage or depressions are unacceptable. Replace if necessary with OEM O-rings.

Install Head



Install the one head-bolt that goes under the pipe and carefully slide the head into place.

BE CAREFUL: Do not allow the one remaining bolt to drag across the piston and/or cylinder. If the bolt drags, it is likely that your new head will not properly seal.

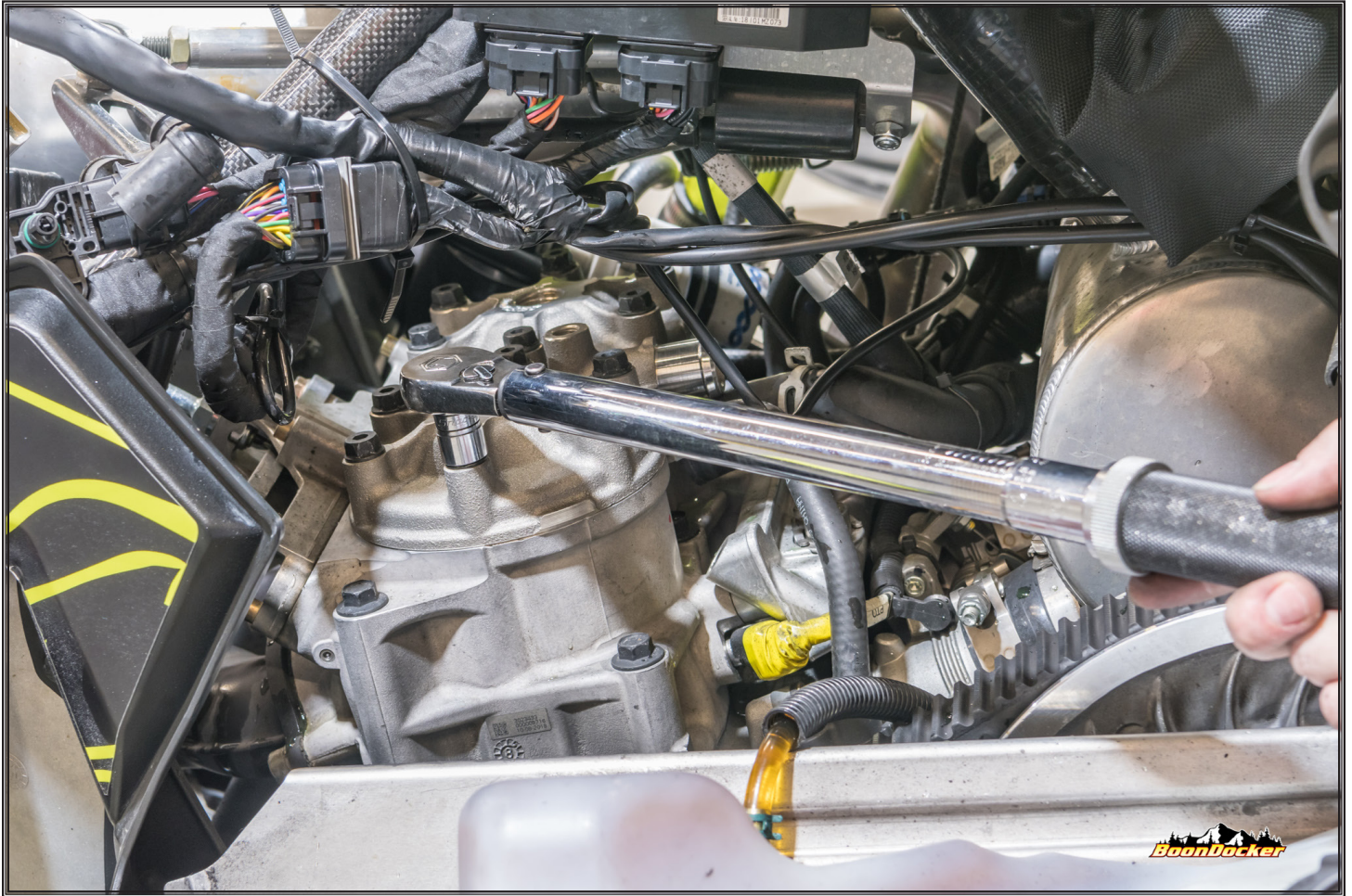
Shown: Idaho cut into a stock head. If you ordered a billet head, it will have a different look, but the same orientation.

Install Head



Loosely install the head bolts.

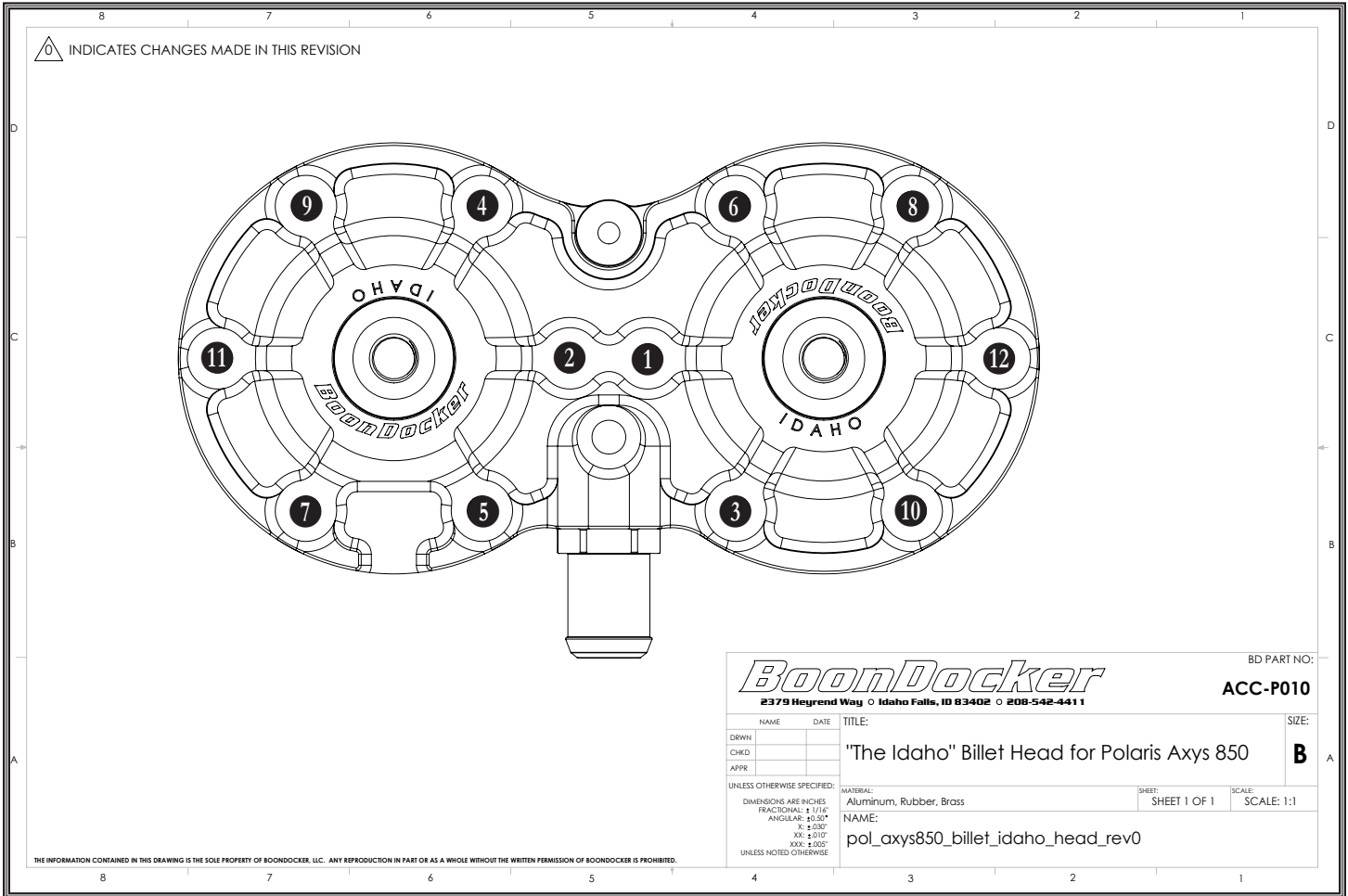
Install Head



Using a torque wrench, set at 25-ft-lbs, properly tension each head bolt.

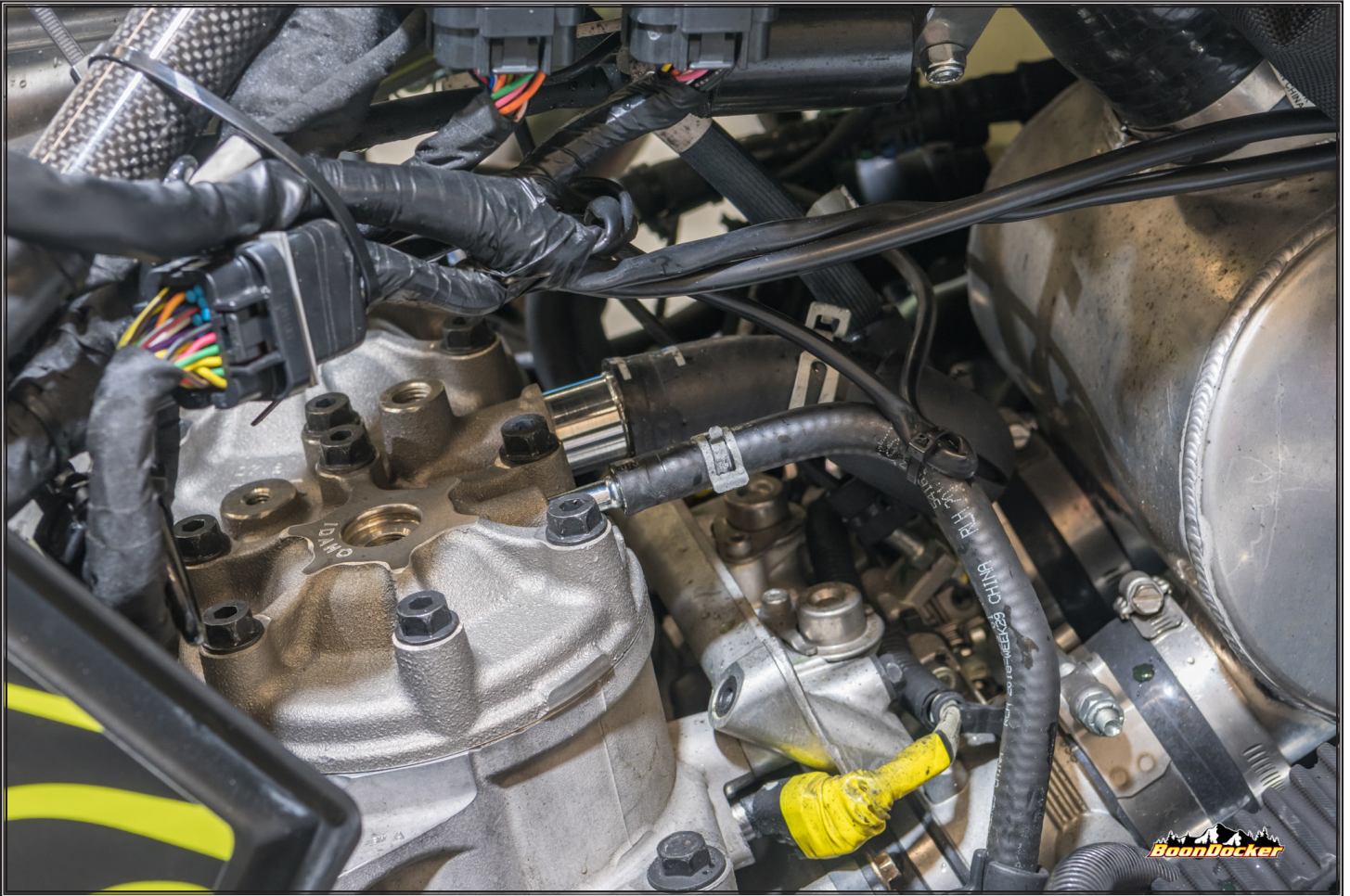
SEE NEXT SLIDE FOR TORQUE SEQUENCE

Install Head



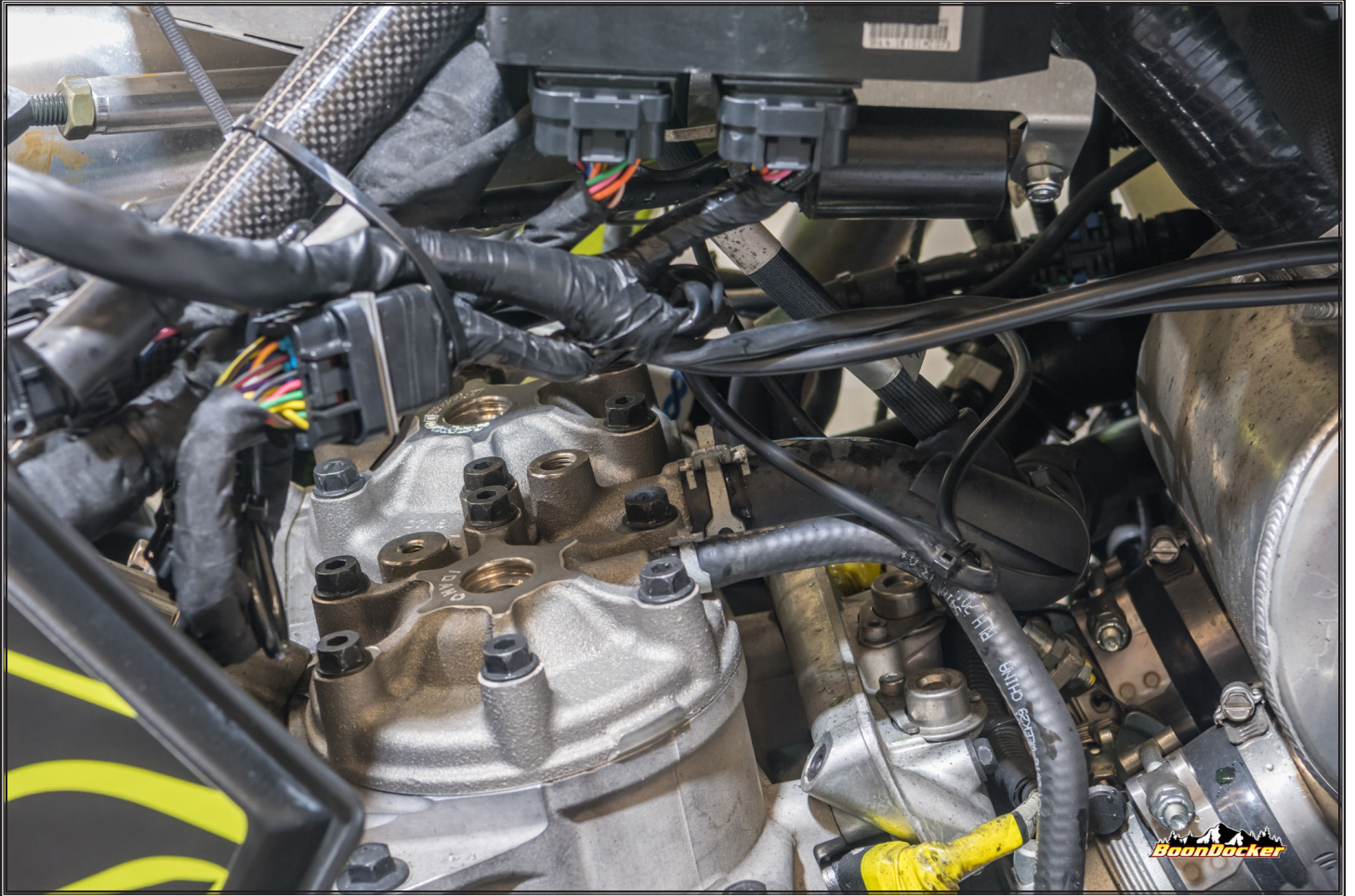
CRITICAL: Follow the above torque sequence to avoid warping head or cylinder. This is the torque-spec from the Polaris Manual.

Install Head



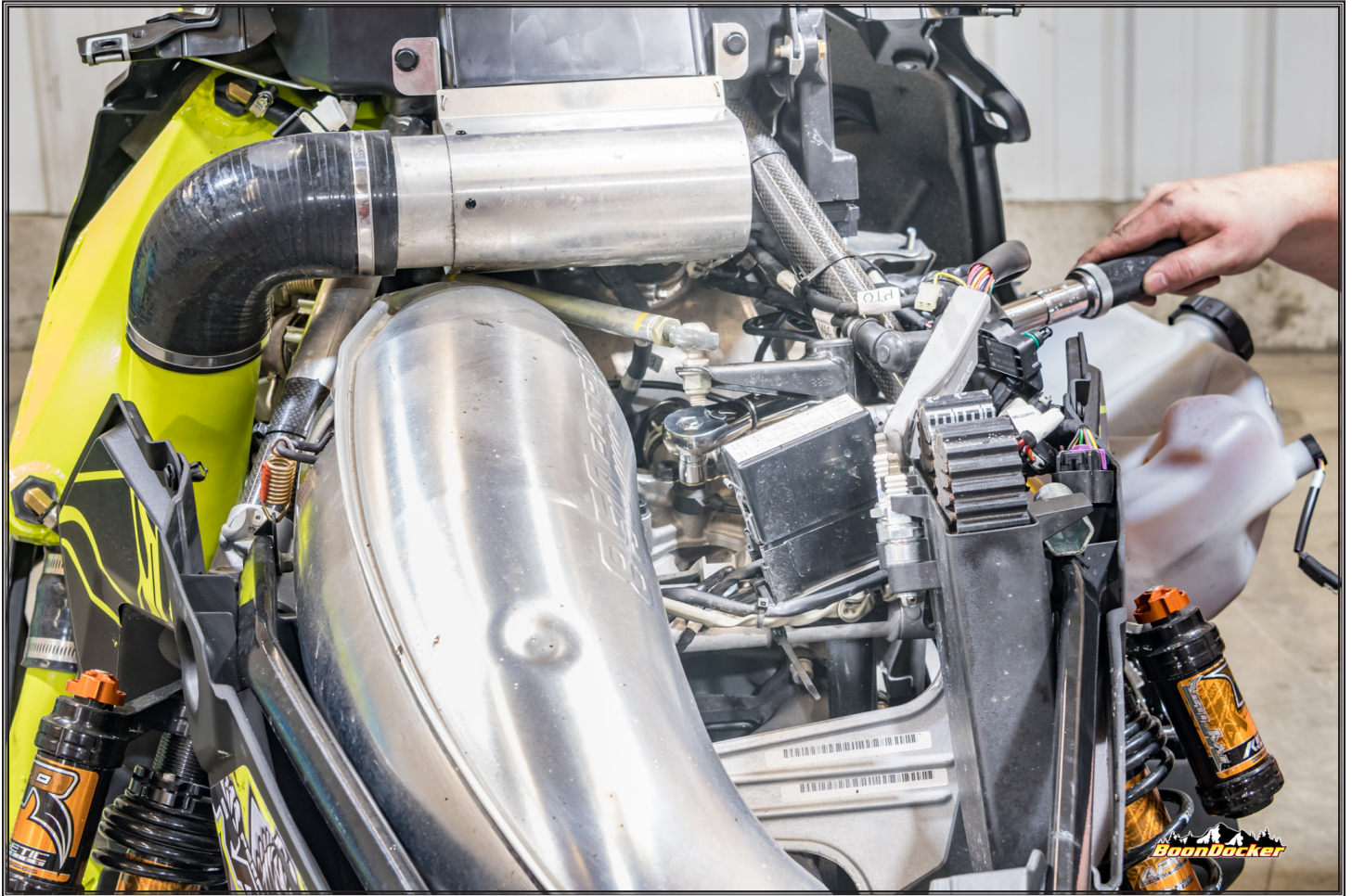
Slide the coolant lines back on to the barbs on the head. You may need to use WD-40 to provide some lubrication. The image is meant to show the operation: please slide the coolant lines ALL-THE-WAY onto the barb, with no "reveal".

Install Head



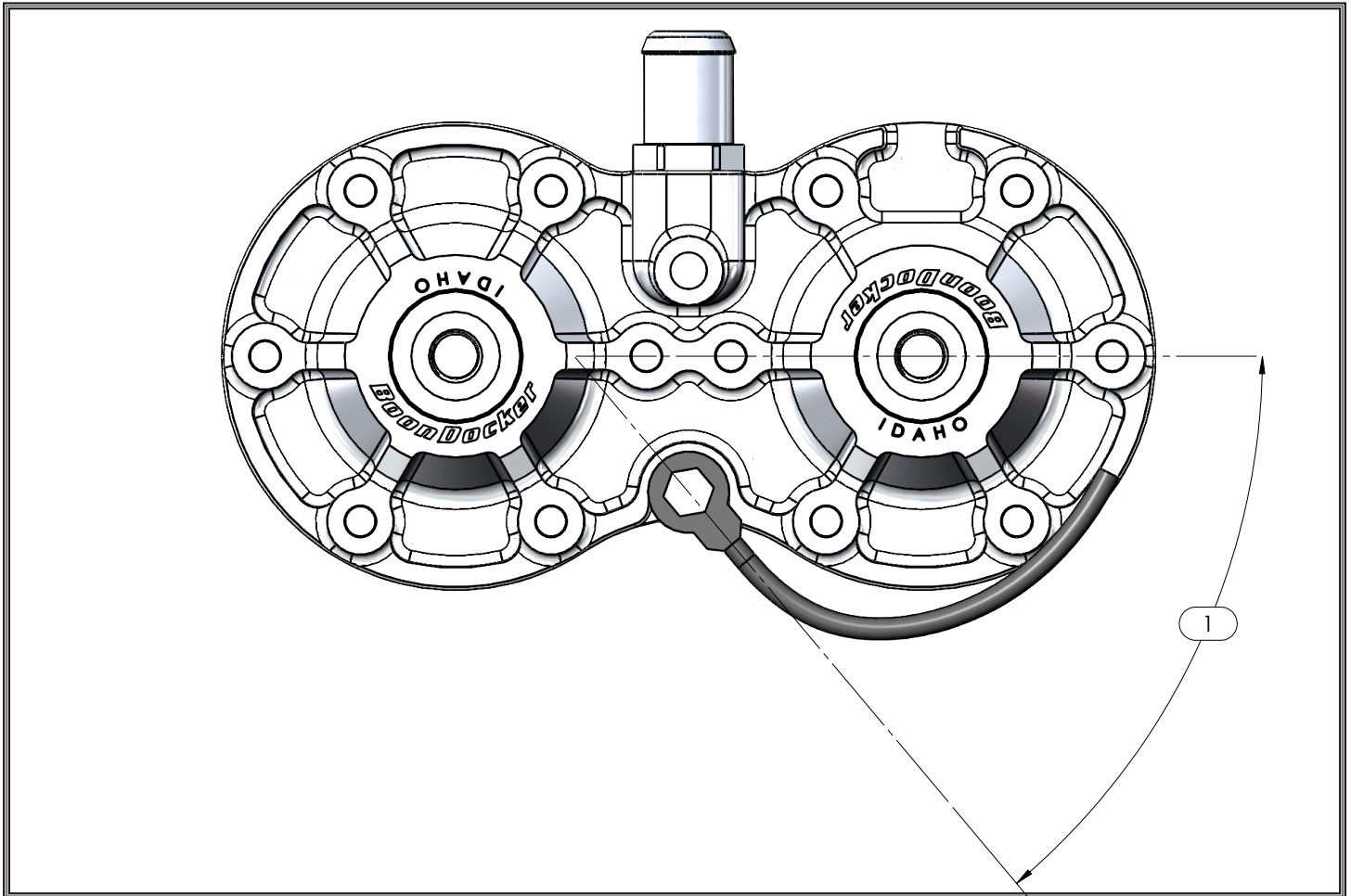
Slide the hose-clamps into place. Verify they are "past" the barb, and securely hold the hoses.

Install Head



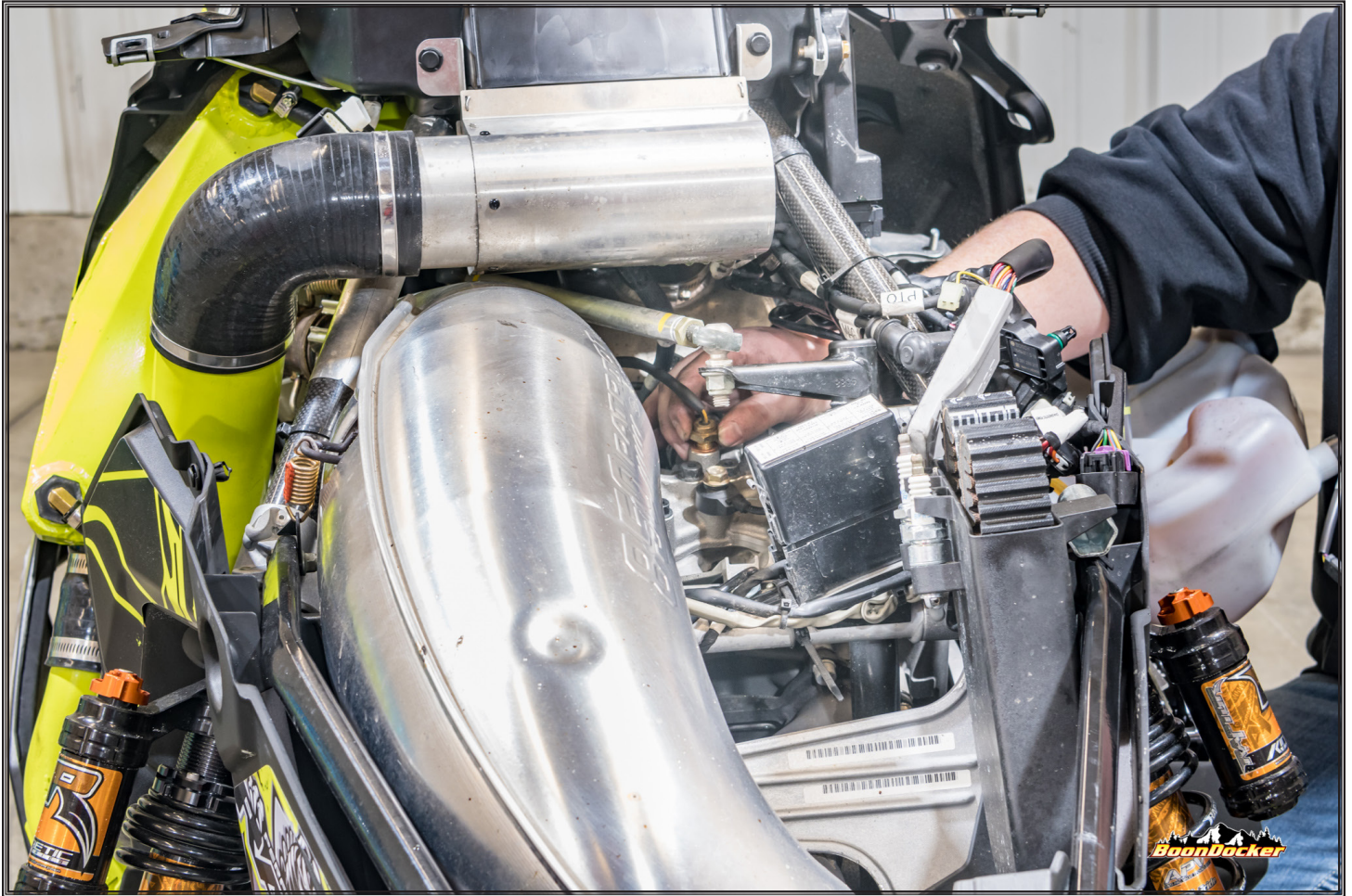
Reinstall the factory "Knock" sensor. Tension the bolt to 14-ft-lbs. Clock the sensor as per the Polaris service manual (see next slide)

Install Head



The factory "Knock" sensor is to be clocked: $60^{\circ} \pm 10^{\circ}$ Towards PTO Side

Install Head



Reinstall the coolant-temp-sensor-probe. Torque to 18-ft-lbs. Reconnect coolant-temp-sensor wiring harness.

Install Head



Reinstall wire-relief. Secure with zip-tie.

Install Head



Reinstall spark plugs and spark plug caps. Pay attention to the labeling on the plug wires, identifying PTO and MAG side. Replace any zip-ties cut during installation. Verify routing and ensure all hoses & wires are properly restrained to prevent chaffing.

Install Head



Refill coolant. These heads are self-bleeding. Allow coolant to drain through head. Refill coolant bottle again. Start sled and bring coolant temp to 80F. Check coolant reservoir and add coolant as necessary.

Tuning

BoonDocker Download Portal - E x +

Not secure | downloads.boondockers.com

BoonDocker

DOWNLOAD PORTAL RETURN TO SHOPPING

BoonDocker Download Portal

Updating your Patriot 850 Control Box?

To successfully update your Patriot 850 Control Box, follow the instructions below.

[VIEW INSTRUCTIONS](#) [DOWNLOAD INSTRUCTIONS](#)

Software Drivers

OEM	MODEL	MOTOR	TYPE	FITS	DRIVER VERSION	COMPUTER PLATFORM	
Polaris	Patriot	850	USB Drivers	Sidekick Fuel Controller (Rev 2)	1.01 (CURRENT)	Windows 7 / Windows 10	DOWNLOAD

Firmware Updates Filter: [SHOW ONLY CURRENT](#)

From a 64-bit Windows (7 or higher) visit <http://downloads.boondockers.com/>

Follow the instructions on that page to load your pump-gas tune.

VERIFY YOUR SLED SETTINGS AGAINST THE README/NOTES FILE. YOU MUST PROPERLY SET-UP YOUR SLED (or verify that your settings are correct) WITH ANY TUNE CHANGE!

Re-Assembly



Re-install console panel, with body-panel-darts, clutch tool, hood (be sure to connect intercooler power if applicable), and side panels.

Startup Procedure



For the initial startup: 1) Ensure you're using the correct fuel. If you have old/incorrect fuel, drain the tank and fill with the correct fuel. 2) Allow the motor to reach an operating temperature of at least 80F. Check coolant levels. 3) Inspect the installation - look for any leaks and/or insecure wires/hoses.