

Cobalt SS Stage 3 Q & A

What are the features of the Stage 3 kit?

The Stage 3 kit is an upgrade for vehicles equipped with Stage 2. It is for OFF-ROAD use only. Stage 3 includes features that allow for an adjustable rev limiter and proper calibration when using 100 octane fuel and/or a 50 shot of Nitrous. The Stage 3 kit consists of the following:

1. A smaller, 76mm supercharger pulley
2. A 2-pass intercooler end plate
3. A unique PCM which includes a calibration for the smaller pulley, an adjustable rev limiter, a 100 octane mode, and a nitrous control algorithm

How much power will I get with Stage 3? Compared to the other Stage kits?

When equipped with the Stage 3 kit, the engine will make about 250hp on premium fuel and 260hp on 100octane. For best power, we recommend also installing a high-flow exhaust. In comparison, the stock supercharged engine makes 205hp. The Stage 1 kit increases peak power to 236hp and 205lb-ft of torque. Stage 2 delivers 241hp and 218lb-ft of torque across a broad rpm range.

Can I install the Stage 3 kit myself?

If you already have Stage 2 installed, it is possible to install Stage 3 yourself. However, installation of this kit, as with most performance parts, requires a level of technical and mechanical skill. It should not be installed by a novice. We recommend dealer installation for the Stage 2 kit due to special tools that are required to press-off the production supercharger pulley and install the kit's supercharger hub. In addition, the Stage 1 and 2 calibration must be flashed into the production ECU by a GM dealer.

Do I have to install all of the Stage 3 parts at the same time?

The 2-pass intercooler end plate can be installed without the other Stage 3 components and would provide an improvement in performance for Stage 2 equipped car. Due to heat generation, the Stage 3 pulley should not be installed without the 2-pass intercooler. The Stage 3 pulley and 2-pass intercooler will operate with the Stage 2 reflashed PCM.

Are the parts available separately?

The parts will be available separately for service. Additionally, the 2-pass intercooler end plate can be added to a Stage 2 kit for improved performance.

What's the purpose of the second surge tank?

The second surge tank is for the aftercooler. Without it, it is very difficult to purge the air from the system. Using the additional surge tank ensures a fully purged system with no trapped air. This higher pressure system will provide an added level of efficiency for the intercooler system

How do you install the second surge tank? Are the parts needed included in the Stage 3 kit?

The parts for the aftercooler surge tank are not included in the kit, but can be easily obtained. The surge tank is a production tank and can be purchased from a GM dealer. Hoses, clamps, tees, and air bleed fitting (press-in machined orifice) can be purchased from an automotive parts store. You will need to fabricate a couple simple brackets. Instructions for plumbing the additional surge tank are included with the Stage 3 kit.

How do you adjust the rev limiter?

The rev limit is adjusted by pressing on the throttle pedal with the ignition on and engine off. At about 50% throttle the tachometer will show the current rev limit. Pressing the throttle further will adjust the rev limit in 250rpm increments.

How high can I set the rev limiter?

The Stage 3 PCM allows you to set the rev limiter up to 8000rpm. However, the engine will not reliably rev greater than 7000rpm without modification. If you would like to maintain a rev limit greater than 7000rpm, we recommend installing high-speed valve springs. Bates engineering offers high-speed valve springs that will fit in the stock head without modification. GM Performance Parts also offers a set of neutral balance shafts for high-rpm operation.

How do you change to 100octane mode? Can you change back?

With the ignition on and engine off, turn on the cruise control and hold the cruise set button for approximately 10 seconds. The shift light will illuminate to indicate 100 octane mode. Repeat this procedure to turn the 100 octane mode off. Note that the PCM defaults to 93 octane mode each time the ignition is switched off, so the process will need to be redone with each start-up.

What if you turn on the 100 octane mode when you do not have 100octane fuel in the tank?

The Stage 3 PCM will default to 93 octane mode when excessive knock is detected. If this happens, the shift light will turn off to indicate that 100 octane mode is off.

How does the Nitrous feature work?

A Nitrous system can be wired in so that the Stage 3 PCM provides the proper control scheme for a 50-shot of Nitrous when the Nitrous trigger is activated. The feature will only enable when the clutch is not depressed, throttle is at 90% or more, rpm is between 3500 and 500 below the rev limit, and no errors are detected.

What Nitrous kit does this work with?

The Stage 3 kit will work with any brand 50-shot Nitrous kit. It was designed around a dry system.

Why is Stage 3 for off-road use only?

This kit is off-road only because it has not gone through the GM standard validation process, nor has it been emissions certified. The Stage 3 kit has been validated in a racing and track environment by GM engineers and sponsored race teams. Note that, because Stage 3 is for off-road use only, the vehicle's air-conditioning is disabled by the Stage 3 PCM.

Is the Stage 3 kit covered under warranty? Does it void my vehicle warranty?

Because the Stage 3 kit is not for normal on-highway use, it is not covered under warranty and will void your vehicle warranty.

Why does Stage 3 disable the A/C?

The Stage 3 PCM disables the vehicle's air-conditioning as a way to curb on-highway use of the kit. Stage 3 has not been durability tested nor emissions certified for on-highway use.

What if I want to use my Stage 3 equipped car as a daily driver?

The production PCM with the Stage 2 reflash will perform acceptably with the Stage 3 hardware. The Stage2 reflashed PCM will also maintain the A/C feature of your vehicle.

How do I order Stage 3?

The Stage 3 kit can be ordered from any GM Performance Parts dealer. To find a dealer near you, go to www.gmgoodwrench.com.

How much does it cost?

GM dealers set their own pricing, so there may be some variation from one dealer to the next. We expect the kit to be about \$550 (no installation). Note that Stage 3 requires Stage 2, which is \$750 MSRP.

What are the part numbers?

88958715	(2004) Ion Redline Stage 3 kit
88958716	(2005) Ion Redline Stage 3 kit
88958717	(2006/2007) Ion Redline Stage 3 kit
88958718	(2005) Cobalt SS Stage 3 kit
88958719	(2006/2007) Cobalt SS Stage 3 kit
88958720	76mm pulley
88958721	(2) pass intercooler endplate
12610641	(2004) Ion Redline Stage 3 PCM
12610642	(2005) Ion Redline Stage 3 PCM
12610643	(2006/2007) Ion Redline Stage 3 PCM
12610644	(2005) Cobalt SS Stage 3 PCM
12610645	(2006/2007) Cobalt SS Stage 3 PCM

Do I have to have the Stage 2 kit before installing Stage 3?

Yes, the Stage 3 kit is an upgrade to vehicles equipped with Stage 2. Stage 3 requires the injectors, pulley hub, and pulley belt from Stage 2.

What fuel does the Stage 3 kit require?

The default mode of engines equipped with Stage 3 requires 93 octane fuel. The Stage 3 PCM is equipped with a 100octane mode.

Does the Time Attack car have the Stage 3 kit? The Grand Am Cup Cobalts?

The Time Attack car uses the Stage 3 pulley and 2-pass intercooler. However, the Time Attack Cobalt is fitted with a 100 shot Nitrous kit. Therefore, it has a different calibration, and has been upfitted with additional components such as aftermarket pistons, neutral balance shafts, and high-speed valve springs. It also has a short header, large exhaust, and dry-sump oiling system. The Grand Am Cup Cobalts have used the Stage 2 kit in the past, along with the 2-pass intercooler. However, revised rules in the series have made the smaller supercharger pulley illegal.

Company X has an even smaller pulley. Can I use that?

The Stage 3 PCM does not have the proper calibration for a smaller pulley. In addition, supercharger pulleys smaller than 76mm would require an ice-box intercooler and exhaust ported head to control temperature.

What if I want to use a 75 or 100 shot of Nitrous?

The Stage 3 kit PCM has a control algorithm for a 50shot of Nitrous only. It would not work properly with a 75 or 100 shot. In addition, upgraded pistons would be required when using anything more than a 50 shot of Nitrous.