

Allison Swap Information

Using Cummins 12 valve Engine

Plan to spend at least \$800 for a core transmission, sometimes you can find working units with less than 200,000 miles for around \$1500.00, but if you are planning on 375+ hp you should also plan on rebuilding your core or purchasing a built trans. Transmission builders, such as Sun Coast or PATC will charge at least 1500 for a core, so buying a cheap core is sometimes cheaper than paying the core charge. Unless you are planning to use a medium duty bellhousing - more on that later - look for a 06 Chevy Allison, these are the only Chevy Allison



that have the required speed sensor in the bellhousing (sensor hole is shown in the picture at right of a 06 Allison bellhousing - at the point of the black arrow) Other years up to '09 (broken bell) may be possible to use by installing the input speed sensor. Changing the bellhousing for an 06 version is I think the best way, or my competitor CAC (Cummins Allison Conversions) may sell you their add on adapter bracket. That is a pretty slick idea but I am not sure if it could possibly cause some weakness in the bellhousing over time, as the bellhousing is quite thin where the hole must be drilled. *At this point I am not 100% sure I can provide a tune-able system for 2010 and newer transmissions and 4x4 versions have a different extension housing which limits transfer case options considerably.*

Transmission Control System: If you compare carefully you will find my price is competitive, and you will buy my system well informed. As shown in the table below, expect to spend about \$2135.00 for a new trans computer (TCM) and harness, an EFI AutoCal, an Allison TPS, and 6 hours of tuning. The individual costs are itemized in the column closest to the description, and the column on the far right is the costs added up.

Regular incandescent bulbs that draw less than a half amp can be used without relays for the Check Trans and Hot Trans indicator lights, but if you want to use smaller LED lights a resistor must be used, or a relay to prevent the LED lights from glowing slightly all the time. I offer a relay/fuse box for an extra \$175.00 that is pre-wired to control the indicator lights and it can also include a latching relay to control the Tow/Haul function with a factory overdrive or tow/haul switch (Tow/Haul must otherwise be controlled with a toggle switch). The relay/fuse box is also helpful to provide neutral safety or reverse light relays if your vehicle does not already have them.

An EFI Live AutoCal is necessary for tuning, and is available for around \$360.00 from [KT Performance](#). I provide instructions and configuration files you need to get the AutoCal set up for free and I can remote desktop support your AutoCal setup if you need extra help for \$40.00 or less. Others offering systems out there often say their stuff doesn't need tuning, but beware that it's not true. Destroked's system is tuneable with EFI Live but of course that is not included in their price. Be prepared for harsh shifts out of park with their system, they do not apparently use the "G" solenoid. CAC and Howard's systems are not really tuneable at all.

You must have an email account and a desktop or laptop computer with a USB port to load calibrations into the EFI AutoCal. While it may be possible to use Linux or Macs with the Wine program- Windows 7 is easiest, Windows 10 works ok, but I have not tested Windows 8 or 8.1 yet.

QTY	Part Description	Option Cost	Amount
1	TCM and Harness	\$1,100.00	\$1,100.00
	Fuse/Relay Box option (relays are helpful for neutral safety and reverse lights)	\$175.00	\$0.00
1	EFI Live AutoCal from KT Performance	\$360.00	\$360.00
	Dakota Digital SGI5-E 4 low option	\$140.00	\$0.00
	Allison TPS	\$375.00	\$0.00
	Expensive tuning service estimate (10 hours of tuning- billed as needed)	\$500.00	\$0.00
1	Cheap tuning service estimate (3hours of tuning- billed as needed)	\$150.00	\$150.00
	"Mid" tuning service estimate (6 hours of tuning- billed as needed)	\$300.00	\$0.00
1	PCS Throttle Position Sensor (cheaper alternative to the Allison TPS)	\$120.00	\$120.00
Estimated Grand Totals		\$2,650.00	\$1,730.00

Tuning costs may be less or more, as tuning support is provided at \$50.00/hr. If you only need 3 hours of tuning it will be \$150 cheaper, however if you need 10 hours of tuning additional calibrations or extreme power it could be \$200 more. The bold price is kind of the worst case where the column in the green box is best case, even if you still need to buy an Auto Cal.

The transmission controller is an OEM system with a special calibration that allows it to be used in a conversion. The advantages of using the OEM system are:

- Adaptive learning keeps the shift quality maintained
- OBDII diagnostics
- A secondary tow/haul shift schedule at the flip of a switch.
- Exhaust brake controls- automatic downshifts with engine braking features are typically included in the tow/haul shift schedule.

What does not work

- *Tap up/down shifting is **not** available at this time for stand alone medium duty systems, but may be an add on option in the future. If the transmission is tuned well tap shifting is not needed for good operation. If you feel you absolutely need tap shift, ask for details on the 8.1 GM alternative stand alone system.*

Stuff that you will need that I do not offer-

- × **Engine to transmission adapters** – Several adapter options are available.
 - *The first I will mention is using a factory Allison to SAE 3 adapter. These were used to adapt Cummins and other commercial engines to Allison in medium duty trucks. The adapter can be fairly thick (about 4" or more) and they often require a industrial starter. If you have a Chevy Allison, the bellhousing can be changed to the SAE 3 version.*
 - *Second option for Cummins engines is to purchase an aftermarket adapter and flexplate from Diesel Conversion Specialists or Destroyed. This is a very "clean" option that adapts the Chevy bellhousing to the Cummins engine, and offers the shortest overall length - with the adapter only being about 1" thick. The only thing I do not like about these is the flexplate is rather stiff and may be a contributing factor to rare cases of torque converter cracks where the pump drive tube is welded to the converter shell. I recommend DCS over Destroyed if you choose this option, they seem to have better prices and better support, and balance their flexplates, but you have to call and ask for their adapter. American Hot Rod Solutions on Ebay is the cheapest copy of this type of part.*
 - *Third option for Dodge Cummins is Howard's Allison Conversions adapter. It uses the OEM Dodge Cummins transmission adapter with his adapter between that and a SAE 3 bellhousing, and his adapters between the torque converter and the Dodge flexplate.*

✘ **Throttle Position Sensor** – *A genuine Allison TPS will cost you around \$375.00 from an Allison dealer. I can provide you with part numbers and a vendor I recommend if you want to use the Allison TPS. If you are using a 94-98 Cummins 12 valve you can use your original TPS mounted on the side of the injection pump if you like, however it must be in good working order and must be adjusted as per my instructions. Even so, if you rarely use full throttle, regular throttle sweeps right after key on before starting the engine may be needed to keep the TPS calibrated, as an alternative, I can offer my integration module that keeps it calibrated automatically. I offer a universal cable operated tps for \$120.00 but I will warn you it will need maintenance adjustments from time to time. Both the Allison and universal tps do not include bulkhead brackets for the tps cable, so you will need to fabricate simple brackets.*

✘ **Transfer Case (06-09 Allison only)**

The Chevy 241 or a round pattern 205 are two choices for transfer cases. If wasn't for driveshaft clearance issues, the 241C would work as is without a clocking ring after the 29 spline input shaft is installed, but clocking it up slightly is necessary to get just enough driveshaft clearance, even with a lift kit. The 205s are tough but may require some butcher work for the shifter rails. Howard's Allison Conversions sells adapters for the 205 that worked well for a customer in the past. The other option to consider is using a 271 turned upside down. That is going to require the pump pickup swapped, new vent tube hole drilled and old vent hole plugged at least.



Input shaft differences:

As shown in the picture above, there are differences in the thickness of the support bearing in the various 29 spline input shafts that can be interchanged with the one in your transfer case. Some Dodge NP271 inputs are the longest and long enough to make up for a clocking ring if you use the 241 transfer case. Talk to [Torque King 4x4](#) with the assembly number off your case and they can set you up with the best/right one. A [40 tooth reluctor ring from a 261 XHD](#) for a 43 spline output shaft can be installed on the end of the input after it is assembled in the t-case, enabling you to put a speed sensor in the Allison extension housing for 4 low operation (more on that over on the next page). The “tone ring” may need to be bored to fit on the Dodge manual trans input, but it fits well on the slightly shorter Chevy 261 XHD input. Cheaper import inputs can be purchased for as little as \$70.00 online, but most do not have a pocket bearing or plug installed and may be soft material.

Putting the 40 tooth ring on a 205 spud shaft has also been done, but will require some machine work.

4x4 Low Range Options

Medium duty Allison control systems do not have a working 4 low speed signal compensator. I have explored the varied Allison options for it already but as of yet none work correctly. There are however, currently two options to make 4 low range work with the medium duty control system I offer.

1. I can wire in a relay and the necessary wires to use a Dakota Digital SGI-5E speed signal modifier to modify the speed sensor signal with the transfer case is in 4 low. This is the recommended option if you already have a suitable speed sensor in the tail shaft of your transfer case. Note that your current 241C or add on speed sensor may not work, because it may not have a strong enough coil in it. You may need to install an Allison speed sensor or one that has around 1200 ohms of resistance between the two pins. I'll need to know what type of sensor you plan to use when I build the harness if you want me to supply the right connector.
2. If you do not have a speed sensor in the transfer case, a speed sensor can be installed in the extension housing of the Allison by drilling a hole in the tail shaft housing as shown in the picture at right, and installing a tone ring on the input shaft of the transfer case.



Shifter and Gear Indicators

Typically with a little fabricating of brackets you can use your original column shifter, if your truck was an automatic already - however the indicator may not line up exactly or may be missing a few numbers. 4 speed aftermarket floor shifters are an alternative if you don't mind losing the floor space.

If you need a gear indicator, one option that should work that I can prove out ahead of time is [these](#). The other option is from Dakota Digital, but requires some linkage attached to their sensor and it only shows range, not current gear.

Performance Engines:

I am predicting that a stock trans in good condition and my tuning will handle mild performance upgrades up to 375 hp. But I cannot guarantee it. Tuning the trans behind high performance engines (over 500 hp) can be more difficult, but I now have several out there around 500, even to 700 hp. I don't charge for tunes that don't improve issues, but it still takes time and fuel, so be prepared for that process. As time goes on and I have worked with more performance applications, tuning should be better out of the box and go more smoothly.

References:

References may be available on request. I do not give out customer information without approval, however I do ask my current customers if they are willing to accept an email or call from 3-5 prospective customers. I try to get references from current customers that are not finished with tuning yet or haven't even installed anything yet, that way you know I am not hand picking ones I know will say a good word for me.

Disclaimers:

The system I offer is a tune-able OEM system, even so I will prepare you that it is still a fairly new option and I do not have more than 40 customers using it yet. This being the case there may be issues that I have not experienced yet- and all systems will require some tuning- do not expect everything to work out of the box or to go on your merry way with only a few tuning sessions. I need lots of happy customers out there advertising for me via word of mouth so I can assure you I will do my very best to provide you with a good system that works well but there may be a few issues to work through. I have a stand alone Allison transmission truck of my own, and all the systems I sell are tested in my truck before they ship. If you ever have a problem with my system I will be available to figure out what the issue is, and if necessary test it in my own truck and get you back on the road.

I'm working hard to invest more than enough time and resources to be the best stand alone Allison control system provider, and I know the judges are my customers- the proof is in the pudding as they say.

Ordering

From a 89 Dodge Cummins to a 2015 Dodge Cummins – or a 69 Chevy 2 ton, rather than building a wire harness that you may have to tear half apart and add a bunch of wires to- I design and build the harness for your vehicle. If you do not want to build a mock up model harness with rope I can build the harness with universal lengths, but I cannot guarantee it will fit well.

Since I build the harnesses to order, and have built a few that are still sitting here, I charge a non-refundable \$300.00 deposit that is applied toward the purchase of your system. If you do not follow through and purchase the system after it is completed in 1 week or less, I reserve the right to sell the harness to someone else and keep your deposit.

I build a premium harness with high temperature rated wire and loom, and use premium wrap and tape – stuff that is well worth the cost and makes my harness last. Take full advantage of the custom harness build and plan a well fitting harness by providing me the following measurements:

1. TCM to main trans connector.
2. TCM or Fuse/Relay box option if used to power and ground points
3. TCM to throttle position sensor
4. TCM to dash for OBDII diagnostic connector, indicator lights, and switches

I can provide 90 right, left, or straight harness connectors. The TCM is about 10" long including the harness connector and 6" wide at the mounting tabs. Right exit harness dress covers make the harness exit 90 degrees to the right as viewed from the top of the TCM. Left exit and straight harness dress covers are also available, and I can build as detailed as what direction you want breakouts to be so let me know what your preference is, otherwise I will build according to my best guess. Usually, the harness is best routed down the inside of the driver's side frame rail, over to the trans via the transmission crossmember and then over the transmission.

I do not recommend mounting the TCM on the engine, it can be located inside the cab, or in the engine compartment where sufficient air flow will keep it cool enough. A 1 3/4" hole is needed in the firewall to pass the push on style transmission connector through if this mounting location is chosen. The commercial thread on transmission connector is a good bit bigger - let me know what type you will have.

I include a key on power relay in all my builds to avoid overloading factory circuits. The fuse/relay box option is nice for vehicles that need reverse light and neutral safety relays, and also gives you extra relays (for a momentary tow/haul button for example) and fused key on circuits. If you don't want anything extra, you can do without the fuse/relay box if you like and use a regular toggle switch to enable Tow/Haul, and another for 6th cancel.



The fuse/relay box is 4.5" long, 3.5" wide, and 3 3/4" tall and must be mounted in the same general location as the TCM.

***I can accept your credit or debit card payment through PayPal.
Sorry, I do not accept personal checks or money orders of any kind.
An additional 2.5% of invoice is applied to all international payments.***

Shipping

The default shipping company I use is Fed Ex, they are typically cheaper and usually faster as well, however if you have never received a package via Fed Ex, or have had bad experiences in the past you may want to get your package via UPS. USPS is also available, however they are most expensive when insurance for the value of the package is applied.

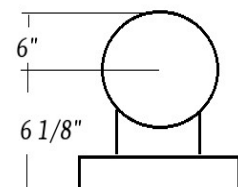
I have shipped enough packages to have also had some bad experiences getting claims awarded for lost or damaged packages. The biggest reason claims to not go through is the package was sent without a signature required for delivery. All shipments require a signature for delivery and require full insurance on the purchase amount. You may choose to waive the signature and insurance if you want, but you will accept any and all losses as a result.

Other Allison Conversion Info

Size Specs:

- Cooler lines are 5/8" - Customers in the past have used 1/2" cooler and lines and gotten away with it, but I do not recommend this for heavy towing.
- 4x4 length from face of bellhousing to end of transfer case mating surface is 30"
- From bellhousing to mount perch centerline is 28 1/4"
- Top rear of trans to bottom of mount is 12 1/8" for 4x4

The Allison is much bigger in physical size than most transmissions, the Allison's length will most likely require driveshaft modifications and will also require the cross member to be moved back. The other challenge is the height of the middle and rear part of the transmission, especially in trucks with a low floor pan. 4x4 versions are the same as 2 wheel drive transmissions in regard to the diameter of the rear clutch housing. If you can measure your current transmission in your truck from the center of the output shaft (or calculated center) to your floor pan you need at least 7" for it to fit without modifications to the floor pan (1" clearance may be just barely enough). As you may realize, ideally you want the Allison output shaft center line in the same place as your current transmission. It is often possible to bend your floor pan up a bit with a floor jack and a block of wood, but no more than 2-3". On 4x4 versions, from the top of the transmission cross member (where the mount rests) to the center line of the output shaft is about 6 1/8".



Allison® Stand Alone Transmission Control System Limited Warranty

transmissiontuner.com

In order for me to offer the Allison® Stand Alone Transmission Control System at a reasonable price I only offer a limited warranty. Please take the time to read this warranty document carefully before you purchase the system. If you have trouble with the system, this warranty will serve as the terms of how we will resolve the problem and get you back on the road.

Warranty Period

The seller, Jason DeZell, dba transmissiontuner.com, warrants the Transmission Control Module and Transmission Harness - together referred to as the “Allison® Stand Alone Transmission Control System” and “system” - to be free from defect in workmanship and materials under normal use for the period of **2 years** after purchase.

This Limited Warranty gives you specific legal rights. Some States, Countries, or Provinces do not allow limitations on how long implied warranties, conditions, limitations or exclusions may last, so any limitations described in this warranty may not apply to you. You are advised to consult applicable law for full determination of your rights as they apply to this warranty.

To the extent permitted by law:

- ***This warranty and the remedies set forth are exclusive and in lieu of all other warranties, remedies and conditions- whether oral, written, statutory, express or implied.***
- ***The Seller disclaims all liabilities for any consequential damages or expenses related to any apparent or real failure of the system, including but not limited to:***
 - ***Transmission failure.***
 - ***Property damages***
 - ***Compensatory damages for bodily harm to yourself or others due to loss of vehicle control as a direct or indirect cause of poor or ineffective transmission control.***
 - ***Loss of use, loss of earnings, towing, or travel and rental vehicle expenses.***
- ***In the event such warranties and liabilities cannot be disclaimed, the seller limits the duration and remedies of such warranties and liabilities to the duration of this limited warranty- 1 year, as fully described in the entirety of this document.***

What the warranty covers

- The warranty covers repair or replacement, at the sole discretion of the seller, of the Transmission Control Module (TCM), or transmission harness in the event of failure causing improper or ineffective operation of the 2006 Chevrolet Allison®, or similar approved transmission it is designed to control.
- The warranty covers free and documented testing of the system at Seller’s facility.
- The warranty covers reimbursement up to \$75.00, for expedited shipping from the buyer to seller and from the seller to buyer, but only if the control system is found to have a warrantable defect. If no defect is found, the buyer will be responsible to pay for return shipping to buyer. Seller normally maintains 4 systems in stock, however if the seller loses stock due to disaster and is unable to replace or repair the defective part delays may occur, and the seller is not responsible for any consequential loss to the buyer for such delays.

The warranty has the following specific exclusions and limitations:

- The warranty applies to original purchaser only.
- The warranty does not apply to any other application other than a 2006 Allison® from a Chevrolet pickup truck. Some exceptions apply, such as an 07-09 Chevy Allison with a 06 bellhousing, or a 6-speed medium duty Allison with bell housing sensor.
- The warranty excludes any damage coverage to the system, such as shipping accidents, fire, collisions, improper installation, wire chafing due to poor securement of the wire harness, or excessive exhaust heat damage. Your system will be shipped with full insurance, signature required. If your system arrives with shipping damage, you must report it to the delivery person immediately. The seller is not responsible for shipping insurance claims, other than assisting you in filing a claim.
- The warranty does not cover any costs for removal, installation or diagnosis.
- The warranty does not cover damage to the system caused by the improper use of EFILive tuning products, the use of unapproved EFILive software or firmware releases, or end user tuning.
- Due to circumstances beyond the Seller's control, no guarantee or warranty is made in regard to the amount of horsepower or torque the system and/or tuning is capable of supporting, nor how many miles the buyer's particular transmission will last when being controlled by the system.

How to File a Warranty Claim

Warranty claims are subject to the inspection and testing of the harness, TCM and TCR module by the seller only. The transmission harness, TCR module and TCM must be shipped to Transmission Tuner, 190 Riverside Dr., Kalispell MT 59901 to begin a formal claim. Unauthorized shipments will be refused and returned to purchaser, but authorization will not be unreasonably withheld after seller is fully satisfied all electrical and mechanical troubleshooting indicates the transmission harness or TCM must be replaced or repaired. Return shipping that includes insurance for purchase price must be arranged and paid for by the buyer. If evidence is found that invalidates the warranty, the purchaser will be given the option to purchase replacement product or pay for the product to be shipped back to them. If the seller sends a warranty replacement transmission harness and or TCM to the purchaser, the faulty component will become the property of the seller and will not be returned to the purchaser.

Warranty Invalidators:

Seller will use a variety of available means including digital pictures, independent third party inspections, and varied test equipment to document and support a rejection of warranty claim on the basis of the following invalidators. This warranty will be void if documentable evidence shows any of the following-

- **Little or No diagnostics submitted**- if the Purchaser refuses or otherwise neglects to send data log files to the seller to enable the seller to diagnose problems the purchaser is having with the transmission control system, the warranty will be void. The transmission system fully depends on custom tuning. The purchaser voids this limited warranty if he/she does not submit data logs to the seller to enable the seller to properly tune the transmission control system. The vehicle should only be driven for tuning purposes until the seller has released it for regular use by stating such via email to minimize transmission damage. Seller's release for use does not constitute any warranty claim beyond this document.
- **Incorrect installation**- if buyer reverses polarity, or connects wires to wrong locations in the vehicle system the warranty is void. Evidence pointing to incorrect installation may include but is not limited to- crimp style wire connectors or otherwise un-soldered wire connections, burned wiring, blown circuits in the TCM, and email or phone correspondence leading seller to believe beyond reasonable doubt that incorrect or poor wiring connections have occurred.
- **Unapproved EFILive AutoCal Firmware** - firmware updates are not reverse-able. All EFI Live updates must be approved via email or TCM warranty will be void. Current approved release is V8.2.12

Use of the Allison® trademark name is for descriptive purposes only. This system and the particular use of this system is not approved or warranted by the Allison® Transmission Inc.

Allison Control System Customer Service Tuning Policy

Tuning obligations can be very difficult to manage, since I cannot control when my customers finish their projects. For this reason it can be very difficult for me to schedule my available time. This policy helps scheduling considerably, and that helps me manage my obligations. Thank you for your understanding, I hope I do not have to enforce this policy often, but when I do I know it will help me prioritize my obligations in the fairest way possible.

- Active customers are customers that have submitted recent data logs and have not become inactive. Active customers also must have paid all paypal invoices that have been sent. (pdf statements are not invoices). I do my best to return edited calibrations same day for active customers when data logs are submitted before 4:00 Mountain Standard Time. If I am not able to do that I will at least send a notification. Active customers are my highest priority and this policy protects my obligation to them to give the highest and fastest service possible.
- Inactive customers will be those who have not submitted a data log for 5 business days or have not paid current paypal invoices.

How the policy may affect you:

If I am too busy with active customers you may have to wait a few days or more before you will become an active customer. Inactive customers that have purchased a control system from me will always be given highest priority while waiting in line, and will not be moved to active status strictly by their order in line, I will consider the urgency of your situation. In the event you have to wait more than 2 business days, and you do not have an outstanding tuning balance, I will send at least one edited calibration on the 3rd day while you are in the waiting line so your project is not stalled completely - however this does not change your inactive status. I will reserve the right to make judgment calls on who becomes active based on the following criteria:

1. Previous customers will always be given priority over new potential customers (those who have not purchased or paid for any parts or services yet).
2. Urgency will be considered- such as shift quality level, use of vehicle, etc.
3. If you are away from home and need emergency support, you can expect I will help you in a reasonable amount of time (same day evening or early next day in most cases).

To become active, a customer must submit a data log. This action secures a spot in line if I cannot take on any more active customers. After I notify you that you are an active customer, you will remain active for as long as you keep sending logs before five business days have expired.

Sorry I do not work on Sundays- no exceptions. I really need to have a day off and since I let my customers know ahead of time before they buy there are no misunderstandings. Saturdays are by appointment only.

Your feedback is valuable to me, so do not hesitate to let me know if you have any questions or concerns.

Thank You!

Jason at transmissiontuner.com

Kalispell Montana

406-407-7627