**Allison Co-Pilot Tech Info - Co-Pilot Transmission Controller - 2001-05 GM Allison 1000**

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| This kit makes it possible to transfer increased power levels over stock developed by a modified engine to the rear wheels without causing the dreaded transmission slip and Fail Safe condition that plagues the Allison transmission. The Co-PilotTM package alone, without any internal transmission modifications, allows the transmission to handle approximately 85 more horsepower and 120 foot pounds of torque over the power level at which the stock Allison will typically enter into Fail Safe mode, roughly 425HP/650Tq. The Co-PilotTM kit allows the transmissions clutch packs to receive full line pressure (clamping force needed to apply clutches) during high power situations. The stock Allison LCT-1000/2000 and 2400 transmission’s torque capacity has been reduced by the limited pressure that is available in the clutch packs. The stock Allison transmission only receives approximately 86-PSI oil pressure to the clutch packs when in 5th gear. After the addition of the Co-PilotTM transmission system the transmission clutch packs receive approximately 230-PSI, more than 2.5 times the stock pressure.  The biggest factor that causes transmission failures, as noted before, is the fact that apply pressures are too low. They work great for a stock transmission; however, as soon as more power is added, damage is likely to occur. The Transgo shift kit has been used for years with great success, but how successful is it really? The Transgo will raise your apply pressure to about 15-PSI or so over stock. This equates to somewhere around 100-PSI. This is a miniscule amount when compared to the ATS Co-Pilot. The common misconception is that it will cause far too much pressure if the Co-Pilot and Transgo are used in tandem. This is false. The only modification is that when drilling the separator plate, it is ideal to only drill out about 65/1000 instead of 100/1000. With these two enhancements used together, a stock Allison will see probably see a 1:1 ratio of line pressure to apply pressure. This will yield incredible results in a stock transmission.  It is often said that timing is everything, and that adage holds true in this scenario. The stock transmission has a very gradual pressure ramp up time, which is another cause of slipping under higher power levels. The Transgo follows the same pressure ramp up time, because it is mechanical, it is simply imitating with magnification of the stock attributes. The Co-Pilot however is electronic and programmed by ATS. We enabled it to bring the pressure up in a fraction of the time, allowing for a greater amount of shock force and clutch grip.  By allowing the available line pressure to the clutch packs, we have designed a system that increases the torque capacity of the stock Allison transmission by over 280 foot pounds of torque with the simple addition of our Co-pilotTM transmission kit. This increased pressure is only applied during high engine torque output, unlike other mechanical kits that do not use electronic controls. This removes the concern of excessive pressure on vital transmission parts such as delivery rings, drums, shafts, etc. during normal operation. Other valve body kits being sold today perform this hydraulically, only after the trim valve has completed the shift. The problems with these hydraulic kits lie in two areas. The first is the lack of ability to sense engine torque and to anticipate a shift. This causes the clutches to endure an excessive amount of slip, causing heat during the shift and eventually glazes the shifting clutch packs. The other problem with these mechanical kits is the valves supply full line pressure to the delivery rings in the transmission at all times. This constant high pressure causes excessive wear in the transmission. We have spent a great amount of time in the engineering and development of this kit to ensure long transmission life, along with great performance. If the Co-PilotTM kit is installed into a transmission that has been pushed into the fail-safe protection mode (neutral) the effect the Co-PilotTM will have on the transmission is not as apparent as when installed on a stock transmission that has not been previously damaged. After the C-3 (3rd-5th) clutch pack has been glazed a few times the clutch pack loses about 20% of its holding force, in this case the complete ATS Heavy Duty Transmission package may be necessary to repair the previously damaged components inside the transmission.  http://www.atsdiesel.com/images/additional_content/Copilot_Pressure_Chart.jpg |