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Transmission Warranty

THIS LIMITED WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE

AUTOMATIC TRANSMISSION

Passenger Cars (includes vans and pickup trucks up to 3/4 ton for personal use) are warranted for a period of 36 months / 100,000 miles. Some models carry a 18 month / 50,000 mile warranty. See invoice for details.

Trucks (includes 1 ton vans and pickup trucks, all commercial use vehicles) are warranted for a period of 36 months / 75,000 miles.

Emergency Vehicles and Motor Homes: 12 months or 12,000 miles, whichever comes first.

Standard Transmissions: 36 months 50,000 miles, whichever comes first.

ALLISON TRANSMISSIONS

AT- 2 year/Unlimited Miles AT School Bus – 3 year/Unlimited Miles MT – (School Bus – 2 year/Unlimited Miles) MT - 18 month/Unlimited Miles HT – 18 month/Unlimited Miles MD – 18 month/Unlimited Miles HD – 18 month/Unlimited Miles 1000 – 2 year/Unlimited Miles 2000 Series 18 month/Unlimited Miles School Bus – 3 year/Unlimited Miles B Series – 18 month/Unlimited Miles

Eagle Engine Sales, Inc. warrants that it will replace, repair, or refund at its sole option, any remanufactured transmission or part supplied by Manufacturer, which is defective in material or workmanship, for 36 months or 100,000 miles whichever comes first. 36 months 50,000 miles on manual transmissions. This warranty is limited to the first retail purchaser of the remanufactured transmission ("the Purchase"). This warranty is limited to defects in workmanship and material furnished by Manufacturer and is not an unconditional guarantee against all hazards or failures (see Exclusions and Limitations to Limited Warranty).

If it is determined that a remanufactured transmission or part furnished by Manufacturer is defective in workmanship or material, Manufacturer will allow a labor allowance (certain restrictions apply, see Warranty Labor Allowance). The labor allowance shall be credited to Purchaser only upon a determination that a remanufactured transmission or a part supplied by Manufacturer is defective in material or workmanship. The limited warranty period commences on the original date of sale to the retail Purchaser. In the event a replacement-remanufactured transmission is provided to the Purchaser pursuant to this warranty, the warranty period does not start over on the date the Purchaser is supplied with the replacement. The warranty period runs from the original date of sale to the Purchaser and is not extended by supply of a replacement.

There are no warranties that extend beyond the description herein. All other warranties

express or implied, including but not limited to, all warranties of merchantability and fitness for a particular purpose are hereby disclaimed and excluded by Manufacturer. Manufacturer transfers only such title or rights as it has and the goods. No statement or undertaking whether a condition, warranty or otherwise, is given by Manufacturer that the goods do not comprised or include patented, and registered or protected designs inventions or equipment or trademark or copyright material. The above limited warranty is void and will not apply in the event the Purchaser does not follow the vehicle manufacturer's instruction or in any way abuses the vehicle. The above warranty does not apply to goods supplied to vehicles used for racing or any type of vehicular competition. In the event that any provision of this warranty should be or become invalid or unenforceable because of any laws or court action, the remaining terms and conditions hereof shall remain in full force and effect.

EXCLUSIONS AND LIMITATIONS TO LIMITED WARRANTY

This Limited Warranty does not warrant against and does not cover damage or loss due to the following:

1. MISUSE, MAINTENANCE NEGLECT, ABUSE, VANDALISM, ABNORMAL OPERATION OR ACCIDENTS.
2. DEFECTIVE OR IMPROPER INSTALLATION.
3. ENVIRONMENTAL CONDITIONS, OVERHEATING OR FREEZE CRACKS.
4. LACK OF LUBRICANTS OR FLUIDS.
5. IMPROPER COOLING SYSTEM FLUSHING.
6. FAILURES TO COMPONENTS OR PARTS NOT FURNISHED BY MANUFACTURER OR OTHERWISE APPROVED BY MANUFACTURER FOR INSTALLATION, OR COMPONENTS OR PARTS UNSUITABLE FOR USE WITH A WARRANTED REMANUFACTURED TRANSMISSION OR PART.
7. ABNORMAL WEAR AND TEAR OR USE OF A REMANUFACTURED TRANSMISSION OR PART WHICH IT WAS ORIGINALLY INTENDED OR A CHANGE FROM ORIGINAL APPLICATION.
8. INTERNAL MODIFICATION WITH AFTER-MARKET PERFORMANCE PARTS.

This Limited Warranty does not cover or provide credit for the following: Replacement fluids or other substances; towing charges, vehicle rental, or other substitute transportation; diagnostic time, labor (except as set forth herein) or service call; gaskets or other parts or items associated with but not included with this limited warranty; transportation charges or lodging; loss of time, income, sales or profits; loss of the use of vehicle; telephone calls or communication expense; lift, truck or storage fees; tune-ups or replacement of hoses or maintenance items; routine or regularly required maintenance; injury or death to persons or damage or destruction of property; or, consequential, incidental or punitive damages.

CONDITIONS TO COVERAGE

This Limited Warranty is subject to the conditions set forth below. Failure to comply with these conditions will void this Limited Warranty.

1. A registration card must be filled out completely by the installation facility and returned to Eagle Engine Sales, Inc. in order to validate the warranty.
2. A remanufactured transmission or part that is furnished as a replacement under this Limited Warranty for a remanufactured transmission or part found to be defective is warranted only for the unexpired warranty period remaining on the original defective remanufactured transmission or part.

   This Limited Warranty is of no force or effect while any payments for remanufactured transmission or parts remain outstanding. Claims for transmission parts must be made at the initial delivery to the Purchaser of the remanufactured transmission.
3. Warranty claims shall be called in to Eagle Engine Sales, Inc at 1-800-811-9328. Eagle Engine Sales, Inc. reserves the right to request of the original repair order before a warranty claim is authorized.
4. Failed units must be returned to Eagle Engine Sales, Inc facility within 30 days. Failure to do so will result in the warranty claim being denied and the installer will be charged for the replacement warranty unit. To return a core, please contact Eagle Engine Sales, Inc.
5. Eagle Engine Sales, Inc. reserves the right to charge back the cost of the unit, shipping costs , and labor charges should it be determined by us that the failure was caused by improper installation, abuse, misuse lack of maintenance, neglect or any other condition not covered by this warranty.
6. Any alleged warranty transmission that has been in service for a period of 12 months or longer may be subject to a factory inspection prior to replacement.
7. All alleged warranty parts, along with a shop labor bill must be received by Eagle Engine Sales, Inc within 60 days of opening the warranty claim. After 60 days warranty will be considered inactive and closed with no labor or parts credit allowed.

TRANSFER OF WARRANTY

Transfer Procedure. This limited warranty is transferable by any Purchaser to the next owner(s) of the vehicle in which the remanufactured engine/transmission was installed during the term of the limited warranty as stated above, provided Manufacturer receives written notice of transfer of title from the original owner and payment of $150.00 within thirty (30) days of the date of title transfer. The notice must include the Manufacturer's serial number, the previous owner's name as registered with Manufacturer, vehicle information, the name of the current owner(s) of the remanufactured transmission and the date of original purchase from the Manufacturer. Failure to file the required transfer notice and pay the required $150.00 fee within thirty (30) days shall relieve Manufacturer of any obligation to such next owner(s) under the terms of this Limited Warranty. No transfer of the warranty shall extend the warranty term provided by this Limited Warranty

****ATTENTION****

Your warranty will be void if you:

- Use an aftermarket pan
- Have an aftermarket tune
- Have a performance programmer/chip
- Have any aftermarket engine modifications
- Have any EGR/Catalytic Converter deletes
- If your application requires programming or a relearn and they are not completed prior to operation of vehicle in any way
- If you do not follow the special installation protocols on 68RFE/45RFE/48RE/46RE/47RE/5R110/6R140/6T40/6T45/6T706T75/6L80E/6L90E/6R80
- If you do not follow OEM installation instructions on all other units not listed above
- Use transmission in a snow plow
- Have broken shafts or broken cases/housings
- Modify the transmission in any way

Transmission Warnings and Instructions

CHRYSLER - DODGE - JEEP

A604/41TE TRANSMISSION INSTALLATION WARNINGS

CHECKLIST

- Compare replacement transmission and torque converter to original before installation.
- Scan original vehicle computer, record any codes for later review and resolve all codes.
- Transmission cooler **MUST** be flushed and replaced if plugged.
- Inspect flex plate closely and completely for cracks or any damage.
- Be sure both dowel pins are clean, installed properly, and are in good condition.
- Torque converter bolts stretch with use. ***Replace with NEW bolts*** to prevent torque converter damage.
- Inspect all engine and transmission mounts for wear and damage.
- Inspect drive axles for broken boots or bad joints. Replace as needed.
- Test all sensors and switches that have been transferred from the original transmission for correct operation.
- Fill the transmission with ATF+4/Type 7176 transmission fluid only.
- Confirm that the transmission has a good ground connection; reattach all ground straps to the correct location free of paint, grease, oil and corrosion.
- Verify that the engine block and bell housing surfaces are clean and free of paint, grease, oil and corrosion.
- Adjust gearshift linkage after installation.
- Due to the OEM design of the under-hood components, the battery over time leaks acid onto the transmission and harnesses below it. It is strongly suggested that the speed sensor pigtails be replaced, and the solenoid pack pigtail also be checked for bad wires as these will cause shift issues or codes.
- These applications are also prone to ECM problems. Please insure it is functioning properly and all the codes are cleared, and shift adapts have been reset.

42RLE TRANSMISSION INSTALLATION WARNINGS

CHECKLIST

- Compare replacement transmission and torque converter to original before installation.
- Scan original vehicle computer, record any codes for later review and resolve all codes.
- Transmission cooler **MUST** be flushed and replaced if plugged.
- Inspect flex plate closely and completely for cracks or any damage.
- Be sure both dowel pins are clean, installed properly, and are in good condition.

- Torque converter bolts stretch with use. ***Replace with NEW bolts*** to prevent torque converter damage.
- Inspect all engine and transmission mounts for wear and damage.
- Inspect drive axles for broken boots or bad joints. Replace as needed.
- Test all sensors and switches that have been transferred from the original transmission for correct operation.
- Fill the transmission with ATF+4/Type 7176 transmission fluid only.
- Confirm that the transmission has a good ground connection; reattach all ground straps to the correct location free of paint, grease, oil and corrosion.
- Verify that the engine block and bell housing surfaces are clean and free of paint, grease, oil and corrosion.
- Adjust gearshift linkage after installation.
- These applications are also prone to ECM problems. Please insure it is functioning properly and all the codes are cleared, and shift adapts have been reset. ****MUST PERFORM A QUICK LEARN PROCESS****

45RFE TRANSMISSION INSTALLATION WARNING CHECKLIST

- Compare replacement transmission and torque convertor to original before installation.
- Scan original vehicle computer, record any codes for later review and resolve all codes.
- ***Transmission cooler MUST be replaced. Flushing is not acceptable***
- Inspect flex plate closely and completely for cracks or any damage.
- Inspect all engine and transmission mounts for wear and damage.
- Be sure both dowel pins are clean, installed properly, and are in good condition.
- Seat the torque converter completely in the transmission prior to installation in the vehicle.
- Verify that the engine block and bell housing surfaces are clean and free of paint, grease, oil and corrosion.
- Torque converter bolts stretch with use. **MUST** replace with new bolts.
- Test all sensors and switches that have been transferred from the original transmission for correct operation.
- Must use ATF+4 fluid in this application.
- Confirm that the transmission has a good ground connection; reattach all ground straps to the correct location free of paint, grease, oil and corrosion.
- Complete quick learn and reset the shift adapts/CVI's before operation.

QUICK LEARN PROCEDURE

The installing facility should verify they have the proper tools and that the scan tool they have can perform the necessary procedures. The vehicle may also be towed to a dealership to perform these functions. ***DO NOT OPERATE without this being completed****

Operating the vehicle in any manner without performing the procedures described above can cause immediate damage to the transmission. To perform the Quick Learn Procedure, the following conditions must be met:

- The brakes must be applied.
- The engine speed must be above 500 rpm.
- The throttle angle (TPS) must be less than 3 degrees.
- The shift lever position must stay until prompted to shift to overdrive.
- The shift lever position must stay in overdrive after the Shift to Overdrive prompt until the DRB III indicates the procedure is complete.
- The calculated oil temperature must be above 60°F and below 200°F.

1. Plug the DRB III scan tool into the diagnostic connector. The connector is located under the instrument panel.
2. Go to the Transmission > Miscellaneous > Quick Learn Procedure screen.
3. Follow the instructions of the DRB III to perform the Quick Learn Procedure.

Failure to complete this step will cause friction plates in the overdrive clutch pack to burn the material off the plates almost immediately and your warranty will be voided for this condition.

The transmission must not be used for hauling/towing for the first 300 miles after install. The first 300 miles should be normal stop and go operation.

You must also complete a "Drive Learn" procedure after completing the Quick Learn.

DRIVE LEARN PROCEDURE

Bring vehicle up to normal operating temperature. Find a long stretch or road with very little traffic. Bring truck to a complete stop, place in reverse for 2-3 seconds and then back into drive. While watching throttle percentage on a scanner, hold a 15 degree throttle angle through the 1-2, 2-3, and 3-4 upshifts and then bring vehicle to a stop. Repeat this at least 3-4 times before the next reverse or park gear selection. This complete procedure needs to be completed until the CVI values stabilize (stop changing during shifts).

When the CVI values have stabilized the process is ready for heavier throttle upshifts. The truck should now be accelerated from a stop with a 30 degree throttle angle through all gears to verify clean shifts.

If any stumbles, chatter, clunks are felt, you **MUST** repeat the initial drive learn procedure to re-stabilize the CVI values.

When upshifts are feeling quick and crisp you can then run the above cycle again but at 50% throttle angle. If at any time the shifts are not correct, you must revert to the beginning of the drive learn procedure and run it again.

When the transmission shifts properly at 50-60% throttle, then the process is complete. Y**ou will need to record the CVI values** at this point for your records as you will need to provide those values in the event of a warranty claim.

Failure to not have those values when you call could cause your warranty to be voided before diagnosis even begins.

46/47/48RE TRANSMISSION INSTALLATION WARNINGS CHECKLIST

- Compare replacement transmission and torque converter to original before installation.
- Scan original vehicle computer, record any codes for later review and resolve all codes.
- **Transmission cooler MUST be replaced and not ran in series with old system. Flushing is not acceptable on these applications. Warranty will be void if not replaced.**
- **The drain back valve in the cooler line MUST be replaced or removed to prevent a cooler restriction that will cause transmission failure. Warranty will be void if not removed/replaced.**
- Inspect flex plate closely and completely for cracks or any damage.
- Be sure both dowel pins are clean, installed properly, and are in good condition.
- Torque converter bolts stretch with use. Replace with **NEW** bolts to prevent torque converter damage.
- Inspect all engine and transmission mounts for wear and damage.
- Inspect driveshafts and u-joints for wear, binding, and damage.
- Test all sensors and switches that have been transferred from the original transmission for correct operation.
- Fill the transmission with ATF+4 transmission fluid only.
- Check fluid level in **NEUTRAL** with the transmission at operating temperature. The transmission vent is located on the pump and will allow fluid to leak if it is overfilled.
- Confirm that the transmission has a good ground connection; reattach all ground straps to the correct location free of paint, grease, oil and corrosion.
- Verify that the engine block and bell housing surfaces are clean and free of paint, grease, oil and corrosion.
- Adjust gearshift linkage after installation.
- Adjust throttle valve cable or reset throttle valve actuator to prevent improper shift timing and transmission damage.
- Clean the driveshaft yoke or transfer case input shaft prior to installation to prevent transmission output seal damage.

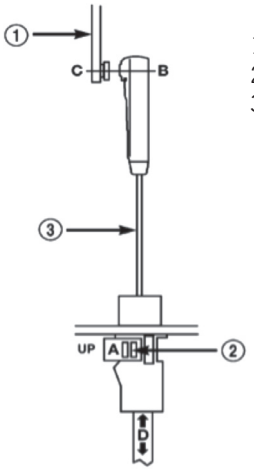
THROTTLE VALVE ADJUSTMENTS

For Throttle Valve equipped transmissions.

Correct throttle valve cable adjustment will allow the lever on the transmission to move simultaneously with the lever on the engine throttle body.

1. Remove the air cleaner housing to access the throttle body.
2. Carefully slide the cable attachment from the engine throttle body lever.
3. Move the cable lock into the up position to allow for cable adjustment.
4. Verify the engine throttle body lever is at the idle position and the lever on the transmission is in the full forward position.

5. Pull on the cable slightly to remove any slack.
6. Slide the sheath of the cable until the centerline of the cable attachment is centered on the engine throttle body attachment stud.
7. Hold the cable in this position and push the cable lock down; this will lock the adjustment in place.
8. Reattach the throttle valve cable to the throttle body and check for simultaneous movement of the levers.



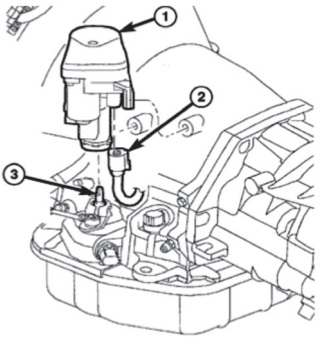
1. Throttle Lever
2. Cable Lock
3. Throttle Valve Cable

THROTTLE VALVE ACTUATOR ADJUSTMENTS

For Transmission Throttle Valve Actuator (TTVA) equipped transmissions.

The TTVA does not require any mechanical adjustments. However, it does require an initialization period after the actuator has been removed or replaced.

1. After installing the TTVA on the transmission and plugging it in, turn the ignition to the on position for 30 seconds. This will allow the computer sufficient time to perform the internal calibration procedure to learn the "zero" position.
2. Check for diagnostic trouble codes (DTCs). If no DTCs are set relating to the TTVA, the TTVA is fully calibrated and ready for use.



1. Transmission Throttle Valve Actuator
2. TTVA Connector
3. Throttle Valve Shaft

62TE TRANSMISSION INSTALLATION WARNINGS CHECKLIST

- Compare replacement transmission and torque convertor to original before installation.
- Scan original vehicle computer, record any codes for later review and resolve all codes.
- Transmission cooler and lines flushed or replaced.
- Inspect flex plate closely and completely for cracks or any damage.
- Inspect all engine and transmission mounts for wear and damage.
- Be sure both dowel pins are clean, installed properly, and are in good condition.
- Seat the torque converter completely in the transmission prior to installation in the vehicle.
- Verify that the engine block and bell housing surfaces are clean and free of paint, grease, oil and corrosion.
- Torque converter bolts stretch with use. **MUST replace with new bolts.**
- Test all sensors and switches that have been transferred from the original transmission for correct operation.
- Must use ATF+4 fluid in this application.
- Confirm that the transmission has a good ground connection; reattach all ground straps to the correct location free of paint, grease, oil and corrosion.
- Verify that the engine block and bell housing surfaces are clean and free of paint, grease, oil and corrosion.

QUICK LEARN PROCEDURE

The installing facility should verify they have the proper tools and that the scan tool they have can perform the necessary procedures. The vehicle may also be towed to a dealership to perform these functions. ****DO NOT OPERATE without this being completed.**** Operating the vehicle in any manner without performing the procedures described above can cause immediate damage to the transmission.

To perform the Quick Learn Procedure, the following conditions must be met:

- The brakes must be applied.
- The engine speed must be above 500 rpm.
- The throttle angle (TPS) must be less than 3 degrees.
- The shift lever position must stay until prompted to shift to overdrive.
- The shift lever position must stay in overdrive after the Shift to Overdrive prompt until the DRB III indicates the procedure is complete.
- The calculated oil temperature must be above 60°F and below 200°F.

1. Plug the DRB III scan tool into the diagnostic connector. The connector is located under the instrument panel.
2. Go to the Transmission > Miscellaneous > Quick Learn Procedure screen.
3. Follow the instructions of the DRB III to perform the Quick Learn Procedure.

****WARNING****

If your truck has been modified with an aftermarket tuner/programmer, has deleted components (EGR/CAT/DEF) or are inoperable DO NOT INSTALL this unit. It will fail and *will not be covered under warranty*. Contact your salesperson to return unit.

66/68RFE TRANSMISSION INSTALLATION WARNING

CHECKLIST

- Compare replacement transmission and torque convertor to original before installation.
- Scan original vehicle computer, record any codes for later review and resolve all codes.
- Transmission cooler must be replaced on some applications. Please see below.
- Inspect flex plate closely and completely for cracks or any damage.
- Inspect all engine and transmission mounts for wear and damage.
- Be sure both dowel pins are clean, installed properly, and are in good condition.
- Seat the torque converter completely in the transmission prior to installation in the vehicle.
- Verify that the engine block and bell housing surfaces are clean and free of paint, grease, oil and corrosion.
- Torque converter bolts stretch with use. **MUST replace with new bolts.**
- Test all sensors and switches that have been transferred from the original transmission for correct operation.
- Must use ATF+4 fluid in this application.
- Confirm that the transmission has a good ground connection; reattach all ground straps to the correct location free of paint, grease, oil and corrosion.
- Complete quick learn and reset the shift adapts/CVI's before operation. **This is a critical step.** If you operate the vehicle without the above processes being completed, poor shift quality, hard shifts and engagements, slipping shifts, check engine lights, or transmission failure will result, and warranty may be voided. Don't risk your warranty by not completing the steps as these steps can be verified via hand held scanner.

**Corrosion in electrical connectors is an issue on this application. The most problematic connection is the Line Pressure sensor connection. The corrosion is not evident until the yellow cap inside the connector is removed. Save yourself headaches and check this connection and clean or replace pigtail as needed. This will cause numerous codes and will have you running in circles.

If you have a code of P0868 after installing you may have compromised cooler flow. It has been discovered that a plugged or compromised cooler can affect maximum line pressure. If you have this code, you will need to check cooler flow and main line pressures before moving to the next step in diagnosis.

TRANSMISSION COOLER SERVICE

Please find your model year below to see what is required to keep your warranty from being voided.

2007-2010: Replacement of transmission cooler is required. Flushing is **NOT** acceptable.

2011-2012: Replacement of transmission cooler and torque converter cooler is required. Flushing is **NOT** acceptable.

2013 and Up: Replacement of the transmission cooler and cooler bypass block is required. Flushing is not acceptable.

QUICK LEARN PROCEDURE

****NOTE-If you have a deleted DPF, CAT, EGR, or programmer/chip installed, DO NOT INSTALL TRANSMISSION. Unit will not be covered under warranty. Contact salesperson with questions.****

The installing facility should verify they have the proper tools and that the scan tool they have can perform the necessary procedures. The vehicle may also be towed to a dealership to perform these functions. *****DO NOT OPERATE without this being completed*****

Operating the vehicle in any manner without performing the procedures described above can cause immediate damage to the transmission. To perform the Quick Learn Procedure, the following conditions must be met:

- The brakes must be applied.
- The engine speed must be above 500 rpm.
- The throttle angle (TPS) must be less than 3 degrees.
- The shift lever position must stay in park until prompted to shift to overdrive
- The shift lever position must stay in overdrive after the Shift to Overdrive prompt until the DRB III indicates the procedure is complete.
- The calculated oil temperature must be above 60°F and below 200°F.
- Plug the DRB III scan tool into the diagnostic connector. The connector is located under the instrument panel.
- Go to the Transmission > Miscellaneous > Quick Learn Procedure screen.
- Follow the instructions of the DRB III to perform the Quick Learn Procedure.

Failure to complete this step will cause friction plates in the overdrive clutch pack to burn the material off the plates almost immediately and your warranty will be voided for this condition.

The transmission must not be used for hauling/towing for the first 300 miles after install. The first 300 miles should be normal stop and go operation.

You must also complete a "Drive Learn" procedure after completing the Quick Learn.

DRIVE LEARN PROCEDURE

Bring vehicle up to normal operating temperature. Find a long stretch or road with very little traffic. Bring truck to a complete stop, place in reverse for 2-3 seconds and then back into drive. While watching throttle percentage on a scanner, hold a 15 degree throttle angle through the 1-2, 2-3, and 3-4 upshifts and then bring vehicle to a stop. Repeat this at least 3-4 times before the next reverse or park gear selection. This complete procedure needs to be completed until the CVI values stabilize (stop changing during shifts).

When the CVI values have stabilized the process is ready for heavier throttle upshifts. The truck should now be accelerated from a stop with a 30 degree throttle angle through all gears to verify clean shifts.

If any stumbles, chatter, clunks are felt, you **MUST** repeat the initial drive learn procedure to re-stabilize the CVI values.

When upshifts are feeling quick and crisp you can then run the above cycle again but at 50% throttle angle. If at any time the shifts are not correct, you must revert to the beginning of the drive learn procedure and run it again.

When the transmission shifts properly at 50-60% throttle, then the process is complete. **You will need to record the CVI values** at this point for your records as you will need to provide those values in the event of a warranty claim.

Failure to not have those values when you call could cause your warranty to be voided before diagnosis even begins.

OTHER IMPORTANT WARNINGS

Dodge Ram trucks in general are notorious for frame twist and drive line related failures. Check your U-joints, all mounts, crossmembers, driveshafts for bending/ twisting and balance and transfer case functionality. These problems are amplified when the truck is lifted. Any of these components failing, aging or being worn out will cause the transmission case to fracture in the middle or at the extension housing. This condition is not covered under warranty. If this occurs, the warranty is void. You do however have the option to ship the transmission to the warranter at your expense and the warranter will repair the damage also at customers expense and then at that point the warranty can be reactivated.

Also watch for a code stored of P0868. If you have this code, please refer to Mopar service bulletin 18-037-07 Rev A. **DO NOT** call in warranty claim until you have followed the directions within the technical bulletin. The external pressure switch causes issues and is not a component provided with the transmission.

DO NOT use for heavy towing until you have at least 300 miles of normal operation.

DO NOT INSTALL TRANSMISSION IF YOU DO NOT INTEND TO FOLLOW THE ABOVE STEPS

CD4E TRANSMISSION INSTALLATION WARNINGS

CHECKLIST

- Compare replacement transmission and torque converter to original before installation.
- Scan original transmission computer before removal from vehicle; record for later review.
- Verify engine is in good operating condition and that there are no engine performance codes present. Address **ANY** and **ALL** engine or emissions codes prior to replacement as these issues could affect transmission performance.
- Verify that the driveline is in good operating condition, including: mounts, drive shafts, u-joints, bearings, differentials, and transfer case (if equipped).
- Verify integrity of the vehicle electrical system including: battery, alternator, wiring, and grounds.
- Transfer external sensors and switches from the original transmission, or replace if necessary.
- Verify torque converter is properly and completely installed.
- Hot flush or replace the transmission cooler and lines; cooler flow must be at least 1-qt per 15-sec. Flush in a can is **NOT** sufficient.
- Inspect the flex plate for cracks or damage.
- Verify both dowel pins are present and in good condition.
- Be sure transmission is flush against the engine block before tightening the attaching bolts.
- Fill transmission with Dexron III/Mercon fluid.
- Reset the adaptive memory with capable scan tool before operating the transmission.
- Perform the final system scan after the road test. If codes are present, compare them to the original recorded codes.

GUIDELINES

Entire transmission cooling system must be completely cleaned, hot flushed, and flow tested.

A restricted and/or contaminated transmission cooling system is the #1 cause of transmission failure. If the cooler is plugged, it must be replaced.

This is an electronically-controlled transmission. The following information is **VERY** important to understand and to perform correctly. Failure to do so may damage your new transmission and/or cause performance problems:

Verify proper function of the entire electrical system including the battery, alternator, vehicle grounds, mass air flow sensor, and throttle position sensor. These items are critical to transmission performance.

Inspect transmission wiring harness for damaged wires or connectors.

Reset the adaptive memory with a scan tool before operating new transmission for the first time; disconnecting the battery is not enough.

A final system scan is required after the road test or if problems are detected during the road test. If codes are still present, compare to original code scan recorded prior to transmission replacement.

E4OD TRANSMISSION INSTALLATION WARNINGS

CHECKLIST

- Compare replacement transmission and torque converter to original before installation.
- Scan original transmission computer before removal from vehicle; record for later review.
- Verify engine is in good operating condition and that there are no engine performance codes present. Address **ANY** and **ALL** engine or emissions codes prior to replacement as these issues could affect transmission performance.
- Verify that the driveline is in good operating condition, including: mounts, drive shafts, u-joints, bearings, differentials, and transfer case (if equipped).
- Verify integrity of the vehicle electrical system including: battery, alternator, wiring, and grounds.
- Transfer external sensors and switches from the original transmission or replace if necessary.
- Verify torque converter is properly and completely installed.
- Hot flush or replace the transmission cooler and lines; cooler flow must be at least 1-qt per 15-sec. Flush in a can is **NOT** enough.
- Inspect the flex plate for cracks or damage.
- Verify both dowel pins are present and in good condition.
- Be sure transmission is flush against the engine block before tightening the attaching bolts.
- Fill transmission with Dexron/Mercon III fluid.
- Reset the adaptive memory with capable scan tool before operating the transmission.
- Perform the final system scan after the road test. If codes are present, compare them to the original recorded codes.

GUIDELINES

If the vehicle has an aftermarket magnetic filter, it must be removed and not replaced. They are prone to causing cooling system restrictions. Discard and dispose. **DO NOT** install aftermarket inline filters in this application.

Proper flushing equipment is **REQUIRED** for this application. Hot Flushers are the only acceptable means to flush this system. Flush in a can is not enough. If you do not have a Hot Flusher, replacement of the cooling system is required.

Please refer to Ford OEM technical information for the cooling system flow and flushing procedures.

This is an electronically-controlled transmission. The following information is **VERY** important to understand and to perform correctly. Failure to do so may damage your new transmission and/or cause performance problems:

All aftermarket tunes / "Chips" must be removed from the Engine and Transmission. Warranty will be voided

Verify proper function of the entire electrical system including the battery, alternator, vehicle grounds, mass air flow sensor, and throttle position sensor. These items are critical to transmission performance.

Inspect transmission wiring harness for damaged wires or connectors.

Reset the adaptive memory with a scan tool before operating new transmission for the first time; disconnecting the battery is not enough.

A final system scan is required after the road test or if problems are detected during the road test. If codes are still present, compare to original code scan recorded prior to transmission replacement.

4R70/75E/W TRANSMISSION INSTALLATION WARNINGS CHECKLIST

- Compare replacement transmission and torque converter to original before installation.
- Scan original transmission computer before removal from vehicle; record for later review.
- Verify engine is in good operating condition and that there are no engine performance codes present. Address **ANY** and **ALL** engine or emissions codes prior to replacement as these issues could affect transmission performance.
- Verify that the driveline is in good operating condition, including: mounts, drive shafts, u-joints, bearings, differentials, and transfer case (if equipped).
- Verify integrity of the vehicle electrical system including: battery, alternator, wiring, and grounds.
- Transfer external sensors and switches from the original transmission, or replace if necessary.
- Verify torque converter is properly and completely installed.
- Hot flush or replace the transmission cooler and lines; cooler flow must be at least 1-qt per 15-sec. Flush in a can is **NOT** sufficient.
- Inspect the flex plate for cracks or damage.
- Verify both dowel pins are present and in good condition.
- Be sure transmission is flush against the engine block before tightening the attaching bolts.
- Fill transmission with Dexron III/Mercon fluid.
- Reset the adaptive memory with capable scan tool before operating the transmission.

- Perform the final system scan after the road test. If codes are present, compare them to the original recorded codes.

GUIDELINES

Entire transmission cooling system must be completely cleaned, hot flushed, and flow tested.

A restricted and/or contaminated transmission cooling system is the #1 cause of transmission failure. If the cooler is plugged, it must be replaced.

This is an electronically-controlled transmission. The following information is **VERY** important to understand and to perform correctly. Failure to do so may damage your new transmission and/or cause performance problems.

Verify proper function of the entire electrical system including the battery, alternator, vehicle grounds, mass air flow sensor, and throttle position sensor. These items are critical to transmission performance.

Inspect transmission wiring harness for damaged wires or connectors.

Reset the adaptive memory with a scan tool before operating new transmission for the first time; disconnecting the battery is not enough.

A final system scan is required after the road test or if problems are detected during the road test. If codes are still present, compare to original code scan recorded prior to transmission replacement.

4R100 TRANSMISSION INSTALLATION WARNINGS CHECKLIST

This application has install requirements. PLEASE READ BEFORE INSTALLATION

- Compare replacement transmission and torque converter to original before installation.
- Scan original transmission computer before removal from vehicle; record for later review.
- Verify engine is in good operating condition and that there are no engine performance codes present. Address **ANY** and **ALL** engine or emissions codes prior to replacement as these issues could affect transmission performance.
- Verify that the driveline is in good operating condition, including: mounts, drive shafts, u-joints, bearings, differentials, and transfer case (if equipped)
- Verify integrity of the vehicle electrical system including: battery, alternator, wiring, and grounds.
- Transfer external sensors and switches from the original transmission or replace if necessary.
- Verify torque converter is properly and completely installed.
- Hot flush or replace the transmission cooler and lines; cooler flow must be at least 1-qt per 15-sec. Flush in a can is **NOT** sufficient. Some applications require a new OTA cooler. Check below for specific applications.
- Inspect the flex plate for cracks or damage.

- Verify both dowel pins are present and in good condition.
- Be sure transmission is flush against the engine block before tightening the attaching bolts.
- Fill transmission with Dexron/Mercon III fluid.
- Reset the adaptive memory with capable scan tool before operating the transmission.
- Perform the final system scan after the road test. If codes are present, compare them to the original recorded codes.

GUIDELINES

Per Ford Article #99-7-4 OTA Cooler replacement is **REQUIRED** for warranty to be validated.

The rest of the cooling system must also be hot flushed when the OTA cooler is removed from the system and before the new cooler is installed. Proper flow must be achieved through the cooler in the radiator. If you do not achieve proper flow, radiator must be replaced.

If the vehicle has an aftermarket magnetic filter, it must be removed and not replaced. They are prone to causing cooling system restrictions. Discard and dispose. **DO NOT** install aftermarket inline filters in this application.

Proper flushing equipment is **REQUIRED** for this application. Hot Flushers are the only acceptable means to flush this system. Flush in a can is not enough. If you do not have a Hot Flusher, replacement of the OTA Cooler as discussed earlier, and the radiator is **REQUIRED**.

Please refer to Ford OEM technical information for the cooling system flow and flushing procedures.

This is an electronically-controlled transmission. The following information is **VERY** important to understand and to perform correctly. Failure to do so may damage your new transmission and/or cause performance problems:

There have been lots of updates to PCM programming in vehicles equipped with a 4R100 Transmission. It is highly recommended that the OEM programming is updated to the newest version.

All aftermarket tunes / "Chips" must be removed from the Engine and Transmission. Warranty will be voided

Verify proper function of the entire electrical system including the battery, alternator, vehicle grounds, mass air flow sensor, and throttle position sensor. These items are critical to transmission performance.

Inspect transmission wiring harness for damaged wires or connectors.

Reset the adaptive memory with a scan tool before operating new transmission for the first time; disconnecting the battery is not sufficient.

A final system scan is required after the road test or if problems are detected during the road test. If codes are still present, compare to original code scan recorded prior to transmission replacement.

4R55E/5R55E TRANSMISSION INSTALLATION WARNINGS CHECKLIST

- Compare replacement transmission and torque converter to original before installation.
- Scan original transmission computer before removal from vehicle; record for later review.
- Verify engine is in good operating condition and that there are no engine performance codes present. Address **ANY** and **ALL** engine or emissions codes prior to replacement as these issues could affect transmission performance.
- Verify that the driveline is in good operating condition, including: mounts, drive shafts, u-joints, bearings, differentials, and transfer case (if equipped).
- Verify integrity of the vehicle electrical system including: battery, alternator, wiring, and grounds.
- Transfer external sensors and switches from the original transmission, or replace if necessary.
- Verify torque converter is properly and completely installed.
- Hot flush or replace the transmission cooler and lines; cooler flow must be at least 1-qt per 15-sec. Flush in a can is **NOT** sufficient.
- Inspect the flex plate and crank adapter for cracks or damage.
- Verify both dowel pins are present and in good condition.
- Be sure transmission is flush against the engine block before tightening the attaching bolts.
- Fill transmission with Dexron III/Mercon fluid.
- Reset the adaptive memory with capable scan tool before operating the transmission.
- Perform the final system scan after the road test. If codes are present, compare them to the original recorded codes.

GUIDELINES

Entire transmission cooling system must be completely cleaned, hot flushed, and flow tested.

A restricted and/or contaminated transmission cooling system is the #1 cause of transmission failure. If the cooler is plugged, it must be replaced.

This is an electronically-controlled transmission. The following information is **VERY** important to understand and to perform correctly. Failure to do so may damage your new transmission and/or cause performance problems.

Verify proper function of the entire electrical system including the battery, alternator, vehicle grounds, mass air flow sensor, and throttle position sensor. These items are critical to transmission performance.

Inspect transmission wiring harness for damaged wires or connectors.

Reset the adaptive memory with a scan tool before operating new transmission for the first time; disconnecting the battery is not enough.

A final system scan is required after the road test or if problems are detected during the road test. If codes are still present, compare to original code scan recorded prior to transmission replacement.

5R110 TORQSHIFT TRANSMISSION INSTALLATION WARNINGS CHECKLIST

This application has multiple requirements. PLEASE READ BEFORE INSTALLATION

- Compare replacement transmission and torque converter to original before installation.
- Scan original transmission computer before removal from vehicle; record for later review.
- Verify engine is in good operating condition and that there are no engine performance codes present. Address **ANY** and **ALL** engine or emissions codes prior to replacement as these issues could affect transmission performance.
- Verify that the driveline is in good operating condition, including: mounts, drive shafts, u-joints, bearings, differentials, and transfer case (if equipped).
- Verify integrity of the vehicle electrical system including: battery, alternator, wiring, and grounds. This application **REQUIRES** the addition of a new heavy ground from the battery to the engine block.
- Transfer external sensors and switches from the original transmission, or replace if necessary.
- Verify torque converter is properly and completely installed (see page 2).
- Hot flush or replace the transmission cooler and lines; cooler flow must be at least 1-qt per 15-sec. Flush in a can is **NOT** sufficient. Some applications require a new OTA cooler. Check below for specific applications.
- Inspect the flex plate for cracks or damage.
- Verify both dowel pins are present and in good condition.
- Be sure transmission is flush against the engine block before tightening the attaching bolts.
- Fill transmission with Ford SP/LV fluid only.
- Reset the adaptive memory with capable scan tool before operating the transmission.
- Perform the final system scan after the road test. If codes are present, compare them to the original recorded codes.

GUIDELINES

Per Ford GDB-0000066 OTA Cooler replacement is **REQUIRED** for warranty to be validated.

2004-2015 Econoline Vans
2004-2005 Excursion
2003-2015 F-Series Trucks
2006-2009 LCF Trucks

The rest of the cooling system must also be hot flushed when the OTA cooler is removed from the system and before the new cooler is installed. Proper flow must be achieved through the cooler in the radiator. If you do not achieve proper flow, radiator must be replaced.

If the vehicle has an aftermarket magnetic filter, it must be removed and not replaced. They are prone to causing cooling system restrictions. Discard and dispose. **DO NOT** install aftermarket inline filters in this application.

Some 2003-2007 applications are equipped with a remote filter for the cooling system. It will be in an aluminum housing that can be disassembled and cleaned. The cooler lines must be disconnected prior to flushing. Once flushing and housing is cleaned, a new filter element must be installed and is provided with part numbers applicable.

Some 2008 and Up applications have a remote filter in a black housing near the bellhousing of the transmission. The cooler lines must be removed from this filter prior to flushing. This filter **MUST** be replaced after flushing. These filters are available at your local Ford Dealer.

Proper flushing equipment is **REQUIRED** for this application. Hot Flushers are the only acceptable means to flush this system. Flush in a can is not enough. If you do not have a Hot Flusher, replacement of the OTA Cooler as discussed earlier, and the radiator is **REQUIRED**.

Please refer to Ford OEM technical information for the cooling system flow and flushing procedures.

This is an electronically-controlled transmission. The following information is **VERY** important to understand and to perform correctly. Failure to do so may damage your new transmission and/or cause performance problems:

Verify proper function of the entire electrical system including the battery, alternator, vehicle grounds, mass air flow sensor, and throttle position sensor. These items are critical to transmission performance.

Inspect transmission wiring harness for damaged wires or connectors. Inspect center nut on main transmission harness bulkhead. The bolt is easily overtightened and will cause the nut to pull away from the bulkhead and cause intermittent electrical issues and shift complaints. Please note the torque specs on the attached tag. **DO NOT USE AIR TOOLS** to install harness.

Reset the adaptive memory with a scan tool before operating new transmission for the first time; disconnecting the battery is not enough.

A final system scan is required after the road test or if problems are detected during the road test. If codes are still present, compare to original code scan recorded prior to transmission replacement.

CRITICAL ATF FILL PROCEDURE

When filling a 5R110 this procedure must be followed, or immediate pump damage will occur, and pump damage is not covered and will void your warranty.

1. Add 7 quarts of Mercon SP/LV before starting vehicle.

2. Start Engine and run for 15-20 seconds and then shut of engine.
   __DO NOT MOVE SHIFTER__ while engine is running
3. Add 4 more quarts of fluid.
4. Start engine and then fill unit to full specification the dipstick.

OTHER INSTALLATION WARNINGS/REQUIREMENTS

These steps below are also critical to the proper operation of this unit and transmission damage can occur that will void your warranty.

Make sure all battery cables are clean and tight. Do a voltage drop test on your engine grounds to be sure you have a good system ground.

This application **REQUIRES** the addition of a **NEW** heavy ground cable from the negative battery terminal to the engine block. **Failure to add new cable will void your warranty.**

A "Quick Learn" procedure must be completed with a scanner to ensure proper pressures are being achieved. Shift feel and timing complaints can occur if not completed. Simple code readers or simply disconnecting the battery will not complete this function.

The main electrical connector is fragile. The center nut can be easily pulled out of the bulkhead and will cause erratic transmission operation or the check engine light to be illuminated. **DO NOT USE** air tools to tighten. The connector must be torqued at 44 in/lbs. **DO NOT OVER TIGHTEN.**

Failure to not complete above steps can cause severe pump damage or total unit failure. Warranty will not be honored for pump damage if steps are not completed.

6R80 TRANSMISSION INSTALLATION WARNING

****IMPORTANT INSTALLATION WARNINGS****

DUE TO AFTERMARKET UPDATED COMPONENTS, PROGRAMMING IS NOT REQUIRED. INSTALL AND FILL WITH FLUID AND TRANSMISSION WILL ADAPT THE SHIFT TIMING AND FEEL

FORD MERCON LV FLUID IS REQUIRED-OTHER FLUIDS WILL VOID WARRANTY

COOLER LINE MANIFOLD IS TO BE TORQUED AT 18 FT/LBS (25Nm). **DO NOT OVER TIGHTEN**

****AUXILIARY TRANSMISSION PUMP WARNINGS****

Some applications use an auxiliary transmission fluid pump that is mounted on the exterior of the transmission. It is retained by 3 bolts. Before installation of the remanufactured transmission, you will need to remove from the core unit and install on the reman.

Heat all 3 bolts with a heat gun. Do not use a torch. This will assist in releasing the OE Loctite so that damage to the case will not occur.

Discard the bolts when removed and replace with new. Replace gasket with new. **Torque new bolts to 115 in/lbs (13 nM)**

6R140 TRANSMISSION INSTALLATION WARNING
SOLENOID BODY STRATEGY PROGRAMMING

Using a VCM and IDS tool or capable scanner, please follow the process below to program the vehicle to accept the new solenoid strategy. Failure to program the strategy will result in transmission failure and warranty will be void.

1. Using the VCM/IDS or capable scanner, select Module Programming and Programmable Parameters then select transmission. Follow the instructions on the scan tools.
2. When prompted, enter the solenoid body 8 digit ID number and 13 digit solenoid strategy codes recorded from the ID tag on the transmission case or metal ID plate on valve body. This information will also be written on the main transmission case in case the ID tag is damaged or lost.
3. The scan tool verifies the accuracy of the of the codes entered and if the file is found, the technician can proceed with downloading the file to the PCM/TCM. If the file is not present, connect the scan tool to the Professional Technician Society (PTS) server to download the file or www.motorcraft.com
4. Once download is complete, the adaptive drive cycle protocol must be performed.

ADAPTIVE DRIVE CYCLE PROTOCOL

1. Connect scan tool to vehicle
2. **NOTE: DO NOT CLEAR THE PCM Keep Alive Memory (KAM)**
   Using the scan tool clear the Transmission Control Module (TCM) KAM and adaptive table before conducting a solenoid body strategy drive cycle.
3. Using the scan tool, verify the transmission fluid temperature is at normal operating temperature, between 91-102 c (196-216F). If the transmission is not at operating temperature, drive vehicle until desired temperature is reached.
   ****INSURE PROGRAMMING IS COMPLETED BEFORE OPERATING VEHICLE****

a) Apply parking brake

b) With engine running and brakes applied, move the selector lever in the following sequence pausing between each range for 4 seconds. Begin in Neutral, N-R-N-D-R-D-N. ****REPEAT THIS 2 MORE TIMES****

c) Release the park brake and accelerate at moderate throttle so each shift occurs around 2000 RPM for Gasoline engines and 1500 RPM for Diesels up to 65 MPH. Brake moderately to a stop. ****REPEAT THIS 2 MORE TIMES****

d) Accelerate at moderate throttle so each shift occurs around 3000 RPM for Gasoline engines and 2200 for Diesel engines up to 65 MPH. Brake moderately to a stop ****REPEAT THIS 2 MORE TIMES****

e) Stop the vehicle and apply the parking brake

f) With engine running and brakes applied, move the selector lever in the following sequence pausing between each range for 4 seconds. Begin in Neutral, N-R-N-D-R-D-N. ****REPEAT THIS 2 MORE TIMES****

SHIFT POINT ROAD TEST

This test verifies the shift control system is operating correctly.

1. Bring engine and transmission up to normal operating temperature.
2. Operate the vehicle with the selector lever in the D position.
3. Apply minimum throttle and observe speeds at which a shift occurs and the torque converter engages.
4. Press the accelerator to Wide Open Throttle (WOT). The transmission should shift from 6th to sth, or 5th to -,rd depending on vehicle speed. The torque converter should disengage then reapply.
5. With the vehicle speed between 30-50 MPH (48-80 Km) move the selector lever to manual 2nd. The transmission should immediately shift to 2nd gear.
6. If the transmission fails to upshift/downshift or the torque converter does not apply and release refer to a service manual for diagnosis by symptom.

****IMPORTANT INSTALLATION WARNINGS****

THE **FORD 6R140 REQUIRES A SOLENOID STRATEGY REFLASH. THIS WILL REQUIRE AN VCM AND IDS TOOL. IF YOU DO NOT HAVE THIS HARDWARE, TOWING THE VEHICLE WILL BE REQUIRED. **DO NOT OPERATE VEHICLE UNTIL PROGRAMMING IS COMPLETE OR SERIOUS INTERNAL DAMAGE WILL OCCUR****

IF VEHICLE HAS AN AFTERMARKET PROGRAMMER/TUNER OR DOWNLOADED PROGRAM THAT IS NOT OEM, IT MUST BE REMOVED TO PROGRAM THE NEW TRANSMISSION. THE DOWNLOAD WILL FAIL. DO NOT REINSTALL AFTERMARKET PROGRAM. **TRANSMISSION WARRANTY WILL BE VOIDED IF AFTERMARKET PROGRAM EXISTS AFTER INSTALLATION**

THE SOLENOID STRATEGY AND VALVE BODY ID WILL BE ON A TAG OR WRITTEN ON THE TRANSMISSION CASE. PLEASE NOTE THIS INFORMATION PRIOR TO TRANSMISSION INSTALLATION. THIS INFORMATION WILL BE REQUIRED TO PROGRAM UNIT

FORD MERCON LV FLUID IS REQUIRED-OTHER FLUIDS WILL VOID WARRANTY

COOLER LINE MANIFOLD IS TO BE TORQUED AT 18 FT/LBS (25Nm). **DO NOT OVER TIGHTEN**

Some 2011 6.7 Diesel applications use an 8 Stud Torque Converter.

This was made obsolete by Ford in mid 2011.

If application has an 8 stud converter, flexplate must be replaced to accommodate the new updated 6 stud unit.

OEM Part Number CC3Z-6375-A (approx. list price 60.00)

GENERAL MOTORS

4L60/65/70E TRANSMISSION INSTALLATION WARNINGS CHECKLIST

- Compare replacement transmission and torque converter to original before installation.
- Scan original transmission computer before removal from vehicle; record for later review.
- Verify engine is in good operating condition and that there are no engine performance codes present. Address **ANY** and **ALL** engine or emissions codes prior to replacement as these issues could affect transmission performance. GM products are critical for the functionality of the O2 Sensors, Mass Air Flow Sensors and Throttle Position Sensors. These items must be working properly for the transmission to work as designed. These can cause late or early shifts, harsh shifts and engagements, poor fuel mileage, torque converter shudders, feel of no power, hunting of torque converter lockup and can cause early failure of the ¾ clutches.
- Verify that the driveline is in good operating condition, including: mounts, drive shafts, u-joints, bearings, differentials, and transfer case (if equipped).
- Verify integrity of the vehicle electrical system including: battery, alternator, wiring, and grounds.
- Transfer external sensors and switches from the original transmission, or replace if necessary.
- Verify torque converter is properly and completely installed (see page 2-3).
- Hot flush or replace the transmission cooler and lines; cooler flow must be at least 1-qt per 15-sec. Flush in a can is **NOT** sufficient.
- Inspect the flex plate for cracks or damage.
- Verify both dowel pins are present and in good condition.
- Be sure transmission is flush against the engine block before tightening the attaching bolts.
- Fill transmission with Dexron III or Dexron VI fluid.
- Reset the adaptive memory with capable scan tool before operating the transmission.
- Visit the GM website at calid.gm.com to verify that the vehicle's transmission computer has the latest calibration.
- Perform the final system scan after the road test. If codes are present, compare them to the original recorded codes and address them accordingly.

GUIDELINES

Entire transmission cooling system must be completely cleaned, hot flushed, and flow tested.

A restricted and/or contaminated transmission cooling system is the #1 cause of transmission failure. If the cooler is plugged, it must be replaced/bypassed, and a new aftermarket cooler installed.

This is an electronically controlled transmission. The following information is **VERY** important to understand and to perform correctly. Failure to do so may damage your new transmission and/or cause performance problems.

Verify proper function of the entire electrical system including the battery, alternator, vehicle grounds, mass air flow sensor, and throttle position sensor. These items are critical to transmission performance.

Inspect transmission wiring harness for damaged wires or connectors.

Reset the adaptive memory with a scan tool before operating new transmission for the first time; disconnecting the battery is not enough.

A final system scan is required after the road test or if problems are detected during the road test. If codes are still present, compare to original code scan recorded prior to transmission replacement.

TORQUE CONVERTER INSTALLATION

One of the most common issues with the 4L60/65/70E is a broken pump rotor due to improper torque converter installation. The following procedure should be followed to ensure pump damage does not occur. ***Broken pumps are not covered by the warranty and will void your warranty immediately.***

If the torque converter has been removed from reman unit:

1. Spin the torque converter and push in towards the transmission.
2. Listen and feel for three distinct "clicks" as the torque converter engages each component (input shaft, stator support and pump rotor).

After torque converter installation or if the torque converter has not been removed from reman unit:

Measure the distance between the torque converter mounting pad and bell housing face to verify torque converter is fully installed.

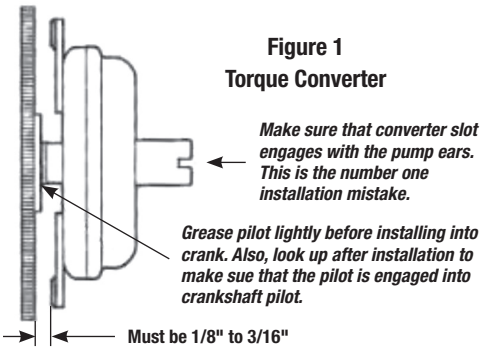
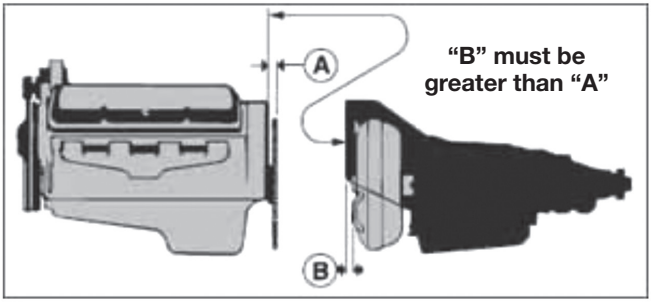


Figure 1
Torque Converter



4L80E TRANSMISSION INSTALLATION WARNINGS CHECKLIST

- Compare replacement transmission and torque converter to original before installation.
- Scan original transmission computer before removal from vehicle; record for later review.
- Verify engine is in good operating condition and that there are no engine performance codes present. Address **ANY** and **ALL** engine or emissions codes prior to replacement as these issues could affect transmission performance. GM vehicles are critical for the proper operation of the O2 Sensors, Mass Air Flow Sensors and Throttle Position Sensors. These must be functioning properly, or you will have issues with late/early shifts, harsh shifts/engagements, slipping, torque converter shudders and premature failure.
- Verify that the driveline is in good operating condition, including: mounts, drive shafts, u-joints, bearings, differentials, and transfer case (if equipped).
- Verify integrity of the vehicle electrical system including: battery, alternator, wiring, and grounds.
- Transfer external sensors and switches from the original transmission, or replace if necessary.
- Verify torque converter is properly and completely installed (see page 2).
- Hot flush or replace the transmission cooler and lines; cooler flow must be at least 1-qt per 15-sec. Flush in a can is **NOT** sufficient.
- Inspect the flex plate for cracks or damage.
- Verify both dowel pins are present and in good condition.
- Be sure transmission is flush against the engine block before tightening the attaching bolts.
- Fill transmission with Dexron III or Dexron VI fluid.
- Reset the adaptive memory with capable scan tool before operating the transmission.
- Visit the GM website at calid.gm.com to verify that the vehicle's transmission computer has the latest calibration.
- Perform the final system scan after the road test. If codes are present, compare them to the original recorded codes.

GUIDELINES

Entire transmission cooling system must be completely cleaned, hot flushed, and flow tested.

A restricted and/or contaminated transmission cooling system is the #1 cause of transmission failure. If the cooler is plugged, it must be replaced.

This is an electronically-controlled transmission. The following information is **VERY** important to understand and to perform correctly. Failure to do so may damage your new transmission and/or cause performance problems.

Verify proper function of the entire electrical system including the battery, alternator, vehicle grounds, mass air flow sensor, and throttle position sensor. These items are critical to transmission performance. 4L80E Transmissions are also notorious for speed sensor issues. Insure the wiring and sensors are good and functioning correctly.

Inspect transmission wiring harness for damaged wires or connectors.

Reset the adaptive memory with a scan tool before operating new transmission for the first time; disconnecting the battery is not enough.

A final system scan is required after the road test or if problems are detected during the road test. If codes are still present, compare to original code scan recorded prior to transmission replacement.

6T40/75E TRANSMISSION INSTALLATION WARNINGS CHECKLIST

- Compare replacement transmission and torque converter to original before installation.
- Scan original transmission computer before removal from vehicle; record for later review.
- Verify engine is in good operating condition and that there are no engine performance codes present. Address **ANY** and **ALL** engine or emissions codes prior to replacement as these issues could affect transmission performance.
- Verify that the driveline is in good operating condition, including: mounts, drive shafts, u-joints, bearings, differentials, and transfer case (if equipped).
- Verify integrity of the vehicle electrical system including: battery, alternator, wiring, and grounds.
- Transfer external components from original transmission, or replace if necessary.
- Verify torque converter is properly and completely installed.
- Hot flush or replace the transmission cooler and lines; cooler flow must be at least 1-qt per 15-sec. Flush in a can is **NOT** sufficient.
- Inspect the flex plate for cracks or damage.
- Verify both dowel pins are present and in good condition.
- Be sure transmission is flush against the engine block before tightening the attaching bolts.
- Fill transmission with Dexron VI fluid provided with unit.

- Reprogram unit with at dealer or using proper equipment **BEFORE** operating vehicle.
- Perform the final system scan after the road test. If codes are present, compare them to the original recorded codes.

GUIDELINES

Entire transmission cooling system must be completely cleaned, hot flushed, and flow tested.

A restricted and/or contaminated transmission cooling system is the #1 cause of transmission failure.

If the cooler is plugged, it must be replaced.

This is an electronically-controlled transmission. The following information is **VERY** important to understand and to perform correctly. Failure to do so may damage your new transmission and/or cause performance problems.

Verify proper function of the entire electrical system including the battery, alternator, vehicle grounds, mass air flow sensor, and throttle position sensor. These items are critical to transmission performance.

Inspect transmission wiring harness for damaged wires or connectors. Reset the adaptive memory with a scan tool before operating new transmission for the first time; disconnecting the battery is not enough.

A final system scan is required after the road test or if problems are detected during the road test. If codes are still present, compare to original code scan recorded prior to transmission replacement.

Prior to installation of the replacement transmission, determine the cause(s) of failure of the previous unit. Also:

- Check transmission cooler for glycol and/or water contamination
- Scan vehicle computer, record any codes, and fix all causes of codes before installation of replacement transmission

A restricted and/or contaminated transmission cooling system will cause transmission failure and will void your warranty.

If the transmission cooler has evidence of transmission hard parts failure, it must be replaced. Platetype oil-to-air (OTA) transmission coolers must always be replaced. Entire transmission cooling system must be completely cleaned, hot flushed, and flow tested.

6L80/90E TRANSMISSION INSTALLATION WARNINGS CHECKLIST

- **DO NOT OPERATE VEHICLE UNTIL PROGRAMMING IS COMPLETED.** Compare replacement transmission and torque converter to original before installation.
- Scan original transmission computer before removal from vehicle; record for later review.
- Verify engine is in good operating condition and that there are no engine

performance codes present. Address **ANY** and **ALL** engine or emissions codes prior to replacement as these issues could affect transmission performance.

- Verify that the driveline is in good operating condition, including: mounts, drive shafts, u-joints, bearings, differentials, and transfer case (if equipped).
- Verify integrity of the vehicle electrical system including: battery, alternator, wiring, and grounds.
- Transfer external components from original transmission, or replace if necessary
- Verify torque converter is properly and completely installed.
- Hot flush or replace the transmission cooler and lines; cooler flow must be at least 1-qt per 15-sec. Flush in a can is **NOT** sufficient.
- Inspect the flex plate for cracks or damage.
- Verify both dowel pins are present and in good condition.
- Be sure transmission is flush against the engine block before tightening the attaching bolts.
- Fill transmission with Dexron VI.
- Reprogram unit with at dealer or using proper equipment **BEFORE** operating vehicle. Hand held scanners will not be capable of programming unit.
- Perform the final system scan after the road test. If codes are present, compare them to the original recorded codes.

GUIDELINES

Entire transmission cooling system must be completely cleaned, hot flushed, and flow tested.

A restricted and/or contaminated transmission cooling system is the #1 cause of transmission failure. If the cooler is plugged, it must be replaced.

This is an electronically-controlled transmission. The following information is **VERY** important to understand and to perform correctly. Failure to do so may damage your new transmission and/or cause performance problems.

Verify proper function of the entire electrical system including the battery, alternator, vehicle grounds, mass air flow sensor, and throttle position sensor. These items are critical to transmission performance.

Inspect transmission wiring harness for damaged wires or connectors.

Reset the adaptive memory with a scan tool before operating new transmission for the first time; disconnecting the battery is not enough.

A final system scan is required after the road test or if problems are detected during the road test. If codes are still present, compare to original code scan recorded prior to transmission replacement.

Prior to installation of the replacement transmission, determine the cause(s) of failure of the previous unit. Also:

- Check transmission cooler for glycol and/or water contamination.
- Scan vehicle computer, record any codes, and fix all causes of codes before installation of replacement transmission.

A restricted and/or contaminated transmission cooling system will cause transmission failure and will void your warranty.

If the transmission cooler has evidence of transmission hard parts failure, it must be replaced. Platetype oil-to-air (OTA) transmission coolers must always be replaced. Entire transmission cooling system must be completely cleaned, hot flushed, and flow tested.

FLUID CHECK PROCEDURE

6L80 / 6L90 transmissions do not typically use a dipstick. Proper fluid level is achieved when fluid begins to drip from the Level Control Plug opening.

1. Verify vehicle is on level ground when performing fluid level check procedure.
2. Verify drive wheels are blocked and parking brake is applied.
3. Verify engine is idling at 0% throttle.
4. Verify transmission fluid temperature (TFT) is between 86°F and 122°F.
5. Shift transmission through entire range – hold in each range for at least three (3) seconds. When complete, shift vehicle back into PARK.
6. Remove Fill Plug. Remove Level Control Plug.
7. If fluid does not drip from hole (underfill condition), add fluid until fluid drips slightly from hole.
8. If fluid runs from hole when Level Control Plug is removed (overfill condition), allow fluid to flow until only a slight drip remains.
9. Reinstall Level Control Plug. Reinstall Fill Plug.
10. **DO NOT OPERATE VEHICLE BEFORE OR AFTER PROPER FLUID LEVEL HAS BEEN ESTABLISHED.**

As needed, fill transmission only with purchased synthetic or Dexron VI fluid. This transmission will require approximately 10 quarts of fluid.

REFLASHING PROCEDURES

This is an electronically-controlled transmission. The following information is **VERY** important to understand and to perform the procedures correctly. Failure to do so may cause damage to your new transmission and/or be the main cause for performance problems.

Check for proper installation of all vehicle ground connections. Erratic transmission performance may be caused by faulty ground(s) at various connection locations under the hood.

Inspect transmission wiring harness for damaged wires or connectors. Verify proper function of the entire electrical system including the battery, alternator, mass air flow sensor, and throttle position sensor.

Verify battery has proper charge before attempting re-flash. Before starting re-flash procedure, battery voltage should be between 12VDC – 16VDC. If battery voltage is low, charge battery **BEFORE** initiating re-flash process. **DO NOT INSTALL BATTERY CHARGER AT ANY TIME DURING THE REFLASH PROCESS.**

RE-FLASH PROCEDURE

Your local dealership can perform the following steps for a nominal charge after transmission installation. If you do not have the proper equipment, do not attempt to perform these procedures.

Visit the GM web site *http://tis2web.service.gm.com/tis2web* to verify whether the vehicle's Engine Control Module (ECM) has the latest software updates and calibrations to ensure proper transmission operation and shift quality.

Verify that the Engine Control Module (ECM) and Transmission Control Module (TCM) are programmed to the latest available factory OEM calibrations. If not programmed properly, the Malfunction Indicator Lamp (MIL) warning light on the dash may illuminate, and the powertrain may only operate in fail-safe or "limp" mode.

The TCM cannot be re-flashed independently – it must be re-flashed at the same time as the ECM.

Powertrains equipped with aftermarket calibrations or controllers will void the warranty.

SERVICE FAST LEARN ADAPTS

After installing the replacement transmission and ECM/TCM calibrations are complete, perform a vehicle Service Fast Learn Adapts procedure:

1. Verify vehicle is on level ground when performing relearn procedure.
2. Verify drive wheels are blocked and parking brake is applied.
3. Verify engine is idling at 0% throttle with no external engine rpm control.
4. Verify transmission fluid temperature (TFT) is between 158°F and 239°F.
5. Perform three (3) cycles of PARK – REV. When complete, shift vehicle back into PARK.
6. Initiate Service Fast Learn Adapts procedure using scan tool.
7. Follow directions on scan tool data display.
8. When procedure on scan tool is complete, exit to main screen and shut down scan tool.
9. Unplug scan tool from DLC.
10. Shut off engine.
11. Restart engine.

Service Fast Learn Adapts procedure is now complete.

GARAGE SHIFT ADAPTS

Next, the Garage Shift Adapts must be completed:

1. With engine still running and vehicle still secured, verify transmission fluid temperature is still above 86°F.
2. With engine at idle, shift from REVERSE to DRIVE and leave shift lever in DRIVE for five (5) seconds. After five seconds, shift back to REVERSE and leave shift lever in REVERSE for five seconds. Perform this procedure twenty

(20) times (R-D-R-D-R-D...). The shift transitions need to be directly between DRIVE and REVERSE – no stopping in Neutral.

3. With engine at idle, shift from NEUTRAL to DRIVE and leave shift lever in DRIVE for five (5) seconds. After five seconds, shift back to NEUTRAL position and leave shift lever in NEUTRAL for five seconds. Perform this procedure ten (10) times (N-D-N-D-N-D...).
4. With the engine at idle, shift from NEUTRAL to REVERSE and leave shift lever in REVERSE for five (5) seconds. After five seconds, shift back to NEUTRAL position and leave shift lever in NEUTRAL for five seconds. Perform this procedure ten (10) times (N-R-N-R-N-R...).

Advise customer that it may take several days of driving for the transmission to fully adapt.

A final system scan is required after the road test or if problems are detected during the test drive. If codes are present, compare to original code scan recorded prior to transmission replacement.

Use a scan tool to check for Diagnostic Trouble Codes (DTCs) stored by the ECM and the TCM.

Perform diagnostic and/or repair procedures to correct these codes prior to returning the vehicle to customer.

TROUBLESHOOTING GUIDE

Aftermarket/performance air filters are shipped pre-oiled and can contaminate the Mass Air Flow sensor. MAF sensor must be tested with a voltmeter at the sensor – some vehicle computers may compensate for out-of-range signal. Your scanner will only display compensated values.

Torque converter clutch application must be checked at less than 30% throttle. If there is none present, check the vehicle's brake light bulbs for presence of LED lamps. Aftermarket LED lamps cannot be used.

Where applicable, shift concerns or complaints may sometimes be caused by poorly routed wiring for the manual shift lever mounted on the steering column. Wiring can be damaged or chafed by steering column cover mounting screws.

****ATTENTION****

PROGRAMMING IS NOT REQUIRED

DO NOT CLEAR OR RESET CURRENT CALIBRATIONS
WHEN CLEARING ANY CODES IN COMPUTER SYSTEM

****COOLER MOUNTED ON TRANS MUST BE REPLACED****

Hot flushing the rest of the cooling system is also critical. Due to the nature of the failures on these units, a very small amount of debris will cause solenoid failure or stuck valves.

Warranty may be void if system is not serviced properly.

These units have new OE electronics and valve bodies.

PREINSTALLATION

- Cooling system service is critical on this application due to the volume of debris when the transmission fails. A **HOT** flush is the only way to properly flush the cooling system. If you cannot hot flush, replace with new cooler.
- Check proper operation of cooling fans.
- Scan for codes, record any that are in the system, and fix **ALL** codes. Engine and fuel/emissions codes will affect the operation of this transmission.

ONCE INSTALLED

- Fill transmission with provided CVT Fluid ONLY. Other fluids will cause the belt assembly to fail prematurely.
- Clear any codes. *Pay special attention that you do not clear any calibrations currently in the system.*
- If an error code arises that will not clear or you receive a message about a mismatch to vehicle, **STOP** and **DO NOT DRIVE**. This will be extremely rare, but if it occurs, you **MUST** have vehicle towed to dealer for programming. If no codes arise, test drive vehicle. See next steps.
- Test Drive. Due to the nature of the application, the test drive rules are important.
- Under normal driving patterns, drive the vehicle 8-10 miles on the highway and 8-10 miles on city streets. This will allow the transmission to adapt and eliminates the need for programming. The transmission may respond strangely at the beginning of the test drive. This will correct itself as the test drive progresses. *Do not drive the vehicle aggressively.*
- Recheck fluid level but the fluid temperature on the scanner must be 90-115 degrees F. You may have to let vehicle rest to allow temperatures to cool to this range. This is the range to get a correct fluid level reading.

There is an extra external filter included with this transmission. It is important that the customer return to you in 30 days to replace this filter. This is VERY important.

Fluid and filters need to be changed every 25,000 miles to insure long life.

For best results, use the part numbers below:

Internal Filter	Transtar # 806010A
External Filter	Transtar # 822013
CVT Fluid	Transtar # M465MVCVT-2.5

Terms and Conditions of Sale

1. **EFFECT OF THESE TERMS AND CONDITIONS OF SALE.** The following terms and conditions shall apply to all quotations, purchase orders, order acknowledgments and other documents, dealings and transactions relating to the sale of Seller's goods. Buyer's ordering, acceptance or use of any goods of Seller shall constitute an acceptance of the following terms and conditions. Seller shall not be deemed to have waived any of the following terms or conditions, even if Seller fails to object to any contrary or inconsistent provision appearing on, attached to, or incorporated by reference in any purchase order or other document issued by Buyer. Seller's acceptance of any such purchase order or other document of Buyer shall be conditioned upon the understanding that these terms and conditions shall control, notwithstanding any such contrary or inconsistent term or condition of Buyer.
2. **PRICES.** Unless otherwise agreed upon in writing by Seller, all prices, payments and references thereto shall be in U.S. dollars. Prices do not include freight charges. All goods are shipped F.O.B., Carol Stream, Illinois, or Lakeland, Florida U.S.A. Additionally, prices do not include sales taxes, use or excise taxes, import or export duties, special financing fees, value added taxes, income or royalty taxes, special permits or licenses, or similar charges. Buyer shall either pay such charges or provide Seller with acceptable exemption certificates.
3. **PAYMENT.** All orders are subject to Seller's approval. If Seller deems Buyer's financial condition or payment practices to be unsatisfactory, cash payment or other security may be required. If Buyer fails to meet such requirements, Seller may discontinue the delivery of goods to Buyer and treat such failure at any time thereafter as reasonable grounds for the lawful termination of any pending order. Seller shall have the right to issue invoices to Buyer upon readiness of goods for delivery, unless otherwise agreed upon in writing by Seller. Unless otherwise specified by Seller, invoices shall be due and payable NET 30 DAYS following date of invoice without regard to delays of transportation or inspection. Interest shall accrue on any overdue payment at the rate of 1.5% per month, or at the maximum lawful rate of interest, whichever is less. Buyer hereby grants Seller, and Seller shall retain, a security interest in all goods shipped or delivered to Buyer until payment of the total purchase price is received. Seller shall have the right to take all lawful measures to protect and preserve Seller's security interest in the goods, including, but not limited to, the filing of Uniform Commercial Code financing statements.
4. **TITLE AND RISK OF LOSS.** All goods supplied to Buyer shall have marketable title, free and clear of any security interest, lien or encumbrance of any third party. Title to, and risk of loss, shall pass to Buyer upon notice to Buyer of readiness of the goods for shipment. Freight and shipping obligations shall have no bearing on transfer of title or risk of loss. Claims for damages or shortages attributable to Seller must be filed with Seller within 10 days following receipt of goods or notice of loss, whichever occurs first, and must be accompanied by Seller's packing slip and a detailed description of any such claim.

5. **LIMITED WARRANTY.** Except as otherwise specifically set forth herein, Seller warrants only that the goods supplied to Buyer shall be free from defects in materials and workmanship when properly installed and operated under normal conditions and in accordance with all applicable instruction manuals, recommendations and specifications. This limited warranty shall begin on the original invoice date, specific to the terms described in this Manual / Warranty listed on pages 2-3. To obtain consideration under this limited warranty, Buyer must first send written notice to Seller in Carol Stream, Illinois, U.S.A., stating in what respects the goods are believed by Buyer to be defective. Failure to give notice within the warranty period shall be a waiver of this limited warranty and no assistance or other action thereafter taken by Seller shall be deemed to extend or revive the warranty period. Any goods believed by Buyer to be defective shall be returned by Buyer to Seller's facility in Carol Stream, Illinois, U.S.A., transportation prepaid, for examination by Seller. No goods shall be returned to Seller unless Buyer first obtains a return authorization from Seller. If, in Seller's sole judgment, the goods returned by Buyer are not defective or for some other reason are not covered under this limited warranty, Buyer shall pay Seller's applicable service time charges for said examination. If, in Seller's sole judgment, the goods returned by Buyer are defective and covered under this limited warranty, Seller shall have the option of repairing, rebuilding or replacing such goods, at its charge, provided that such goods are returned to Seller's facility in Carol Stream, Illinois, U.S.A., transportation prepaid. This limited warranty shall not apply to products which, in Seller's sole judgment, have been the subject of negligence, abuse, accident, misapplication, tampering or alteration; nor shall it apply to products damaged by acts of God, war or civil insurrection, acts of terrorism, improper installation, operation, maintenance or storage, or other than normal application, use or service, including, without limitation, operational failures caused by corrosion, erosion, wear and tear, rust or other foreign materials in the system in which they are utilized. Further, this limited warranty shall not apply to any products, parts, accessories or other goods not manufactured by Seller, provided that Seller, upon request by Buyer, shall advise Buyer of any warranties known to Seller that may be offered by the manufacturer of such goods. This limited warranty shall not cover, and Seller shall not under any circumstances be liable for, damages for injuries to persons or property; loss of product; loss of profits; loss of use; expenses of labor, travel or other items relating to the removal or replacement of defective goods; damages resulting from the removal of defective goods or the installation of repaired, rebuilt or replaced goods; expenses relating to the transportation of goods to and from Seller's facility; any consequential, incidental, contingent or special damages, whether arising in contract, in tort or under statute; or any other damages or expenses not agreed upon in writing by Seller, even if Seller has been advised of the potential for any such damages or expenses. THIS LIMITED WARRANTY IS IN LIEU OF ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ALL WARRANTIES OF MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR USE. No person is authorized to give any other warranty or to assume any other liability on Seller's behalf.

6. **FORCE MAJEURE.** In no event shall Seller be liable for any non-performance, delay in performance, or any other variation from Seller's performance obligations, nor for any loss or damage to any goods supplied to Buyer, when occasioned directly or indirectly by any cause beyond the reasonable control of Seller or its suppliers, vendors, subcontractors, or other representatives or agents, including, but not limited to, communication line failures; power failures; natural disasters or acts of God; acts of criminals or a public enemy; war; riot; acts or terrorism; official or unofficial acts, contracts, regulations or restrictions of any foreign or domestic governmental agency; acts of Buyer or its employees, representatives or agents; strikes or labor difficulties; or failures, shortages or delays in Seller's usual sources of labor or materials. Seller shall automatically be entitled to a reasonable extension of all periods of performance when delayed by any such cause.
7. **MODIFICATION OR SUSPENSION OF ORDERS.** Requests by Buyer for any modification or change of any order, including, but not limited to, any change in specifications, quantities or delivery obligations, shall be subject to Seller's written consent, and may result in adjustments to prices and delivery schedules. Any request by Buyer for a suspension of any order or a delay in any delivery shall be in writing, and shall be subject to the written consent of Seller. Such suspensions or delays may result in adjustments to prices, payments and delivery schedules. The time required for the subsequent fulfillment of any order may exceed the period of suspension or delay due to Seller's scheduling constraints or other reasons.
8. **ASSIGNMENT/SUBCONTRACTING.** Seller shall have the right to assign any of its rights or obligations under any order, and shall be entitled to subcontract the performance of any of its obligations under any order. Any attempted assignment by Buyer of any of its rights or obligations under any order shall be null and void in the absence of Seller's prior written consent.
9. **INDEPENDENT CONTRACTOR.** At all times, Seller shall be deemed an independent contractor of Buyer, and not a partner, joint venturer, employee or agent of Buyer.
10. **LIMITATION OF LIABILITY.** To the full extent permitted by laws, Buyer waives all rights against Seller for any damage to its property or that of third parties, or for injury to any person, however caused. In no event shall Seller's total liability exceed the specified purchase price of the goods covered by the applicable order.
11. **REGULATORY COMPLIANCE.** Buyer shall comply with all applicable laws, regulations and rules governing goods supplied by Seller, including, but not limited to, safety and health standards, environmental regulations, technical standards, and export controls.
12. **SELLER'S OPPORTUNITY TO CURE.** In the event that Buyer believes that Seller is not in full compliance with its obligations hereunder, Buyer shall notify Seller in writing and Seller shall have the right to remedy the alleged non-compliance within 30 days following its receipt of said notice.
13. **VENUE; WAIVER OF JURY TRIAL.** BUYER HEREBY IRREVOCABLY SUBMITS TO THE JURISDICTION OF ANY STATE OR FEDERAL COURT SITTING IN

CHICAGO, ILLINOIS, OVER ANY ACTION OR PROCEEDING BASED HEREON, AND BUYER HEREBY IRREVOCABLY AGREES THAT ALL CLAIMS IN RESPECT OF SUCH ACTION OR PROCEEDING SHALL BE HEARD AND DETERMINED IN SUCH STATE OR FEDERAL COURT. BUYER HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT IT MAY EFFECTIVELY DO SO, THE DEFENSE OF AN INCONVENIENT FORUM TO THE MAINTENANCE OF SUCH ACTION OR PROCEEDING. BUYER IRREVOCABLY CONSENTS TO THE SERVICE OF ANY AND ALL PROCESS IN ANY SUCH ACTION OR PROCEEDING BY THE MAILING OF COPIES OF SUCH PROCESS TO BUYER AT ITS ADDRESS AS SPECIFIED IN THE RECORDS OF SELLER. BUYER AGREES THAT A FINAL JUDGMENT IN ANY SUCH ACTION OR PROCEEDING SHALL BE CONCLUSIVE AND MAY BE ENFORCED IN ANY OTHER JURISDICTION BY SUIT ON THE JUDGMENT OR IN ANY OTHER MANNER PROVIDED BY LAW. BUYER KNOWINGLY, VOLUNTARILY AND INTENTIONALLY WAIVES IRREVOCABLY THE RIGHT IT MAY HAVE TO TRIAL BY JURY WITH RESPECT TO ANY LEGAL PROCEEDING BASED HEREON, OR ARISING OUT OF, UNDER OR IN CONNECTION WITH ANY ORDER. BUYER SHALL REIMBURSE SELLER, UPON DEMAND, FOR ALL COSTS AND EXPENSES (INCLUDING REASONABLE ATTORNEYS' FEES AND COURT COSTS) INCURRED BY SELLER IN ANY ACTION OR PROCEEDING.

14. **INTERPRETATION.** These terms and conditions shall be governed by and construed in accordance with the laws of the State of Illinois, including such State's Uniform Commercial Code, without giving effect to principles of conflict of laws. Whenever any conflict exists between these terms and conditions and any provision of such Uniform Commercial Code, these terms and conditions shall govern. The section headings contained herein have been inserted for convenience only, and shall not be considered in interpreting any term or condition hereof. If any term or condition contained herein is found to be invalid or unenforceable, it shall be deemed stricken herefrom without affecting the remaining terms or conditions hereof.

15. **NOTICE.** All notices required hereunder shall be in writing and delivered by overnight delivery or certified or registered mail, postage prepaid, return receipt requested. Any such notice shall be deemed to have been given on the date it is received, even if refused, during regular office hours at the address listed on the applicable order or at such other address as the affected party may have previously designated for notices.