



68RFE DODGE DIESEL TRANSMISSION



SunCoast Converters, Inc. was established in 1989 as a two-man operation in the back of a transmission shop. Today, SunCoast has grown to over forty employees and over 70,000 sq. ft. of room to conduct operations. SunCoast started with a quest to answer the demand for quality after-market torque converters, transmissions, and parts.

Since then, SunCoast has identified and corrected failure points within numerous OEM transmissions and torque converters. SunCoast formulates test data using real-world scenarios, along with the latest technology and design methods, to manufacture parts that correct the cause of these failures. This practice has helped SunCoast stay ahead of its competitors in not only quality, but also extending past that to the winner's podium for its customers and sponsored vehicles. The company's research and development, combined with years of transmission and torque converter experience, is unparalleled.

Pride in design, manufacturing, technical support, and customer satisfaction has been and always will be the primary goal of SunCoast. The company tries to educate the public on the differences in products from other manufacturers, mainly so its customers know when they are getting product of substance versus a product that is simply relabeled. SunCoast will never sacrifice quality for price point. They have numerous CNC machines that run around the clock making parts for in-house use. They also have multiple CAD developers, as well as programmers on staff, making innovation in design second nature.

SunCoast is known throughout the transmission world for its top-of-the-line torque converters, transmission and rebuild kits because the company has taken the time to listen, learn, research, and respond to its customers' suggestions, with outstanding results. The company will continue to make its converters and transmissions the best in the business, while continuously researching new technologies that shine new light on the industry. Design copying is easy. Innovations, however, are more difficult.





BEFORE INSTALLATION OF YOUR NEW SUNCOAST TRANSMISSION PLEASE FOLLOW THESE INSTRUCTIONS:

Once the old transmission is removed check the following:

- 1. Make sure both dowel pins are still in place in the motor plate.**

This will insure correct alignment for your new transmission. Failure to make sure both dowel pins are in place can cause premature transmission failure that will not be covered under warranty.

- 2. Clean all electrical connections to the transmission and/or transfer case.**

A loose or improper electrical connection can cause premature transmission failure that will not be covered under warranty.

- 3. Check all u-joints, carrier bearing and motor mounts.**

Bad u-joints, carrier bearing, and motor mounts can cause premature transmission failure and/or cracks in the transmission and transfer case. Failures and/or cracks are not covered under warranty if caused by bad u-joints, carrier bearing and/or motor mounts.

SUNCOAST HOT FLUSH PROCEDURE

Once the old transmission is removed the cooler and lines must be flushed for your Suncoast warranty to be valid.

In house Suncoast uses a Hot Flush machine. Using hot oil and reversing the flow for a microsecond is the only way to dislodge foreign material from the cooler. This is the only approved method of flushing your cooler and lines.

Failure to properly flush trans oil cooler system will result in erratic operation and premature failure.

NOTE: If a warranty claim is started and you did not flush your cooler and lines, your warranty will be denied.



SUNCOAST FLYWHEEL INSPECTION

**Dowel Pin & Flywheel Inspection with the transmission removed.
Remove flywheel, inspect for cracks.**



Dowel Pin Missing

Dowel Pin

Make sure both dowel pins are present.

Missing dowel pin or pins cause severe damage to converter and or pump.



SunCoast Flexplate

If you purchased your transmission with a SunCoast billet flex plate, refer to factory specs when torqueing the flex plate bolts. Also leave any spacers that were with the factory flex plate off.

SunCoast Torque Converter Bolts

If you purchased your transmission with a Suncoast torque converter you **MUST** use the supplied bolts with our converter. Failure to do so will cause damage to the torque converter that will not be covered under warranty

SunCoast Recommended Service Intervals

The following service intervals can vary based on the use of the truck.

Every 35,000 miles Suncoast recommends fluid and both filters be serviced.



SunCoast-Recommended Transmission Fluid

SC-TYPE-D ATF

SunCoast recommends our proprietary full synthetic transmission fluid in all SunCoast transmission builds.

Features and Benefits Include:

- Outstanding low temperature performance and sheer resistance
- Dramatic improvements in thermal stability during endurance environments
- Optimized frictional properties that can provide smoother shifting during low temperature operation, reducing shudder and vibration
- Outstanding resistance against sludge and deposit formation
- Improved anti-wear protection, which directly contributes to extended transmission life
- Unsurpassed low temperature stability
- Resists foaming and thereby promotes outstanding operability

Throughout the years, SunCoast has put enormous effort into the research and development of failure prevention in some of the most extreme environments that exist today. These environments are not limited to hot shot driving, sled pulling, drag racing, and the Texas Mile.

For our own success and growth, it has been imperative that oil analysis be our measuring stick for improvements. We can use this to determine the amount of degradation that transpires during a drive cycle. This is key when we are determining what friction coefficients work best in a particular application. This process has evolved with both the friction material and fluid types.

As technology has evolved, so has transmission fluid. Here at SunCoast, we have been on the leading edge of this development. We have seen the evolution from the original Dexron that was introduced back in the late 60's, that utilized sperm whale oil as a friction modifier; to the early 70's when Jojoba oil was introduced, along with corrosion inhibitors, making it hygroscopic. Fast forward to today and the evolution continues.

SunCoast has known for quite some time that we have more success with certain fluids than others. There is a science to the madness, and we knew it was in our best interest to ensure we understood this. In 2006, when General Motors released Dexron VI it set a new standard within the industry. Through our independent testing, we were able to verify that this was an improvement over anything we had seen to date. This is when SunCoast made the decision that this was an area we should become more familiar with, knowing this is how we are protecting our units. Since 2006, SunCoast has spent countless hours reviewing data from oil samples that we have sent in for testing, in an attempt to figure out what works best for our environments.

This new full synthetic transmission fluid contains all of the prescribed combination additives that improve the lubricating qualities for your high stress transmission. The specialized additives include anti-wear, rust and corrosion inhibitors, detergents, dispersants, and surfactants (surfactants protect and clean metal surfaces). In addition, we have also added very specific viscosity modifiers, seal and swell additives, and anti-foam additives. This fluid has yielded us the best test results to date and offers uncompromised performance. We are also proud of the fact that this fluid is full synthetic, not a blended fluid as so many others have attempted to pass off. The SunCoast Type-D Full Synthetic transmission fluid also has a slightly lower viscosity at lower temperatures than the competitor's fluid, decreasing parasitic drag during normal driving conditions. This, of course, requires the use of higher-quality, more sheer stable base oil compounds when manufacturing. Rest assured, with this new full synthetic fluid you are getting the absolute best protection on the market today.



FLUID FILL PROCEDURE

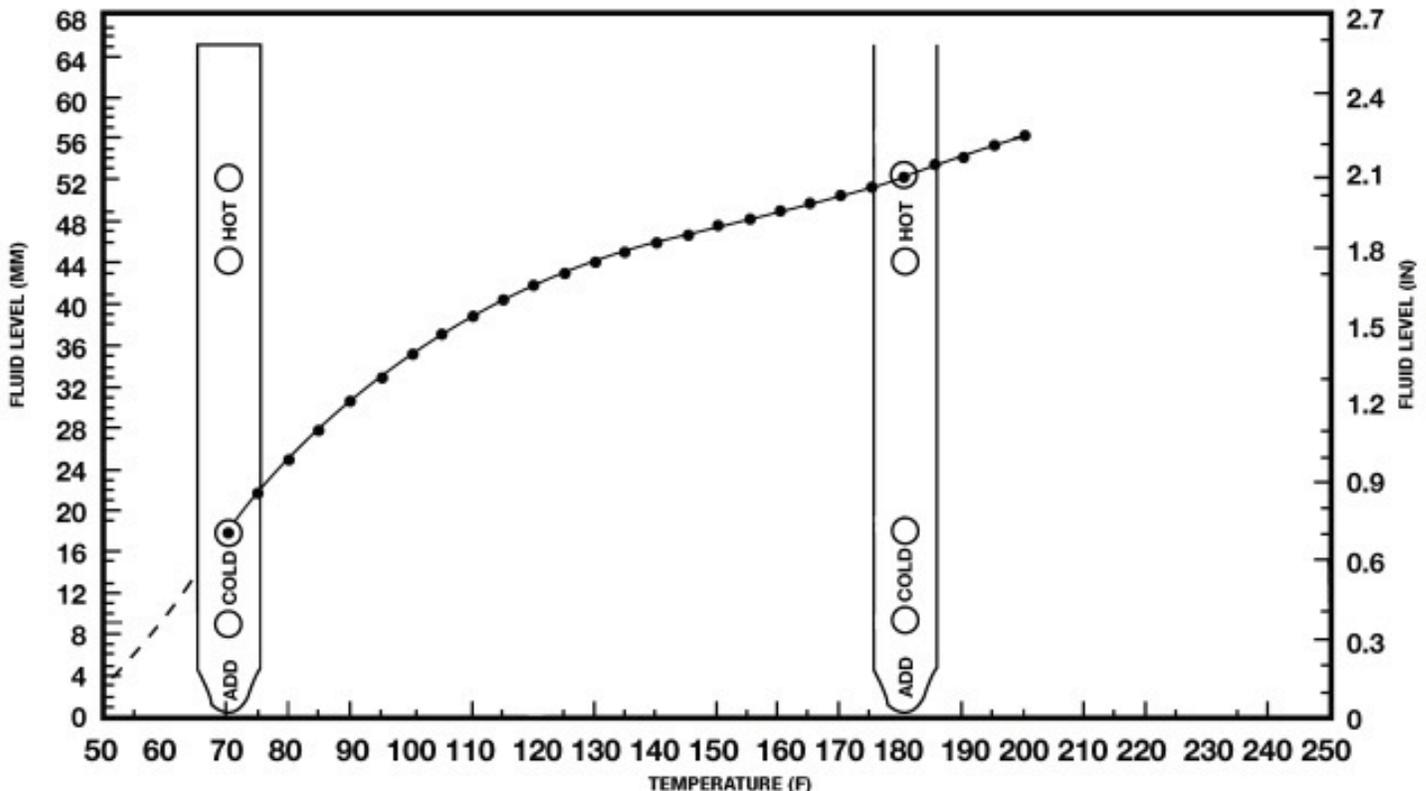
Low fluid level can cause a variety of conditions because it allows the pump to take in air along with the fluid. As in any hydraulic system, air bubbles make the fluid spongy, therefore, pressures will be low and build up slowly.

Improper filling can also raise the fluid level too high. When the transmission has too much fluid, the gear train churns up foam and cause the same conditions which occur with a low fluid level.

In either case, air bubbles can cause overheating and fluid oxidation, and varnishing. This can interfere with normal valve, clutch, and accumulator operation. Foaming can also result in fluid escaping from the transmission vent where it may be mistaken for a leak.

The transmission has a dipstick to check oil level. It is located on the right side of the engine. Be sure to wipe all dirt from dipstick handle before removing.

The torque converter fills in both the P (PARK) and N (NEUTRAL) positions. Place the selector lever in P (PARK) to be sure that the fluid level check is accurate. **The engine should be running at idle speed for at least ten minutes, with the vehicle on level ground.** At normal operating temperature (approximately 82° C. or 180° F), the fluid level is correct if it is in the HOT region (cross-hatched area) on the oil level indicator. The fluid level will be approximately at the upper COLD hole of the dipstick at 21° C (70° F) fluid temperature.





Transmission Fluid Fill Procedure Fluid Capacity

Stock Pan – 18 Quarts + or – 1

Deep Pan – 21 Quarts + or – 1

To avoid overfilling the trans, perform the following:

- Remove the dipstick.
- Add approximately 10 quarts for stock pan or 14 quarts for deep pan.
- Apply the parking brake.
- Start and run engine at normal curb idle speed.
- Apply service brakes, shift trans to NEUTRAL, set the parking brake, and leave engine running at curb idle speed.
- Add fluid until the fluid is at the HOT arrow mark.
- Insert dip stick and check fluid level. If level is low, add fluid to bring level to MIN mark on the dipstick. Make sure to check that both sides of the dipstick are level. If one side is noticeably higher than the other, the dipstick has picked up some oil from the dipstick tube. Allow the oil to drain back down the tube and re-check.
- Shift the transmission into DRIVE for approximately 2 seconds.
- Shift the transmission into REVERSE for approximately 2 seconds.
- Shift the transmission into PARK.
- Hook up scan tool and select transmission.
- Select sensors.
- Read the transmission temperature value.
- Compare the fluid temperature value with the chart.
- Adjust transmission fluid level shown on the dipstick according to the Transmission Fluid Temperature Chart.

NOTE: After adding any fluid to the transmission, wait a minimum of 5 minutes for the oil to fully drain from the fill tube into the transmission before rechecking the fluid level.

CAUTION: Do not overfill the transmission, fluid foaming and shifting problems can occur!

When fluid level is correct, shut off the engine, release the park brake and install the dipstick in the fill tube.



NOTICE HARD SHIFTS ARE NOT NORMAL ON THIS TRANSMISSION

CHRYSLER QUICK LEARN IS REQUIRED!

DRIVE LEARN - RFE TRANSMISSIONS

When a transmission is repaired and a Quick Learn procedure has been performed on the Transmission Control Module (TCM), the following Drive Learn procedure can be performed to fine tune any shifts which are particularly objectionable.

NOTE: It is not necessary to perform the complete Drive Learn procedure every time the TCM is Quick Learned. Perform only the portions which target the objectionable shift.

LEARN A SMOOTH 1ST NEUTRAL TO DRIVE SHIFT

Perform this procedure only if the complaint is for a delayed or harsh shift the first time the transmission is put into gear after the vehicle is allowed to set with the engine not running for at least 10 minutes. Use

the following steps to have the TCM learn the 1st N-D UD CVI.

NOTE: The transmission oil temperature must be between 80 - 110°F (27 - 43°C).

1. Start the engine only when the engine and ignition have been off for at least ten (10) minutes.
 - With the vehicle at a stop and the service brake applied, record the 1st N-D UD CVI while performing a Neutral to Drive shift. The 1st N-D UD CVI accounts for air entrapment in the UD clutch that may occur after the engine has been off for a period of time.
2. Repeat STEP 1 and STEP 2 until the recorded 1st N-D UD CVI value stabilizes.
3. **NOTE: It is important that this procedure be performed when the transmission temperature is between 80 - 110°F (27 - 43°C). If this procedure takes too long to complete fully for the allowed transmission oil temperature, the vehicle may be returned to the customer with an explanation that the shift will improve daily during normal vehicle usage. The TCM also learns at higher oil temperatures, but these values (line pressure correction values) are not available for viewing on the scan tool.**
 - **LEARN A SMOOTH NEUTRAL TO DRIVE GARAGE SHIFT**
 - Perform this procedure if the complaint is for a delayed or harsh shift when the transmission is put into gear after the vehicle has had its first shift. Use the following steps to have the TCM learn the Norm ND UD CVI.
 - **NOTE: The transmission oil temperature must be between 80 - 110°F (27 - 43°C) to learn the UD CVI. Additional learning occurs at temperatures as low as 0°F and as high as 200°F. This procedure may be performed at any temperature that experiences poor shift quality. Although the UD CVI may not change, shift quality should improve.**
4. Start the vehicle engine and shift to drive.
 - Move the vehicle forward to a speed of at least 16 km/h (10 MPH) and come to a stop. This ensures no air is present in the UD hydraulic circuit.
5. Perform repeated N-D shifts at a stop while pausing in Neutral for at least 2-3 seconds and monitor Norm N-D UD CVI volume until the value stabilizes. The value will change during the N-D shift. This is normal since the UD value is different for the N-D shift than the normal value shown which is used for 4-3 coast down and kickdowns. Perform repeated shifts in this temperature range until the Norm N-D UD CVI value stabilizes, and the N-D shifts become smooth.



RE-LEARN PROCEDURE

LEARN THE 1ST 2-3 SHIFT AFTER A RESTART OR SHIFT TO REVERSE

Use the following steps to have the TCM learn the 1st 2-3 shift OD CVI.

NOTE: The transmission oil temperature must be above 80°F (27°C).

1. With the vehicle engine running, select reverse gear for over 2 seconds.
2. Shift the transmission to Drive and accelerate the vehicle from a stop at a steady 15-degree throttle opening and perform a 2-3 shift while noting the 1st 2-3 OD CVI.
3. Repeat STEP 1 and STEP 2 until the 1st 2-3 upshift becomes smooth and the 1st 2-3 OD CVI stabilizes.

LEARN A SMOOTH 2-3 AND 3-4 UPSHIFT

Use the following steps to have the TCM learn the OD and 4C CVI's.

NOTE: The transmission oil temperature must be above 110°F (43°C).

1. Accelerate the vehicle from a stop at a steady 15-degree throttle opening and perform multiple 1-2, 2-3, and 3-4 upshifts. The 2nd 2-3 shift following a restart or shift to reverse will be shown during the shift as a value between the 1st 2-3 OD CVI and the normal OD CVI. Updates to the normal OD CVI will occur after the 2nd shift into 3rd gear, following a restart or shift to reverse.
2. Repeat STEP 1 until the 2-3 and 3-4 shifts become smooth and the OD and 4C CVI become stable.

LEARN A SMOOTH 4-3 COASTDOWN AND PART THROTTLE 4-3 KICKDOWN

Use the following steps to have the TCM learn the UD shift volume.

NOTE: The transmission oil temperature must be above 110°F (43°C).

1. At a vehicle speed between 64-97 km/h (40-60 MPH), perform repeated 4-3 kickdown shifts.
2. Repeat STEP 1 until the UD volume becomes somewhat stable and the shift becomes smooth.

LEARN A SMOOTH 1-2 UPSHIFT AND 3-2 KICKDOWN

Use the following steps to have the TCM learn the 2C shift volume.

NOTE: The transmission oil temperature must be above 110°F (43°C).

1. With a vehicle speed below 48 km/h (30 MPH) and the transmission in 3rd gear, perform multiple 3-2 kickdowns.
2. Repeat STEP 1 until the 3-2 kickdowns become smooth and the 2C CVI becomes stable.

LEARN A SMOOTH MANUAL 2-1 PULLDOWN SHIFT AS WELL AS A NEUTRAL TO REVERSE SHIFT

Use the following steps to have the TCM learn the LR volume.



NOTE: The transmission oil temperature must be above 110°F (43°C).

1. With the vehicle speed around 40-48 km/h (25-30 MPH) in Manual 2nd, perform manual pulldowns to Low or 1st gear at closed throttle.
2. Repeat STEP 1 until the LR CVI becomes stable and the manual 2-1 becomes smooth.

CONTINUE TO NEXT PAGE!

LEARN A SMOOTH NEUTRAL TO REVERSE SHIFT

NOTE: The transmission oil temperature must be above 110°F (43°C).

1. With the vehicle at a stop, perform Neutral to Reverse shifts until the shift is smooth. An unlearned Neutral to Reverse shift may be harsh or exhibit a double bump.
2. If any of the shifts are still not smooth after the clutch volume stabilizes, an internal transmission problem may be present.

LEARN A SMOOTH 4-5 UPSHIFT

Use the following steps to have the TCM learn the Alt 2C CVI.

NOTE: The transmission oil temperature must be above 110°F (43°C).

1. Accelerate the vehicle through 88 km/h (55mph) at a steady 10-15-degree throttle opening and perform multiple 4-5 upshifts.
2. Repeat STEP 1 until the 4-5 shift become smooth and the Alt 2C CVI become stable. There is a separate 2C volume used and learned for 4-5 shifts, 2CA. It is independent of the 2C CVI learned on 3-2 kickdowns.



BREAK-IN PERIOD OF

500-MILES

REQUIRED

FOR WARRANTY TO BE VALID

Do this in stop and go @ light to medium throttle openings
before any high throttle up-shifts are made.



Torque Specs.

TORQUE SPECIFICATIONS

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
Fitting, cooler line at trans	17.5		155
Bolt , torque converter housing to engine upper four	41	30	
Bolt, Inspection Cover	10		88
Bolt, Fill tube at transmission	10		88
Nut, Fill Tube at Valve Cover	10		88
Bolt , torque converter housing to engine lower four	54	40	
Bolts, transmission collar	68	50	
Bolt, torque convertor to drive plate	31	23	270
Bolt/nut, cross member	68	50	
Bolt, driveplate to crankshaft	75	55	
Bolts, clevis bracket / rear support	47	35	
Bolt , converter housing	68	50	
Bolt, oil pan	12		105
Screw, primary fluid filter	4.5		40
Nuts , transfer case	35		26
Filter, Cooler Return	9.5		84
Bolt, oil pump	28		250
Bolt, oil pump body to cover	4.5		40
Screw, plate to oil pump body	4.5		40
Bolt, valve body to case	12		105
Plug, pressure test port	5	45	
Bolt, reaction shaft support	12		105
Screw, valve body to transfer plate	5.5		50
Screw, solenoid module to transfer plate	6		50
Screw, accumulator cover	7		60
Screw, detent spring	4.5		40
Bolt, input speed sensor	12		105
Bolt, output speed sensor	12		105
Bolt, line pressure sensor	12		105
Bolt, extension housing	54	40	
Screw, manual valve cam retaining	4.5		40
Screw, manual selector shaft retaining	28		250
Cross-bolt, manual selector shaft	16		140



SHIPPING YOUR TRANSMISSION & CONVERTER

- Both the transmission and converter were included with a bag. Both are to be placed inside the bags for you to receive your full core credit.
- Fluid leakage will not be tolerated.
- You must drain both the transmission and torque converter prior to shipping back to SunCoast.
- Plug all holes with the red caps that plugged the holes of your new unit.
- If your trans and converter was shipped in a tote just put the bagged trans and converter inside and tighten the straps. Place the lid on top and secure with the supplied clips.
- If your trans and converter was shipped on a pallet place the bagged trans and converter on the pallet and secure with metal strapping. If the trans and converter are improperly secured you will be responsible for any damage cause during shipping.

DO NOT ship your converter back with it still inside the trans. This will cause damage if not secured properly and you will be responsible for any damage that occurs.



CORE RETURN INSTRUCTIONS: READ THOROUGHLY!

All cores must be returned within 45 days to receive full core credit! Cores returned after 6 months without prior approval are subjective to no core credit! Once your core return is delivered to SunCoast, please allow up to 3-4 business days for it to be inspected and checked in and up to 10-15 business days for your credit to be processed and refunded. Most core credits are processed sooner, however the above are worst case.

***VERY IMPORTANT! THE FOLLOWING MUST BE FOLLOWED IN ORDER TO RECEIVE YOUR FULL CORE CREDIT IN A TIMELY MANNER. IF ANY OF THESE STEPS ARE NOT FOLLOWED, THEN YOU MAY NOT RECEIVE YOUR FULL CORE CREDIT AND OTHER CHARGES MAY BE APPLIED.**

To return a core to SunCoast, first drain all fluids, if any, from the product.

***VERY IMPORTANT! NO SHIPPING CARRIER WILL TOLERATE FLUID CONTAMINATION OF OTHER PACKAGES! DUE TO THIS WE WILL REFUSE TO ACCEPT ANY LEAKING PACKAGES. THEY WILL BE RETURNED TO SENDER AND THE SENDER WILL BE LIABLE FOR DAMAGES, FREIGHT AND LOST CORE DEPOSIT!**

Fill out the Core Return Form found in the box you received your product in. If no form is located or you misplaced the form, please include the following information with your core or download from www.suncoastdiesel.com:

- If product was purchased from anywhere other than SunCoast Directly, please include Dealer Name
- Your Name
- Original Invoice Number (SunCoast Invoice Number)
- RMA Number
- Original Purchase Date
- Address
- Telephone Number
- Product Part Number

Include the form along with the core in the original packaging and/or box in which your new product was sent.

You will not be reimbursed for shipping costs incurred in shipping the core to SunCoast. To return the core, simply place the product/core in the included plastic bag and secure with included zip tie. Secure the product/core in the tote or on a pallet which ever your product was delivered on. You are responsible for securing the product/core to insure no damage during shipping. Any damage to the product/core due to being improperly secured will be deducted from your core credit.

You can contact SunCoast and we will be happy to arrange your return shipping to insure you are getting the best freight price. However, if you decide to use your own shipping company you will be responsible for all charges regardless of any promotions.

Assuming the core passes inspection, the credit card you used to purchase the new product will be credited in the amount of the core's value as indicated by the inspection. If purchased through a distributor, the credit will be issued to that distributor, who will then issue the credit to you. If the core does not pass inspection, you will not be reimbursed for the core or may only receive partial credit. Please understand that once the credit is processed by SunCoast, the amount of time you receive credit varies depending on your bank.



CORE RETURN DEDUCTIONS

The following are deductions on core returns that will be implemented immediately.

1. Late core returns (Stocking orders after 90 days)
 - After 45 days 15% deduction
 - After 1 year no core return unless prior arrangements are made with Suncoast (Subject to 15% to 85% deduction)
2. Core returned must be equivalent to product purchased (Year, Type, Etc.)
3. Core return paperwork not filled out - \$35.00
4. Converter/Transmission/Valve body, excessive fluid leakage (All products should be drained prior to shipping back to Suncoast)- \$50.00
5. If Converter/Valve body are not returned in the provided bag to contain possible fluid leakage - \$25.00 – This prevents possible UPS/FEDEX re-boxes which will cause delay in core return.
6. If trans is not shipped back inside the included bag to contain possible fluid leakage - \$100.00
7. Transmission core returned with no tote - \$350.00
8. Transmission core returned in tote with no clips - \$10.00
9. Cores returned must be packaged properly. Suncoast is not liable for improper packaging or damage caused during return transit.
10. Broken or unusable cores – Price will vary based on current cost of replacement.

***Please allow up to 19 days for core refund to be applied. 3-4 days for inspections and 10-15 days for refund.**



SUNCOAST DIESEL CORE RETURN FORM

***IMPORTANT!** The following must be completed in its entirety in order to receive your full core credit in a timely manner. For multiple cores one core return sheet must be completed for each return. Failure to complete this form or follow core return instructions will cause delays in your return and you will not receive your full core credit. If this form is not completed in its entirety \$35.00 will be deducted from your core credit.

Product Purchased from: _____

Your Name: _____

Original Suncoast Diesel Invoice Number: (If purchased through another dealer please request Suncoast Invoice number from them to include on this form) _____

RMA Number: (Call before sending core and receive an RMA number to put on your paperwork and on the box.) _____

Original Purchase Date: _____

Your Address: _____

Your Telephone Number: _____

SunCoast Product Part Number: _____

***IMPORTANT! Please return cores to:**

SunCoast Performance
Attention: Core Returns
631 Anchors Street NW
Fort Walton Beach, FL 32548
RMA # _____