



### OWNER'S MANUAL: MD3000/HD4000 AUTOMATIC TRANSMISSION

| Tag #           | ] |
|-----------------|---|
| Mileage In:     |   |
| Date Installed: |   |

# QUALITY REMANUFACTURED

#### TRANSMISSIONS AND TRANSFER CASES

Quality Remanufactured Products by WELLER for the Following Applications Medium to Heavy Duty Eaton/Fuller • Meritor • Volvo (Volvo Truck Compatible Part) • Mack • TTC Spicer • ZF • Clark • IHC • Isuzu • GMC A complete line of Auxiliaries and Transfer Cases

#### **AUTOMATED MANUAL TRANSMISSIONS**

Quality Remanufactured Products by WELLER for the Following Applications Eaton Cummins Endurant • Eaton UltraShift PLUS • Detroit DT12 • Volvo I-Shift<sup>\*</sup> (Volvo Truck Compatible Part)• Mack mDRIVE<sup>\*</sup>• Meritor Freedomline<sup>\*</sup>• ZF AS-Tronic<sup>\*</sup>

#### **AUTOMATIC TRANSMISSIONS**

**Quality Remanufactured Products by WELLER for the Following Applications** Allison Transmissions<sup>\*</sup> • Clark • Funk • CAT • ZF

#### DIFFERENTIALS

Quality Remanufactured Products by WELLER for the Following Applications Complete Stock for quick exchange

Meritor/Rockwell • Dana • Spicer • Eaton • Volvo (Volvo Truck Compatible Part) • Mack • Freightliner/Alliance • Clark • GMC • Industrial/Off Road • Terex

#### **STEERING GEAR BOXES AND PUMPS**

Quality Remanufactured Products by WELLER for the Following Applications Tested on a State-of-the-Art XLT3 Road Simulator TRW-Ross • Saginaw • Sheppard • Vickers Pumps ZF • Eaton • Luk

#### ELECTRONICS

Quality Remanufactured Electronics by WELLER for the Following Applications *All units are tested for performance and quality.* 

Cummins  $\bullet$  Eaton  $\bullet$  ZF  $\bullet$  Allison\*  $\bullet$  Volvo/Mack (Volvo Truck Compatible Part)  $\bullet$  Detroit  $\bullet$  PACCAR













## PROGRAM DESCRIPTION

As your company focuses on quality repairs and parts, put Weller on your team! Together we can eliminate downtime with complete coverage of all your drivetrain needs. That's the Weller Way – partnering in select relationships that successfully provide the customer with the best product and service. No hype! Just a true competitive advantage through quality and availability.

With 600,000 square feet of remanufacturing facilities and 37 nationwide company-owned distribution locations, we are committed to our customers. Weller's Unit Exchange program maximizes uptime with a 20,000+ unit stock plan of remanufactured transmissions, differentials, steering gears, PTOs, and hydraulic pumps ready to ship.

Consider becoming a partner in the industry's leading drivetrain program. Contact us today! With no commitments and no minimums, we are the Drivetrain Partner for you!

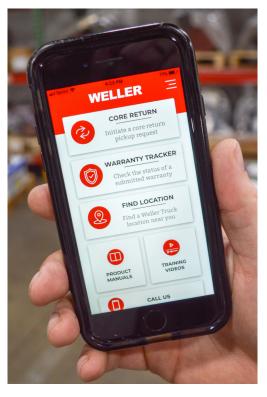
### Our reman program includes:

- 100% disassembled, cleaned, and inspected
- Remanufactured with only the highest quality parts available.
- · Gearsets are replaced in sets only
- All NEW bearings, gaskets, seals and washers
- Our reman program includes:
- All Makes Coverage One Call
- Same Day/Next Day Delivery
- Obsolete and Discontinued
  Specialists
- Nationwide One-Year, unlimited mileage, parts and labor warranty



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### WELLER APP



Designed with our customers in mind, we wanted to bring a user-friendly way for you to access the information you need when you need it most.

### Features

**Schedule a Core Return:** Easily schedule core returns from your phone!

**View Warranty Status:** Have a warranty you want to know the status of? View all of your warranties with the Warranty Tracker.

**Quickly Locate a Store:** We are always adding new locations to better serve you.

**Weller Literature:** Find our Owner's Manuals and other sales literature like our Core Return Program and sales catalogs

Training Videos: Visit our growing

collection of videos designed to educate and prevent common issues across a wide range of our products.



### How to Download

The new Weller Truck Parts app can be downloaded for free from the Apple App Store and Google Play.

Supported devices include iPhone (iOS 11.0 or later) and Android smartphones (5.0 Lollipop and up).



# INSTALLATION GUIDE

#### 1. PROPER TORQUE

- □ All control module bolts 38-45 Ft lb (51-61 N-m)
- □ Speed sensor bolts 18-21 Ft lb (24-29 N-m)
- □ Flexplate to crankshaft hub bolts Consult engine manufacturer specifications
- Flexplate to flexplate adapter bolts M8 17-21 Ft lb or M10 38-45 Ft lb
- □ Flexplate adapter to converter cover bolts 18-21 Ft lb (24-29 N-m)
- Fluid drain plug 18-24 Ft lb (25-32 N-m)
- □ Fluid fill tube bracket 18-21 Ft lb (24-29 N-m)
- □ Control module pressure taps 7-10 Ft lb (10-13 N-m)
- Cooler fittings- #12, 25-35 Ft. lb (34-47 Nm), #16 40-50 Ft. lb (54-68 N-m), #20, 50-60 Ft lb (68-81 N-m)
- □ Cooler port cover bolts 38-45 Ft lb (51-61 N-m)
- □ Output flange 1 bolt 52-59 Ft lb (70-80 N-m), 2 bolt 22-26 Ft lb (30-35 N-m)
- □ PTO cover bolts 38-45 Ft lb (51-61 N-m)
- □ PTO mounting bolts 38-45 Ft lb (51-61 N-m)
- □ Breather 9-12 Ft lb (12-16 N-m)
- PTO pressure hose to transmission 7-10 Ft lb (10-13 N-m)
- □ 20-way transmission feedthrough connector bolt 18-28 lb inch (2.0-3.2 N-m)
- □ Rear cover bolts 66-81 Ft lb (90-110 N-m)
- TPS to transmission bracket (M6 bolts) 84-120 lb inch (10-13 N-m) ¼-20 bolts 108-132 lb inch (12-15 N-m)

#### 2. COOLER LINES AND AIR HOSE

- □ Check for leaks
- □ Check for tightness of connections
- □ Check routing of lines

#### 3. THROTTLE SENSOR

- □ Check for proper adjustment
- □ Check for proper routing of cable and harness

#### 4. DRIVELINE

- □ Check for proper indexing of slip and universal joints
- Determine if angles are within recommendations
- □ Check for excessive backlash
- □ Lubricate universals and slip joints

#### 5. HYDRAULIC SYSTEM

- □ Recommended fluid Allison approved TES-295 or TES-389 fluid
- □ Fluid level correct for operating conditions
- □ Fill tube cap tight
- □ Fill tube tight
- □ Breather clean and free of restriction
- □ Checked for fluid leaks during operation

#### 6. POWER TAKE OFF (PTO) (IF INSTALLED)

- □ Controls connected and operative
- □ Properly coupled to driven equipment
- □ Lube line from transmission properly routed and connected

#### 7. INSTRUMENTS, ELECTRICAL COMPONENTS

- □ Wiring and electrical connections functional
- □ Instruments, gauges, and lights work correctly
- □ Shift selector display is on and CHECK TRANS light is off
- □ Fluid temperature gauge

## ROAD TEST

#### 1. DRIVEABILITY

Drive-away checks are performed to verify proper transmission and support equipment installation and operation. The following steps outline drive-away check procedures:

- □ Check fluid fill the transmission with the appropriate fluid.
- □ Start the vehicle check for proper system response during start-up:
  - □ Turn on the vehicle's master/ignition switch.
  - □ The CHECK TRANS light should come on.
  - □ Start the engine.
  - ☐ The CHECK TRANS light should go off.
  - □ N should appear in the shift selector display.
- □ Clear Trouble Codes during installation, it is common for false codes to be stored in the electronic control's TCM. These codes must be cleared prior to road testing the vehicle.
- □ Road Test the Vehicle allow the electronic control time to converge shifts.
- Check for Proper Operation check all components for proper mounting and operation, and check for transmission fluid leaks at gasket surfaces, lines and hoses.
- Recheck for Trouble Code use the Allison DOC<sup>®</sup> for PC-Service Tool or shift selector to determine if codes were set during the road test.
- Troubleshoot if codes exist after the road test, problems must be found and corrected (refer to Troubleshooting Manual).

#### 2. SERVICE & MAINTENANCE

Refer to the current issue of the 3000 and 4000 Product Family Service Manuals for detailed transmission service & maintenance installations. Refer to the latest Allison Troubleshooting Manual for detailed electronic control system troubleshooting.

#### 3. ROAD TEST CHECKLIST

#### Neutral Start Circuit:

□ Starts only in N (Neutral)

#### Instruments:

- □ CHECK TRANS light and shift selector display
- □ Transmission fluid pressure gauge if used
- □ Speedometer
- □ Temperature gauge if used
- □ Reverse warning system if used

#### Transmission Fluid:

- □ Fluid level meets specifications cold, neutral, level
- □ No leaks

#### No-Load Governed Engine Speed:

- □ No-load governed speed of engine
- Adjust governor as necessary refer to manufacturer's specifications for the engine-transmission being tested

#### Output Retarder:

- D Operation of the output retarder, if installed, while descending a grade or slowing on a level road
- PTO if installed:
  - □ PTO operation refer to the appropriate Operator's Manual.

#### Shift Sequence:

□ Transmission upshifts and downshifts smoothly through all ranges

#### Other Checks:

- Stall test
- □ Shift quality

# APPROVED LUBRICANTS

## **TES-295**

| Approval<br>Number | Approved Marketer                                       | Product Brand Name         |
|--------------------|---|----------------------------|
| AN-011001          | Castrol Heavy Duty Lubricants                           | TranSynd                   |
| AN-031002          | BP Lubricants   | Autran Syn 295             |
| AN-031003          | Cognis Corporation                                      | Emgard 2805                |
| AN-031004          | International Truck & Engine Company                    | Fleetrite Synthetic ATF    |
| AN-051005          | ExxonMobil Lubricants and Petroleum Specialties Company | Mobil Delvac Synthetic ATF |
| AN-071006          | John Deere & Company                                    | HD SynTran                 |
| AN-1010007         | Volvo Trucks North America                              | Bulldog Synthetic ATF      |
| AN-121009          | Case New Holland  | CNH HD Synthetic ATF       |
| AN-121008          | Shell International Petroleum Co. LTD.                  | Shell Spirax S6 ATF A295   |



## **TES-389**

| Approval<br>Number | Product Brand Name  | NAmerica | CAmerica | Product Marketer                                     |
|--------------------|---|----------|----------|--|
| AA-33182010        | Castrol ATF Heavy Duty                                    | Yes      | Yes      | BP Castrol   |
| AA-33192010        | Castrol ATF Heavy Duty                                    | Yes      | Yes      | BP Castrol   |
| AA-32252007        | Castrol Heavy Duty Multi-Purpose ATF                      | Yes      | Yes      | BP Lubricants  |
| AA-32362007        | Castrol Heavy Duty Multi-Purpose ATF                      | Yes      | Yes      | BP Lubricants  |
| AA-32012007        | Chevron Automatic Transmission Fluid HD-389               | Yes      | Yes      | Chevron Products Company                             |
| AA-32202007        | Chevron Automatic Transmission Fluid HD-389               | Yes      | Yes      | Chevron Products Company                             |
| AA-32242007        | Chevron Automatic Transmission Fluid HD-389               | Yes      | Yes      | Chevron Products Company                             |
| AA-31992007        | Chevron Synthetic Automatic Transmission Fluid Heavy Duty | Yes      | Yes      | Chevron Products Company                             |
| AA-32002007        | Texaco Automatic Transmission Fluid HD-389                | Yes      | Yes      | Chevron Products Company                             |
| AA-32792008        | Mobile ATF D/M  | Yes      | Yes      | ExxonMobil Lubricants &<br>Petroleum Specialties Co. |
| AA-32822010        | Fuchs Titan ATF 4000                                      | Yes      | Yes      | Fuchs Petrolub AG                                    |
| AA-32082007        | Petro-Canada ATF D3M                                      | Yes      | Yes      | Petro-Canada   |
| AA-33072010        | Ravenol ATF III H   | Yes      | Yes      | Ravensberger Schmierstoffvertrieb GMBH               |
| AA-33242011        | Spirax S2 ATF A389  | Yes      | Yes      | Shell International Petroleum Co. LTD.               |
| AA-32212007        | Donax TA-389  | Yes      | Yes      | Shell Lubricants                                     |
| AA-32332007        | Donax TX  | Yes      | Yes      | Shell Lubricants                                     |

# SERVICE INFORMATION LETTER





14-TR-07 June, 2007 Product Code(s): Page 1 of 3

SUBJECT: Resetting Adaptive Shift Parameters in Allison 4th Generation Controls System

MODELS AFFECTED: All 1000, 2000, 3000, 4000 Product Families

#### AFFECTED SERIAL NUMBERS: All

The purpose of this SIL is to describe the specific effects of resetting shift adaptive parameters on the Allison  $^{\text{th}}$  Generation Controls systems, when using Allison DOC<sup>TM</sup> For PC–Service Tool V6.2 (or earlier) and/or Allison DOC<sup>TM</sup> For Fleets V2.1 (or earlier).

#### Introduction:

The Allison DOC™ For PC–Service Tool and Allison DOC™ For Fleets tools contain a function that allows technicians to reset the adaptive shift parameters. This function is called **Reset Adaptive Shift Parameters** and is accessible from the *Action Request* main menu. When connected to an Allison **a**<sup>th</sup> Generation Controls system, users have the choice of resetting or re-initializing these adaptive parameters per shift (e.g. 4–5, D–R, N–R, 3–4, etc.) or all at once (using *Reset All Adaptive Shift Parameters* button). Each of these resetting functions replaces adaptive clutch control parameters (e.g. Clutch Pressure values, Clutch Volume values, etc.) with the original factory calibration values and invokes fast adaptive algorithms to rapidly adapt those clutch control parameters.

|                                    | Value         | Units |      |
|------------------------------------|---------------|-------|------|
| D-R Oncoming Clutch Volume         | 41            | 66    | - 12 |
| D-R Minimum Oncoming Clutch Volume | 0             | 60    |      |
| D-R Oncoming Clutch Pressure       | 43.66         | psi   |      |
| D-R Oncoming Fill Delay            | 67            |       |      |
| N-R Oncoming Clutch Volume         | 38            | 66    |      |
| N-R Minimum Oncoming Chilch Volume | 0             | 00    |      |
| N-R Oncoming Clutch Pressure       | 44.09         | psi   |      |
| R-N OB Going Pressure              | 32.05         | psi   |      |
| N-1 Oncoming Clutch Volume         | 102           | 66    |      |
| N-1 Minimum Oncoming Clutch Volume | 0             | 00    |      |
| N-1 Oncoming Clutch Pressure       | 62.22         | psi   |      |
| R-1 Oncoming Clutch Volume         | 104           | 00    |      |
| R-1 Minimum Oncoming Clutch Volume | 0             | 00    |      |
| R-1 Oncoming Clutch Pressure       | 63.53         | psi   |      |
| R-1 Oncoming Fill Delay            | 57            |       |      |
| N-R Adapt - Pattern 0              | Not Converged |       |      |
| N-1 Adapt - Patlem 0               | Not Converged |       |      |
|                                    | Not Converged |       | 1    |

Allison Transmission, Inc. Indianapolis, IN 46206-0894

BM / SL5568EN

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Please Note: Allison Transmission Service Information Letters are intended for use by professional, trained technicians, not for the 'do-it-yourselfer'. They are written to inform those technicians of conditions that may occur on some transmission models (or serial number ranges) or to provide information that could assist in the proper ervicing of a specific Allison transmission. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safety. If a condition is described, do not assume that the Service Information Letter applies to your transmission, or that your transmission has the condition described. Product evolution and information updates are inevitable. Please see your authorized Allison Transmission service dealer or distributor to understand if your particular transmission may benefit from the information contained within the Service Information Letter.

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# SERVICE INFORMATION LETTER

#### The following two issues have been identified.

Issue 1 occurs only with the following combination of TCM software and Allison DOC<sup>TM</sup> For PC Service Tool:

- TCM software; MY06, MY07, or MY08 (up to 8EC for 1000/2000 and 8FD for 3000/4000). TCMs calibrated after 5/28/2007 should have 8EC or 8FD software level, or later and GM Medium Duty Chassis or Workhorse Custom Chassis motor home w/L18 any TCM software level prior to MY09.
- Allison DOC<sup>™</sup> For PC Service Tool Version 6.2 (or earlier)

Issue 1: When the user resets All adaptive shift parameters at once (by clicking on the **Reset All Shift Adaptive Parameters** button) the Allison 4<sup>th</sup> Generation Controls TCM would not only reset the adaptive clutch control parameters back to factory values, but it will also reset all Customer Modifiable Constants (CMC) to their factory values. So, for example, if the Engine Brake Pre-Select Range CMC was changed at some point from 2nd (original/factory calibration value) to 4<sup>th</sup> gear, and the user Resets All Shift Adaptive Parameters, the calibration will reset all adaptive clutch control parameters plus that CMC back to 2nd.

NOTE 1: MY06, MY07, and MY08 software levels can be identified by the first digit of the Software Level number displayed in the Allison DOC<sup>™</sup> tool. MY06 software level starts with a 6 (example: 6B7), MY07 software level starts with a 7 (example: 7EB), and MY08 software level starts with an 8 (example: 8F4). The Software Level is a parameter displayed in the Allison DOC<sup>™</sup> tool, under the TCM/Calibration Information screen:

| Calibration    | Value                | * |  |
|----------------|----------------------|---|--|
| Cal ID         | 480 <u>05K400</u> 17 |   |  |
| Software Level | 855                  |   |  |
| Serial Number  | BK4773N160889M9M     |   |  |
| Part Number    | 29544773             |   |  |
| TCM Date       | TBD                  |   |  |
| HCN/CCN        | 28 / A68             | _ |  |
| VIN            | N/A                  |   |  |
| This Tool S/N  | 50001                |   |  |
| Last Tool S/N  | 0000050001           | - |  |

When Allison DOC<sup>TM</sup> For PC–Service Tool V6.2 (or earlier) is being used and Reprogramming is enabled, the following steps are required in order to preserve the CMCs after resetting All Shift Adaptive Parameters:

- 1. On the Reprogramming window, click on the Save button to save current CMC configuration
- 2. Reset All Shift Adaptive Parameters
- 3. Go back to the Reprogramming window, click on the "Select One:" pull down list and select the previously saved CMC configuration
- 4. Click on Load, and then on Reprogram TCM to apply the original CMC configuration

Issue 2 occurs only with the following combination of TCM software and Allison DOCTM For PC Service Tool:

- Using Allison DOC<sup>™</sup> For PC–Service Tool V6.2 (or earlier), or Allison DOC<sup>™</sup> For Fleets V2.1 (or earlier) to reset any up-shift Adaptive parameters (e.g. Reset 1-2 Shift Adaptive Parameters, Reset 4-5 Shift Adaptive Parameters, etc.), and
- The Allison DOC<sup>™</sup> tool is connected to an Allison 4th Generation Controls System TCM that is programmed with a MY06, MY07, or MY08 TCM software level, and
- The TCM is configured to use SEM/LRTP.

Issue 2: When users reset any upshift adaptive parameters (by clicking on the **Reset X-Y Shift Adaptive Parameters** button, where X-Y is the corresponding upshift), the TCM will reset the adaptive clutch control parameters related to that specific upshift. Each of these adaptive clutch control parameters is then adjusted/re-learned/adapted by the TCM to obtain smooth shifts, as the transmission up/downshifts. Recent investigations determined that when resetting any of the upshift adaptive parameters, one of these parameters (i.e. Maximum Torque Clutch) is reset back to its factory value, but it will not get re-learned or adapted by the TCM. This situation could have an impact on the shift quality of the transmission.

## SERVICE INFORMATION LETTER

NOTE 2: To find out whether the TCM calibration is configured to use SEM/LRTP or not, the user can go to the TCM/Calibration Information screen, look into the SEM/LRTP & Autodetect Information window, and read the Auto Select Configuration parameter. If this parameter is set to "SEM and LRTP Required," or "SEM Required," the TCM is using SEM/LRTP. Additionally, the TCM is using SEM/LRTP if Auto Select Configuration is set to "Autoselect (SEM/LRTP Not Required)" and SEM Enabled Status or if Auto Select Configuration is set to "LRTP is Required; SEM will run if engine supports" and SEM Enabled Status is set to "Enabled". Otherwise, the TCM is not using SEM/LRTP.

| SEM/LRTP & Autodetected Information | Value                    |
|-------------------------------------|--------------------------|
| Auto Select Configuration           | SEM and LRTP Required    |
| Engine Hardware Status              | Not SEM/LRTP Recognized  |
| SEM Validated                       | ECM doesn't support SEM  |
| LRTP Validated                      | ECM doesn't support LRTP |
| SEM/LRTP Compatibility              | Not Compatible           |
| SEM Enabled Status                  | Disabled                 |
| LRTP Enabled Status                 | Disabled                 |
| SEM Torque Reduction Status         | N/A                      |
| LRTP Torque Reduction Status        | N/A                      |

| SEM/LRTP & Autodetected Information | Value                              | - |
|-------------------------------------|------------------------------------|---|
| Auto Select Configuration           | Autoselect (SEM/LRTP Not Required) | Þ |
| Engine Hardware Status              | SEM/LRTP Recognized                |   |
| SEM Validated                       | ECM doesn't support SEM            |   |
| LRTP Validated                      | ECM doesn't support LRTP           |   |
| SEM/LRTP Compatibility              | Compatible                         |   |
| SEM Enabled Status                  | Enabled                            |   |
| LRTP Enabled Status                 | Disabled                           |   |
| SEM Torque Reduction Status         | N/A                                |   |
| LRTP Torque Reduction Status        | N/A                                | * |

When Allison DOC<sup>TM</sup> For PC–Service Tool V6.2 (or earlier), or Allison DOC<sup>TM</sup> For Fleets V2.1 (or earlier) is being used to reset shift adaptive parameters, the following steps are required in order to prevent this "no re-learning" situation:

- 1. If the TCM is configured to use SEM:
  - i. On the Reprogramming window, click on the Save button to save current CMC configuration
  - ii. Reset All Shift Adaptive Parameters
  - iii. Go back to the Reprogramming window, click on the "Select One:" pull down list and select the previously saved CMC configuration
  - iv. Click on Load, and then on Reprogram TCM to apply the original CMC configuration
  - v. If this "no relearning" situation occurs, it will be necessary to recalibrate the TCM to its original configuration.
- 2. If the TCM is configured not to use SEM, the user can reset the individual shift.

The Allison DOC<sup>TM</sup> For PC–Service Tool V7.0.0 (or later) and Allison DOC<sup>TM</sup> For Fleets V3.0 (or later) will be enhanced to prevent this behavior.

#### Acronyms List:

- CMC Customer Modifiable Constant
- DOC Diagnostic Optimized Connection
- MY Model Year
- PC Personal Computer
- SEM Shift Energy Management
- SIL Service Information Letter
- TCM Transmission Control Module

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# TEST DRIVE PROCEDURES

- 1. From Neutral, with parking brake set and service brakes applied via foot pedal, select the following sequence: **Drive, Neutral, Reverse, Neutral, Drive, Reverse, Drive, Neutral.** Allow each shift to fully complete before selecting the next shift.
- 2. Release all brakes and perform this sequence: Wide Open Throttle (WOT) 1-2; once shift is complete, release the throttle to closed and decelerate to just prior to the Closed Throttle (CT) 2-1 and perform a Step Thru (ST) 2-1 by going to WOT.
- 3. Continue the process initiated in #2 above for **each Upshift and Downshift combination available.**

Example: Wide Open Throttle (WOT) 2-3; once shift is complete, release the throttle to closed and decelerate to just prior to the Closed Throttle (CT) 3-2 and perform a Step Thru (T) 3-2 by going to WOT. Repeat for the WOT 3-4/ST 4-3, WOT 4-5/ST 5-4, WOT 5-6/ST 6-5.

- 4. From a Stop, release vehicle brakes and perform a set of Part Throttle (PT ~ 50% to 60%) Upshifts to the highest attainable range for the vehicle. Release the throttle to Closed and, using Light vehicle brakes, decelerate to a stop. NOTE: If the vehicle is equipped with an output retarder or engine brake system, these systems should be turned off for this segment.
- 5. From a Stop, release vehicle brakes and perform **Part Throttle (PT ~ 50% to 60%) Upshifts to 3rd range. Release the throttle to Closed and, using Moderate to Heavy vehicles brakes (NOT panic or wheel lock), decelerate to a stop. NOTE:** Braking should be aggressive but not to the level that would cause passenger complaints. If the vehicle is equipped with an output retarder or engine brake system, these systems should be turned off for this segment.
- 6. From a Stop, release vehicle brakes and perform a set of **Wide Open Throttle Upshifts to the** highest attainable range for the vehicle. Release the throttle to Closed and Preselect Down to 1st Range using the shift selector. Use light vehicle brakes, decelerate to a stop.
- 7. If the vehicle is equipped with a **retarder or engine brake, turn that system on** for this segment. From a Stop, release vehicle brakes and perform a set of **Wide Open Throttle Upshifts** to the highest attainable range for the vehicle. Release the throttle to Closed and, using Light vehicle brakes and the retarder or engine brake, decelerate vehicle to a stop.

NOTE: Allison Transmission does not recommend using the vehicle brakes to "force" Powered Downshifts (PD, downshifts with the throttle applied). If grades are available, these should be used to adapt in WOT and PT Powered Downshifts.

- 8. Approach the grade in the highest safely attainable range and hold the throttle steady at **WOT** and allow the vehicle to perform the Powered Downshifts as required to ascend the grade.
- 9. Approach the grade in the highest safely attainable range and hold the throttle steady at **Part Throttle (PT~ 50% to 60%) and allow the vehicle to perform the Powered Downshifts as required to ascend the grade.**

# VALVE BODY TESTING





All valve bodies are tested for proper shift points and correct shift pressures on our state-of-the-art Axiline test stand.

The 1k/2k and 3k/4k product lines are also tested for proper solenoid and wiring harness functions. This testing guarantees proper shift quality at dyno testing and in the customer's vehicle.

# DYNO TESTING

Our transmissions are rigorously tested under realistic load simulations on state-of-the-art dynomometers. This approach guarantees proper torque, leak-free performance, accurate shifting, and optimized oil flow.



### **Ensuring Functionality**

The test replicates the demands placed on a transmission during operation, checking if it shifts gears smoothly, delivers the expected power output, and operates within normal temperature ranges.



### **Quality Control**

Rebuilt transmissions in particular undergo dyno testing to verify the quality of the rebuild process. This ensures they meet or exceed factory specifications for pressure, performance, and minimize the risk of leaks or malfunctions after installation.



### Diagnostics

Dyno testing can pinpoint issues with a transmission, such as abnormal noises, vibrations, or problems with the hydraulic system or clutch packs.



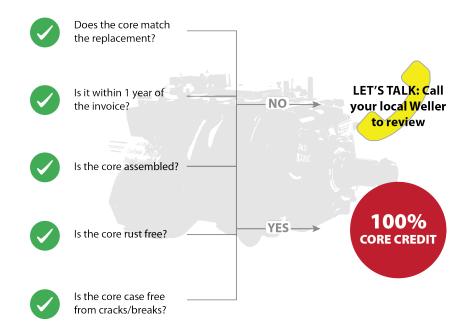
### Calibration

The test allows technicians to finetune the transmission's operation, including setting optimal shift points and pressures for improved performance and efficiency.

# CORE RETURNS

### Fair. Flexible. Fast.

At Weller, we value your business and strive to make the core return process as smooth as possible. Our core return policy is built on **trust and partnership**, ensuring that doing business with Weller is not only easy but also beneficial for our customers. We pride ourselves on having the most flexible core return policy in the industry, including a return window up to a full year. This generous policy underscores our commitment to you and highlights our dedication to accommodating customer needs. While we do expect a fair rebuildable core, our primary goal is to ensure that you have a **positive and efficient** experience with us.



Don't just take our word for it. See why Weller is the unmatched industry leader, before and after the sale. **Our policy reveals all.** 



## WELLER WARRANTY

At Weller, we prioritize not only the quality of our products but also the peace of mind for our valued customers. We understand that purchasing decisions are significant investments, and to underscore our commitment to your satisfaction, we proudly offer a comprehensive warranty on our products.



This warranty is a testament to our confidence in the durability and reliability of our offerings. While we take pride in crafting products of the highest standards, we recognize that unforeseen circumstances may arise. When they do, we have made the process as easy for you as possible, down to choosing the most convenient way for you to start a claim.

To learn more about our warranty and how to file a claim, scan the QR code below or visit our website.

Don't Buy the Paper. Buy the Performance.



Learn more about the Weller Warranty wellertruck.com/weller-warranty When You Choose Weller, You Stop Playing the Warranty Game.

v 8.2.23

# Max Uptime In Your Drivetrain When You Partner with Weller.

We are dedicated to providing best-in-class quality with unmatched value and rapid delivery. Our focus is to keep our customers and America moving.

### View Our Complete Drivetrain Offerings at wellertruck.com

















AND TRANSFER CASES

TRANSMISSIONS AUTOMATED MANUAL TRANSMISSIONS

AUTOMATIC TRANSMISSIONS

DIFFERENTIALS

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