

WS ATF Level Adjustment for U660E/F & U760E/F Transmissions

Service Category Drivetrain

Section Automatic Transmission/Transaxle

Market USA

Toyota Supports
 ASE Certification 

Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2008 – 2014	Avalon	
2007 – 2014	Camry	
2009 – 2014	Highlander	
2013 – 2014	RAV4	
2010 – 2014	Sienna	
2009 – 2014	Venza	

REVISION NOTICE

April 23, 2014 Rev1:

- Applicability has been updated to include 2014 model year applicable Toyota vehicles.
- The Required Tools & Equipment and Repair Procedure sections have been updated.

Any previous printed versions of this bulletin should be discarded.

Introduction

This bulletin includes basic procedures for inspecting and adjusting World Standard (WS) Automatic Transmission Fluid (ATF) level at normal vehicle operating temperature.

NOTE

The following adjustment procedures are for U660E/F and U760E/F transmissions.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFF	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

WS ATF Level Adjustment for U660E/F & U760E/F Transmissions

Parts Information

PART NUMBER	PART NAME	QTY
00289-ATFWS	ATF WS	As Needed

Required Tools & Equipment

REQUIRED EQUIPMENT	SUPPLIER	PART NUMBER	QTY
Techstream 2.0*	ADE	TS2UNIT	1
TIS Techstream		TSPKG1	
Techstream Lite		TSLITEDLR01	

SPECIAL SERVICE TOOLS (SST)	PART NUMBER	QTY
WS ATF Level Gauge Kit*	10002-00101	1
WS ATF Level Gauge*	10002-00101-1	1
Vacuum Regulator Manifold*	10002-00101-2	1
Transmission Fill Adapter (Green Adapter)*	10002-00101-3	1
Fluid Extraction Tank*	10002-00101-4	1
WS ATF Level Gauge – 12 mm Adapter*	10002-00101-6	1
Transmission Fill System*	00002-11100-02	1

* Essential SST.

NOTE

- Only ONE of the Techstream units listed above is required.
- Software version 9.00.026 or later is required.
- Additional Techstream units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787.
- Additional SSTs may be ordered by calling 1-800-933-8335.

WS ATF Level Adjustment for U660E/F & U760E/F Transmissions

Inspection Procedure

1. Inspect fluid level at vehicle operating temperature.

NOTE

This procedure references a Toyota vehicle with a U660F transaxle as an example. Refer to the Repair Manual of the corresponding vehicle model for specific details about procedures that vary by model such as fluid type, oil level, filling method, the location of the refill plug and overflow plug, torque, etc.

CAUTION

- Use caution while the engine is idling and the radiator fan is operating.
- Use caution when the transmission fluid temperature is high.

2. Warm up and stop the engine.
3. Connect Techstream to the DLC3 with the ignition switch OFF.
4. Turn the ignition switch to ON and turn Techstream ON.

NOTE

To reduce load, make sure that all electrical systems, such as the air conditioning, lighting system, electric fan, and audio system are OFF.

5. On Techstream, enter the following menus:
Powertrain / ECT / Data List
6. Select the Data List menu: "AT Oil Temperature 1"
7. Select the Data List menu: "Engine Speed"
8. Check the ATF temperature.

NOTE

Ensure the transmission fluid temperature is between 185°F – 194°F (85°C – 90°C) before starting work.

9. Depress and hold the brake pedal.
10. Start the engine.
11. Slowly move the shift lever from P to D, and then back to P.

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Inspection Procedure (Continued)

12. Lift the vehicle.

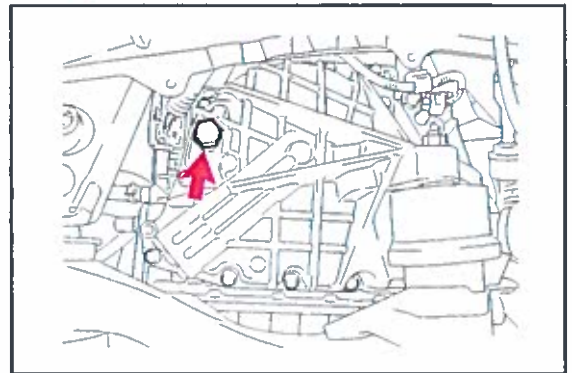
NOTE

Set the vehicle on a lift so that the vehicle is kept level (make sure the tilt angle from the front to rear and side to side of the vehicle is within $\pm 1^\circ$).

13. Remove the 2 bolts, clip, and front fender apron seal LH.

14. Remove the refill plug and gasket.

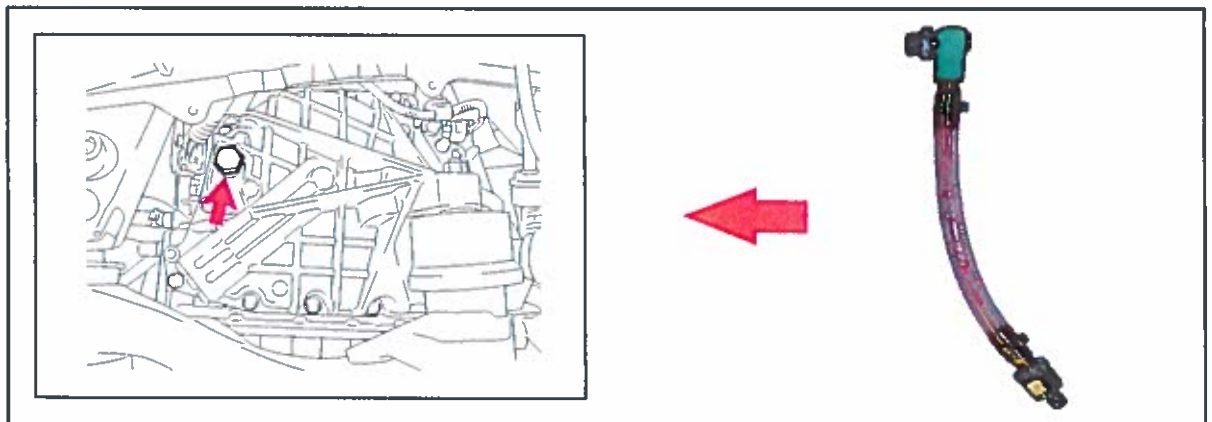
Figure 1.



15. Install the Transmission Fill Adapter into the transmission fill port.

SST: 10002-00101-3

Figure 2. With Green Adapter

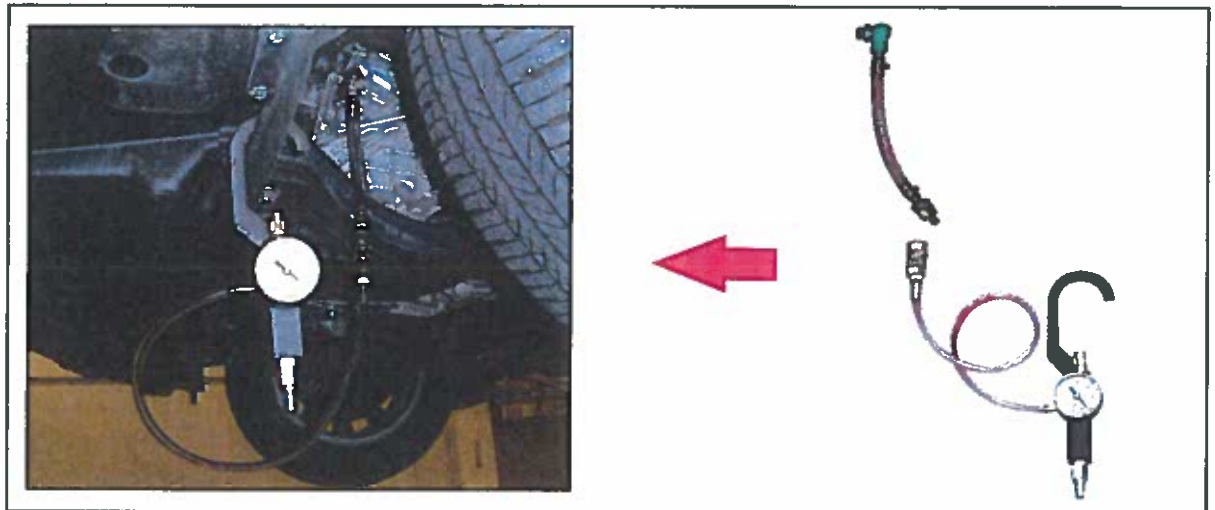


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Inspection Procedure (Continued)

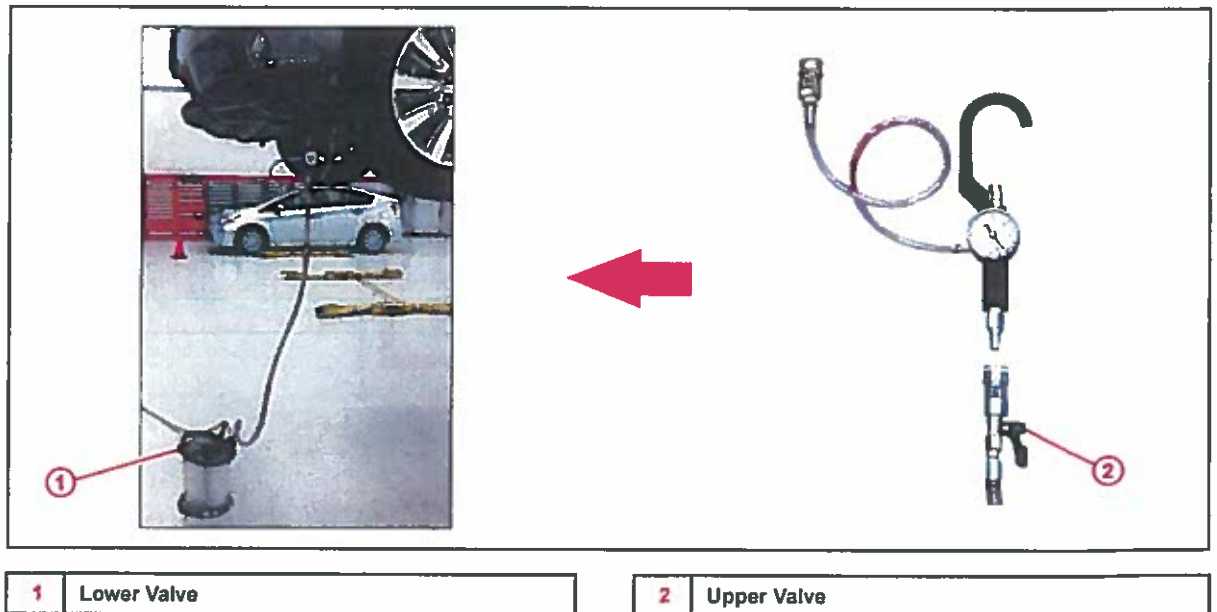
16. Attach the Vacuum Regulator Manifold quick connect fitting to the Transmission Fill Adapter.
SST: 10002-00101-2

Figure 3.



17. Attach the Fluid Extraction Tank hose quick connect to the Vacuum Regulator Manifold.
SST: 10002-00101-4

Figure 4.



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Inspection Procedure (Continued)

NOTE

Ensure both of the Fluid Extraction Tank valves are OFF by turning the valve handle perpendicular to the hose.

18. Connect a shop air hose to the Fluid Extraction Tank.

CAUTION

Do NOT exceed 100 psi of shop air pressure to the Fluid Extraction Tank.

19. Open the Fluid Extraction Tank LOWER valve by turning the handle in-line with the hose.
20. Open the Fluid Extraction Tank UPPER valve by turning the handle in-line with the hose.

HINT

Vacuum will be applied to the transmission when both of the Fluid Extraction Tank valves are opened to prevent fluid loss when removing/installing the transmission overflow/drain plug.

NOTE

Ensure the Vacuum Regulator Manifold gauge is between 2 – 5 in. Hg (10 – 20 KPa).

21. Using a 6 mm hexagon socket wrench, remove the overflow/drain plug and gasket.

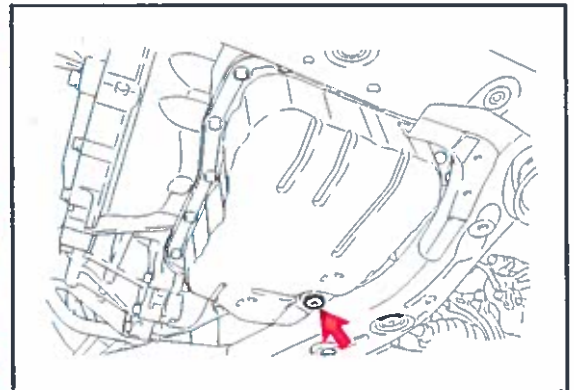
HINT

Place an oil drain pan under the transmission overflow/drain plug to collect any transmission fluid.

CAUTION

A small amount of HOT fluid may leak from the overflow/drain plug port during removal.

Figure 5.



WS ATF Level Adjustment for U660E/F & U760E/F Transmissions

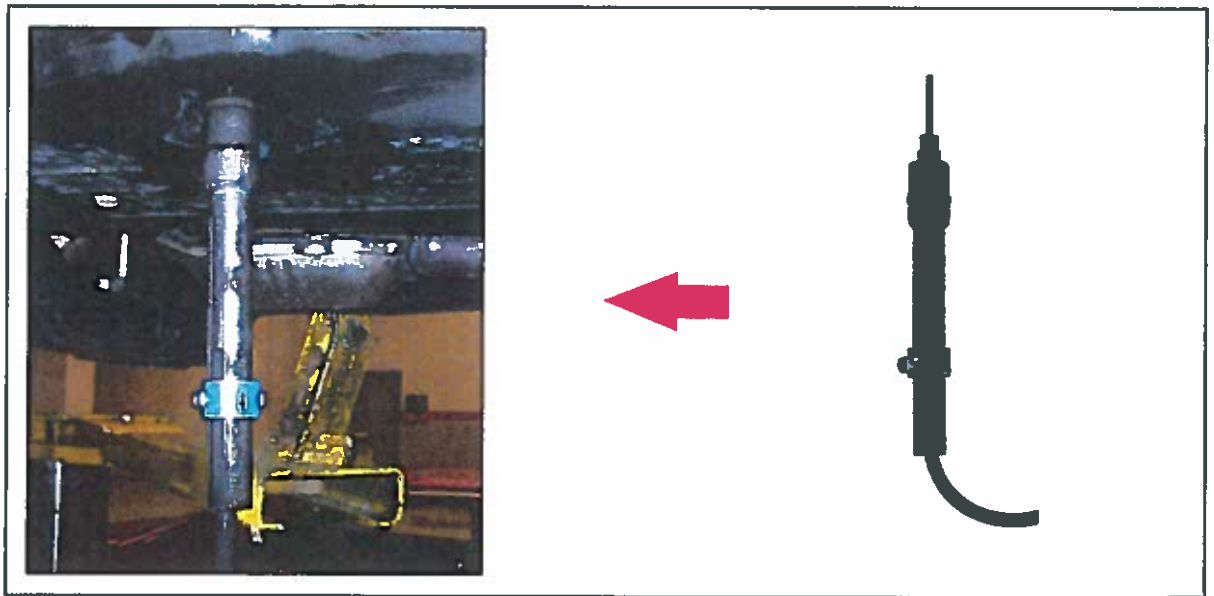
Inspection Procedure (Continued)

22. Install the WS ATF Level Gauge into the overflow/drain plug port using the 12 mm Adapter and hand-tighten the WS ATF Level Gauge until it is fully seated against the oil pan.

SST: 10002-00101-1

SST: 10002-00101-6

Figure 6.



NOTE

Ensure the sliding tube is fully retracted into the gauge housing before inserting into the transmission inspection port.

HINT

The level/measurement indicator on the WS ATF Level Gauge will read 0 mm when the sliding tube is fully retracted.

WS ATF Level Adjustment for U660E/F & U760E/F Transmissions

Inspection Procedure (Continued)

23. Adjust the WS ATF Level Gauge to the correct measurement according to the table below and lock the sliding scale by securing the thumb screw:

TRANSAXLE	ENGINE	DRIVE TYPE	VEHICLE		SPECIFIED MEASUREMENT AT FLUID TEMPERATURE OF 185°F – 194°F (85°C – 90°C)	
			MODEL	MODEL CODE	ENGINE IDLE SPEED 600 – 700 (RPM)	ENGINE IDLE SPEED 700 – 800 (RPM)
U660E U660F	2GR-FE	FF	Avalon	GSX30	75.5 mm	72.0 mm
			Camry	GSV40		
				GSV50		
		4WD	Highlander	GSU50		
				GSU55		
		FF	Sienna	GSL30		
				GSL35		
		4WD	Venza	GGV10		
GGV15						
U760E U760F	2AR-FE	FF	Camry	ASV40	71.0 mm	69.0 mm
				ASV50		
		4WD	RAV4	ASA44		
				ASA42		
	1AR-FE	FF	Highlander	ASU40		
				ASU50		
			Sienna	ASL30		
		4WD	Venza	AGV10		
AGV15						

NOTE

Before proceeding with the inspection, ensure the transmission fluid temperature is between 185°F – 194°F (85°C – 90°C) and the engine idle speed is within the range specified in the table above.

24. Close the Fluid Extraction Tank upper valve by turning the handle perpendicular to the hose. This will stop vacuum flow to the transmission and the vacuum gauge should read 0 in. Hg (0 KPa)
25. Observe transmission fluid leaking from the hose at the bottom of the WS ATF Level Gauge.

WS ATF Level Adjustment for U660E/F & U760E/F Transmissions

Inspection Procedure (Continued)

NOTE

- If fluid flows out slowly and only drips, then the transmission fluid level is within specifications.
- If fluid flows out rapidly, allow excess fluid to drain to a slight drip.
- If no fluid flows out, add fluid using the Transmission Fill System until fluid begins to drip (refer to "Fluid Level Adjustment Procedure" for instructions).

26. Confirm fluid level is within specifications per step 23 – 25.
27. Open the Fluid Extraction Tank upper valve by turning the handle in-line with the hose. This will allow vacuum to be applied to the transmission and the vacuum gauge should read between 2 – 5 in. Hg (10 – 20 KPa).

NOTE

Ensure vacuum is being applied to the transmission before proceeding to step 28.

28. Remove the WS ATF Level Gauge.
29. Install the overflow/drain plug with a new gasket.
Torque: 40 N*m (408 kgf*cm, 30 ft*lbf)
30. Close the Fluid Extraction Tank UPPER valve by turning the handle perpendicular to the hose. This will stop vacuum flow to the transmission and the vacuum gauge should read 0 in. Hg (0 KPa).
31. Close the Fluid Extraction Tank LOWER valve by turning the handle perpendicular to the hose.
32. Disconnect the shop air hose from the Fluid Extraction Tank.
33. Disconnect the Fluid Extraction Tank hose quick connect from the Vacuum Regulator Manifold.
34. Disconnect the Vacuum Regulator Manifold quick connect from the Transmission Fill Adapter.
35. Remove the Transmission Fill Adapter from the transmission fill port.
36. Install the refill plug with a new gasket.
Torque: 49 N*m (500 kgf*cm, 36 ft*lbf)
37. Check for fluid leaks.
38. Clean any remaining oil residue from the transmission case/oil pan.
39. Install the front fender apron seal LH with the 2 bolts and clip.
40. Lower the vehicle.
41. Remove Techstream from the DLC3.

WS ATF Level Adjustment for U660E/F & U760E/F Transmissions

Fluid Level Adjustment Procedure

Perform the following procedures if low fluid level is present using the WS ATF Level Gauge during step 25.

NOTE

- Before adding transmission fluid, ensure the WS ATF Level Gauge is set to the correct level according to the table in step 23.
- Ensure the transmission fluid temperature is between 185°F – 194°F (85°C – 90°C) and the engine idle speed is within the range specified in the table in step 23.
- Ensure both of the Transmission Fluid Extraction Tank valves are closed and no vacuum is being applied to the transmission (Vacuum Regulator Manifold gauge should read 0 in. Hg [0 KPa]).

1. Disconnect the Vacuum Regulator Manifold quick connect fitting from the Transmission Fill Adapter.
2. Connect the Transmission Fill System quick connect fitting to the Transmission Fill Adapter.
SST: 00002-11100-02
3. Operate the manual pump slowly to add Toyota genuine WS transmission fluid to the transmission.
4. Observe for transmission fluid leaking from the hose at the base of the WS ATF Level Gauge.

NOTE

- If fluid flows out slowly and only drips, then the transmission fluid level is within specifications.
- If transmission fluid flows out rapidly, allow excess fluid to drain to a slight drip.
- If no transmission fluid flows out, continue adding fluid using the Transmission Fill System until fluid begins to drip.

5. Confirm fluid level is within specifications per step 4.
6. After confirming fluid level is correct, disconnect the Transmission Fill System hose quick connect from the Transmission Fill Adapter.
7. Reconnect the Vacuum Regulator Manifold hose quick connect to the Transmission Fill Adapter.
8. Open both of the Fluid Extraction Tank valves by turning the handle in-line with the hose to stop additional fluid loss. This will allow vacuum to be applied to the transmission and the vacuum gauge should read between 2 – 5 in. Hg (10 – 20 KPa).
9. Remove the WS ATF Level Gauge.
10. Install the overflow plug with a new gasket.
Torque: 40 N*m (408 kgf*cm, 30 ft*lbf)

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Fluid Level Adjustment Procedure (Continued)

11. Close the Fluid Extraction Tank UPPER valve by turning the handle perpendicular to the hose.
12. Close the Fluid Extraction Tank LOWER valve by turning the handle perpendicular to the hose.
13. Disconnect the shop air hose from the Fluid Extraction Tank.
14. Disconnect the Fluid Extraction Tank from the Vacuum Regulator Manifold.
15. Disconnect the Vacuum Regulator Manifold from the Transmission Fill Adapter.
16. Remove the Transmission Fill Adapter from the transmission fill port.
17. Install the refill plug with a new gasket.
Torque: 49 N*m (500 kgf*cm, 36 ft*lbf)
18. Check for fluid leaks.
19. Clean any remaining oil residue from the transmission case/oil pan.
20. Install the front fender apron seal LH with the 2 bolts and clip.
21. Lower the vehicle.
22. Remove Techstream from the DLC3.

