

# TOYOTA

Ref. No.: SL01/11

January, 2011

TO ALL TOYOTA DEALERS

ATT: DEALER PRINCIPAL

Please direct copies of this service letter to your Service, Parts and Sales Managers for their information / immediate attention.

**Model:** Land Cruiser VDJ200, VDJ76 / 78 / 79

**Subject: 1VD-FTV ENGINE OIL USAGE**

## Background

A number of production improvements to reduce oil usage rates (VDJ200 vacuum pump, LC70 Series scavenge pipe to oil pan gaskets) have been extremely effective in the vast majority of cases. However some field reports of oil usage being greater than owner's expectations have been received.

Whilst some of these reports are specifically related to individual vehicle usage conditions, other reports have shown large usage variations between oil level inspections clearly indicating inaccurate measurement primarily due to insufficient distance travelled during monitoring. Additionally, Dealer feedback has indicated that frequent oil usage measurements are inconvenient to the majority of customers.

As a result, the inspection criteria has now been revised to a customer friendly process that only requires the owner to present their vehicle after the oil level caution light has illuminated.

Note:

TMCA will support repairs of confirmed excessive engine oil usage above the acceptable standard based on vehicle operation even if outside the warranty period subject to correct maintenance.

This ADSL provides details of:

- Additional production improvements.
- Customer information guide.
- Customer friendly oil usage monitoring process.
- Repair determination (parts requirements currently being sourced).

## Engine Design

The 1VD-FTV diesel engine was developed to provide exceptional engine performance and fuel efficiency whilst meeting the stringent Euro 4 emission standards by utilising low friction engine components such as resin coated pistons, low tension piston rings and low viscosity oils. The 1VD-FTV engine is fitted with a low engine oil level caution that is expected to illuminate between services under some operating conditions.

## Oil Usage

All engines are designed to use oil to ensure that cylinder bores, pistons, piston rings, valve stems and valve stem guides are correctly lubricated and protected from high temperatures developed during combustion. Engine oil usage rates will vary greatly depending on the vehicle's usage and operating conditions as well as the owner's driving style. Understanding these factors is critical in determining the oil usage rate that can be expected for that vehicle.

The oil usage rates for the 1VD-FTV engine will vary between 1 litre / 8,000km and 1 litre / 5,000km under certain operating conditions as described below. It is expected that the low engine oil level caution will illuminate during the service interval (6 month / 10,000km) under some usage and operating conditions.

Driving conditions leading to more oil usage generally are:

- Sustained high speed operation.
- Frequent and / or hard acceleration / deceleration.
- High engine load operations such as towing or high payload conditions.
- Prolonged low speed operation - particularly in low range.

Typically, if the vehicle is used in conditions that result in higher fuel consumption – more engine oil usage will be expected.

## Additional Servicing Requirements

How and where the vehicle is driven determines the service requirements as much as the time or distance travelled. For example, if the vehicle regularly tows heavy loads or operates at sustained high speeds, more frequent maintenance is necessary, refer to additional service requirements in the Warranty and Service Booklet.

### Note:

Toyota Service Advantage provides capped price servicing based on normal vehicle usage maintenance requirements. Additional servicing required specifically due to the individual operating and usage conditions will be at additional cost to the owner.

Engine Oil Viscosity is extremely important in modern CRS diesel engines – thicker grade oils can result in more oil usage.

## Engine Oil Usage Confirmation / Explanation to Customer

A customer information sheet has been prepared to assist Dealers with explaining engine oil usage and can be provided to the customer for their reference.

The customer information sheet includes the following:

1. Expected engine oil usage rates based on vehicle operation.
2. Explanation of the engine oil level caution system – This caution indicator advises the customer to check their engine oil level at the next available opportunity.
3. Oil level inspection process.
  - When inspecting the oil level, ensure the engine is at operating temperature and that the vehicle is on level ground.
  - After turning off the engine wait at least 5 minutes for the oil to drain back to the engine sump.
  - Where the oil level is between the low and full mark on the dipstick, the engine does not require oil top up.
  - It is only necessary to add oil when the oil level is at or below the low mark.
  - Quantity of oil required to raise the level from the low to full mark on the dipstick is approximately 1.5L

[Link to Customer Information Sheet](#)

## Oil Usage Monitoring

Oil usage monitoring has been revised to become more customer friendly and improve accuracy.

- Dealers to explain expected oil usage to the owner using the customer information sheet.
- Dealers to confirm vehicle usage to determine if additional servicing is indicated and make recommendation to the owner.
- When performing oil usage monitoring, owners are requested to arrange oil level inspection only when the oil level caution is illuminated.

Note:

Please reassure owners that they do not need to immediately stop the vehicle when the oil level caution illuminates but to present the vehicle at a Toyota dealer at their earliest convenience.

To ensure accuracy of the oil usage monitoring – If the vehicle is over 300km from the nearest dealer when the oil level caution illuminates, the customer should add 1litre ONLY of appropriate grade oil and then return to a Toyota dealer at their earliest convenience.

Refer link below for revised oil usage rate confirmation procedure – utilise the revised confirmation procedure for any new cases or where reconfirmation is required.

[Link to Travellers Engine Oil Usage Monitor sheet](#)

TMCA expects that Dealers will have already identified, confirmed and reported via DPR with check sheet, vehicles in their area that are outside specification, in these cases where Dealers are confident that the vehicle is outside specification (with due regard to the vehicle operating conditions), the level of repair can be decided. Once parts are available (Dealers will be advised) repairs can be scheduled at the Dealers and owners convenience.

Note: If oil usage is only related to vehicle usage and operating conditions, then conducting repairs is not expected to improve oil usage rates and additional servicing may be necessary for those conditions.

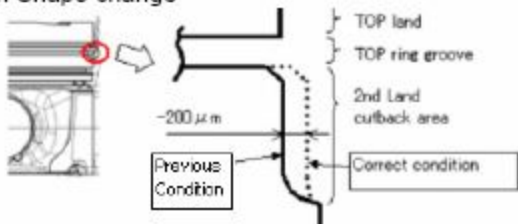
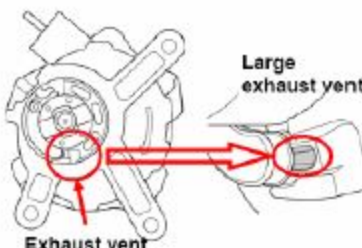
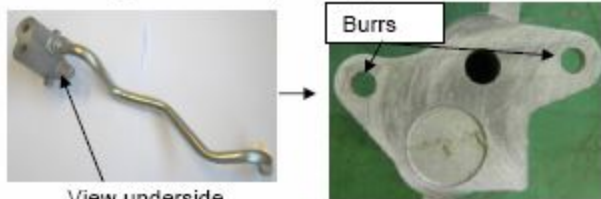
## Production Improvements

Please find below details of the production countermeasures introduced to the 1VD-FTV engine to address engine oil usage.

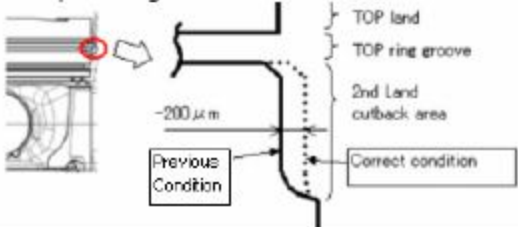
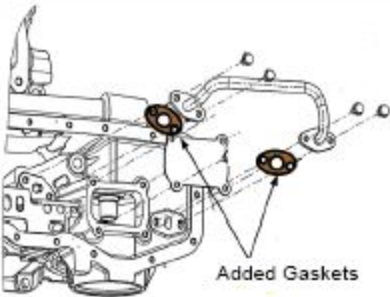
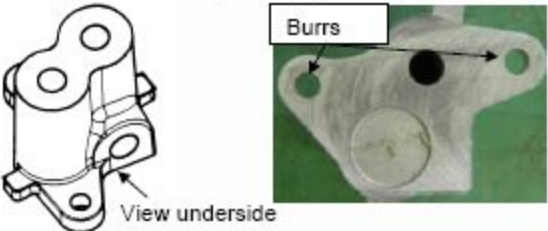
As the following countermeasures address machining and tolerance based factors – it is important to remember that not all vehicles / engines are affected – therefore confirmation of the usage rate is important to ensure only vehicles outside specification are addressed.

The engine number references are used to judge which level of repair a confirmed case of oil usage will require.

### VDJ200

No	Description	Production effective
1	<p>Piston Shape change</p>  <p>The diagram shows a cross-section of a piston with a red circle highlighting the crown. An arrow points to a detailed view of the crown profile. The 'Previous Condition' shows a profile with a sharp corner and a '2nd Land curback area'. The 'Correct condition' shows a profile with a rounded top and a 'TOP land' and 'TOP ring groove'. A dimension of <math>-200\mu\text{m}</math> is indicated between the two profiles.</p>	<p>Engine No. Breakpoint: 1VD-0043952 ~</p> <p>Effective Sept 2008</p>
2	<p>Vacuum pump exhaust port size reduced</p>  <p>The diagram shows two views of a vacuum pump. The left view is labeled 'Exhaust vent' and the right view is labeled 'Large exhaust vent'. A red arrow points from the 'Exhaust vent' to the 'Large exhaust vent', indicating the change in port size.</p>	<p>Engine No. Breakpoint: 1VD-0050126 ~</p> <p>Effective Oct 2008</p>
3	<p>Poor sealing Turbo Oil Pipe Flange due to burr</p>  <p>The photograph shows a Turbo Oil Pipe Flange. The left image is labeled 'View underside' and shows the flange with a burr. The right image is labeled 'Burr' and shows a close-up of the burr on the flange.</p>	<p>Engine No. Breakpoint: 1VD-0092702 ~</p> <p>Effective June 2010</p>

LC70 Series

No	Description	Production effective
1	<p>Piston Shape change</p>  <p>The diagram illustrates a change in the piston's top land profile. On the left, a cross-section of the piston is shown with a red circle highlighting the top land area. An arrow points to a detailed profile comparison. The 'Previous Condition' shows a top land with a specific profile, while the 'Correct condition' shows a modified profile with a '2nd Land cutback area'. Labels include 'TOP land', 'TOP ring groove', and '2nd Land cutback area'. A dimension of <math>-200\ \mu\text{m}</math> is shown between the two profiles.</p>	<p>Engine No. Breakpoint: 1VD-0043952 ~</p> <p>Effective Sept 2008</p>
2	<p>Improved sealing - scavenge pipe &amp; oil pan No. 1. Gaskets adopted</p>  <p>An exploded view diagram of engine components, including the scavenge pipe and oil pan No. 1. Two gaskets are highlighted with circles and labeled 'Added Gaskets'.</p>	<p>Engine No. Breakpoint: 1VD-0064907 ~</p> <p>Effective April 2009</p>
3	<p>Poor sealing Turbo Oil Pipe Flange due to burr</p>  <p>The diagram shows a Turbo Oil Pipe Flange. On the left is a line drawing labeled 'View underside'. On the right is a photograph of the flange with a black arrow pointing to a sharp edge labeled 'Burr'.</p>	<p>Engine No. Breakpoint: 1VD-0092689 ~</p> <p>Effective June 2010</p>

## Repair Determination

Where the oil usage rate has been confirmed and judged as excessive for a particular vehicle's operation, the repair applied will be based on the engine number breakpoint details to level up the engine to current production.

### NOTE:

1. Prior to making final judgement ensure there are no other causes of oil usage – oil leaks, overfill or PCV system problems.
2. TMCA expect that any vehicle being monitored for repair will already have had the previously advised Field Fix carried out:
  - LC70 Series - Scavenge Gaskets – Refer TNF 40/09 issued 01/06/09
  - VDJ200 – Vacuum Pump Replacement – Refer TNF 85/08 issued 16/12/08

If the Field Fix parts mentioned above have not been installed previously, TMCA advise dealers to carry out these Field Fixes immediately and then carry out monitoring to determine if further repair is necessary (in the majority of cases these corrections are very effective).

### VDJ200

Engine No.	Repair method - replace		
	Piston	Vacuum Pump	Turbo Oil Pipe Flange
Before ~ 1VD-0043951	✓	✓	✓
1VD-0043952 ~ 1VD-0050094		✓	✓
1VD-0050095 ~ 1VD-0092701			✓
After 1VD-0092702			

### LC70 Series

Engine No.	Repair method - replace		
	Piston	Scavenge Pipe Gasket	Turbo Oil Pipe Flange
Before ~ 1VD-0043951	✓	✓	✓
1VD-0043952 ~ 1VD-0064906		✓	✓
1VD-0064907 ~ 1VD-0092688			✓
After 1VD-0092689			

### Repair Procedures

As the repairs required are Production Improvements and are completed by part replacement, the actual procedures are to be carried out as described in the applicable Repair Manual located on the TMCA – SARIS Web Site.

Adherence to the Repair Manual Procedures is essential to the completion of the required repairs.

### **Required Parts**

The parts required for this repair are currently being prepared, details and an order sheet will be prepared separately and advised by future correspondence.

At this time dealers are requested to confirm usage rates on complaint vehicles in their area to allow for prioritising of vehicle repairs to commence as soon as parts are available.

### **Warranty Claim Information**

Consideration for out of warranty assistance where appropriate can be discussed via the warranty helpdesk on vehicles that have been routinely maintained.

### **Dealer Enquiries**

- Technical enquiries – contact the Technical Helpdesk on 1800 802 726
- Warranty enquiries – contact the Warranty Helpdesk on 1800 800 393

Please ensure all relevant Dealer service personnel who will be performing this repair are fully familiarised with these instructions.

Your full support in this matter will be greatly appreciated.

Yours faithfully  
Toyota Motor Corporation Australia Limited