

**SECTION 8**

**SPECIFICATIONS**

**Specifications**

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## '05 HIGHLANDER\_U (L/O 0409)

### Dimensions and weights

		Two- wheel drive models	Four- wheel drive models
Overall length	mm (in.)	4690 (184.6)	4690 (184.6)
Overall width	mm (in.)	1825 (71.9)	1825 (71.9)
Overall height*1	mm (in.)	1680 (66.1)*2 1735 (68.3)*3	1690 (66.5)*2 1745 (68.7)*3
Wheelbase	mm (in.)	2715 (106.9)	2715 (106.9)
Front tread	mm (in.)	1580 (62.2)	1575 (62.0)
Rear tread	mm (in.)	1565 (61.6)	1555 (61.2)
Vehicle capacity weight (occupants + luggage)	kg (lb.)	390 (860)*4 526 (1159)*5	390 (860)*4 526 (1159)*5
Towing capacity (trailer weight + cargo weight)	kg (lb.)	680 (1500)*6, 8 1360 (3000)*6, 9 907 (2000)*7, 8 1585 (3500)*7, 9	680 (1500)*6, 8 1360 (3000)*6, 9 907 (2000)*7, 8 1585 (3500)*7, 9

\*1: Unladen vehicle

\*2: Without roof rails

\*3: With roof rails

\*4: Without third seat

\*5: With third seat

\*6: 2AZ- FE engine

\*7: 3MZ- FE engine

\*8: Without towing package

\*9: With towing package

### Engine

Model:

2AZ- FE and 3MZ- FE

Type:

2AZ- FE engine

4 cylinder in line, 4 cycle, gasoline

3MZ- FE engine

6 cylinder V type 4 cycle, gasoline

Bore and stroke, mm (in.):

2AZ- FE engine

88.5 × 96.0 (3.48 × 3.78)

3MZ- FE engine

92.0 × 83.0 (3.62 × 3.27)

Displacement, cm<sup>3</sup> (cu. in.):

2AZ- FE engine

2362 (144.1)

3MZ- FE engine

3311 (202.1)

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### Fuel

Fuel type:

2AZ- FE engine

Unleaded gasoline, Octane Rating 87 (Research Octane Number 91) or higher

3MZ- FE engine

Unleaded gasoline, Octane Rating 87 (Research Octane Number 91) or higher. For improved vehicle performance, the use of premium unleaded gasoline with an Octane Rating of 91 (Research Octane Number 96) or higher is recommended.

Fuel tank capacity, L (gal., Imp. gal.):

72.5 (19.1, 16.0)

### Service specifications

#### ENGINE

Valve clearance (engine cold), mm (in.):

2AZ- FE engine

Intake 0.19—0.29 (0.007—0.011)

Exhaust 0.30—0.40 (0.012—0.016)

3MZ- FE engine

Intake 0.15—0.25 (0.006—0.010)

Exhaust 0.25—0.35 (0.010—0.014)

Spark plug type:

DENSO SK20R11

NGK IFR6A11

Spark plug gap, mm(in.):

1.1 (0.043)

Drive belt tension measured with  
Borroughs drive belt tension gauge

No.BT- 33- 73F (used belt), lbf:

2AZ- FE engine

Automatic adjustment

3MZ- FE engine

125 ± 10

#### ENGINE LUBRICATION

Oil capacity (drain and refill), L (qt., Imp. qt.):

2AZ- FE engine

With filter 3.8 (4.0, 3.3)

Without filter 3.6 (3.8, 3.2)

3MZ- FE engine

With filter 4.7 (5.0, 4.1)

Without filter 4.5 (4.8, 4.0)

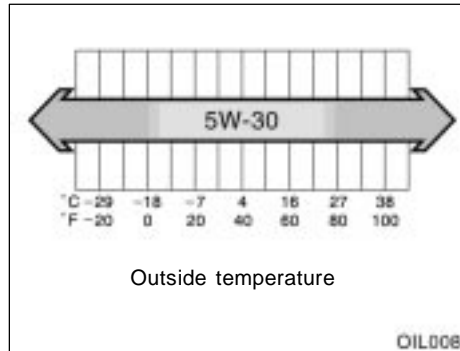
“Toyota Genuine Motor Oil” is used in your Toyota vehicle. Use Toyota approved “Toyota Genuine Motor Oil” or equivalent to satisfy the following grade and viscosity.

Oil grade:

API grade SL “Energy-Conserving” or  
ILSAC multigrade engine oil

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Recommended oil viscosity:  
SAE 5W-30



Please contact your Toyota dealer for further details.

### COOLING SYSTEM

Total capacity, L (qt., Imp. qt.):

#### 2AZ- FE engine

With rear heater	7.7	(8.1,	6.8)
	8.5	(9.0,	7.5)*
Without rear heater	6.3	(6.7,	5.5)
	7.1	(7.5,	6.2)*

#### 3MZ- FE engine

With rear heater	10.7	(11.3,	9.4)
	11.4	(12.0,	10.0)*
Without rear heater	9.4	(9.9,	8.3)
	10.1	(10.7,	8.9)*

\*: Vehicles with towing package

Coolant type:

"Toyota Super Long Life Coolant" is used in your Toyota vehicle at factory fill. In order to avoid technical problems, only use "Toyota Super Long Life Coolant" or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite, and non-borate coolant with long-life hybrid organic acid technology. (Coolant with long-life hybrid organic acid technology is a combination of low phosphates and organic acids.)

Do not use plain water alone.

Please contact your Toyota dealer for further details.

### BATTERY

Open voltage\* at 20°C (68°F):

12.6—12.8V	Fully charged
12.2—12.4V	Half charged
11.8—12.0V	Discharged

\*: Voltage that is checked 20 minutes after the key is removed with all the lights turned off

Charging rates:  
5 A max.

### AUTOMATIC TRANSAXLE

Fluid capacity (drain and refill), L (qt., Imp. qt.):  
Up to 3.5 (3.7, 3.1)

Fluid type:

Toyota Genuine ATF Type T-IV

Change automatic transmission fluid only as necessary.

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Generally, it is necessary to change automatic transmission fluid only if your vehicle is driven under one of the Special Operating Conditions listed in your "Scheduled Maintenance Guide" or "Owner's Manual Supplement". When changing the automatic transmission fluid, use only "Toyota Genuine ATF Type T-IV" (ATF JWS3309 or NWS6500) to aid in assuring optimum transaxle performance.

**Notice: Using automatic transmission fluid other than "Toyota Genuine ATF Type T-IV" may cause deterioration in shift quality, locking up of your transmission accompanied by vibration, and ultimately damage the automatic transmission of your vehicle.**

Please contact your Toyota dealer for further details.

### **TRANSFER (four-wheel drive models)**

Oil capacity, L (qt., Imp. qt.):  
0.9 (1.0, 0.8)

Oil type:  
Hypoid gear oil API GL-5

Recommended oil viscosity:  
Above -18°C (0°F)  
SAE 90  
Below -18°C (0°F)  
SAE 80W or 80W-90

### **REAR DIFFERENTIAL (four-wheel drive models)**

Oil capacity, L (qt., Imp. qt.):  
0.9 (1.0, 0.8)

Oil type:  
Hypoid gear oil API GL-5

Recommended oil viscosity:  
Above -18°C (0°F)  
SAE 90  
Below -18°C (0°F)  
SAE 80W or 80W-90

### **BRAKES**

Minimum pedal clearance when depressed with the force of 490 N (50 kgf, 110 lbf) with the engine running, mm (in.):  
83 (3.3)

Pedal free play, mm (in.):  
2—3 (0.08—0.12)

Pad wear limit, mm (in.):  
1.0 (0.04)

Lining wear limit, mm (in.):  
1.0 (0.04)

Parking brake adjustment when depressed with the force of 294 N (30 kgf, 66 lbf):  
5—7 clicks

Fluid type:  
SAE J1703 or FMVSS No.116 DOT 3

### **STEERING**

Wheel free play:  
Less than 30 mm (1.2 in.)

Power steering fluid type:  
Automatic transmission fluid DEXRON®II or III

## '05 HIGHLANDER\_U (L/O 0409)

### Tires

#### Tire size and cold tire inflation pressure:

kPa (kgf/cm<sup>2</sup> or bar, psi)

Tire size	Tire inflation pressure		Wheel size
	Front	Rear	
P225/70R16 101S	210 (2.1, 30)	210 (2.1, 30)	16 × 6 1/2 JJ
225/65R17 101S	210 (2.1, 30)	210 (2.1, 30)	17 × 6 1/2 JJ

When driving under the above load condition at sustained high speeds above 160 km/h (100 mph), in countries where such speeds are permitted by- low, inflate the front and rear tires to the following tire inflation pressure provided that it does not exceed the maximum cold tire inflation pressure molded on the tire sidewall.

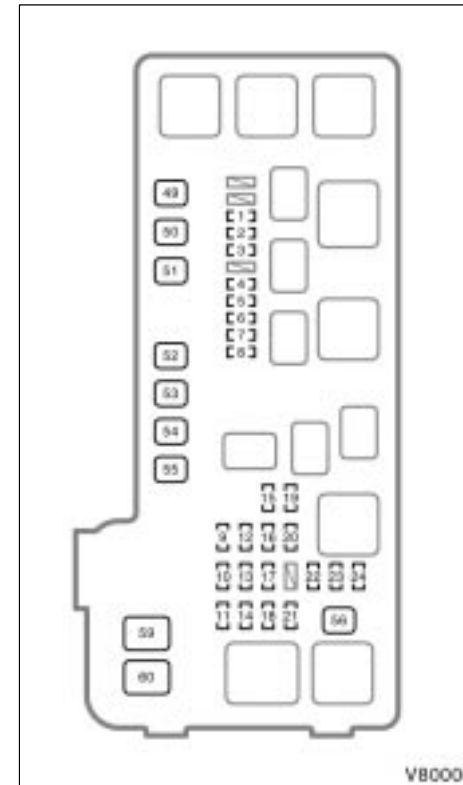
P225/70R16 101S tires                      240 kPa (2.4 kgf/cm<sup>2</sup> or bar, 35 psi)  
 225/65R17 101S tires                      230 kPa (2.3 kgf/cm<sup>2</sup> or bar, 33 psi)

#### Wheel nut torque, N·m (kgf·m, ft·lbf):

103 (10.5, 76)

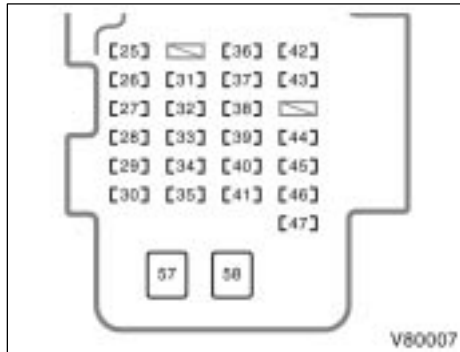
NOTE: For a complete information on tires (e.g. replacing tires or replacing wheels), see "Checking tire inflation pressure" through "Aluminum wheel precautions", pages 385 through 393, in Section 7-2.

### Fuses



Engine compartment

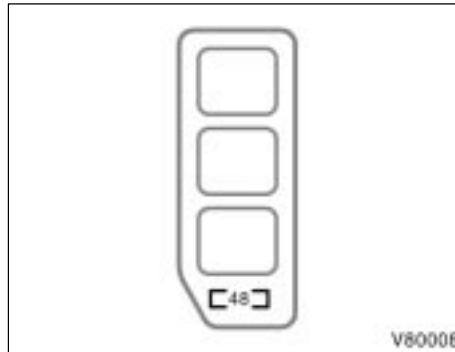
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**Instrument panel**

### Fuses (type A)

1. **A/F 25 A:** Air fuel ratio sensor
2. **CRT 7.5 A:** Rear seat entertainment system, navigation system
3. **STARTER 7.5 A:** Multiport fuel injection system/sequential multiport fuel injection system
4. **EFI NO.2 10 A:** Multiport fuel injection system/sequential multiport fuel injection system
5. **ETCS 10 A:** Multiport fuel injection system/sequential multiport fuel injection system



**Engine compartment  
(with daytime running light system)**

6. **RR HTR 15 A:** Rear air conditioning system
7. **H-LP RH LWR 15 A:** Right-hand headlight (low beam)
8. **H-LP LH LWR 15 A:** Left-hand headlight (low beam)
9. **ALT-S 7.5 A:** Charging system
10. **POWER OUTLET2 20 A:** Power outlets
11. **TOWING 20 A:** Trailer lights
12. **HORN 10 A:** Horns
13. **SECURITY 15 A:** Theft deterrent system

14. **H-LP RH UPR 10 A:** Right-hand headlight (high beam)
15. **ECU-B 7.5 A:** Theft deterrent system, air conditioning system, gauges and meters, multiplex communication system, electronic moon roof, front passenger occupant classification system
16. **EFI NO.1 20 A:** Multiport fuel injection system/sequential multiport fuel injection system, fuel pump
17. **DOOR LOCK 25 A:** Power door lock system, theft deterrent system
18. **H-LP LH UPR 10 A:** Left-hand headlight (high beam)
19. **RAD NO.1 25 A:** Audio system
20. **DOME 10 A:** Personal lights, interior lights, vanity lights, ignition switch light, wireless remote control system, gauges and meters, navigation system
21. **HAZARD 15 A:** Emergency flashers, instrument panel light, trailer lights
22. **SPARE 7.5 A:** Spare fuse
23. **SPARE 15 A:** Spare fuse
24. **SPARE 25 A:** Spare fuse

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- 25. IGN 10 A:** Gauges and meters, SRS airbag system, multiport fuel injection system/sequential multiport fuel injection system, front passenger occupant classification system
  - 26. RAD NO.2 7.5 A:** Audio system, shift lock system, navigation system, rear seat entertainment system, air conditioning system, multiplex communication system
  - 27. CIG 15 A:** Cigarette lighter
  - 28. P RR DOOR 20 A:** Power windows
  - 29. PWR OUTLET1 15 A:** Power outlets
  - 30. FR FOG 20 A:** Front fog lights
  - 31. ECU-IG 10 A:** Electric moon roof, anti-lock brake system, vehicle stability control system, shift lock system, charging system, starting system
  - 32. WIPER 25 A:** Windshield wipers and washer
  - 33. D RR DOOR 20 A:** Power windows
  - 34. D FR DOOR 25 A:** Power windows, door courtesy lights, power door lock system
  - 35. S/ROOF 20 A:** Electric moon roof
  - 36. HEATER 10 A:** Air conditioning system, electric cooling fan, rear window defogger, outside rear view mirror defogger, gauges and meters
  - 37. IG1 7.5 A:** Back-up lights, vehicle stability control system, multiport fuel injection system/sequential multiport fuel injection system, outside rear view mirror heaters, power door lock system, wireless remote control system, navigation system, multiplex communication system
  - 38. RR WIP 15 A:** Rear window wiper
  - 39. STOP 20 A:** Stop lights, high mounted stoplight, anti-lock brake system, vehicle stability control system, shift lock system, trailer lights, multiplex communication system, multiport fuel injection system/sequential multiport fuel injection system
  - 40. OBD 7.5 A:** On-board diagnosis system
  - 41. SEAT HTR 15 A:** Seat heaters
  - 42. IG2 15 A:** Multiport fuel injection system/sequential multiport fuel injection system, charging system, starter system
  - 43. WASHER 20 A:** Low windshield washer fluid level warning light
  - 44. FR DEF 20 A:** Air conditioning system, outside rear view mirror defoggers
  - 45. P FR DOOR 20 A:** Power windows, door courtesy lights, multiplex communication system
  - 46. TAIL 10 A:** Tail lights, license plate lights, instrument panel lights, front fog lights, front side marker lights, rear side marker lights, parking lights
  - 47. PANEL 7.5 A:** Instrument panel lights, trailer lights
  - 48. DRL 7.5 A:** Daytime running light system
- Fuses (type B)**
- 49. AM2 30 A:** Multiport fuel injection system/sequential multiport fuel injection system, starting system
  - 50. ABS2 50 A:** Anti-lock brake system, vehicle stability control system
  - 51. ABS1 30 A:** Anti-lock brake system, vehicle stability control system
  - 52. HTR 50 A:** Air conditioning system
  - 53. RDI 30 A:** Electric cooling fans
  - 54. RR DEF 30 A:** Rear window defoggers
  - 55. CDS 30 A:** Electric cooling fans

## '05 HIGHLANDER\_U (L/O 0409)

**56. MAIN 40 A:** "H-LP RH LWR", "H-LP LH LWR", "H-LP RH UPR" and "H-LP LH UPR" fuses

**57. AM1 40 A:** Multiport fuel injection system/sequential multiport fuel injection system, starting system

**58. POWER 30 A:** Power seat

### Fuse (type C)

**59. ALT 140 A:** "POWER", "STOP", "FR DEF", "FR FOG", "OBD", "TAIL", "PANEL", "S/ROOF", "D FR DOOR", "P FR DOOR", "D RR DOOR", "P RR DOOR" and "PWR OUTLET1" fuses

**60. RDI 50 A:** No circuit

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