Compression Test - 1997 4Runner 3RZ-FE

Steps

1. Warm up engine to operating temp, performing this test as quickly as possible
2. Remove EFI fuse
3. Remove air intake to throttle body.
4. Disconnect spark plug wires
5. Remove spark plugs
6. Open throttle to WOT (or press down on accelerator while cranking engine)
7. Connect compression tester into cylinder
8. Crank engine 10 times, or until compression tester stops moving
9. Repeat compression test a second time
10. Reinstall everything

Compression Worksheet

Cylinder	Test (psi)
1	168
2	180
3	168
4	170

Compression: 178psi or more
Min compression: 127psi
Max difference between: 14psi

Torque Specs

Connection	Torque (ft-lb)
Spark Plug	14

Reference

- Timmy the Toolman video: https://www.youtube.com/watch?v=ky7bndfFpO0&t=149s

- Factory Service Manual (3RZ-FE):

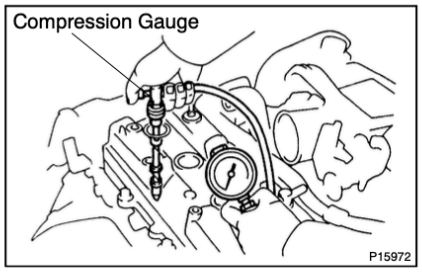
COMPRESSION

INSPECTION

EM00Q–02

HINT:
If there is lack of power, excessive oil consumption or poor fuel economy, measure the compression pressure.

1. **WARM UP AND STOP ENGINE**
2. **REMOVE INTAKE AIR CONNECTOR**
   (See page EM–30)
3. **DISCONNECT HIGH–TENSION CORDS FROM SPARK PLUGS**



NOTICE:
Pulling on or bending the cords may damage the conductor inside.

4. **REMOVE SPARK PLUGS**
5. **CHECK CYLINDER COMPRESSION PRESSURE**

(a) Insert a compression gauge into the spark plug hole.
(b) Fully open the throttle.
(c) While cranking the engine, measure the compression pressure.

HINT:
Always use a fully charged battery to obtain engine speed of 250 rpm or more.

(d) Repeat steps (a) through (c) for each cylinder.

NOTICE:
This measurement must be done in as short a time as possible.

Compression pressure:
1,230 kPa (12.5 kgf/cm^2, 178 psi) or more
Minimum pressure: 880 kPa (9.0 kgf/cm^2, 127 psi)
Difference between each cylinder:
98 kPa (1.0 kgf/cm^2, 14 psi) or less

(e) If the cylinder compression in one or more cylinders is low, pour a small amount of engine oil into the cylinder through the spark plug hole and repeat steps (a) through (c) for cylinders with low compression.
   - If adding oil helps the compression, chances are that the piston rings and/or cylinder bore are worn or damage.
   - If pressure stays low, a valve may be sticking or seating is improper, or there may be leakage past the gasket.

6. **INSTALL SPARK PLUGS**
   Torque: 19 N·m (200 kgf·cm, 14 ft·lbf)
7. **INSTALL HIGH–TENSION CORDS TO SPARK PLUGS**
8. **INSTALL INTAKE AIR CONNECTOR**
   (See page EM–53)

- Factory Service Manual (5VZ-FE)l:

COMPRESSION

INSPECTION

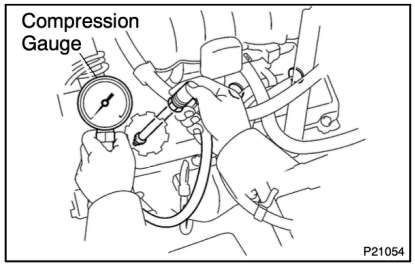
EM01D–05

HINT:
If there is lack of power, excessive oil consumption or poor fuel economy, measure the compression pressure.

1. WARM UP AND STOP ENGINE

Allow the engine to warm up to normal operating temperature.

2. REMOVE SPARK PLUGS (See page IG–1)



3. CHECK CYLINDER COMPRESSION PRESSURE

(a) Insert a compression gauge into the spark plug hole.
(b) Fully open the throttle.
(c) While cranking the engine, measure the compression pressure.

HINT:
Always use a fully charged battery to obtain engine speed of 250 rpm or more.

(d) Repeat steps (a) through (c) for each cylinder.

NOTICE:
This measurement must be done in as short a time as possible.

Compression pressure:
1,200 kPa (12.2 kgf/cm^2, 174 psi) or more
Minimum pressure: 1,000 kPa (10.2 kgf/cm^2, 145 psi)
Difference between each cylinder:
100 kPa (1.0 kgf/cm^2, 15 psi) or less

(e) If the cylinder compression in 1 or more cylinders is low, pour a small amount of engine oil into the cylinder through the spark plug hole and repeat steps (a) through (c) for cylinders with low compression.
- If adding oil helps the compression, it is likely that the piston rings and/or cylinder bore are worn or damaged.
- If pressure stays low, a valve may be sticking or seating is improper, or there may be leakage past the gasket.

4. REINSTALL SPARK PLUGS (See page IG–1)