

**DENSO**

**For DENSO Authorized  
ECD Service Dealer Only**

**Diesel Injection Pump**

**No. E-03-01**

# **SERVICE MANUAL**

## **Common Rail System for NISSAN YD1-K2 Type Engine**

**Operation**

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**DENSO CORPORATION**

00400013E

# Foreword

To meet the high pressurization requirements for the engine to deliver cleaner exhaust gas emissions, lower fuel consumption and reduced noise, advanced electronic control technology is being adopted in the fuel injection system. This manual covers the electronic control model Common Rail system with HP3 pump for the NISSAN YD1-K2 type engine. Complex theories, special functions and components made by manufacturers other than DENSO are omitted from this manual.

This manual will help the reader develop an understanding of the basic construction, operation and system configuration of the DENSO manufactured components and brief diagnostic information.

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## 1. Product Application

### 1-1. Application

Vehicle Name	Vehicle Model	Engine Model	Exhaust Volume	Reference
PREMERA	ED	YD1-K2	2.2L	Made in France
ALMERA	HS			
TINO	HM			

### 1-2. System Components Parts Number

Part Name	Applicable Model					DENSO Part Number	Car Manufacturer Part Number	Reference
	ED 100	HS 100	HS 82	HM 100	HM 82			
Supply pump	O	O	O	O	O	294000-0121	16700 AW401	—
Rail	O	O	O	O	O	095440-0420	17520 AW400	—
Injector	O	O	—	O	—	095000-5130	16600 AW400	100kW Engine
	—	—	O	—	O	095000-5180	16600 BN800	82kW Engine
Engine ECU	O	—	—	—	—	275800-2193	23710 AW402	Standard
	O	—	—	—	—	275800-2203	23710 AW407	w/VDC
	O	—	—	—	—	275800-2440	23710 AW410	w/ASCD
	O	—	—	—	—	275800-2450	23710 AW415	w/ASCD, VDC
	—	O	—	—	—	275800-2322	23710 BN811	Standard
	—	O	—	—	—	275800-2332	23710 BN816	100kW Engine w/VDC
	—	—	O	—	—	275800-2340	23710 BN800	82kW Engine
	—	—	O	—	—	275800-2350	23710 BN805	82kW Engine w/VDC
	—	—	—	O	—	275800-2363	23710 BU712	Standard
	—	—	—	O	—	275800-2373	23710 BU717	100kW Engine w/VDC
	—	—	—	—	O	275800-2380	23710 BU700	82kW Engine
—	—	—	—	O	275800-2390	23710 BU705	82kW Engine w/VDC	
Crankshaft position sensor	O	O	O	O	O	949979-0090	23731 AW400	—
Cylinder recognition sensor	O	O	O	O	O	949979-1190	23731 AW410	—

2. Outline

2-1. Features of System

- The common rail system was developed primarily to cope with exhaust gas regulations for diesel engines, and aimed for 1. further improved fuel economy; 2. noise reduction; and 3. high power output.

A. System Characteristics

The common rail system uses a type of accumulation chamber called a rail to store pressurized fuel, and injectors that contain electronically controlled solenoid valves to spray the pressurized fuel into the cylinders. Because the engine ECU controls the injection system (including the injection pressure, injection rate, and injection timing), the injection system is unaffected by the engine speed or load. This ensures a stable injection pressure at all times, particularly in the low engine speed range, and dramatically decreases the amount of black smoke ordinarily emitted by a diesel engine during start-up and acceleration. As a result, exhaust gas emissions are cleaner and reduced, and higher power output is achieved.

a. Injection Pressure Control

- Enables high-pressure injection even at low engine speeds.
- Optimizes control to minimize particulate matter and NOx emissions.

b. Injection Timing Control

Enables finely tuned optimized control in accordance with driving conditions.

c. Injection Rate Control

Pilot injection control sprays a small amount of fuel before the main injection.

