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Denso GI3-3

Denso GI3-3 (6116) Iridium Saver Spark Plug User Manual

Industrial Gas/Cogeneración Engine Spark Plug

1. Introduction

This manual provides essential information for the proper use, installation, and maintenance of the Denso GI3-3 (6116) Iridium Saver Spark Plug. Designed for high-compression lean-burn combustion engines in industrial gas and cogeneration applications, this spark plug is engineered for extended service life and reliable performance.



Image 1: Two Denso GI3-3 Iridium Saver Spark Plugs. These spark plugs feature a robust design for industrial applications, visible by their sturdy construction and distinct markings on the ceramic insulator.

2. Product Features

The Denso GI3-3 Iridium Saver Spark Plug incorporates advanced technology for superior performance and durability:

- **Extended Service Life:** Reduces maintenance costs by offering a longer operational life in demanding high-compression lean-burn engines.
- **High Reliability:** Unique design with a stress-resistant resistor ensures consistent performance under high combustion pressures. The resistor adheres to the resistor glass in a high-temperature furnace for enhanced durability.
- **Gas-Tight Seal:** Denso's copper-glass seal securely bonds the center electrode and insulator, preventing combustion gases from escaping and maintaining optimal heat transfer.
- **Robust Insulation:** Features a purified alumina powder insulator, providing exceptional dielectric strength and thermal conductivity to withstand extreme operational stress.
- **Advanced Electrode Design:** Equipped with a fine-wire platinum-alloy tipped ground electrode and an iridium pad on the center electrode (without cross-grooves) for efficient and stable spark generation.

- **Pre-Fired Quality:** All Denso spark plugs are 100% pre-fired to ensure the highest possible quality and immediate operational readiness.

3. Compatibility and Applications

The Denso GI3-3 Industrial Motor Iridium Saver Spark Plug is designed for use in a wide range of industrial gas and cogeneration engines. Refer to your engine manufacturer's specifications for exact compatibility.

Compatible Engine Models:

- **Caterpillar:** G3500 (non B, C, and E Series), G3600 Series
- **Cummins:** Q19G, QSV81-V16, QSV91-V18
- **Guascor:** FG180, FGLD180, FG240, FGLD240, FGLD360, FGLD480
- **GE Jenbacher:** J612, J616, J620 (1995/9 – BMEP = 16 bar or less)
- **Perkins:** 4000 Series
- **Superior:** 1706 G2, 1712 G1
- **Wartsila:** W25SG, W28SG, W34SG, W20V, 34SG
- **Waukesha:**
  - *AT Series:* 8L-AT25GL/AT27GL (13/16" reach heads), 12V-AT25GL/AT27GL (13/16" reach heads)
  - *VGF Series Inline 6:* F18G, F18GL/GLD
  - *VGF Series Inline 8:* H24G, H24GL/GLD
  - *VGF Series V-12:* L36GL/GLD
  - *VGF Series V-16:* P48GL/GLD
  - *VHP Series Inline 6:* 2895 GL (13/16" reach heads), 3521 GL (13/16" reach heads)
  - *VHP Series V-12:* L5108GL (13/16" reach heads), L5790GL (13/16" reach heads), L7042GL (13/16" reach heads)
  - *VHP Series V-16:* P5115GL, P9390GL (13/16" reach heads)

4. Installation Guidelines

Proper installation is crucial for the performance and longevity of your spark plugs. It is highly recommended that installation be performed by a qualified technician.

1. **Safety First:** Ensure the engine is completely off and cooled down before beginning any work. Disconnect the battery if necessary.
2. **Identify Correct Spark Plugs:** Verify that the Denso GI3-3 (6116) spark plugs are the correct type for your specific engine model.
3. **Remove Old Spark Plugs:** Carefully remove the spark plug wires or coil packs. Use a spark plug socket to loosen and remove the old spark plugs. Inspect them for signs of wear or issues.
4. **Inspect New Spark Plugs:** Before installation, visually inspect each new Denso GI3-3 spark plug for any damage.
5. **Check Gap (if necessary):** While Denso spark plugs are pre-gapped, it is good practice to verify the gap using a wire-type feeler gauge. The specified gap for this model is 0.3 mm (.012 inches). Adjust only if absolutely

necessary and with extreme care to avoid damaging the electrodes.

6. **Install New Spark Plugs:** Thread the new spark plugs into the cylinder head by hand to prevent cross-threading. Once finger-tight, use a torque wrench to tighten them to the engine manufacturer's specified torque settings. Overtightening can damage the spark plug or cylinder head; undertightening can lead to poor performance or overheating.
7. **Reconnect Components:** Reattach spark plug wires or coil packs, ensuring they are securely connected to the correct cylinders.

Note: *Always refer to your engine's service manual for specific torque values and installation procedures.*

5. Operation

Once correctly installed, the Denso GI3-3 Iridium Saver Spark Plugs operate continuously as part of your engine's ignition system. They are designed to provide a consistent and powerful spark to ignite the air-fuel mixture in the combustion chamber, ensuring efficient engine operation. No user interaction is required during operation.

6. Maintenance

Regular inspection and timely replacement of spark plugs are vital for maintaining engine performance and efficiency.

- **Inspection:** During routine engine maintenance, visually inspect the spark plugs for signs of wear, fouling (carbon deposits, oil, or fuel), or damage to the electrodes or insulator.
- **Replacement Interval:** Follow your engine manufacturer's recommended service intervals for spark plug replacement. Due to their extended life design, iridium spark plugs typically have longer replacement intervals than conventional spark plugs, but specific engine conditions can influence this.
- **Cleaning:** Generally, spark plugs should not be cleaned. If they show signs of fouling, it often indicates an underlying engine issue that needs to be addressed. Replace fouled spark plugs rather than attempting to clean them.

7. Troubleshooting

Issues related to spark plugs can manifest as various engine performance problems. Here are some common symptoms and potential causes:

- **Engine Misfires or Rough Idling:** Could indicate a faulty spark plug, incorrect gap, or fouling. Inspect and replace as needed.
- **Reduced Engine Power or Acceleration:** Worn or fouled spark plugs can lead to incomplete combustion.
- **Increased Fuel Consumption:** Inefficient combustion due to worn spark plugs can lead to higher fuel usage.
- **Hard Starting:** Weak or inconsistent spark from worn spark plugs can make the engine difficult to start.
- **Engine Knocking or Pinging:** While often related to fuel quality or timing, severely worn spark plugs can contribute to abnormal combustion.

If you experience any of these symptoms, it is recommended to have your engine inspected by a qualified technician to

diagnose the root cause.

8. Specifications

Key technical specifications for the Denso GI3-3 (6116) Iridium Saver Spark Plug:

Specification	Value
Manufacturer Part Number	GI3-3 (6116)
Thread Size	18 x 1.5 mm
Reach	20.6 mm (13/16 inches)
Hex Size	22.2 mm (7/8 inches)
Gap	0.3 mm (.012 inches)
Core Material	Iridium
UPC	042511611641
Package Dimensions	13.97 x 6.1 x 1.52 cm
Item Weight	91 g



Image 2: Denso GI3-3 Iridium Saver Spark Plug packaging. The box highlights the product's application for gas/co-generation engines and its Iridium Saver technology.

9. Warranty and Support

Denso products are manufactured to high-quality standards. For product support and application assistance, please contact an authorized Denso distributor.
Murcal is an authorized distributor of Denso products and provides experienced product and application support both before and after the sale. For specific warranty information, please refer to the terms provided by your point of purchase or contact an authorized Denso distributor.

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