



Manuals.plus /

- › DART /
- › DART SHP Assembled Cylinder Head Instruction Manual

DART DRT126122

DART SHP Assembled Cylinder Head Instruction Manual

Model: DRT126122 | Brand: DART

1. INTRODUCTION

This instruction manual provides essential information for the proper handling, installation, and maintenance of your DART SHP Assembled Cylinder Head. This high-performance component is designed for Small Block Chevy engines, featuring 2.020 / 1.600 inch valves, 180 cc intake runners, and 64 cc combustion chambers. It comes assembled with 1.550 inch springs and is designed for straight plug applications. For optimal performance and longevity, please read this manual thoroughly before proceeding with installation or operation.

Key features include precision cast ports, exact fitment, and a design engineered for trouble-free, consistent performance, meeting original part specifications.

2. SAFETY INFORMATION

Always prioritize safety when working with automotive components. Failure to follow safety precautions can result in serious injury or damage to the product or vehicle.

- **Wear appropriate personal protective equipment (PPE):** This includes safety glasses, gloves, and appropriate clothing.
- **Work in a well-ventilated area:** Ensure proper airflow to avoid inhaling fumes.
- **Disconnect battery:** Before performing any work on the engine, disconnect the vehicle's battery to prevent accidental starting or electrical shorts.
- **Allow engine to cool:** Ensure the engine is completely cool before beginning any work to prevent burns.
- **Use proper tools:** Utilize the correct tools for each task to prevent damage to fasteners or components.
- **Consult a professional:** If you are unsure about any step of the installation process, consult a qualified automotive technician.
- **Handle with care:** Cylinder heads are precision components; avoid dropping or striking them.

3. PACKAGE CONTENTS

Upon opening the package, verify that all components are present and undamaged. If any items are missing or damaged, contact your supplier immediately.

- 1 x DART SHP Assembled Cylinder Head (Model: DRT126122)

Note: Gaskets, bolts, and other engine components are typically sold separately and are required for a complete installation.

4. PRODUCT OVERVIEW

The DART SHP Assembled Cylinder Head is a critical component of your engine's valvetrain and combustion system. It is manufactured from durable aluminum and features precision-machined surfaces and ports for optimal airflow and sealing.



Figure 4.1: DART SHP Assembled Cylinder Head. This image displays the top view of the cylinder head, highlighting the valve springs, retainers, and the intake and exhaust ports. The aluminum construction is visible, along with the precision-machined surfaces.

Key features visible in the image include:

- **Valve Springs and Retainers:** Pre-assembled for convenience, ensuring proper valve operation.
- **Intake and Exhaust Ports:** Designed for efficient airflow into and out of the combustion chambers.
- **Combustion Chambers:** Precisely shaped to optimize combustion efficiency.
- **Spark Plug Bores:** Configured for straight plug applications.

5. SETUP AND INSTALLATION

Installation of a cylinder head requires advanced mechanical knowledge and specialized tools. It is highly recommended that this procedure be performed by a certified automotive technician. Improper installation can lead to severe engine damage.

5.1 Pre-Installation Checks

1. **Inspect the Cylinder Head:** Carefully examine the new cylinder head for any signs of shipping damage. Verify that all valve springs, retainers, and valves are securely in place.
2. **Clean Engine Block Surfaces:** Ensure the engine block deck surfaces are meticulously clean, flat, and free of any old gasket material, carbon deposits, or debris. Use a suitable gasket scraper and cleaner.
3. **Check Piston-to-Valve Clearance:** For high-performance applications, it is crucial to verify adequate piston-to-valve clearance before final assembly.
4. **Prepare Gaskets:** Use new, high-quality head gaskets specifically designed for your engine and cylinder head. Follow the gasket manufacturer's instructions for preparation.

5.2 Installation Steps (General)

1. **Position Gasket:** Carefully place the new head gasket onto the engine block, aligning it with the dowel pins.
2. **Lower Cylinder Head:** Gently lower the DART SHP cylinder head onto the engine block, ensuring it aligns perfectly with the gasket and dowel pins. Avoid dragging the head across the gasket.
3. **Install Head Bolts:** Apply a small amount of engine oil to the threads and under the heads of the new cylinder head bolts (if required by bolt manufacturer). Install all head bolts finger-tight.
4. **Torque Head Bolts:** Follow the engine manufacturer's specific torque sequence and specifications for tightening the cylinder head bolts. This typically involves multiple stages and specific angle turns. Use a calibrated torque wrench.
5. **Install Valvetrain Components:** Install pushrods, rocker arms, and adjust valve lash according to engine specifications.
6. **Connect Peripherals:** Reconnect all hoses, wires, sensors, and manifolds that were removed during disassembly.
7. **Fill Fluids:** Refill engine coolant and engine oil to appropriate levels.
8. **Initial Startup:** Perform an initial engine startup and check for leaks or unusual noises. Monitor engine temperature and oil pressure.

Always refer to your specific engine's service manual for detailed, model-specific installation procedures and torque specifications.

6. OPERATION

The DART SHP Assembled Cylinder Head is a passive component that functions as part of the engine's overall system. Its "operation" is integrated into the engine's combustion cycle. Once properly installed, it facilitates the intake of air/fuel mixture, compression, combustion, and exhaust of gases.

- **Air/Fuel Intake:** The intake ports and valves allow the air/fuel mixture to enter the combustion chamber.
- **Compression:** The cylinder head forms the top seal of the combustion chamber, allowing for compression of the air/fuel mixture by the piston.
- **Combustion:** The spark plug (installed in the cylinder head) ignites the compressed mixture, and the combustion chamber design optimizes the burn.
- **Exhaust:** The exhaust valves and ports allow spent gases to exit the combustion chamber.

Proper engine tuning and maintenance are crucial for the optimal performance and longevity of the cylinder head and the entire engine.

7. MAINTENANCE

While the cylinder head itself requires minimal direct maintenance, its longevity and performance are heavily dependent on the overall health and maintenance of the engine.

- **Regular Oil Changes:** Ensure engine oil is changed at recommended intervals using the correct type and viscosity. Clean oil prevents sludge buildup that can affect valve train components.
- **Coolant System Maintenance:** Maintain a clean and properly filled cooling system. Overheating can severely damage cylinder heads.
- **Spark Plug Inspection/Replacement:** Inspect spark plugs regularly. Worn or fouled plugs can indicate combustion issues.
- **Valve Lash Adjustment (if applicable):** If your engine requires periodic valve lash adjustment, ensure this is performed according to the manufacturer's specifications.
- **Listen for Unusual Noises:** Pay attention to any ticking, knocking, or other unusual noises from the engine, which could indicate valvetrain issues.

8. TROUBLESHOOTING

Troubleshooting issues related to a cylinder head often requires diagnostic tools and expertise. Below are general symptoms that might indicate a cylinder head or related engine issue.

Symptom	Possible Cause	Action
Engine Overheating	Blown head gasket, warped cylinder head, cooling system issue.	Check coolant level, inspect for leaks, perform cooling system pressure test, consult technician for head gasket/head inspection.
Loss of Engine Power / Misfires	Damaged valve, worn valve seat, bent pushrod, incorrect valve lash, low compression.	Perform compression test, inspect spark plugs, check valve lash, consult technician for internal engine inspection.
White Smoke from Exhaust	Coolant burning in combustion chamber (often due to head gasket failure or cracked head).	Immediately stop engine, check coolant level, consult technician for diagnosis.
Oil in Coolant / Coolant in Oil	Blown head gasket, cracked cylinder head.	Do not operate engine, consult technician for immediate diagnosis and repair.

Note: These are general guidelines. Always seek professional diagnosis for complex engine issues.

9. SPECIFICATIONS

The following are the technical specifications for the DART SHP Assembled Cylinder Head (Model: DRT126122):

Specification	Value
Brand	DART
Model	SHP
Item Model Number	DRT126122
Manufacturer Part Number	DRT126122
Valve Size (Intake/Exhaust)	2.020 in / 1.600 in
Intake Runner Volume	180 cc
Combustion Chamber Volume	64 cc
Springs	1.550 in Springs (Assembled)
Spark Plug Type	Straight Plug
Material	Aluminum
Item Weight	28 pounds
Package Dimensions	22.25 x 9 x 6.25 inches
Exterior Finish	Natural
ASIN	B0DCT5X2P9
Date First Available	August 10, 2024

10. WARRANTY AND SUPPORT

Specific warranty information for the DART SHP Assembled Cylinder Head is not provided in this manual. For details regarding warranty coverage, terms, and conditions, please refer to the official DART website or contact DART customer support directly. Keep your purchase receipt as proof of purchase.

For technical support, installation questions, or assistance with product-related issues, please contact DART customer service through their official channels.