Orion Motor Tech OMT-ETT-F009-00

Orion Motor Tech Timing Tool Kit Instruction Manual

For Ford and Volvo 1.5L/1.6L VCT Ecoboost Engines (Model OMT-ETT-F009-00)

1. Introduction

This manual provides comprehensive instructions for the safe and effective use of the Orion Motor Tech Timing Tool Kit. This kit is specifically designed for precise engine timing adjustments on various Ford and Volvo vehicles equipped with 1.5L and 1.6L VCT Ecoboost engines. Proper use of these tools ensures accurate camshaft and crankshaft positioning during engine maintenance or repair, preventing potential engine damage.

2. Safety Information

- Always wear appropriate personal protective equipment (PPE), including safety glasses and gloves, when working on vehicles.
- Ensure the vehicle is securely supported on jack stands or a lift before beginning any work.
- Disconnect the vehicle's battery to prevent accidental starting or electrical hazards.
- Refer to the vehicle manufacturer's service manual for specific procedures and torque specifications. This kit is a tool to assist in those procedures.
- Keep tools clean and free from oil or grease to prevent slips and maintain tool integrity.
- Do not use damaged or modified tools.

3. Package Contents

The Orion Motor Tech Timing Tool Kit (Model OMT-ETT-F009-00) includes the following components, neatly organized in an ABS plastic case:

Image: Orion Motor Tech Timing Tool Kit in its red plastic storage case.

Image: Detailed view of the tool kit components, labeled with item numbers and descriptions.

Item No.	Description	OEM No.
1	Tensioner Pulley Pin	303-1054
2	Flywheel Timing Pin	303-1059
3	Crankshaft Timing Pin	303-748
4	Camshaft Sprocket Timing Pin	303-735

Item No.	Description	OEM No.
5	Crankshaft Timing Peg	303-620
6	Camshaft Alignment Plate	303-376
7	Camshaft Setting Bar	303-1552
8	Crankshaft Pulley Alignment Tool	303-1550
9	Camshaft Sprocket Locking Tool	303-1097

4. Compatibility

This timing tool kit is compatible with a wide range of Ford and Volvo vehicles equipped with 1.5L and 1.6L VCT engines. Refer to the table below for specific make, model, and year compatibility:

Image: Detailed compatibility chart for Ford and Volvo models.

Make	Model	Year
Ford	B-Max	2012–2020
	C-Max	2003–2020
	EcoSport	2012–2020
	Escape	2013–2018

Make	Model	Year
	Fiesta	1995–2020
	Focus	1998–2020
	Fusion	2002–2020
	Galaxy	2006–2020
	Ka+	2016–2020
	Kuga	2012–2020
	Mondeo	1993–2020
	Puma	2000–2002
	S-Max	2006–2020
	Tourneo Connect	2013–2020
	Tourneo Courier	2013–2020
	Transit	1977–1986
Volvo	S60	2011–2020
	S80	2011–2020
	V40	2010–2020
	V60	2011–2020
	V70	2010–2020

5. Tool Overview and Usage

Each tool in this kit serves a specific function to ensure accurate engine timing. Below is an overview of key tools and their applications:

5.1 Camshaft Setting Bar (OEM 303-1552)

This tool is used for locking the camshafts in their correct position when removing or replacing the timing chain or belt. It ensures that the camshafts remain stationary during critical timing procedures.

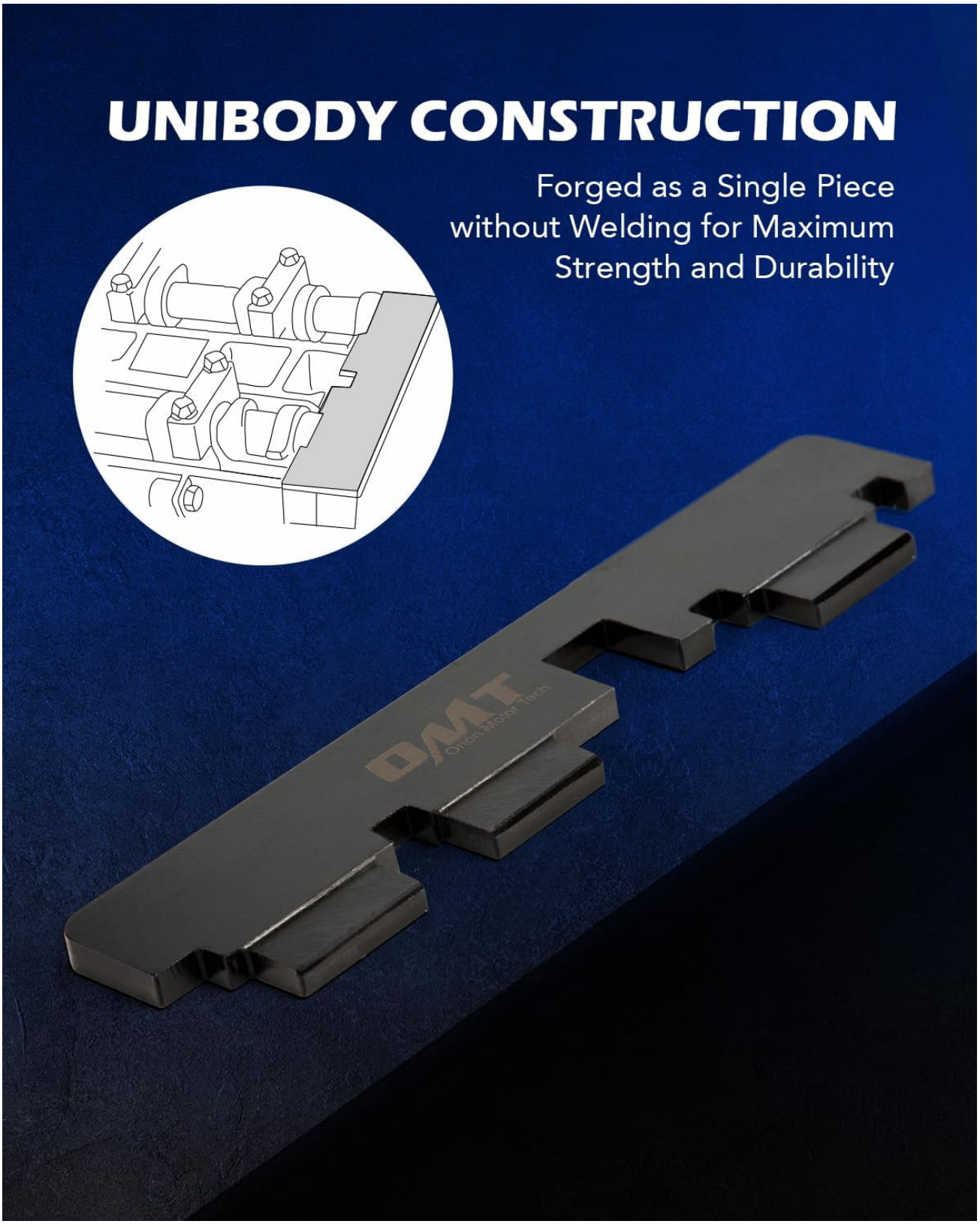

Image: Camshaft Setting Bar, highlighting its unibody construction for strength.

5.2 VCT Setting Tool (OEM 303-1097)

The VCT (Variable Camshaft Timing) Setting Tool is crucial for locking the camshaft in the correct position, especially when working with VCT systems. This ensures proper valve timing for optimal engine performance.

Image: VCT Setting Tool, emphasizing its role in precise engine timing.

5.3 Crankshaft Pulley Alignment Tool (OEM 303-1550)

This tool ensures the crankshaft pulley is correctly aligned with the timing belt cover. Proper alignment is essential for the timing belt to operate without excessive wear or slippage.

Image: Crankshaft Pulley Alignment Tool, highlighting its thickened steel plate for sturdiness.

5.4 Timing Pins (OEM 303-1054, 303-1059, 303-748, 303-735, 303-620)

Various timing pins are included to secure and tension belts, chains, or timing belts, maintaining proper tension to prevent slipping or excessive wear. These pins also ensure accurate alignment of specific engine components during assembly.

Image: A selection of durable carbon steel tools from the kit.

6. Operating Instructions

The following video demonstrates the application of a similar timing tool kit for Ford 1.5L and 1.6L engines. Always refer to your specific vehicle's service manual for detailed, step-by-step procedures.

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Video: Demonstration of a Yuesstloo Ford 1.5 1.6 Timing Tool Kit in use, showing the application of various timing tools for camshaft and crankshaft alignment.

General Procedure Overview:

1. **Preparation:** Ensure the engine is cool. Disconnect the battery. Remove necessary components to access the timing belt/chain area (e.g., engine cover, accessory belts, crankshaft pulley).
2. **Locate Timing Marks:** Rotate the crankshaft to align the engine to Top Dead Center (TDC) on cylinder 1, or as specified by the vehicle's service manual.
3. **Insert Timing Pins:** Use the appropriate crankshaft timing pin (e.g., 303-748, 303-620) to lock the crankshaft in position. Insert the flywheel timing pin (303-1059) if applicable.
4. **Position Camshaft Tools:** Install the Camshaft Setting Bar (303-1552) and the VCT Setting Tool (303-1097) onto the camshafts to lock them in their correct timed positions.
5. **Crankshaft Pulley Alignment:** Use the Crankshaft Pulley Alignment Tool (303-1550) to ensure the pulley is correctly aligned before reinstallation.
6. **Tensioner Adjustment:** If replacing the timing belt/chain, use the Tensioner Pulley Pin (303-1054) to hold the tensioner in its retracted position during installation, then release to apply tension.
7. **Reassembly:** Once timing is confirmed, remove all timing tools. Reassemble all components in reverse order of removal, adhering to manufacturer torque specifications.
8. **Final Checks:** Reconnect the battery. Start the engine and check for proper operation and any fault codes.

7. Maintenance

- Clean all tools thoroughly after each use to remove oil, grease, and debris.
- Store the tools in their original ABS plastic case to protect them from damage and corrosion.
- Inspect tools regularly for any signs of wear, damage, or deformation. Replace any compromised tools immediately.
- Apply a light coat of rust-preventative oil to metal components if storing for extended periods in humid environments.

8. Troubleshooting

If you encounter difficulties during the timing procedure, consider the following:

- **Tools not fitting:** Double-check the vehicle's exact engine code and year against the compatibility list. Ensure you are using the correct tool for the specific component.
- **Engine not rotating to timing marks:** Do not force the engine. Re-check for obstructions or incorrect procedures.
- **Engine running rough after timing:** This indicates incorrect timing. Immediately shut off the engine and re-verify all timing marks and tool installations. Consult a professional mechanic if unsure.
- Always refer to the vehicle's official service manual for detailed troubleshooting steps specific to your engine.

9. Specifications

- **Model Number:** OMT-ETT-F009-00
- **Item Weight:** 3.43 pounds
- **Product Dimensions:** 11.41 x 3.54 x 9.44 inches
- **Material:** Heat-treated #45 steel and #A3 steel with powder metallurgy for corrosion resistance and durability.
- **OEM Part Numbers Included:** 303-1054, 303-1059, 303-620, 303-376, 303-1552, 303-735, 303-1550, 303-1097, 303-748

10. Warranty and Support

For warranty information, technical support, or replacement parts, please contact Orion Motor Tech customer service through their official channels. Keep your purchase receipt for warranty claims.