

Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

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MADDOX[®]
SUPERIOR AUTOMOTIVE TOOLS

MD39-1

Deluxe Fuel Injection Service Kit



Visit our website at: <http://www.harborfreight.com>
Email our technical support at: productsupport@harborfreight.com

58817

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

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⚠ WARNING

Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.

Specifications


Pressure Scale	0–140 PSI / 0–1000 kPa
Gauge Accuracy	± 2%

Important Safety Information

⚠️WARNING

Read all safety warnings and instructions. *Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.*

Save all warnings and instructions for future reference.

- Stay Keep your work area clean and well lit.** Cluttered and dark work areas invite accidents.
- Stay alert.** Watch what you are doing, and use common sense when operating tools and equipment. Do not assemble or use this product while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating tools and equipment may result in serious personal injury.
-  **Wear eye protection.** Wear ANSI-approved safety impact glasses and full face shield when using this product.
- Do not force the Service Kit.** Use the correct product for your application. The correct product will do the job better and safer at the rate for which it is designed.
- Maintain the Service Kit with care.** Keep this product clean. Properly maintained products are less likely to malfunction. Do not use damaged products. Tag damaged products “Do not use” until repaired.
- Check for any condition that may negatively affect operation of the Service Kit.** If readings are inconsistent, or if it appears that the fuel gauge is not functioning properly, the Service Kit should be serviced by a qualified service technician. Many accidents are caused by poorly maintained products.
- Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one product may become hazardous when used on another product.
- Industrial applications must follow OSHA requirements.**
- Maintain labels and nameplates on the Service Kit.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
- Use the right product for the job.** There are certain applications for which this product was designed. Do not use small products to do the work of larger industrial products. Do not use this product for a purpose for which it was not intended.









11. **Product service must be performed only by qualified service technician.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
12. **When servicing the Service Kit, use only identical replacement parts.** Follow instructions in the “*Inspection, Maintenance, And Cleaning*” section of this manual. Use of unauthorized parts or failure to follow maintenance instructions may create a risk of personal injury.
13. **Always make sure the area of use for this product is clear of any children.** Do not allow children to play with this product.
14. **Do not allow the vehicle’s engine to run while using the Service Kit.** When running, the engine of a vehicle produces carbon monoxide, a colorless, odorless, toxic gas that, when inhaled, can cause serious personal injury or death.
15. **Prior to using this product, make sure to read and understand all instructions and safety precautions as outlined in the vehicle manufacturer’s manual.**
16. **Always keep hands and fingers away from the moving parts and hot parts of an engine.**
17. **Do not use this Service Kit on diesel fuel systems.**
18. **Do not smoke while performing any fuel injection tests or repairs.**
19. **Always have a dry chemical (Class B) fire extinguisher within reach.**
20. **Make sure to provide a suitable container to catch released fuel when the system is depressurized.**
21. **Take extra care to prevent fuel from contacting hot engine parts.** It is recommended that tests be performed when the engine is cold.
22. **If a drop light is used, do not allow fuel to contact the hot surface of the bulb.**
23. **Never remove any fittings with the engine running.**
24. **Never loosen any fittings or attempt to remove hoses of vehicle or Service Kit until you have relieved the fuel system pressure.** Refer to the vehicle manufacturer’s service manual for specific fuel pressure relief procedures.
25. **Always check all connections for leaks during the testing procedure.** At any sign of leaks, turn off the engine or disable the fuel pump. Clean up any spilled fuel and repair all leaks before resuming test.
26. **When preparing for pressure testing, make sure the vehicle’s transmission is placed in “PARK” or “NEUTRAL” and the emergency brake is applied.**
27. **When the test is complete, depressurize the system and remove the Service Kit.** Reassemble the vehicle’s fuel line(s) to its original condition. Start the engine and check for leaks. If any leaks are present, stop the engine, relieve fuel pressure and repair all leaks.













28. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near coil, spark plug cables, or distributor of running engine. Engine should be off during distributor adjustment.










29. The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

! SAVE THESE INSTRUCTIONS.

Applications

#	Picture	Description	Application
1		3.5" Pressure Gauge with protective boot and hanger 0-140 psi (0-10 BAR)	Connects to #25 for basic testing.
2		Ford MPI Adapter	Ford MPI.
3		7/16" x 20 GM/Chrysler Adapter	Chrysler and Jeep MPFI, GM MPI.
4		Hose Clamps & Hose 5/16", 3/8"	Hose clamps and hose.
5		M16 x 1.5 In-Line Adapter	GM TBI-used in fuel filter location.
6		Seal Kit	Replacements seals, o-rings, quick couplers.
7		Double Ended Hose Adapter: 5/16" • 3/8"	AMC and Chrysler TBI, AMC and Chrysler MPFI, Diahatsu EFI, Subaru Single Point, Asian AFC, European AFC.
8		Single Ended Hose Adapter: 5/16", 3/8", 1/4"	MPI-for fuel pump "deadhead" test EFI and MFI.

#	Picture	Description	Application
9		M6 x 1.0 External O-ring Adapter	Acura and Honda PGM.
10		M8 x 1.0 External Banjo Adapter	Asian AFC, EFI, MFI, European AFC, European CIS and CISE.
11		M10 x 1.0 External Banjo Adapter	M10 x 1.0 External Banjo Adapter.
12		M12 x 1.25 External Banjo Adapter	Acura and Honda PGM, Asian AFC-mostly Toyota, European AFC, European CIS and CISE.
13		M12 x 1.5 External Banjo Adapter	Asian AFC, EFI, MFI, European AFC, European CIS and CISE.
14		M14 x 1.5 External Banjo Adapter	Toyota AFC.
15		M8 x 1.0 Internal Adapter (Long)	European CIS, European CISE.
16		M8 x 1.0 Internal Adapter	European CIS, European CISE.
17		M8 x 1.0 External O-ring Adapter	European CIS, European CISE.
18		M8 x 1.0 External O-ring Adapter (Long)	European CIS, European CISE.
19		M10 x 1.0 Internal O-ring Adapter	European CIS, European CISE.
20		M10 x 1.0 External O-ring Adapter	European CIS, European CISE.

#	Picture	Description	Application
21		M12 x 1.5 Internal Swivel Adapter	European CIS, European CISE.
22		M14 x 1.5 External and Internal Swivel Adapter	European CIS, European CISE.
23		1/4" BSPT External and Internal Swivel Adapter	European CIS, European CISE.
24		M16 x 1.5 External and Internal Swivel Adapter	European CIS, European CISE.
25		Gauge Hose Assembly with Relief Valve and Drain Tube	Connects to #1 for use in pressure release and for volume tests.
26		Ford Spring Lock Adapter	Ford MPI-2003 and newer with return less fuel system, 1985 and newer with return fuel system.
27		TBI/CIS Hose Assembly with Shutoff Valve	Connects to #1 and #25 for pressure tests for GM TBI-supply line, fuel pump and return line, European CIS-primary system.
28		5/16" Hairpin Adapter	Ford CFI, Chrysler MPFI, GM MPI.
29		3/8" Hair Pin Adapter	Chrysler MPFI, GM MPI.

General Test



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section beginning on page 2 of this manual including all text under subheadings therein before use of this product.

For information on specific tests for a particular vehicle, refer to the vehicle manufacturer's service manual for specifications and appropriate diagnostic and repair/replacement procedures.

1. Loosen vehicle's fuel filler cap.
 2. Remove fuel pump fuse from fuse box.
 3. Turn ignition to START/RUN and idle engine until fuel in fuel line is consumed and engine stops.
 4. Turn ignition to START/RUN for three seconds and then turn to OFF.
 5. Replace fuel pump fuse or electrical connectors.
 6. Connect Pressure Gauge (1) to Gauge Hose Assembly (25).
 7. If required, connect Gauge Hose Assembly to TBI/CIS Hose Assembly (27).
- Note:** For assistance, use the Applications on page 4.
8. Connect Gauge Hose Assembly or TBI/CIS Hose Assembly to vehicle at testing location.
 9. Turn ignition to START/RUN and wait 1.5 to 3 seconds until fuel pump stops.
- Note:** Gauge pressure should stabilize. If pressure does not stabilize or if pump does not run properly, refer to vehicle's service manual.
10. Place a hose (not included) onto end of Gauge Hose Assembly and put end of hose into an approved drain container (not included).
 11. Press and hold open relief valve on Gauge Hose Assembly until fuel drains and air bubbles are no longer visible in hose.
 12. Release relief valve to close.
 13. Wait 10 seconds and turn ignition to START/RUN.

Static (Running) Fuel Pressure

Note: For all tests, refer to vehicle's service manual for specifications and diagnostic/repair procedures.

1. Run engine at idle until Pressure Gauge pressure stabilizes.
2. Compare Pressure Gauge pressure to pressure specified in vehicle's service manual.

Fuel Volume

1. Place end of hose (not included) that is connected to Gauge Hose Assembly into approved drain container.
2. Run engine at idle.
3. Press and hold relief valve on Gauge Hose Assembly while keeping engine at idle.
4. Monitor fuel output for 30 seconds.

5. Release relief valve to close.

Note: Fuel pump should maintain engine idle and output a minimum of one pint of fuel in 30 seconds. (For CIS and CISE, output should be one quart in 30 seconds).

Fuel Pressure Leak Down

Note: For GM low pressure TBI, test does not work because of pressure drop caused by pressure regulator design.

1. Run engine at idle and compare Pressure Gauge pressure with pressure specified in vehicle's service manual.
2. Turn ignition to OFF and wait 15 to 20 minutes.
3. Check gauge pressure. Pressure should not drop more than specified in vehicle's service manual. If it does, pressure may be leaking down.

Fuel Pump Output Pressure (Dead Head)

1. Turn ignition to OFF.
2. Compare Pressure Gauge pressure with pressure specified in vehicle's service manual.

Cold Control Pressure (CIS)

Note: Engine must be cold for this test.

1. Run engine at idle until Pressure Gauge pressure stabilizes.

CAUTION! Do not run engine for more than one minute with regulator disconnected.

2. Disconnect electrical connector from fuel control pressure regulator.
3. Turn ignition to OFF.
4. Reconnect electrical connector to fuel control pressure regulator.

Hot Control Pressure (CIS)

1. Run engine at idle until it reaches operating temperature.
2. Compare pressure gauge pressure with pressure specified in vehicle's service manual.

Reset Pressure (CIS)

Same as **Fuel pressure leak Down**.

Primary System Pressure (CIS/GM TBI)

Fuel Pump Output - Dead Head

1. Run engine at idle until it reaches operating temperature.
2. Close shutoff valve on TBI/CIS Hose assembly.
3. Compare Pressure Gauge pressure with pressure specified in vehicle's service manual.

Note: Do not close valve for more than 10 seconds. Closed valve creates very high fuel pressure.

System pressure (CISE)

Same as **Static (Running) Fuel Pressure**.

Residual pressure (CISE)

Same as **Fuel Pressure Leak Down**.

Maintenance



Procedures not specifically explained in this manual must be performed only by a qualified technician.

⚠ WARNING

TO PREVENT SERIOUS INJURY FROM TOOL FAILURE: Do not use damaged equipment. If abnormal noise, vibration, or leaking air occurs, have the problem corrected before further use.

1. **BEFORE EACH USE**, inspect the general condition of the tool. Check for:
 - loose hardware
 - cracked, worn, or damaged Adapters
 - damaged Pressure Gauge and Hose
 - any other condition that may affect its safe operation.
2. **AFTER EACH USE**, wipe external surfaces of the tool with clean cloth.
3. Periodically check the threads for damage.
4. Keep clean and free from dirt, grease and grit.
5. Store tool in its Carrying Case when not in use.

If a problem occurs, have the problem corrected before further use.

Do not use damaged equipment.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS DOCUMENT AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Parts List and Diagram

Parts List

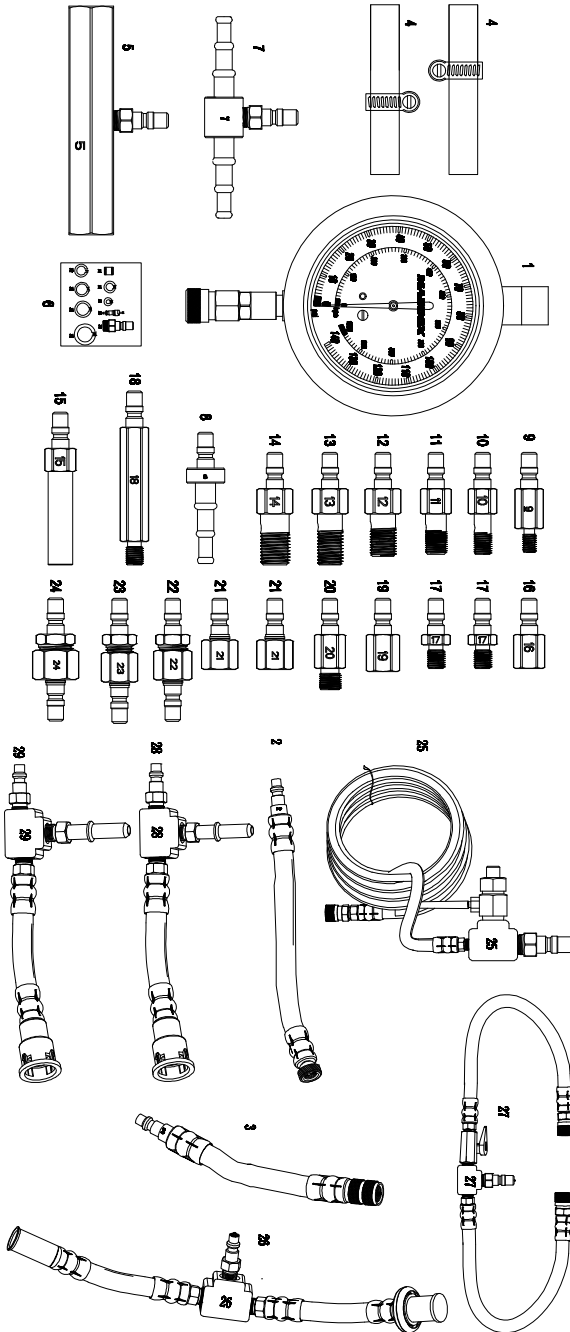
Part	Description	Qty	Part	Description	Qty
1	3.5" Pressure Gauge with protective boot and hanger 0-140 psi (0-10 BAR)	1	16	M8 X 1.0 Internal Adapter	1
2	Ford MPI Adapter	1	17	M8 X 1.0 External O-ring Adapter	2
3	7/16" x 20 GM/Chrysler Adapter	1	18	M8 X 1.0 External O-ring Adapter (long)	1
4	Hose Clamps & Hose 5/16", 3/8"	2	19	M10 X 1.0 Internal Adapter	1
5	M16 X 1.5 In-Line Adapter	1	20	M10 X 1.0 External O-ring Adapter	1
6	Seal Kit	1	21	M12 X 1.5 Internal Swivel Adapter	2
7	Double Ended Hose Adapter; 5/16", 3/8"	1	22	M14 X 1.5 External and Internal Swivel Adapter	1
8	Single Ended Hose Adapter: 5/16", 3/8", 1/4"	1	23	1/4" BSPT External and Internal Swivel Adapter	1
9	M6 X 1.0 External O-ring Adapter	1	24	M16 X 1.5 External and Internal Swivel Adapter	1
10	M8 X 1.0 External Banjo Adapter	1	25	Gauge Hose Assembly with relief valve and drain tube	1
11	M10 X 1.0 External Banjo Adapter	1	26	Ford Spring Lock Adapter	1
12	M12 X 1.25 External Banjo Adapter	1	27	TBI/CIS Hose Assembly with shutoff valve	1
13	M12 X 1.5 External Banjo Adapter	1	28	5/16" Hairpin Adapter	1
14	M14 X 1.5 External Banjo Adapter	1	29	3/8" Hairpin Adapter	1
15	M8 X 1.0 Internal Adapter (long)	1			

Record Serial Number Here:

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts. Specify UPC 193175447159 when ordering parts.

Diagram



Limited Lifetime Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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