# Mini ID R-1234yf REFRIGERANT IDENTIFIER
# **OPERATION MANUAL**

Manual Part Number: 691234YF-MINI-INST
Manual File:027245 Rev. C

**⚠ WARNING!**

Read this manual carefully before using or maintaining the device. The device will perform as designed only if it is used and maintained in accordance with the manufacturer's instructions. Otherwise, it could fail to perform as designed, and persons who rely on this device could sustain serious injury or death. Please protect yourself and your employees by following the instructions. Please read and observe the WARNINGS and CAUTIONS inside.

# Table of Contents

# 1 Warranty

## 1.1 Exclusive Remedy

It is expressly agreed that the Purchaser's sole and exclusive remedy for breach of the above warranty, for any tortious conduct of the Seller, or for any other cause of action, shall be the repair and/or replacement at the Seller's option of any equipment or parts thereof, which after examination by the Seller is proven to be defective. Replacement equipment and/or parts will be provided at no cost to the Purchaser, F.O.B. Seller's Plant. Failure of the Seller to successfully repair any nonconforming product shall not cause the remedy established hereby to fail of its essential purpose.

## 1.2 Exclusion of Consequential Damage

The Purchaser specifically understands and agrees that under no circumstances will the Seller be liable to the Purchaser for economic, special, incidental, or consequential damages or losses of any kind whatsoever, including but not limited to, loss of anticipated profits and any other loss caused by reason of nonoperation of the goods. This exclusion is applicable to claims for breach of warranty, tortious conduct, or any other cause of action against the Seller.

## 1.3 Liability Information

MC accepts no liability in cases where the device has been used inappropriately or not as intended. The selection and use of the device are the exclusive responsibility of the individual operator. Product liability claims, warranties, and guarantees made by MC with respect to the device are voided if the device is not operated, serviced, and/or maintained in accordance with the instructions in this manual. The warranties made by MC with respect to the product are voided if the product is not used and serviced in accordance with the instructions in this manual. Please protect yourself and others by following them. We encourage our customers to write or call regarding this equipment prior to use or for any additional information relative to use or repairs.

# 2 Warnings and Cautions

The Mini ID R-1234yf, hereafter also referred to as "the device," is a gas analyzer intended to provide a fast, easy, and accurate means to determine refrigerant purity in refrigerant storage cylinders or directly in air conditioning systems. The device is specified to support compliance with federal, state, and local safety codes that govern emissions.

## 2.1 Analyzer Warnings

**⚠ WARNING!**

- Install, operate, and maintain the device in strict accordance with its labels, cautions, warnings, instructions, and stated limitations.
- For any maintenance procedure provided in this manual, use only genuine MSA replacement parts. Repair or alteration of the device beyond the scope of these maintenance instructions or by anyone other than authorized service personnel can cause incorrect operation of the device. For a list of approved parts and how to order them, refer to the (**9.2 Spare Parts List**).
- Never expose the device to water, rain or liquids when charging.
- The device is not intrinsically safe. Do not use the device in areas classified as hazardous or locations where explosive concentrations of combustible gases or vapors can occur.
- Never admit any sample into the instrument at pressures in excess of 300 psig. Pressures above 300 psig can lead to damage within the device and create a bursting hazard.
- Some vehicles may contain flammable refrigerants such as hydrocarbons. R-1234yf is considered a flammable substance. Less than 2 grams of refrigerant are vented with each sample.
- When powering the device with the battery clips, the battery clips may become warm. If the battery clips become warm, unplug the cord immediately.
- Do not utilize any hose(s) other than the MSA hose supplied with the instrument. The use of other hose types will introduce errors into the refrigerant analysis and instrument calibration.
- If the device is used in a manner not specified by the manufacturer, the protection by the device may be impaired.
- Properly vent the exhaust of the device to a safe area. Improper venting of the exhaust can cause serious personal injury or death.
- Always turn the compressor or automobile engine off before connecting the instrument to an air conditioning system.

**Failure to follow these warnings can result in serious personal injury or death.**

---

## 2.2 General Cautions

**⚠ CAUTION!**

- Always wear eye and skin protection when working with refrigerants. Escaping refrigerant vapors will present a freezing danger.
- Do not direct refrigerant escaping from the sample hose toward exposed skin or toward the face.
- Do not direct refrigerant vapors venting from hoses towards the skin. Refrigerant can cause serious burns if in contact with the skin.
- Do not breathe refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose, and throat.
- Use recycling equipment certified to meet the requirements of SAE J2788, J2843, J3030 or J2851 to remove refrigerant from the A/C system. If accidental system discharge occurs, immediately ventilate the work area. There must be adequate ventilation in the vehicle servicing area.
- Do not utilize the coupler on the service end of the Sample Hoses for any application other than with the instrument. The coupler supplied is a modified version that does not contain a check valve and is not suitable for any other refrigerant application.

**Failure to follow these cautions can result in minor or moderate injury.**

## 2.3 General Notices

***NOTICE***

- Operate this device with vehicles or cylinders marked to contain R-1234yf. Cross contamination with other refrigerant types causes severe damage to the A/C system, to service tools, and equipment. Do NOT attempt to adapt the unit for another refrigerant. Do NOT mix refrigerant types in a system or in the same container.
- Always inspect the sample hose before each use. Replace the hose if it appears cracked, frayed, obstructed, or fouled with oil.
- Replace the sample hose AS SOON AS LIQUID, OIL OR DISCOLORATION BEGIN TO APPEAR ON THE INSIDE DIAMETER OF THE SAMPLE HOSE. Failure to properly maintain and replace the sample hose will result in severe damage or inaccurate results.
    - DO NOT attempt to introduce liquid or samples heavily laden with oil into the Low Side sampling hose configuration. Damage caused to the device due to the use of the wrong hose configuration on the wrong port will void the warranty.
- Connection to power sources greater than 13 VDC could cause “out of warranty” damage.
- Avoid use of the device where condensation can collect. Condensation can clog or block sample lines, which will prevent the device from receiving new or fresh gas samples in the area being monitored.
- To ensure correct overall operation of a gas detection instrument, test a known virgin sample of gas for which it was calibrated. Do a calibration check prior to each use.
- Do not disassemble the instrument. There are no serviceable components internal to the instrument and disassembly will void the warranty.
- Always place the analyzer on a flat and sturdy surface.
- Always verify that the refrigerant, tested from the Low Side, does not contain, or will not emit heavy loads of oil or liquid. Heavy loads of oil or liquid can enter the device and cause it to become inoperable.
- Never obstruct the air intake, sample exhaust or case vent ports of the instrument during use. Obstruction can lead to calibration faults or operational errors in the device.

**Failure to follow these cautions can result in minor or moderate injury.**

# 3 Welcome

Thank you for purchasing the MINI ID R-1234yf Refrigerant Analyzer.

The Mini ID is the most economical refrigerant identifier ever designed for analysing the purity of gaseous R-1234yf automotive refrigerant. It has many features to offer the user, which will be described in this manual. We recommend that all personnel who use this instrument read this manual to become more familiar with its proper operation.

For further information regarding the application, operation, or spare parts, please contact Customer Support. If you have questions or comments, we would like to hear from you.

# 4 Product Description

## 4.1 General

The Mini ID Refrigerant Identifier will provide an easy and accurate means to determine if the R-1234yf refrigerant in vehicle air conditioning systems is of suitable purity. The instrument utilizes non-dispersive infrared (NDIR) technology to determine the weight concentrations of R-1234yf. Refrigerant purity is automatically determined for refrigerant R-1234yf by the instrument to eliminate human error.

The instrument is supplied complete with an R-1234yf sample hose, a 12 VDC power cord and all required plumbing housed within a rugged, portable instrument. The Mini ID is an economical instrument designed to provide a “PASS” or “FAIL” indication for R-1234yf Purity. The product will also indicate if an excess amount of non-condensable gas (air) is present in the system. Excess “air” will cause poor cooling performance and can be easily corrected by simply recovering the refrigerant, evacuating the system, and recharging the vehicle. The Mini ID uses a mechanical pump to purge refrigerant from the sample cell to calibrate the instrument. LEDs provide the user with easy-to-understand status indicators. Flashing LED’s require user action while solid LEDs indicate the instrument is performing a task.

The unique brass filter, located between the coupler and sample hose, provides excellent protection from oil contamination by trapping the oil at the coupler and preventing it from entering the instrument. If the instrument continually displays excess air messages, this is an indication that the filter has been compromised by oil and the filter must be changed.

# 5 Product Components


**5.1 Base Module**

**5.2 Coupler with Filter**

**5.3 Battery Clips**

# 6 Instruction for Use

***WARNING:  Be sure to turn off the vehicle and let it rest for 3 minutes.***

1) Connect the power cable to the power port located on the bottom of the instrument.
2) Connect the power clips to the 12 VDC battery source. Be sure to observe the correct polarity.
3) The LEDs will sequence, press “NEXT” to begin the “WARM UP.”
4) After approximately 90 seconds, the “CALIBRATING” LED will flash.
5) Press “NEXT” to begin an air calibration.
6) The “CALIBRATING’ LED will illuminate for approximately 60 seconds.
7) When the “ANALYZING” LED begins to flash, connect hose to the vehicles low side service port and then press “NEXT.”
8) The “ANALYZING” LED will illuminate for approximately 45 seconds while the test is in progress.
9) The “PASS” or ”FAIL” LED will illuminate to provide the test results (see **7 Test Results**)
10) Disconnect the sample hose from the vehicle and remove the battery clips and the instrument may now be stored.

# 7 The Test Results

1) After the Analysis is complete, the “PASS” or “FAIL” LED will flash.
   a) “PASS” indicates the refrigerant tested is 97% or greater R-1234yf and is suitable for recovery.
   b) “FAIL” indicates the refrigerant tested is less than 97% R-1234yf and should not be recovered without special equipment.
   c) The EXCESS AIR” LED will illuminate in conjunction with the “PASS” or “FAIL” if the instrument determines that a significant amount of air is present. (See **8 Help/Troubleshooting**)

# 8 Help/Troubleshooting

## 8.1 Unit Fails to Power On

Check the voltage and polarity of the power source. Ensure that the power plug is fully inserted into the power socket on the unit.

## 8.2 Excess Air/Fail

The Mini ID is equipped with a unique filter located between the coupler and hose. This is a disposable filter designed to trap oil and sealant to prevent damage to the unit. Remove and inspect the filter for oil or particulate and replace if necessary. Remove any oil in the coupler with compressed air and a dry cloth. Replacement Filter P/N 6-02-6001-53-1

The Mini ID is equipped with internal fault codes for assistance with troubleshooting. When the **"FAULT"** LED is illuminated, the code is determined by counting the number of flashes.

- **Code 3** = Calibration Error
- **Code 4** = Temperature Error
- **Code 5** = Calibration Compensation Error

Should one of these codes appear, take the following action prior to contacting your Service Representative.

1. Disconnect the power from the instrument and verify the power source is between 12 and 15 VDC.
2. Place the unit in a climate-controlled area between 60°F (15°C) and 80°F (27°C).
3. Allow the unit to remain in the climate-controlled room for 30 minutes.
4. Reconnect the unit and re-test.

# 9 APPENDIX A

## 9.1 Spare Parts List

| Part Number | Description |
|---|---|
| 6-02-6001-37-0 | R-1234yf Tank Adapter |
| 6-02-6001-53-1 | Replacement Flow Restrictor Hose |
| 6-01-6000-75-0 | 12 VDC Battery Clips |

## 9.2 Specifications

| | |
|---|---|
| **Refrigerant Detected:** | R-1234yf |
| **Pass/Fail Purity:** | 97% |
| **Power:** | 12 VDC |
| **Sample Source:** | Oil Free Vapour Refrigerant |
| **Minimum Input Pressure:** | 20 psig (1.38 Bar) |
| **Maximum Input Pressure:** | 300 psig (34.50 Bar) |
| **Operating Temperature:** | 50-120$^{o}$F (10-50$^{o}$C) |
| **Approvals** | CE, UKCA |