MAHLE NTF-515B

EN Operation Manual
Nitrogen Tire Filling Unit

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1. Information

1.1 Document warnings

Warning notices—Structure and meaning

Warning notices warn of dangers to the user or people in the vicinity. Warning notices also indicate the consequences of the hazard as well as preventive action. Warning notices have the following structure:

Warning symbol	**KEY WORD – Nature and source of hazard!** ***Consequences of hazard in the event of failure to observe action and information given.*** ➤ Hazard prevention action and information.

The key word indicates the likelihood of occurrence and the severity of the hazard in the event of non-observance:

Key word	Probability of occurrence	Severity of danger if instructions not observed
DANGER	**Immediate** impending **danger**	**Death** or **severe** injury
WARNING	**Possible** impending **danger**	**Death** or **severe** injury
CAUTION	Possible **dangerous situation**	**Minor** injury

Symbols in this documentation

Symbol	Designation	Explanation
⚠	Attention	Warns about possible property damage.
🛈	Information	Practical hints and other useful information.
1. 2.	Multi-step operation	Instruction consisting of several steps.
➤	One-step operation	Instruction consisting of one step.
⇨	Intermediate result	An instruction produces a visible intermediate result.
➡	Final result	There is a visible final result on completion of the instruction.
⚠ WARNING	Warning	Hazard that can cause death or serious injury. Follow the instructions.
⚠ CAUTION	Caution	Danger that can cause damage to the equipment. Follow the instructions.
	Warning	Risk of death due to suffocation.
	Risk of fire	Oxygen-enriched air leads to an increased risk of fire in the event of contact with flammable products.
	High pressure	Follow the instructions with respect to compressed gasses.
	Environmental	Dispose of components in manner consistent with local regulations.
	Personal protection	Wear protective glasses.

1.2 Important notes

Before start up, connecting and operating MAHLE products it is absolutely essential that the Original instructions/owner's manual and, in particular, the safety instructions are studied carefully. By doing so you can eliminate any uncertainties in handling MAHLE products and thus associated safety risks upfront; something which is in the interests of your own safety and will ultimately help avoid damage to the device. When a MAHLE product is handed over to another person, all documentation and and information on its designated use must be handed over to the person. Contact MAHLE if you detect a problem that you cannot solve with this manual.

1.2.1 User group

The product may be used by skilled and instructed personnel only. Personnel scheduled to be trained, familiarized, instructed or to take part in a general training course may only work with the product under the supervision of an experienced person.

All work conducted on pressurized equipment may be performed by persons with sufficient knowledge and experience in the field of refrigeration, cooling systems and coolants and, also be aware of the risks involved in the use of pressurized devices.

1.2.2 Agreement

By using the product you agree to the following regulations:

Copyright

Software and data are the property of MAHLE or its suppliers and protected against copying by copyright laws, international agreements and other national legal regulations. Copying or selling of data and software or any part thereof is impermissible and punishable; in the event of any infringements MAHLE reserves the right to proceed with criminal prosecution and to claim for damages.

Liability

All data in this program is based—where possible—on manufacturer and importer details. MAHLE does not accept liability for the correctness and completeness of software and data; liability for damage caused by faulty software and data is ruled out. Whatever the event, MAHLE liability is restricted to the amount for which the customer actually pays for this product. This disclaimer of liability does not apply to damages caused by intent or gross negligence on the part of MAHLE.

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1.3 Warranty

MSS Five-Year NitroPRO Limited Warranty
(Applies only to NitroPRO Equipment owned and operated in North America)

MAHLE (MSS) warrants to the original Purchaser of the NitroPRO to be free from defects in materials and workmanship as follows:

Year One - MSS is responsible for costs associated with parts and labor for repairs needed because of defects in material and/or workmanship. MSS is not responsible for costs associated with repairs needed because of improper use or a lack of normal maintenance. The goal of MSS is to provide a timely turn-around of the covered product requiring warranty repair.

The Purchaser must ASSIST AND PARTICIPATE with MSS Technical Support during an over-the-phone diagnosis process of:

A) Determining that a legitimate failure has occurred and that the complaint is not just the result of inadequate training and/or improper use that could be easily remedied by over-the-phone instructions.

B) Determining the nature of the failure and that it is reasonable for MSS Technical Support to judge over the phone that the failure is warrantable.

C) Determining the parts necessary to make the repairs so that those parts can be shipped via the appropriate expedited method at the expense of MSS if the failure is warrantable.

During the One Year Warranty period, MSS is solely responsible for providing Field Repair Service when appropriate within a reasonable period of time after a warrantable failure is determined. Field Repair Service is generally available in all areas within 150 miles of major metropolitan areas in the USA. A reasonable period of time will depend on the location of the Purchaser and the time of the year. MSS maintains a large network of Service Providers in the USA. When Field Repair Service is needed, in most locations near a major USA metropolitan area, and during most times of the year, a reasonable period of time for Field Service is 24 to 48 hours after parts are received by the Purchaser.

Since repair parts from MSS will normally arrive 24 to 48 hours after the Purchaser reports a failure, the Purchaser may at his sole option and discretion, choose to make the necessary repairs, with over-the-phone support from MSS Technical Support so as to minimize downtime. In such case, MSS will compensate the Purchaser, as appropriate, for the time necessary to make repairs if the failure is covered by warranty.

It is the responsibility of the Purchaser to operate and maintain MSS equipment according to instructions in the MSS Operation Manual for the covered product. MSS provides free technical support over toll-free telephone lines in the USA to assist the Purchaser in this regard for the life of the covered product.

The Purchaser should review the legal Warranty Disclaimer (Page 2) for more details of coverage and limitations.

Warranty of Nitrogen Membrane

Year Two through Year Five - MSS specifically warrants to the original Purchaser the Nitrogen Membrane in the NitroPRO to be free from defects in materials and workmanship for a period of five years. To maintain this warranty, filters must be replaced annually or sooner if indicator on water filter moves into the red area. Failure to change filters as indicated will void the warranty and may destroy the Nitrogen Membrane. Proof of filter replacement according to MSS's recommendations is required; replacement filter kits provided by MSS will contain a serialized label which should be applied to the maintenance log on the unit as proof of proper filter maintenance. Purchaser is responsible for the purchase and installation of any replacement membrane, as well as return of the original membrane to MSS for evaluation. Upon inspection, if it is confirmed that the failure is due to a defect in materials or workmanship and not improper use or lack of proper maintenance, MSS will reimburse Purchaser for the price paid for the replacement membrane.

Warranty of Nitrogen Purity Analyzer

The NitroPRO Purity Tester is warranted for one year only. A defective unit must be returned to MSS for repair or replacement. During the first 30 days, a new Purity Tester will be sent to the Purchaser in exchange for the return of the defective unit to MSS.

After 30 days and up to one year, a defective Purity Tester must be returned to MSS for repair or replacement with a new or refurbished unit, at MSS's sole discretion, in case of a warrantable defect.

WARRANTY DISCLAIMER FOR PRODUCTS OF MAHLE AFTERMARKET INC., SERVICE SOLUTIONS (MSS)

1. MSS'S WARRANTY

This is to certify that MAHLE Aftermarket Inc., Service Solutions (MSS) warrants to the first retail Purchaser only, the described new product manufactured by it to be free from defects in materials and workmanship, when properly maintained, under normal use and service for a period of FIVE YEARS (See paragraph 3 below and Limited NitroPRO Warranty on Page 1). All spare parts supplied by MSS will have a 90 day warranty. This warranty includes the reasonable cost of parts and materials as well as non-overtime labor. MSS shall be the sole judge of whether failure is warrantable.

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2. PURCHASER'S REMEDY

Purchaser's sole and exclusive remedy under this warranty shall be limited to the repair or replacement, at MSS's option, of any defective part of the product. Purchaser shall call MSS Technical Support who will assist Purchaser in diagnosing the problem and, if deemed necessary, will immediately ship replacement parts for installation by Purchaser if so requested. If Purchaser requests factory service, repairs under this warranty shall only be made at a location designated by MSS.

3. DURATION

This warranty will expire five years from date of delivery to the first retail purchaser.

4. PURCHASER'S DUTIES

(a) Register product with MSS by returning completed Warranty Registration within 90 days of delivery of unit.
(b) Transportation Expense: Transportation expenses to and from MSS are to be borne by the Purchaser.
(c) Notice of breach: Purchaser shall give written notice to MSS of any alleged refusal or failure of the MSS to repair or replace as promised by this warranty no later than fifteen days after the Purchaser learns of such alleged failure or refusal.

5. DISCLAIMER

THE EXPRESS WARRANTY HEREIN IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. NO IMPLIED WARRANTY OF MERCHANTABILITY IS MADE AND THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

6. EXCLUSIONS

The warranty and obligations stated here shall not apply to:

(a) Any product not registered within 90 days of delivery.

(b) Any product repaired or altered without prior approval of MSS so as to affect adversely its stability or reliability.

(c) Any product subjected to misuse, abuse or accident as well as products used in a manner contrary to written instructions or normal operating procedure.

(d) Any damage to product during original shipment or subsequent shipments to MSS's facility for service.

(e) Portions of products which are subject to warranties, if any, given by their manufacturers. MSS does not adopt these warranties.

(f) Parts, accessories or other items manufactured by others which are used or installed on the product as a result of Purchaser's specifications.

(g) Used items furnished by the Purchaser for installation on the product.

(h) Items which are not defective, but must be replaced during the warranty period as a result of fair wear and tear or scheduled maintenance.

(i) Hoses, couplings, gaskets and O-rings carry a 90 day warranty.

(j) Filters are considered consumables and are not covered by any warranty.

7. EXCLUSION OF LOST PROFITS AND OTHER-CONSEQUENTIAL DAMAGES

MSS will have no liability for any lost profit, cargo loss, usage loss or other consequential damages alleged to have been caused by any defect in the product or any failure of MSS to meet any obligation under this agreement including the obligation to repair and replace set forth in Paragraph 2.

8. LIMITATIONS OF ACTIONS

No action for breach of this warranty shall commence more than one year after the accrual of the cause of action.

9. MERGER

This written warranty is the complete, final and exclusive agreement of the parties with respect to the quality or performance of the goods and any and all warranties and representations, except warranty extensions, if any, in writing as applicable.

10. NO ORAL MODIFICATIONS OR WAIVERS

No modification of this warranty or waiver of its terms shall be binding on either party unless approved in writing by an authorized official of each party.

11. GOVERNING LAW

This warranty and the rights and duties of the parties under this warranty shall be governed by the laws of Pennsylvania, the state of MSS's principle place of business.

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1.4 Safety regulations

1.4.1 NTF-515B

Always carefully study and follow all the safety regulationsbefore using the MAHLE product. Correct use of the NTF-515B is important for your personal saftey and for trouble-free functionality. Incorrect use can cause damage to the unit or lead to incorrect functionality.

Nitrogen can cause suffocation. Make sure there is adequate ventilation at all times!

- Regular maintenance should be performed on the NTF-515B to ensure proper and safe operation. Ensure that instructions concerning health and safety are compliant with local regulations.
- Some shop air supplies have an oiler installed to provide lubrication to air tools. The life of the NTF-515B filters will be increased if the air supply is free of moisture and oil.
- Only supply the NTF-515B with compressed air.

Oxygen enriched air leads to increased risk of fire in the event of contact with flammable products.

- Do not block the flow of air from the membrane vent. Damage may occur.
- Always follow vehicle manufacturer's suggested tire inflation pressure.
- Incorrect settings on the NTF-515B can allow overinflation of tires leading to a possible bursting of the tire.
- Do not install the NTF-515B in an area where explosive substances may be present.

Ensure the feed air pressure cannot exceed 150PSI.

- Keep ambient air temperature between 40˚F - 110˚F (5˚C - 43˚C). Do not connect hot compressed air directly from a compressor to inlet of the NTF-515B.
- Keep air feed to the NTF-515B clean and free of vapors of organic solvents and other contaminants. Do not place the NTF-515B in a room where organic solvent vapors may be present.
- Oil content of the compressed air should be less than 0.01mg/m^3.
- Ensure that the compressed air pressure and quality is always as prescribed.
- Ensure air supply is rated for 100-150PSI and minimum 13.3CFM.
- The NTF-515B unit should not be exposed to excess moisture or be operated in wet areas.

In the case of an emergency, turn off power switch and disconnect the compressed air supply line quick coupling.

- The NTF-515B can be secured in position by locking the caster brake.
- There are no additional safety systems for protecting the NTF-515B against damage resulting from natural catastrophes.
- Never remove any components from inside the NTF-515B except for maintenance or repair purposes.
- Follow the pertinent legal regulations or directives to ensure safe handling of pressurized devices.
- The NTF-515B must be subjected to regular maintenance by service personnel or authorized agents to ensure the safety of the unit.
- Never perform any maintenance work which is not expressly recommended in this manual. Contact customer service if components have to be replaced other than in the course of maintenance work.
- If there is damage to the NTF-515B, terminate usage immediately and contact customer service.
- The service hoses and service quick-release couplings must be regularly checked for wear and replaced if damaged.
- Observe local laws or directives as to ensure the safety of the pressurized device.

1.5 Technical data

Feature	Value/Range
Dimensions H x W x D	1250 x 510 x 560mm
Weight	108kg
Unit operating voltage	12VDC
Battery charger voltage	110/220VAC
Air supply	100-150PSI, 13.3 CFM
Storage tank capacity	15gal

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2. Product description

2.1 Application

NTF-515B is suitable for all passenger cars, SUV, and small trucks (pick-ups).

The following functions can be implemented:

- Nitrogen top-off.
- Nitrogen purge cycle.
- Single or multiple tire service.

⚠ The NTF-515B can only be operated with compressed air not exceeding 150 PSI. Excess pressure could damage membrane and other internal components.

⚠ Check filters daily prior to use to ensure clean dry air is being fed to the membrane. Damage may occur if contamination reaches membrane.

2.2 Scope of delivery

Description
NTF-515B unit
Battery charger
Battery (installed in unit)
Nitrogen purity analyzer
Connection port for digital tire fill gun (fill gun sold as accessory)
Connection port for dually tire hose connection (additional hoses sold as accessory
Operation manual

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2.3 Description of unit

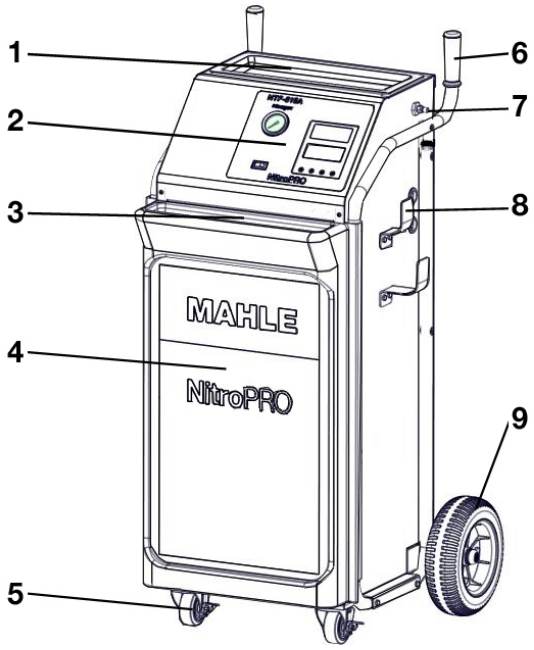

Fig. 1: Front view

1 *Top tool tray and storage*
2 *Front control panel*
3 *Front tool tray and storage*
4 *NTF-515B front housing*
5 *Locking caster*
6 *Handle grip*
7 *Purity test port*
8 *Hose hook*
9 *Rear wheel*

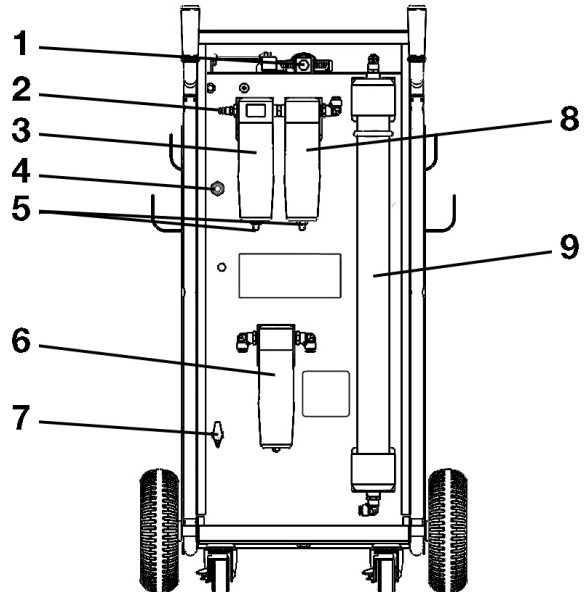

Fig. 2: Rear view

1 *Dually tire hose accessory quick connect*
2 *Air inlet connection*
3 *Water filter with automatic drain*
4 *Single tire digital fill gun accessory quick connect*
5 *Automatic drain (oil and water)*
6 *Carbon filter*
7 *Purity selector valve (95% or 98%)*
8 *Oil filter with automatic drain*
9 *Nitrogen membrane*

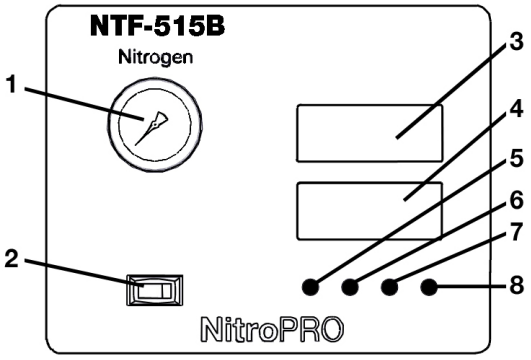

Fig. 3: Front control panel

1 *Air inlet pressure gauge*
2 *Power switch*
3 *Main display LCD*
4 *Tank pressure LCD*
5 *"+" button*
6 *"-" button*
7 *"START" button*
8 *"N2" button*

The pressure gauge (Fig. 3, Pos. 1) of the front control panel is used to monitor the air inlet pressure. The N2 pressure inside the tank is displayed on the lower LCD screen (Fig. 3, Pos. 4). The status of the phases during service is displayed on the upper LCD screen (Fig. 3, Pos. 3). The necessary entries are made by way of the touch sensitive keys (Fig. 3, Pos. 5-8) .

The power switch (Fig. 3, Pos. 2) shuts the power off to conserve the battery. It also functions as the main power to the air inlet solenoid.

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2.4 User interface

2.4.1 Selection and function keys

Keys	Function
+	Use this button to adjust the desired value higher.
-	Use this button to adjust the desired value lower.
START	Press and hold button to begin a Nitrogen purge cycle or just press once for a Top-Off cycle.
N_2	Press this button from the startup screen to adjust the OPS setting and the number of purge cycles prior to starting service.

2.4.2 Input selection

ℹ The buttons on the NTF-515B are touch sensitive. Touch black dot on the control panel under the text of the desired selection.

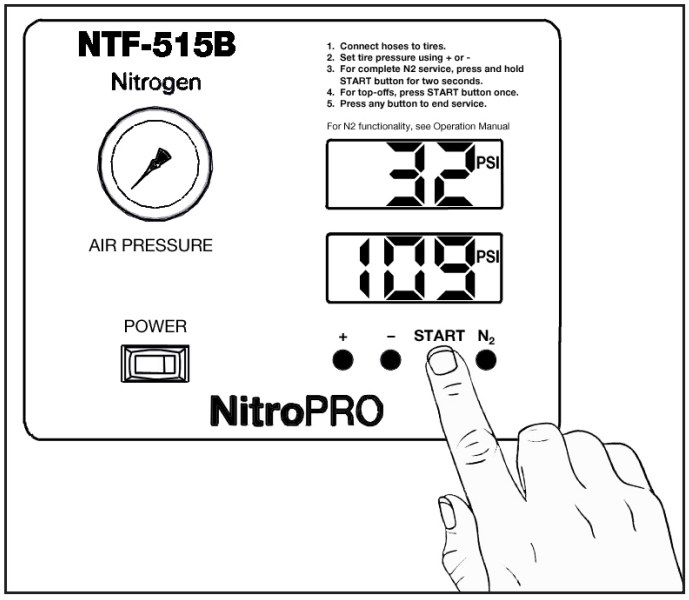

Fig. 4: Selecting button on control panel

2.4.3 Value adjustment

To adjust the target inflation value, simply press the + or - buttons. The value in the upper screen will adjust accordingly.

2.5 Unit features

2.5.1 Nitrogen purity selection

ℹ The NTF-515B allows the operator to select the desirable purity of generated Nitrogen. Purity selector is located in the lower left corner of the unit's rear panel.

To adjust the purity setting:
1. Turn knob to desired purity setting.
2. If switching from 95% to 98% purity, drain tank of all pressure and allow tank to generate fresh Nitrogen.

⚠ Nitrogen tank regeneration time will be about twice as long if 98% purity is selected.

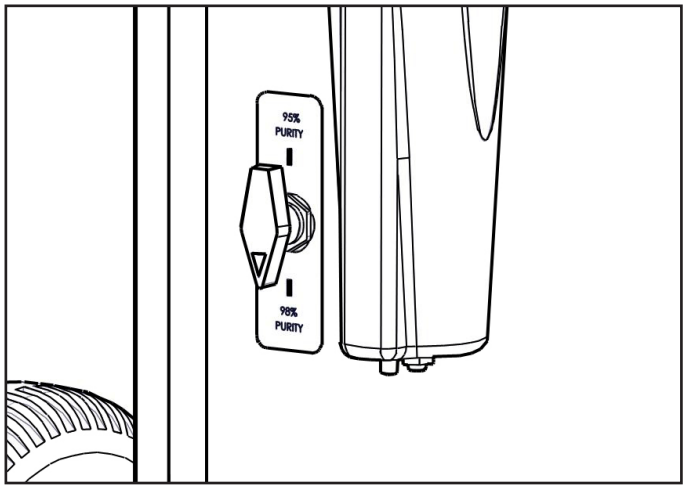

Fig. 5: Purity selector valve

2.5.2 Air chucks

ℹ To connect air chuck to valve stem, press down on the silver clip, push air chuck onto valve stem until tight, and release silver clip.

ℹ To remove the air chuck from the valve stem, press down on the silver clip and pull off of valve stem.

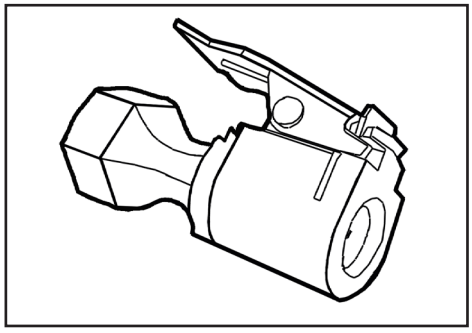

Fig. 6: Air chuck

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2.5.3 Nitrogen purity tester

The Nitrogen purity tester can be used to determine the percent of nitrogen produced by the NTF-515B by connecting to the test port on the right side of the unit. It can also be used to measure the percent of nitrogen in the tires after performing a service.

ℹ Refer to the operation manual for the purity tester (035-81169-00) for further details.

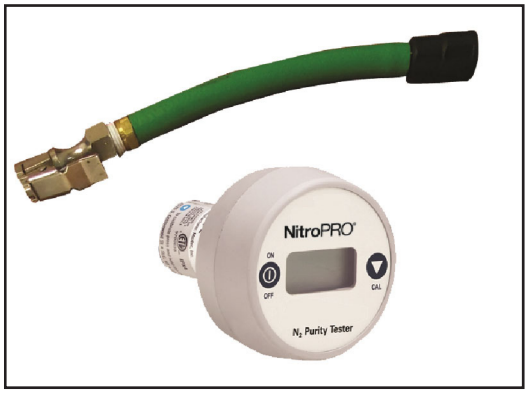

Fig. 7: N_2 purity analyzer

ℹ When using the purity tester to measure nitrogen purity in a tire, you can minimze the pressure loss, and corresponding refill requirements, by removing the tester from the valve stem after a sample has been obtained. The reading continues to climb after the tester has been removed - this is due to the response time of the internal sensor. Once the rate of change of the reading slows down or stabilizes, reapply the tester to the valve stem to obtain another sample.

⚠ Always recheck the tire pressure when purity testing is complete and replenish nitrogen as necessary.

2.5.4 Locking caster brakes

Rolling of the NTF-515B can be prevented by locking the caster brakes (Fig. 1, Pos. 5) at the rear wheels.

2.5.5 Battery and battery charger

The NTF-515B is powered by a 12V, 7AH battery mounted inside the cabinet. There is a battery charger connection port located on the left hand side of the unit.

The NTF-515B is switched on by toggling the rocker switch to the On position.

⚠ Do not leave NTF-515B unit powered on overnight as draining the battery below 9V could cause damage to the battery cells.

Fig. 8: Battery charger

2.5.6 Dually hose connection

The NTF-515B includes an additional connection port at the top of the unit on the back (Fig. 2, Pos. 1). This port is utilized if the Dually tire fill accessory kit is purchased and allows the filling of 6 tires simultaneously. MSS P/N 355 80123 00.

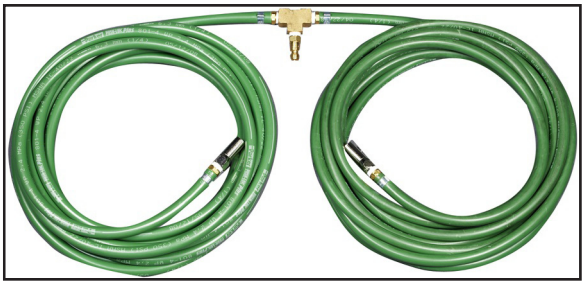

Fig. 9: Dually hose connection kit

2.5.7 Single tire fill accessory connection port

The NTF-515B includes an extra connection port on the back of the unit (Fig. 2, Pos. 3). Some technicians prefer to use a digital tire fill gauge to top off a tire instead of allowing the unit to fill the tire. Technicians can connect their own coiled hose and digital tire fill gun to the unit if they own one. In the instance that one is not available, MSS has P/N 355 80258 00 available for purchase.

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2.6 Functional description

2.6.1 Unit function

The NTF-515B can be used to perform a fully automatic nitrogen tire filling process. The technician simply needs to connect the air supply, connect the 4 hoses to the valve stems, set the desired pressure on the screen, and hold down the start button until the unit beeps. The NTF-515B will automatically complete the service and alert the technician for interaction when complete.

The NTF-515B can also be used to perform a nitrogen top off in the instance a tire is underfilled, but was previously filled with nitrogen.

2.6.2 Nitrogen generation

The nitrogen production depends on these parameters:

Parameter	Description
Flow rate	The lower the flow rate of compressed air through the hollow fiber membrane, the more oxygen can permeate through the membrane wall. As a reuslt, the nitrogen produced at the outlet will have a higher purity. Nitrogen purity can be adjusted with the flow control valve.
Temperature	The NTF-515B operates at a temperature between 40 - 110°F (70-80°F optimally). If the temperature increases, the pressurized air consumption will also increase. Do not place the system in a room where the temperature may rise unnecessarily high.
Membrane pressure	Allow enough piping between the compressor exit and the NTF-515B inlet so that the hot compressed gas has time to cool within the specifications listed in this manual. A higher membrane pressure will increase the capacity (i.e. nitrogen output) of the NTF-515B.
External pressure	There must be atmospheric pressure at the outlet. The capacity and purity of the nitrogen gas decreases strongly if the vent pressure exceeds atmospheric pressure.

Membrane function

The NTF-515B separates compressed air into nitrogen and an oxygen enriched air stream. The separation system is based on membrane technology. The compressed air comes from a central system or from a dedicated compressor.

The nitrogen produced is stored in the nitrogen storage vessel. The NTF-515B then switches on and off depending on the nitrogen demand.

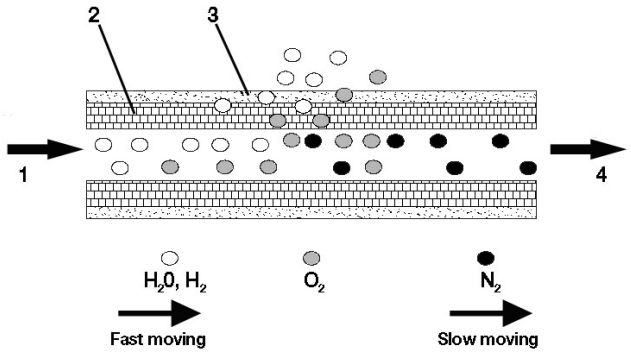

Fig. 10: Nitrogen separation principle

1 Air inlet - pressurized air
2 Membrane fiber support layer
3 Membrane fiber separation layer
4 Nitrogen outlet

Ambient air contains nitrogen (78.1%), oxygen (20.9%), argon (1%), carbon dioxide, water vapor, and traces of other inert gases. Pressurized air (Fig. 10, Pos. 1) is fed through the hollow fiber membrane (Fig. 10). The various air components diffuse through the wall of the membrane.

The diffusion rate differs for the various gases:

- Oxygen and water vapor have a high diffusion rate and pewrmeate rapidly through the membrane wall.
- Nitrogen has a low diffusion rate and permeates slowly through the membrane wall.

At the exit of the membrane (Fig.10, Pos. 4), pressurized nitrogen is released.

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2.7 Commissioning

ℹ All the operations described in this section must be performed prior to first use.

2.7.1 Removing transportation packaging

⚠ When removing the packaging, use care to ensure there is no damage caused to the NTF-515B unit or any of the included accessories.

ℹ Do not unplug any electrical connections and only have internal components opened and repaired by trained customer service personnel.

ℹ Contact customer service in the event of any transportation damage.

⚠ Charge battery for at least 5 hours prior to first use.

2.7.2 Verify air source

⚠ Ensure the compressed air source meets the specifications:
- Oil content is below 0.01mg/m^3
- Minimum air inlet pressure of 120PSI
- Maximum air inlet pressure of 150PSI
- Air flow is 13.3CFM minimum
- Air temperature is below 110°F

⚠ If your application requires an inlet pressure of 100-119PSI, the pressure value can be adjusted to accomodate the lower system pressure. Contact MSS Technical Support at 1-800-468-2321 for details.

2.7.3 NTF-515B

⚠ The NTF-515B is designed for 12VDC operation. The charger is designed for 110-240V, 50/60Hz. Follow the information on NTF-515B rating plate.

2.7.4 Generating nitrogen

ℹ Before the NTF-515B can be used to service tires, the unit must generate nitrogen to fill the internal tank.

ℹ An inadequate inlet pressure may make efficient filling of the internal tank impossible.

⚠ Generally speaking, the inlet pressure should be at least 5PSI higher than the tank set pressure (120PSI).

1. To fill internal bottle, connect air supply to inlet connection on back of unit (Fig. 2, Pos. 9).
2. Turn purity selector valve (Fig. 2, Pos. 6) to desired setting.
3. Turn power switch to the On position.

ℹ The current pressure inside the nitrogen tank is indicated on the lower LCD screen.

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3. Nitrogen service

3.1 Preparation

Perform the following preparatory work prior to vehicle nitrogen service:

⚠ Inspect hoses for signs of damage prior to performing service. Use of damaged hoses will result in a loss of pressure during service. This could cause uneven tire pressure or an error to display.

ℹ Follow the vehicle manufacturer's recommendations for tire pressure.

1. To fill internal storage tank, connect air supply to inlet connection on back of unit (Fig. 2, Pos. 9).
2. Turn purity selector valve (Fig. 2, Pos. 6) to desired setting.
3. Turn power switch to the On position.

⚠ Tires which have been in service may contain foreign substances such as leak sealers. It is important that these substances are not pulled into the NTF-515B unit during the procedure resulting in possible performance issues and costly repairs not covered by MAHLE's warranty.

⚠ When servicing a vehicle, first check the valve stems and valve stem caps for any type of fluid or foreign substance. Install deflators and allow tires to deflate to 0PSI if there is evidence of any foreign substance, then connect hoses and reinflate tires with nitrogen.

⚠ While using the NTF-515B, the automatic drain function of the filters may activate to remove excess water and oil. This is normal with the standard operation of the unit.

⚠ When verifying pressure accuracy of the NTF-515B, make sure the gauges being used are good quality, calibrated gauges. Low quality pressure gauges, such as "stick" gauges, have an accuracy of ±2 or 3PSI. This could allow for as much as 3-4PSI difference between the gauge reading and the display.

3.1.1 Over pressure setting (OPS) and nitrogen purge cycles (N2P)

The Over Pressure Setting can be used to improve the nitrogen purity in the tire(s). The Over Pressure Setting over inflates the target pressure on the first inflation by the OPS amount. For example, if the OPS is set at 5PSI and the initial target pressure is set to 30PSI, the N2P will deflate to 3PSI, inflate to 35PSI, deflate to 15PSI, and then inflate to 30PSI. Inflating to 35PSI during the first inflation instead of 30PSI will result in higher nitrogen purity in the tires.

The number of Nitrogen Purge Cycles can be adjusted. One Nitrogen Purge Cycle consists of deflating, inflating to target pressure (+OPS if adjusted), deflating to 50% of target pressure, and inflating to the target pressure. This entire process can be automatically repeated by changing the number of Nitrogen Purge Cycles. This will result in a higher nitrogen purity in the tires.

1. Turn power switch on.
2. Press **N_2** button once.
3. Press **+** or **-** buttons to change the Over Pressure Setting (OPS).
4. Press **START** button to save the Over Pressure Setting (OPS).
5. Press **N_2** button.
6. Press **+** or **-** buttons to select desired number of Nitrogen Purge Cycles (N2P).
7. Press **START** button to save the number of Nitrogen Purge Cycles (N2P).

3.2 Battery charging

ℹ The NTF-515B is powered by an internal 12VDC battery. Charge the battery for at least 5 hours prior to first use. Battery charge level is displayed on the top screen during power up of unit.

ℹ HI indicates the battery is charged. LO indicates low charge and battery needs to be recharged.

Plug battery charger in wall outlet and insert plug into battery charging port. Unit can be operated during recharging process. Typical recharge time is 3-5 hours, depending on battery condition.

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3.3 Service phases

3.3.1 Nitrogen purge cycle

- **Deflate:** Tires are deflated to 10% of the target pressure.
- **Inflate:** Tires are inflated to target pressure plus the over pressure setting.
- **50% Deflate:**Tires are deflated to 50% of the target pressure.
- **Inflate:** Tires are inflated to target pressure.

3.3.2 Nitrogen top-off

Deflate/Inflate: Tires are either inflated or deflated to the set target pressure.

3.4 Nitrogen purge cycle

ℹ Process can be used for single or multiple tires.

1. Attach air supply (150PSI max.) to the NTF-515B.
2. Turn on POWER switch. PCB will display battery charge status (HI or LO). Ensure the 12VDC battery is charged. See battery charging section for more information.
3. Verify pressure indicated on AIR PRESSURE gauge is between 120 - 150PSI.
4. Allow unit to build pressure in nitrogen storage tank as shown on the lower screen (120PSI).
5. Connect hoses to tire(s). NTF-515B unit is equipped with four service hoses, coiled on both sides. Short (12ft) hoses should be connected to the tire(s) closest to unit. Long (24ft) hoses should be connected to tire(s) farthest from unit. Ensure air chuck(s) are fully engages with valve stem(s) for proper service.
6. Set the final target pressure by pressing ✚ or ━ buttons.
7. Check that OPS and N2P are set to desired values.
8. Press and hold **START** button for 2 seconds (until long beep). This will start the Nitrogen Purge Cycle.
9. Unit screen will display the pressure in the tire(s) throughout the service.
10. The unit will beep at the end of service and the word END will appear on the top LCD.
11. Disconnect hose(s).

ℹ It is recommended to wait 10-15 seconds after the end of service prior to disconnecting hoses. This allows the tires to fully balance pressures.

12. Press any key to stop process.
13. Install valve caps on the tire valve stems.

ℹ Nitrogen (N_2) Valve cap kits are available for purchase through MAHLE. See Spare and Wearing parts section of manual or call MAHLE Technical Support/Sales to order at 1-800-468-2321

3.5 Nitrogen purge cycle

ℹ Process can be used for single or multiple tires.

1. Attach air supply (150PSI max.) to the NTF-515B.
2. Turn on POWER switch. PCB will display battery charge status (HI or LO). Ensure the 12VDC battery is charged. See battery charging section for more information.
3. Verify pressure indicated on AIR PRESSURE gauge is between 120 - 150PSI.
4. Allow unit to build pressure in nitrogen storage tank as shown on the lower screen (120PSI).
5. Connect hoses to tire(s). NTF-515B unit is equipped with four service hoses, coiled on both sides. Short (12ft) hoses should be connected to the tire(s) closest to unit. Long (24ft) hoses should be connected to tire(s) farthest from unit. Ensure air chuck(s) are fully engages with valve stem(s) for proper service.
6. Set the final target pressure by pressing ✚ or ━ buttons.
7. Check that OPS and N2P are set to desired values.
8. Press and release **START** button (a short beep will sound). This will start the Nitrogen Top-off routine.
9. Unit screen will display the pressure in the tire(s) throughout the service.
10. The unit will beep at the end of service and the word END will appear on the top LCD.
11. Disconnect hose(s).

ℹ It is recommended to wait 10-15 seconds after the end of service prior to disconnecting hoses. This allows the tires to fully balance pressures.

12. Press any key to stop process.
13. Install valve caps on the tire valve stems.

3.6 Top-off and nitrogen purge cycle counter

The NTF-515B will keep track of the total number of Top-offs and Nitrogen purge cycles performed over the life of the unit.

To access this information:

1. Press and hold ✚ and ━ buttons simultaneously until unit beeps.
2. Screen should display Cnt (top off count) and then a number on one screen if less than 1000 cycles. If more than a 1000 cycles, one number will be displayed (the thousands count), followed by a screen showing the hundreds, tens, and ones digits.
3. Press ✚ button.
4. Screen should display CNP (Nitrogen purge count) and then a number on one screen if less than 1000 cycles. If more than a 1000 cycles, one number will be displayed (the thousands count), followed by a screen showing the hundreds, tens, and ones digits.
5. Press **START** button to exit counter mode.

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4. Maintenance

4.1 Maintenance interval

Description	Action	Frequency
Filter elements (Water, oil, carbon)	Replace	Yearly or when indicator on the filter head moves to the CHANGE area as shown in Fig. 11.
Automatic drain	Clean	When required.

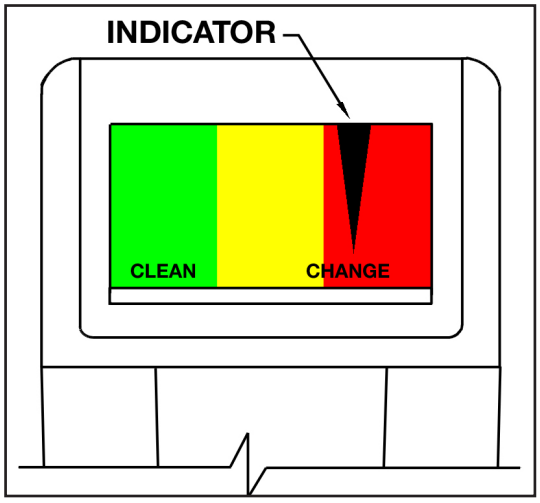

Fig. 11: Filter life indicator

⚠ Never perform any maintenance work which is not expressly recommended in this section.

⚠ Contact customer service if components have to be replaced other than in the course of maintenance work.

4.2 Automatic water/oil drain

4.2.1 Checking functionality

ℹ A periodic check of the automatic drains is necessary to ensure maximum membrane life.

To verify float is functioning correctly:
1. Open the filter bowl by turnign one-quarter turn counter-clockwise.
2. Inspect inside of filter housing for water or oil.
3. If a float is not functioning, it may be submerged in water/oil.

ℹ If a float is found to be inactive, follow the cleaning procedure.

ℹ If necessary, a replacement drain is available for purchase. MSS P/N 026 80386 00.

4.2.2 Cleaning automatic drain

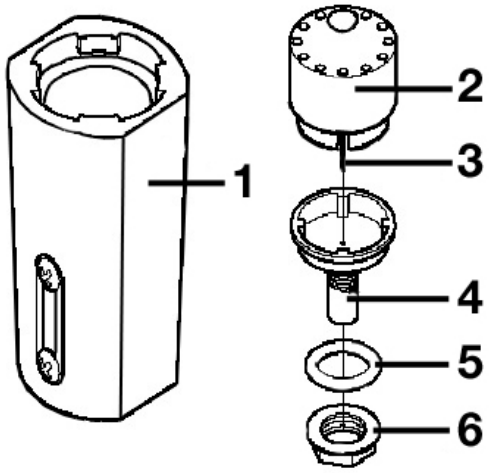

Fig. 12: Automatic drain disassembly
1 Filter bowl
2 Float housing
3 Needle
4 Float seat
5 O-ring
6 Retention nut

To clean the automatic drains:
1. Turn the filter bowl (Fig. 12, Pos. 1) counter clockwise one-eighth turn and pull the filter bowl down from the filter housing.
2. Unscrew the nut (Fig. 12, Pos. 6).
3. Remove the drain unit (Fig. 12, Pos. 2-5) from the filter bowl (Fig. 12, Pos. 1).
4. Remove the o-ring (Fig. 12, Pos. 5).
5. Carefully pull the float housing (Fig. 12, Pos. 2) from the seat (Fig. 12, Pos. 4). Do not bend the needle (Fig. 12, Pos. 3).
6. Clean the parts with soap and water. Make sure the needle bore is open and clean.
7. Assemble the parts in the reverse order. Make sure the parts are dry before reassembly.

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4.3 Filter element maintenance

⚠ The condition of the filter element (mounted on rear of unit) can only be checked when shop air is connected to the unit and it is filling the tank with nitrogen. It may be necessary to relieve some tank pressure to cause the tank to fall below the set pressure and cause the tank to begin filling.

⚠ The filter elements must be chaged when the indicator moves into the CHANGE area and at least once annually to protect the membrane warranty.

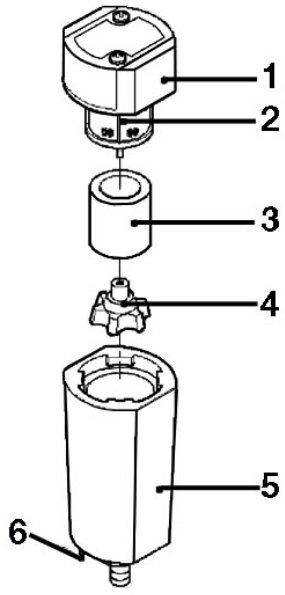

Fig. 13: Filter disassembly

1 Filter housing
2 Sieve
3 Filter element
4 Knob
5 Filter bowl
6 Bleeder screw

To replace filter element:

1. Disconnect the air supply.
2. Allow system to depressurize (air pressure gauge should read 0 PSI).
3. Unscrew the bleed screw (Fig. 13, Pos. 6) slowly to ensure that the filter is depressurized.
4. Turn the filter bowl (Fig. 13, Pos. 5) one-eighth of a turn counter-clockwise and pull the filter bowl down from the filter housing (Fig. 13, Pos. 1).
5. Unscrew the blue knob (Fig. 13, Pos. 4).
6. Remove the old filter element (Fig. 13, Pos. 3).
7. Clean the sieve (Fig. 13, Pos. 2), filter bowl, and the filter housing, if necessary.
8. Install the new filter element.
9. Assemble the parts in the reverse order.

4.4 Troubleshooting

Problem	Possible Cause	Solution
Display does not light	Dead battery	Recharge battery
Inflation process starts, but does not complete	Low supply pressure or leaks exist	Check supply pressure and confirm no leaks are detected
Air chucks will not seal to the tire valve stem(s)	Air chucks work or not completely pushed on tire(s)	Make sure air chucks are pushed on tires or replace air chucks
Air chucks leak while not connected to tires	Air chucks worn	Replace air chucks
E4 on display	Over inflation due to blocked hose	Remove blockage or replace hose
E6/E16 on display	Unit powered ON while connected to tires	Remove hoses from tires and turn power OFF/ON again
E5/E8/E9 on display	PCB or sensor error	Contact MSS support
E10 on display	Low battery charge	Charge battery for at least 5 hours
E11/E12 on display	PCB fault	Contact MSS support

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4.5 Spare and wearing parts

4.5.1 NTF-515B

Description	Order number
2 inch gauge, 0-160PSIg/bar	026 80452 00
Power switch	024 80066 00
Circuit board and sensors	024 80196 00
Hose clamp (to clamp hose to hose manifold)	021 80169 01
Air chuck	023 80390 00
Service hose (short) - 12ft	060 81638 12
Service hose (long) - 24ft	060 81638 24
Replacement air chuck (1) (w. barb & clamp)	355 80101 00
Replacement air chucks (5) (w. barbs & clamps)	355 80106 00
Service hose assembly (12ft)	355 80094 00
Service hose assembly (24ft)	355 80095 00
Battery charger power cord	025 80436 00
Battery charger	026 80636 00
Battery charger and cord	355 80204 00
Battery - 12VDC	040 80220 00
Automatic drain float assembly	026 80386 00
Filter element replacement kit	355 80267 00
N_2valve cap kit (200 caps)	355 80026 00
N_2valve cap kit (1000 caps)	355 80157 00
N_2valve cap kit (100 packs of 5 caps)	355 80191 00
N_2valve cap kit (500 packs of 5 caps)	355 80231 00
Replacement purity tester	355 80022 00
Operation manual	035 82548 00
Dually hose adapter connection kit (accessory)	355 80123 00
Digital tire gauge and coiled hose (accessory)	355 80258 00
Sealant detection kit (accessory item)	360 81733 00

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5. Notes

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