



TR-300/TR-300-SG* Powered Air Purifying Respirator (PAPR) Assembly

User Instructions for 3M™ Versaflo™ TR-300 and 3M™ Speedglas™ TR-300-SG Series Belt Mounted PAPR Assemblies.*

*Catalog number only. NIOSH approved and referred to as 3M™ TR-300 PAPR.

Ensembles respirateurs d'épuration d'air propulsé TR-300 et TR-300-SG*

*Directives d'utilisation pour les ensembles respirateurs d'épuration d'air propulsé montés à la ceinture Versaflo™ 3M™ de série TR-300 et Speedglas™ 3M™ de série TR-300-SG**

* Numéro de référence seulement. Homologué par le NIOSH sous la désignation suivante : respirateur d'épuration d'air propulsé TR-300 3M™.

Ensamble de Respirador Purificador de Aire Forzado (PAPR) TR-300/TR-300-SG*

Instrucciones para Ensamblajes PAPR 3M™ Versaflo™ TR-300 y 3M™ Speedglas™ TR-300-SG montados en cinturón*

*Sólo es un número de catálogo. Aprobado por el Instituto Nacional de Seguridad y Salud Ocupacional (NIOSH por sus siglas en inglés) y referido como PAPR 3M™ TR-300.

Instalação do Respirador Purificador de Ar Motorizado (PAPR) das Séries TR-300/TR-300-SG*

Manual de Instruções para o Conjunto Motorizado PAPR da Série TR-300 Versaflo™ da 3M™ e Série TR-300-SG Speedglas™ da 3M™*

* Apenas numeração do catálogo. Aprovado e mencionado pela NIOSH como PAPR TR-300 da 3M™



IMPORTANT: Before use, the wearer must read and understand these *User Instructions*. Keep these *User Instructions* for reference.

IMPORTANT : Avant de se servir du produit, l'utilisateur doit lire et comprendre les présentes *directives d'utilisation*. Conserver ces *directives d'utilisation* à titre de référence.

IMPORTANTE: Antes de usar el producto, el usuario debe leer y entender estas *Instrucciones*. Conserve estas *Instrucciones* para referencia futura.

IMPORTANTE: Antes de usar, o usuário deve ler e compreender este *Manual de Instruções*. Guarde este *Manual de Instruções* para futura referência.

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⚠ WARNING

This product is part of a system that helps protect against certain airborne contaminants. **Misuse may result in sickness or death.** For proper use, see supervisor, *User Instructions* or call 3M in U.S.A., 1-800-243-4630. In Canada, call Technical Service at 1-800-267-4414.

FORWARD

Contact Information

Read all instructions and warnings before using. Keep this *User Instruction* for reference. If you have questions regarding these products contact 3M Technical Service.

In United States:

Website: www.3M.com/OccSafety
Technical Service: 1-800-243-4630

In Canada:

Website: www.3M.com/CA/OccSafety
Technical Service: 1-800-267-4414

System Description

The 3M™ Versaflo™ TR-300 (3M™ Speedglas™ catalog number TR-300-SG) PAPR assemblies are designed to be used with certain 3M™ industrial and Speedglas™ headgear to form a complete NIOSH approved respiratory system. When used in accordance with its NIOSH approval, TR-300 PAPR assemblies help provide respiratory protection against particulates. The TR-300 does not provide protection against vapors or gases and is not an intrinsically safe system. See *NIOSH Approval* section of this *User Instruction* for additional information on approvals.

The TR-300 belt mounted assemblies consist of a motor/blower unit, high efficiency filter, waist belt, and lithium ion battery pack. The motor/blower unit (i.e. turbo assembly) draws ambient air through its high efficiency filter and supplies filtered air to the headgear via a breathing tube. The blower unit is equipped with automatic flow control; the motor speed is regulated during operation to compensate for the charge state of the battery pack and the increasing level of airflow resistance caused by filter loading. Should the airflow fall below the minimum design flow rate, an audible alarm will sound and the red fan shape LED on the blower unit user interface will flash to warn the user to immediately leave the contaminated environment. Similarly an audible and visual low battery alarm will activate when the battery pack has approximately 10-15 minutes of charge remaining to warn the user to leave the contaminated area (see Fig. 11).

A high efficiency filter with carbon for nuisance levels of organic vapors is also available.

Note: Nuisance level organic vapor refers to concentrations not exceeding the OSHA permissible exposure limit (PEL) or applicable government occupational exposure limits, whichever is lower. In addition, the TR-300 is available with a variety of accessories, belt options, and choice of standard or high capacity battery pack and single or multi-station charger. Consult the *Listing of Components, Accessories, and Replacement Parts* in this *User Instruction* for additional information including a listing of 3M™ Versaflo™ TR-300 PAPR part numbers and corresponding 3M™ Speedglas™ catalog numbers.

⚠ WARNING

Properly selected, used, and maintained respirators help protect against certain airborne contaminants by reducing concentrations in the wear's breathing zone below the Occupational Exposure Limit (OEL). It is essential to follow all instructions and government regulations on the use of this product, including wearing the complete respirator system during all times of exposure, in order for the product to help protect the wearer. **Misuse of respirators may result in overexposure to contaminants and lead to sickness or death.** For proper use, see supervisor, refer to the product *User Instructions* or contact 3M Technical Service at 1-800-243-4630. In Canada, call Technical Service at 1-800-267-4414.

List of Warnings within these *User Instructions*

⚠ WARNING

1. This product is part of a system that helps protect against certain airborne contaminants. **Misuse may result in sickness or death.** For proper use, see supervisor, *User Instructions* or call 3M in U.S.A., 1-800-243-4630. In Canada, call Technical Service at 1-800-267-4414.
2. The TR-300 PAPR Assembly is not intrinsically safe. **Do not use in flammable or explosive atmospheres. Doing so may result in serious injury or death.**
3. Always correctly use and maintain the filter assembly. **Failure to do so may reduce respirator performance, overexpose you to contaminants, and may result in sickness or death.**
 - a. Inspect filter and filter seal before each use and immediately replace if damaged.
 - b. Always properly install the filter into the blower unit.
 - c. Keep filter seal clean.
 - d. Never attempt to clean filters by knocking or blowing out accumulated material.
 - e. Store the filter as described in these *User Instructions* within the recommended storage temperature conditions.
4. **Failure to follow these *User Instructions* may reduce respirator performance, overexpose you to contaminants, and may result in injury, sickness, or death.**
 - a. Do not use with parts or accessories other than those manufactured by 3M as described in these *User Instructions* or on the NIOSH approval label for this respirator.
 - b. The TR-300 PAPR assembly is one component of an approved respiratory protection system. Always read and follow all *User Instructions* supplied with your 3M™ headgear and other system components in order to ensure correct system operation.
5. Always correctly use and maintain the lithium ion battery packs. **Failure to do so may cause fire or explosion or could adversely affect respirator performance and result in injury, sickness, or death.**
 - a. Do not charge batteries with unapproved chargers, in enclosed cabinets without ventilation, in hazardous locations, or near sources of high heat.
 - b. Do not immerse.
 - c. Do not use, charge, or store batteries outside the recommended temperature limits.
6. Dispose of lithium ion battery packs according to local environmental regulations. Do not crush, disassemble, dispose of in standard waste bins, in a fire or send for incineration. **Failure to properly dispose of battery packs may lead to environmental contamination, fire or explosion.**

LIMITATIONS OF USE

Do not wear this respirator system to enter areas where:

- Atmospheres are oxygen deficient.
- Contaminant concentrations are unknown.
- Contaminant concentrations are Immediately Dangerous to Life or Health (IDLH).
- Contaminant concentrations exceed the maximum use concentration (MUC) determined using the Assigned Protection Factor (APF) for the specific respirator system or the APF mandated by specific government standards, whichever is lower.

Immediately exit the contaminated area if any of the low battery or low airflow alarms activate.

Refer to the *User Instructions* provided with the applicable headgear and the additional cautions and limitations under the NIOSH Cautions and Limitations in this *User Instructions*.

The recommended operating altitude range of the TR-300 is up to approximately 2600 feet (800 meters). For use in elevations above 2600 feet contact 3M Technical Service.

RESPIRATOR PROGRAM MANAGEMENT

Occupational use of respirators must be in compliance with applicable health and safety standards. By United States regulation employers must establish a written respirator protection program meeting the requirements of the Occupational Safety and Health Administration (OSHA) Respiratory Protection standard 29 CFR 1910.134 and any applicable OSHA substance specific standards. For additional information on this standard contact OSHA at www.OSHA.gov. In Canada, CSA standard Z94.4 requirements must be met and /or requirements of the applicable jurisdiction as appropriate. The major sections of 29 CFR 1910.134 are listed here for reference. Consult an industrial hygienist or call 3M Technical Service with questions concerning applicability of these products to your job requirements.

Major Sections of OSHA 29 CFR 1910.134

Section	Description
A	Permissible Practice
B	Definitions
C	Respiratory Protection Program
D	Selection of Respirators
E	Medical Evaluation
F	Fit Testing
G	Use of Respirators
H	Maintenance and Care of Respirators
I	Breathing Air Quality and Use
J	Identification of Cartridges, Filters, and Canisters
K	Training and Information
L	Program Evaluation
M	Recordkeeping

NIOSH – APPROVAL, CAUTIONS & LIMITATIONS

NIOSH Approval

The TR-300 PAPR Assembly is one component of a NIOSH approved respiratory system. Refer to the *User Instructions* and/or the NIOSH approval label provided with the TR-300 for a listing of components that can be used to assemble a complete NIOSH approved respirator system or contact 3M Technical Service. TR-300-SG is a catalog number only. NIOSH approved as TR-300 PAPR.

NIOSH Cautions and Limitations

- A – Not for use in atmospheres containing less than 19.5 percent oxygen.
- B – Not for use in atmospheres immediately dangerous to life or health.
- C – Do not exceed maximum use concentrations established by regulatory standards.
- F – Do not use powered air-purifying respirators if airflow is less than four cfm (115 lpm) for tight fitting facepieces or six cfm (170 lpm) for hoods and/or helmets.
- H – Follow established cartridge and canister change schedules or observe ESLI to ensure that cartridge and canisters are replaced before breakthrough occurs.
- I – Contains electrical parts that may cause an ignition in flammable or explosive atmospheres.
- J – Failure to properly use and maintain this product could result in injury or death.
- L – Follow the manufacturer's *User's Instructions* for changing cartridges, canister and/or filters.
- M – All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.
- N – Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O – Refer to *User's Instructions*, and/or maintenance manuals for information on use and maintenance of these respirators.
- P – NIOSH does not evaluate respirators for use as surgical masks.

OPERATING INSTRUCTIONS

Unpacking

Inspect the package contents for shipping damage and ensure all components are present. The product should be inspected before each use following the procedures in the *Inspection* section of these *User Instructions*.

Assembly

Battery Pack



WARNING

The TR-300 PAPR Assembly is not intrinsically safe. **Do not use in flammable or explosive atmospheres. Doing so may result in serious injury or death.**

Always correctly use and maintain the lithium ion battery packs. **Failure to do so may cause fire or explosion or could adversely affect respirator performance and result in injury, sickness, or death.**

- a. Do not charge batteries with unapproved chargers, in enclosed cabinets without ventilation, in hazardous locations, or near sources of high heat.
- b. Do not immerse.
- c. Do not use, charge, or store batteries outside the recommended temperature limits.

Refer to the TR-300 battery pack and charger *User Instructions* for additional information on proper battery pack use and maintenance.

Charge the battery pack

- Inspect battery pack initially and prior to each charge cycle. If cracks or damage to the case is noted do not charge the battery pack. Properly dispose of the battery pack and replace.
- Place chargers in a cool, well ventilated location free of particulates or other airborne contamination.
- Power source

TR-341N Single Station Battery Charger.

- o Insert the battery pack into the TR-340 charging cradle by sliding the back end of the battery pack in first. Push down to click the front end into place (Fig. 1).
- o Insert the TR-941N power cord into the cradle (Fig. 1a).

TR-944N 4-Station Battery Charger.

- o Insert the TR-340 into one of the charging ports on the TR-944N and slide back to lock into place (Fig. 1b).
- o Insert the battery pack into the TR-340 cradle as described above. (**Note:** the TR-941N power cord is not used with the TR-340, when the 4 Station Charger is used). Ensure the power cord supplied with the TR-944N kit is plugged into the 4 station base. You may charge any combination of up to (4) TR-330 or TR-332 battery packs simultaneously.



Note: The TR-340 and TR-944N do not use the same power cord. Use only the cord supplied with your charger kit.

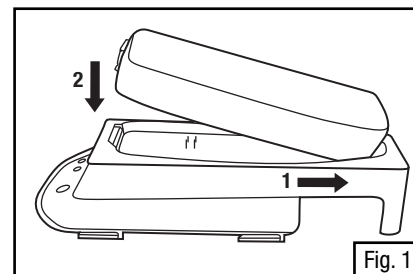


Fig. 1

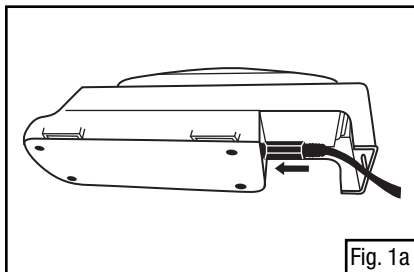


Fig. 1a

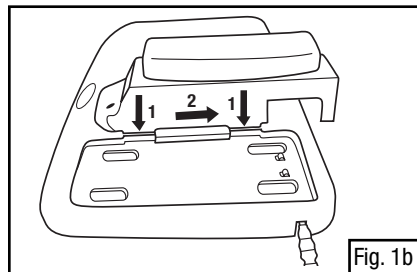


Fig. 1b

4. Plug the power cord into an AC power source (100-240V). Charging will begin. Refer to Table 1 in the Specifications section for a list of charger LED displays and meanings.
5. Battery pack removal (Fig. 2)
 - o Unplug the power cord from the electrical source.
 - o Release battery pack from cradle – press blue release tab on battery pack and lift out.

The TR-340 can remain attached to the TR-944N if desired. To release the cradle from the base – press down on the oval release tab on the base, slide cradle forward and lift out. Be careful not to pinch fingers as the cradle slides forward.

Battery pack charge status is indicated by pressing the indicator button on the top of the battery pack (Fig. 3). Number of bars illuminated indicates approximate battery pack charge capacity (less than 20% to 100%). Refer to the battery pack and charger *User Instructions* for further information on charging, charge status and service life of the battery packs.

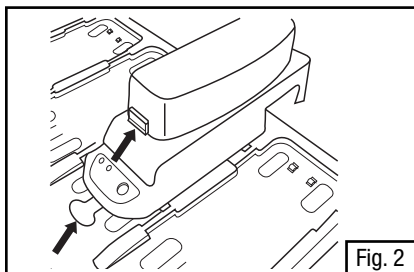


Fig. 2

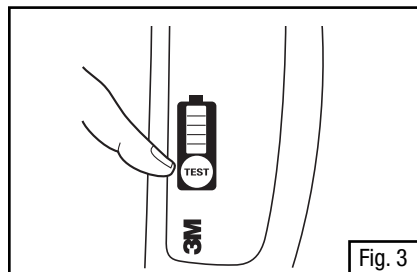


Fig. 3

Install and remove the Battery Pack into the TR-300

To install a charged battery pack, hold the unit so the filter cover faces you (Fig. 4).

- o Inspect the hinge and latch on the battery pack and ensure it is clean and undamaged.
- o Hook the left edge of the battery pack into its holder on the bottom of the unit (1).
- o Push the right side of the battery pack into the motor/blower until the latch fully engages with an audible click (2).
- o Grasp the battery pack and gently pull to confirm pack is locked into place.

To remove the battery pack, hold the unit so the filter cover faces you. Press the battery pack latch and pull the battery pack down and out.

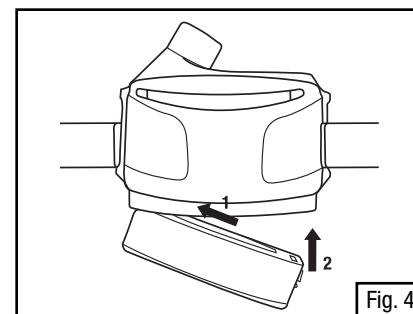


Fig. 4

High Efficiency (HE) Particulate Filter, Prefilter and Spark Arrestor

A 3M™ TR-300 high efficiency (HE) filter must always be used. The TR-3710N and TR-3710N-SG are standard HE filters. The 3M™ TR-3810N and TR-3810N-SG HE filters are 3M recommended for relief against nuisance level organic vapors. Nuisance level organic vapor refers to concentrations not exceeding OSHA PEL or applicable government occupational exposure limits, whichever is lower. The TR-3600 prefilter is an optional accessory for select 3M™ hoods and headcovers. Check the TR-300 NIOSH approval label to determine if the prefilter is approved for use with your specific system configuration.

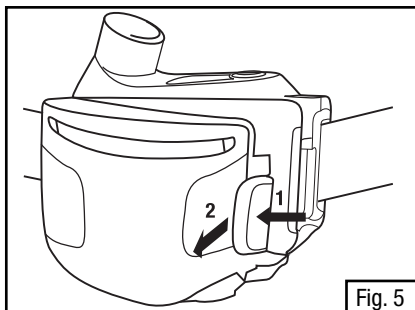
The TR-362 (TR-362-SG) is a spark arrestor/prefilter for select 3M™ industrial headgear and 3M™ Speedglas™ welding headgear. Check the TR-300 NIOSH approval label to determine if the spark arrestor/prefilter is approved for use with your specific system configuration. Use of the TR-362 or TR-362-SG is mandatory for welding and in all situations where the TR-300 may be exposed to sparks, molten metal, or other hot particulates. Failure to use the spark arrestor/prefilter may allow the filter to be damaged and allow contaminants to enter the respirator.

The TR-3600 cannot be used in combination with the TR-362 or TR-362-SG. Refer to the TR-300 NIOSH approval label to confirm which product can be used with your system configuration. If there is any question regarding use of the HE filter, prefilter or spark arrestor/prefilter consult a supervisor, occupational safety and health professional or call the 3M Technical Services help line.

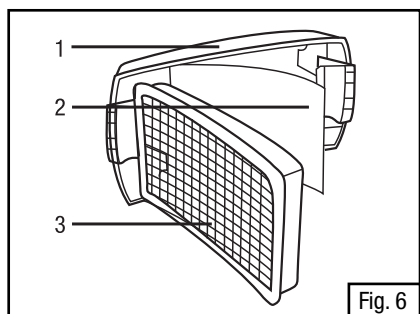
Install HE filter and if using the TR-3600 prefilter or TR-362 (TR-362-SG) spark arrestor/prefilter:

1. Inspect the HE filter to be installed:
 - o Filter material is intact with no tears or other damage.
 - o Filter seal is present and intact with no particles, cuts, distortions or indentations present. Wipe the filter seal with a clean cloth if necessary. Dispose of and replace filter if damage is noted or suspected.

2. With the unit off, remove the filter cover. **Do not replace the filter, prefilter, or spark arrestor/prefilter with the unit running.**
 - o Hold the unit so the filter cover faces you.
 - o Press the cover latch on the right side and lift off (Fig. 5).



3. Place the HE filter and the prefilter or spark arrestor (if either is being used) into the filter cover according to Fig 6. Ensure the HE filter label can be seen in the filter cover view window. **Note:** The TR-3600 cannot be used in combination with the TR-362 or TR-362-SG. Refer to the TR-300 NIOSH approval label to confirm which product can be used with your system configuration.



1) Filter cover; 2) Spark arrestor or Prefilter; 3) HE filter

4. Reinstall the filter cover in the TR-300 unit
 - o Hook the left side of the filter cover into the left side of the TR-300 unit.
 - o Press down on the right side of the cover until the latch fully engages.
 - o The HE filter label must be visible through the filter cover window (See Fig. 11).

Removal of HE filter, prefilter or spark arrestor

Ensure the unit is off. Do not replace the filter, prefilter, or spark arrestor with the unit running. Repeat step 2 in the previous section, *Installing the filter*, to access the HE filter and if using the prefilter or spark arrestor. Remove each by lifting out. Alternatively the user may wish to hold the PAPR motor blower facing downward (cover towards the ground) during removal of the cover and filters. This will help minimize the potential for contamination of the interior of the motor blower during cover and filter removal.



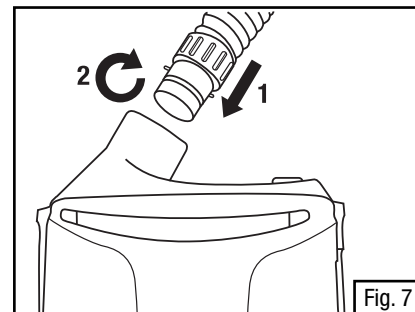
Filter Notes:

- o For long-term storage, remove the HE filter and seal in a closed container. 3M does not recommend the HE filter be left in place on the motor/blower units long-term as damage may occur to the filter seal.

Breathing tube

Select an approved breathing tube.

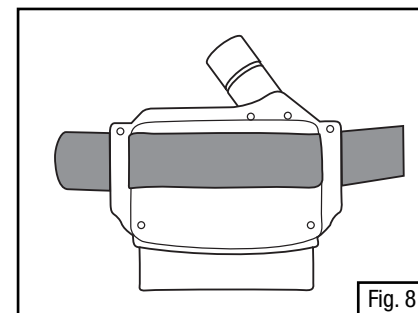
1. Insert the end of the breathing tube with the bayonet fitting (two small prongs) into the parallel slots in the air outlet of the motor/blower (Fig. 7).
2. Twist the breathing tube ¼ turn to the right to lock it into place.
3. Refer to the *User Instructions* for the headgear to be used for procedures to connect the breathing tube to the head gear.



Belt

Select an approved belt appropriate for the work conditions. Install the belt by threading the end of the belt through the retaining slots on the back side of the motor/blower (Fig. 8). Position the motor/blower so it rests in the small of the back or other location around the waist. Tighten belt for a snug fit. For TR-325 (nylon web) and TR-327 (Easy Clean), multiple belts can be interconnected to provide the wearer with a comfortable fit. An optional belt extender (15-0099-06) is available for the TR-326 leather belt. If needed two leather belts could also be interconnected.

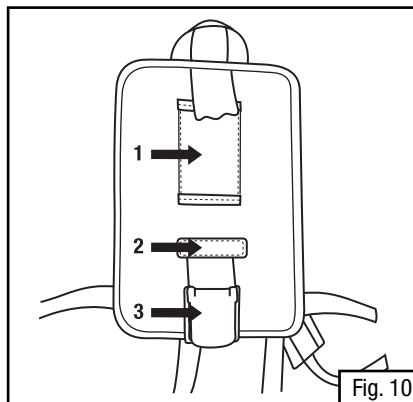
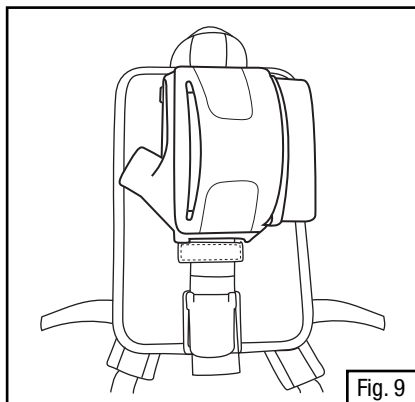
Three optional 3 bar belt slides are included. The slides can be placed on the belt on both sides of the motor/blower to prevent the motor/blower from moving along the belt. The third slider can be used as a keeper for extra belt length. Place the sliders on the belt so the rounded side is on the exterior of the belt.



Back Pack (optional)

The BPK-01 back pack may be used in place of the belt (Fig. 9):

1. With either end of the motor/blower towards the top of the back pack (end with the drag handle), thread the backpack strap through the top retaining slot on the motor/blower and the large retaining sleeve (Fig. 10-1) on the back pack.
2. Thread the strap through the lower retaining slot on the motor/blower and the small retaining sleeve (Fig. 10-2) on the back pack.
3. Thread the strap through the buckle (Fig. 10-3) and tighten down.
4. Don the backpack and adjust the shoulder straps for a comfortable fit.



Suspenders (Optional)

The TR-329 suspenders may be used in conjunction with the TR-300 system belts.

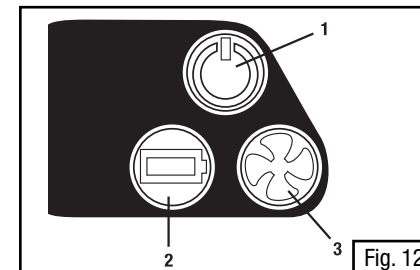
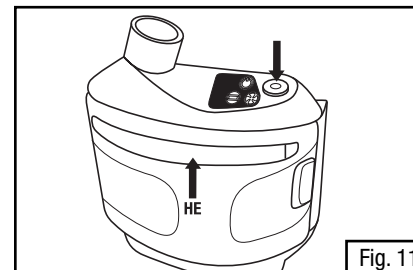
1. Remove the tang end of the belt buckle and all 3 bar sliders on the belt.
2. Slide 2 suspender hangers on to the far end of the belt.
3. Optional - Slide one 3 bar slider (rounded side on the outside of belt) onto the belt about where the PAPR is expected to sit.
4. Thread the belt through the TR-300 PAPR retaining slots as noted above.
5. Optional - Slide a second 3 bar slider onto the belt.
6. Slide 2 suspender hangers onto the belt.
7. Optional - Slide the third 3 bar slider on to the belt
8. Replace the tang end of the belt buckle on the belt.
9. Twist hangers so plastic "D" rings are above the belt when it is laying flat. Adjust the hangers, 3 bar sliders, and PAPR assembly to comfortable positions.
10. Clip the left and right front suspender hooks into the left and right front "D" rings respectively. Clip the left and right rear suspender hooks into the left and right back "D" rings respectively. Adjust suspenders for a comfortable fit.

Head gear

Refer to the headgear *User Instructions* for information on attaching and donning the headgear to be used.

On and Off

To turn on the TR-300 motor/blower, press the power button (Fig. 11) on the top of the motor/blower. The unit will perform a self diagnostic. The green power on (Fig. 12-1), amber low battery (Fig. 12-2) and red low flow (Fig. 12-3) LEDs will flash 2 to 3 times and alarms will sound during this time. To turn off the motor/blower, press and hold power button for 2 seconds.



INSPECTION

⚠ WARNING

Always correctly use and maintain the filter assembly. **Failure to do so may reduce respirator performance, overexpose you to contaminants, and may result in sickness or death.**

- a. Inspect filter and filter seal before each use and immediately replace if damaged.
- b. Always properly install the filter into the blower unit.
- c. Keep filter seal clean.
- d. Never attempt to clean filters by knocking or blowing out accumulated material.
- e. Store the filter as described in these *User Instructions* within the recommended storage temperature conditions.

Failure to follow these *User Instructions* may reduce respirator performance, overexpose you to contaminants, and may result in injury, sickness, or death.

- a. Do not use with parts or accessories other than those manufactured by 3M as described in these *User Instructions* or on the NIOSH approval label for this respirator.
- b. The TR-300 PAPR assembly is one component of an approved respiratory protection system. Always read and follow all *User Instructions* supplied with your 3M™ headgear and other system components in order to ensure correct system operation.

Before each entry into a contaminated area, the following inspection must be performed to help ensure proper function of the respirator system. Refer to the specific *Assembly* subsection of this *User Instructions* for proper assembly procedures.



Note: There are no user serviceable parts inside the TR-300 PAPR Assembly. The motor/blower unit must not be opened to attempt repairs.

1. PAPR system. Visually inspect the entire PAPR system including the motor blower, cover, filter, breathing tube, battery pack, belt, headgear. If parts are missing or damaged, replace them only with 3M™ TR-300 replacement parts before proceeding.
2. Battery pack. Confirm that the battery pack is fully charged and charge is sufficient for duration of the work period. The battery pack must be securely latched to the motor/blower.
3. Breathing tube. Examine the entire breathing tube for tears, holes or cracks. Bend the tube to verify that it is flexible. Ensure the o-rings located at both ends of the breathing tube (i.e. headgear and air source connections) are present and there are no gaps or cracks in the rings. The breathing tube should fit firmly into the air source connection.

4. HE filter.
 - Inspect filter and seal for dirt, tears, cuts, distortion or indentations. If needed, the seal can be cleaned with fresh water - do not use soaps or solvents. Do not immerse or attempt to clean the HE filter itself. Replace HE filter if any damage is noted or suspected.
 - Ensure the HE filter is properly installed in the PAPR unit and that the cover latch is secure per this *User Instructions*. The HE filter label must be visible in the cover window (See Fig. 11). The HE filter should not be stored long-term in the motor/blower unit
 - If sparks or other hot particles are present, the TR-362 or 362-SG spark arrestor must be in place in front of the HE filter. **Failure to use the spark arrestor may allow the filter to be damaged with subsequent user exposure to contaminated air.**
5. Airflow check:
 - Ensure ball in the TR-970 moves freely in its tube and the seal at the bottom end of the tube is in place. Rinsing with clean water may help free a stuck ball. Allow tube and ball to dry prior to using.
 - Insert the TR-970 air flow indicator into the outlet on the TR-300 motor/blower unit. If the breathing tube is in place it must be removed to allow the air flow indicator to be inserted (Fig. 13).
 - Turn the motor/blower unit on by pushing and holding the power button. Run the TR-300 for 1 minute to allow the air flow to stabilize.
 - With the airflow indicator in a vertical position, ensure that the bottom of the floating ball rests at, or above, the minimum flow mark (Fig. 14). Airflow indicator must be in the vertical position for an accurate reading.

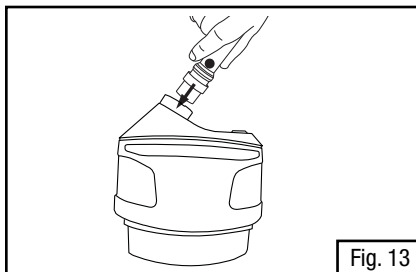


Fig. 13

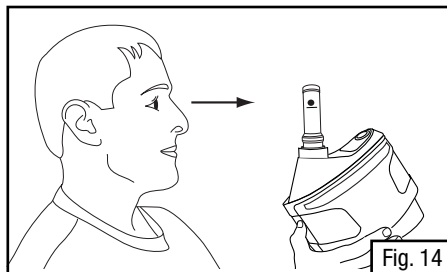


Fig. 14



Note: If the airflow indicator ball fails to rise at or above the minimum flow level, do not use the unit. Refer to the TR-300 trouble-shooting guidance document or contact 3M Technical Service.

6. Check the low airflow alarm by simulating a low airflow condition. With the motor/blower on:
 - Remove the air flow indicator and tightly cover the outlet of the motor/blower with the palm of your hand. The motor should automatically speed up, attempting to compensate for the low airflow condition.
 - Continue to press your palm tightly against the end of the outlet, making a tight seal. After approximately 30 seconds, the unit will sound an audible alarm and the red fan shape LED on the top of the motor/blower unit will flash (Fig 12-3).
 - Remove your hand from the end of the breathing tube; the audible alarm and the flashing red LED should both stop when the motor returns to a slower speed.

ENTERING AND EXITING THE CONTAMINATED AREA

Prior to entering the contaminated area, complete the inspection procedures listed in this *User Instructions*.

1. Turn the motor/blower on.
2. Check airflow and alarms. **Note:** High environmental noise levels or use of hearing protection may interfere with the user hearing the audible alarms. User may need to check for the visual alarms more frequently in high noise environments.
3. Don the TR-300 assembly and headgear. Enter the work area.
4. Leave the contaminated area immediately if any of the following conditions occur:
 - a. Any part of the system becomes damaged.
 - b. Airflow into the respirator decreases or stops.
 - c. The low airflow or low battery alarms trigger. In the event only an audible or only a visual alarm triggers, the user should still immediately leave the contaminated area.
 - d. Breathing becomes difficult.
 - e. You feel dizzy or your vision is impaired.
 - f. You taste or smell contaminants.
 - g. Your face, eyes, nose or mouth become(s) irritated.
 - h. You suspect that the concentration of contaminants may have reached levels at which this respirator may no longer provide adequate protection.
5. Do not remove the respirator or reach your hand into the headgear in areas where the air is contaminated.
6. Follow your specific exiting and decontamination procedures for turning off the motor/blower and removing the respirator system.

CLEANING AND STORAGE

WARNING

Dispose of lithium ion battery packs according to local environmental regulations. Do not crush, disassemble, dispose of in standard waste bins, in a fire or send for incineration. **Failure to properly dispose of battery packs may lead to environmental contamination, fire or explosion.**

The TR-300 assembly should be cleaned and inspected after each use and prior to storage.

Cleaning

Detach the battery pack, breathing tube and headgear from the motor/blower. Inspect all parts for damage or other signs of excessive wear. Replace all damaged parts prior to storage or next use.

1. Motor/blower. Clean the outer surfaces of the 3M™ TR-300 PAPR Assembly and battery pack with a soft cloth dampened in a solution of water and mild, pH neutral detergent. Do not immerse the motor/blower or battery pack in water. Do not use solvents or abrasive cleaners. Do not attempt to clean the interior of the motor/blower with compressed air or vacuum. Ensure the electrical contacts of the motor/blower and battery pack are dry.
2. Breathing tube. Clean the connection sites on the breathing tube with the water and detergent solution. The breathing tube can be immersed in water for cleaning. The inside of the tube must be completely dried prior to use or storage. Air dry, or dry by connecting to the motor/blower unit and use it to force air through the tube until dry. Optional breathing tube covers can also be used to facilitate cleaning.

3. HE filter. Open the filter cover and inspect the HE filter (and prefilter or spark arrestor if used). Replace if excessively dirty, wet or damaged. The HE and TR-3600 prefilter cannot be cleaned and must be properly disposed of according to local regulations. The TR-362 and TR-362-SG spark arrestor/prefilter can be cleaned using the water and detergent solution. Completely dry the spark arrestor with a clean cloth. If the spark arrestor cannot be cleaned, or is damaged, replace with a new spark arrestor.

Motor Blower Storage

If motor blower will not be used on a regular basis, the motor must be run for 5 minutes annually to ensure proper lubrication and operation.

Battery Pack Maintenance and Storage

The TR-330 and TR-332 must only be used with the TR-300 PAPR Assembly and must only be charged on the TR-341N or TR-344N charging stations. Refer to the TR-300 Chargers and Battery Packs *User Instructions* for specific maintenance and storage recommendations. For long-term storage, the battery pack should be removed from the motor/blower.

Do not use, charge or store battery packs where temperatures may exceed 122°F (50°C).

SPECIFICATIONS

Technical

Air flow	Greater than 6 cfm (170 lpm). (Nominal 190 lpm)
Respirator System Operating Temperature	23° to 129°F (-5 to 54°C). Motor blower battery alarm will activate when battery pack internal temperature exceeds 130°F (55°C). Motor blower will shut down if the battery pack temperature reaches 140°F (60°C).
Operating Altitude Range	Approximately sea level to 2600 feet (800 meters).
Storage Temperature (RH <90%) TR-300 motor blower, HE filter, Battery pack	-22° to 122°F (-30° to 50°C). Note: 40° to 95°F (4° to 35°C) suggested storage temperature range if product will be stored for an extended period of time before first use. Optimal storage temperature for the battery pack is 59°F (15°C)
Shelf Life-Prior to use, when stored in original 3M packaging: 1. Motor/blower 2. Battery pack 3. HE filter	1. 5 years 2. 9 months 3. 5 years
Battery Pack Chemistry Run Time Standard – TR-330 High capacity – TR-332 Time to recharge Standard – TR-330 High capacity – TR-332	Lithium-ion. Approximately 4-6 hours.* Approximately 8-12 hours.* *Estimated system run time based on testing with a new battery and a new clean filter at 68°F (20°C). Actual system run time may be extended or shortened depending on system configuration and environment. < 3.0 hours < 3.5 hours Note: Consult a transportation specialist for any requirements or limitations prior to transporting lithium ion battery packs.
Motor/blower Alarms - Low air flow Low battery pack voltage System Alarm	Activates when airflow falls below 6 CFM (170 lpm) for greater than approximately 30 seconds. If alarm condition continues (airflow remains below 6 CFM) for approximately 15 minutes, the TR-300 system will automatically shut down. Activates when approximately 10-15 minutes of power remains. Power down the motor/blower and replace the battery pack to reset alarm. This alarm will also activate if the battery pack temperature reaches 130°F (55°C). <i>See Troubleshooting section of this User Instructions.</i> Audible alarms - 85 dBA at 4 inches (10 cm).
Intrinsic Safety	The TR-300 assembly is not an intrinsically safe system.
Latex	The TR-300 assembly is latex free.

For additional specifications refer to the TR-300 Specifications Data Sheet.

Assigned Protection Factor

Refer to the *User Instructions* for the specific head gear to be used to determine the assigned protection factor (APF) for the TR-300 PAPR system (3M™ Speedglas™ catalog number TR-300-SG). Consult 3M Technical Data Bulletin #175 (www.3M.com/OccSafety) for additional information on APFs and supporting test data.

HE Filter, Prefilter, Spark Arrestor Service Life

The HE filter must be changed if the low airflow alarm is activated, the air flow as shown by the air flow indicator falls below 6 CFM or the HE filter becomes damaged or wet. For filters with nuisance level organic vapor relief, replace as described or earlier if smell, taste or irritation is detected. The TR-3600 should be replaced when it is dirty or damaged and whenever the HE filter is replaced. The TR-362 should be replaced whenever it is damaged.

An excessively loaded HE filter, prefilter or spark arrestor/prefilter may also reduce battery pack run time. If run time is shorter than expected replacing the filters may resolve the problem.

TR-341N and TR-344N Battery Charger Display

TABLE 1

Orange LED	Green LED	Battery Pack Charge Status
On – steady	Off	Quick charge mode Less than 90% charge
On – steady	On – Slow Flash	Trickle charge mode 90% charge
Off	On – Steady	Fully charged
On – Quick Flash	On – Quick Flash	Error - See Trouble Shooting Section
On – Slow Flash	Off	Battery pack internal temperature too hot or cold

Slow flash - 1 flash per second; Quick flash - 2 flashes per second

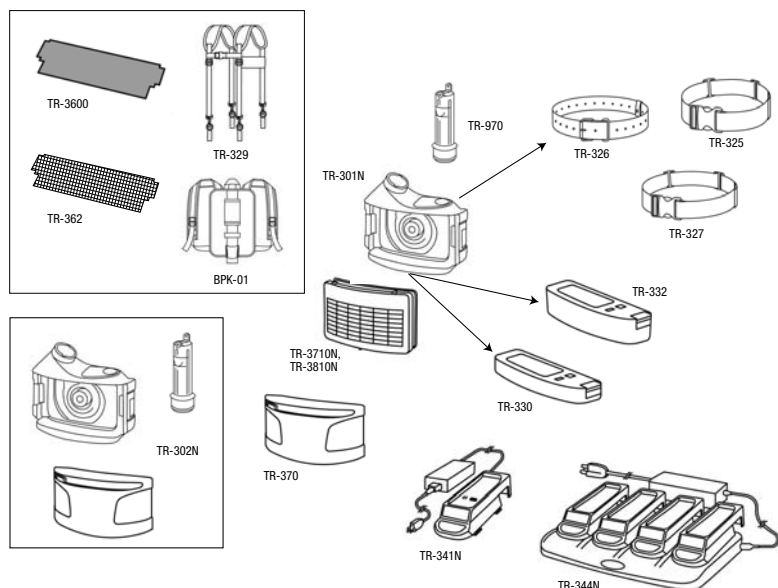
LISTING OF COMPONENTS, ACCESSORIES AND REPLACEMENT PARTS

Versaflo™ TR-300 PAPR Part #	Speedglas™ TR-300-SG* PAPR Part #	Description
Kits & Assemblies		
TR-302N	TR-302N-SG	PAPR Unit (includes blower unit, cover, and airflow indicator)
TR-305N	NA	Versaflo™ PAPR Assembly with Standard Belt and Economy Battery pack
TR-306N	NA	Versaflo™ PAPR with High Durability Belt and High Capacity Battery pack
TR-307N	NA	Versaflo™ PAPR Assembly with Easy Clean Belt and High Capacity Battery pack
NA	TR-314N-SG	Speedglas™ PAPR Assembly with leather belt, economy battery pack, HE filter, spark arrestor/prefilter, breathing tube and battery charger
NA	TR-3140N-SG	Speedglas™ PAPR Assembly with leather belt, economy battery pack, HE/Nuisance OV filter, spark arrestor/prefilter, breathing tube and battery charger
NA	TR-315N-SG	Speedglas™ PAPR Assembly with leather belt, high capacity battery pack, HE filter, spark arrestor/prefilter, breathing tube and battery charger
NA	TR-3150N-SG	Speedglas™ PAPR Assembly with leather belt, high capacity battery pack, HE/Nuisance OV filter, spark arrestor/prefilter, breathing tube and battery charger
Belts & Backpacks		
TR-325	NA	Standard Belt – Polyester Webbing, 62 inches long
TR-326	TR-326	High Durability – Leather, 52 inches long
15-0099-06	15-0099-06	Leather Belt Extender
TR-327	NA	Easy Clean Belt –Polyurethane Coated Polyester, 62 inches long
BPK-01	BPK-01	Backpack
Batteries & Charger Kits		
TR-330	TR-330-SG*	Economy Battery Pack
TR-332	TR-332-SG*	High Capacity Battery Pack
TR-341N	TR-341N-SG*	Single Station Battery Charger Kit Contains: TR-340 and TR-941N
TR-344N	TR-344N	4-Station Battery Charger Kit Contains: 4 TR-340 and 1 TR-944N
TR-340	TR-340	Battery Charger Cradle

*Catalog number only. Approved under the 3M™ Versaflo™ model number.

Versaflo™ TR-300 PAPR Part #	Speedglas™ TR-300-SG* PAPR Part #	Description
Filters		
NA	TR-3710N-SG-2	HE Filter (2 per case)
TR-3710N-5	TR-3710N-SG-5	HE Filter (5 per case)
TR-3710N-40	TR-3710N-SG-40	HE Filter (40 per case)
NA	TR-3810N-SG-2	HE/Nuisance OV Filter (2 per case)
TR-3810-5	TR-3810N-SG-5	HE/Nuisance OV Filter (5 per case)
Replacement Parts & Additional Accessories		
TR-301N	TR-301N	Replacement Blower for TR-300 PAPR
TR-370	TR-370-SG	Filter Cover
TR-970	TR-970	Airflow Indication
TR-3600	NA	Prefilter – for use with selected 3M™ hoods and headtops.
TR-362	TR-362-SG	Spark Arrestor/Prefilter – for use with selected 3M™ headgear and Speedglas™ welding headgear
TR-329	TR-329	Suspenders
TR-941N	TR-941N	Replacement Power Supply, Single Station
TR-944N	TR-944N	Replacement Power Supply and base, 4-Station
BT-922	NA	Breathing Tube Cover
BT-926	BT-926	High Temperature Breathing Tube Cover
NA	TR-3715-SG	High Efficiency Starter Kit #1 (2 HE filters, 2 spark arrestor/prefilter)
NA	TR-3815-SG	High Efficiency Starter Kit #2 (2 HE/Nuisance OV filters, spark arrestor/prefilter)

*Catalog number only. Approved under the 3M™ Versaflo™ model number.



TROUBLESHOOTING

Use the table below to help identify possible causes and corrective action for problems you may experience. **There are no user serviceable parts inside the TR-300 PAPR Assembly. The motor blower unit should not be opened to attempt repair or for any other reason.** Consult the *TR-300 Trouble Shooting Guide* or Contact 3M Technical Service to help identify additional possible causes and corrective actions for other problems you may experience.

Fault	Possible Cause(s)	Possible Solution(s)
All LEDs flash and alarm	1) System software malfunction.	1) To clear the alarm, power down motor/blower unit and remove the battery pack. Allow unit to sit for several minutes before reconnecting battery pack and turning the unit back on. If unit does not reset, contact 3M Technical Service.
Low airflow alarm (audible and/or LED flashing).	1) Breathing tube is blocked. 2) Air Inlet is covered. 3) Filter is fully loaded with particles.	1) Check & remove blockage or obstruction. 2) Check air filter & remove obstruction. 3) Change HE filter and prefilter or spark arrest or/prefilter.
Bottom bar of battery pack indicator flashes; battery alarm sounds.	1) Low battery voltage. 2) Battery pack not properly installed. 3) Battery pack past service life. 4) Battery pack temperature too hot > 140°F (> 60°C).	1) Recharge the battery pack. 2) Remove and reinstall battery pack. 3) Install a new, fully-charged TR-300 battery pack. 4) Bring to cool environment, allow battery pack to cool.
No airflow, no alarm(s).	1) Battery pack contact on battery pack is damaged. 2) Battery pack is completely discharged (no charge). 3) Damaged circuit board. 4) Damaged motor.	1) Check that the battery pack contact is not bent or broken. 2) Fully charge the battery pack. 3) Contact 3M Technical Service. 4) Contact 3M Technical Service.
Low airflow as indicated by flow meter but no alarm(s).	1) Damaged circuit board. 2) Damaged motor. 3) Flow indicator not held in vertical position.	1) Contact 3M Technical Service. 2) Contact 3M Technical Service. 3) Ensure flow indicator is held in vertical position during inspection.
User detects odor or taste of contaminants or feels eye or throat irritation.	1) Incorrect respirator for application and /or environment.	1) Consult on-site industrial hygienist or safety director.
Battery pack's charge lasts less than expected.	1) Inadequate charging. 2) HE filter is loaded with particles, making the motor run harder. 3) Battery pack reaching end of service life.	1) Ensure battery pack is fully charged. 2) Check the low flow indicator. Replace the HE filter & prefilter or clean the spark arrestor. 3) Replace battery pack.
The motor runs "faster than normal".	1) The HE filter is loaded with particles.	1) Check the low flow indicator. Replace the HE filter & prefilter and clean the spark arrestor. 2) Let the unit run for 2 minutes so it can automatically adjust to the new filter or changes to the filter configuration.