



AIRSHIELD

**AIR CIRCULATING
FACE SHIELD**



trend[®]
routing technology

NOT NIOSH APPROVED

Dear Customer

Thank you for purchasing this product.

The Airshield is a lightweight Powered Face Shield Visor intended for protection against all solid dusts. This is combined with full eye and face protection from impact and chemical liquid splash. It is fitted with a 4 hour on-board battery.

If after reading these instructions you have any queries please contact our Technical Support Department.

We hope that you have many years of productive use of this product.

Please remember to return your guarantee card within 28 days of purchase.

Before use fully charge the battery for 24 hours.

Please read the operating instructions carefully and keep them together with your Airshield.

For Technical Support

Email: technical@trend-usa.com

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The following symbol is used throughout this manual:



IMPORTANT!

Please take note of comments.

INTRODUCTION

The Airshield is intended for full eye and face protection against solid dust, impact and chemical splash.

The Airshield protects the users eyes and face from small debris such as wood particles or wood shavings.

The Airshield is powered by either one or two rechargeable battery packs inside the cover. Air is drawn through the filter to provide a constant flow of clean air over the face. A soft face shield ensures positive pressure is maintained within the visor and prevents debris and contaminated air from entering the visor area. The visor is mounted on a fully adjustable head band providing a comfortable fit for most head sizes.

Typical use of the Airshield is by woodworking craftsmen and hobbyists. It is not for industrial use.

All parts, including filters and accessories are easily changed without the use of special tools and come packed for immediate use.

Read this manual before using the Airshield. It must be fitted and used in accordance with this manual to obtain the design performance. Use as part of your maintenance programme.

ACCESSORIES

AIR/1	THP2 filter packs (packed 3)
AIR/10	THP2 filter packs (packed 1)
AIR/2	Pre-filter (packed 3)
AIR/3C	Visor overlay - clear (packed 10)
AIR/3G	Visor overlay - green anti-glare (packed 10)
AIR/4	4 hour battery
AIR/5L/USA	120v charger (USA)
AIR/WIPE	Visor wipes
AIR/WSP	Woodturners spare pack comprises: 1 x THP-2 filter, 3 x pre-filter, 10 x visor overlay & 1 x face seal

APPROVALS

The Trend Airshield has been tested to ANSI Z87.1 by:

ICF Laboratories, 1072 Industrial Parkway,
Brunswick, Ohio 44212.

Airshield manufactured by:

Trend Machinery & Cutting Tools Ltd
Odhams Trading Estate St Albans Road
Watford
England
WD24 7TR

The visor (reference WP-AIR/07/USA) when fitted to the Airshield gives protection as detailed below:-

The visor is marked:-
ANSI Z87.1

Note that contact of the visor with your skin will not cause allergic reactions under normal conditions. It is unlikely that any contact will occur in normal conditions of use.

The frame is marked:-
Trend Routing Technology
Airshield
ANSI Z87.1
Size range 6-3/8" to 7-3/4"
Year of manufacture

IMPORTANT!

Visor ref. WP-AIR/07/USA must only be used with the Trend Airshield.



IMPORTANT!

This product does not protect against inhalation of harmful gases or fumes.



IMPORTANT!

Not to be used if the contaminate is potentially explosive or highly flammable.

TECHNICAL SPECIFICATION

Type: Powered Airshield
NB: This unit does not carry any respiratory approvals for sales in North America and Canada. Record keeping should be in accordance with OSHA.

Head Protection: This is **NOT** an industrial safety helmet.

Eye Protection Approvals

Eye Protection: Complies to European Standard BS EN166:1995 Low energy impact

General

Weight: Complete with battery pack and filters but no additional accessories, 1.62 lbs nominal.

Head Size: 20-1/2" to 24-1/2"

Initial Design

Flow Rate: 6.36 cf/min (clean filters, fully charged battery).

Min Design

Flow Rate: 4.94 cf/min

Duration:

One battery pack will operate in excess of 4 hours.

Two battery packs will operate in excess of 8 hours.

Very High Work

At very high work rates, the pressure in powered

Environmental Range:

Temperature

32° to 113°F

Pressure

80KPa to 130KPa

Humidity

0 - 90%

(out of direct sunlight)

Storage:

Use:

32°F to 122°F

80KPa to 130KPa

0 - 90%

respirators **MAY** become negative at peak inhalation.

Abnormal Conditions

Not for use in explosive gas atmospheres. If the fan ceases to function whilst in the contaminated area, leave the contaminated area immediately, do not remove the Airshield until you are clear of the contaminated area. Note: During this condition there will be an increase in the exhaled carbon dioxide content within the Airshield.

Filter:

The filter is tested against Sodium Chloride aerosol 0.02 to 2 micron with a mass median particle size of 0.6 micron. For use against solid and water based aerosols only.

Battery Pack:

3.6v DC. Recharge time 14 hours from fully discharged or 1.5 hours per hour usage time. Life Nominal 900 cycles.

Battery Charger:

Mains operated double insulated complying with most high integrity standards. 4.35v@100mA DC. output, constant current with current limiting circuit. No known overcharge problem when batteries are left in for long periods.

Visor:

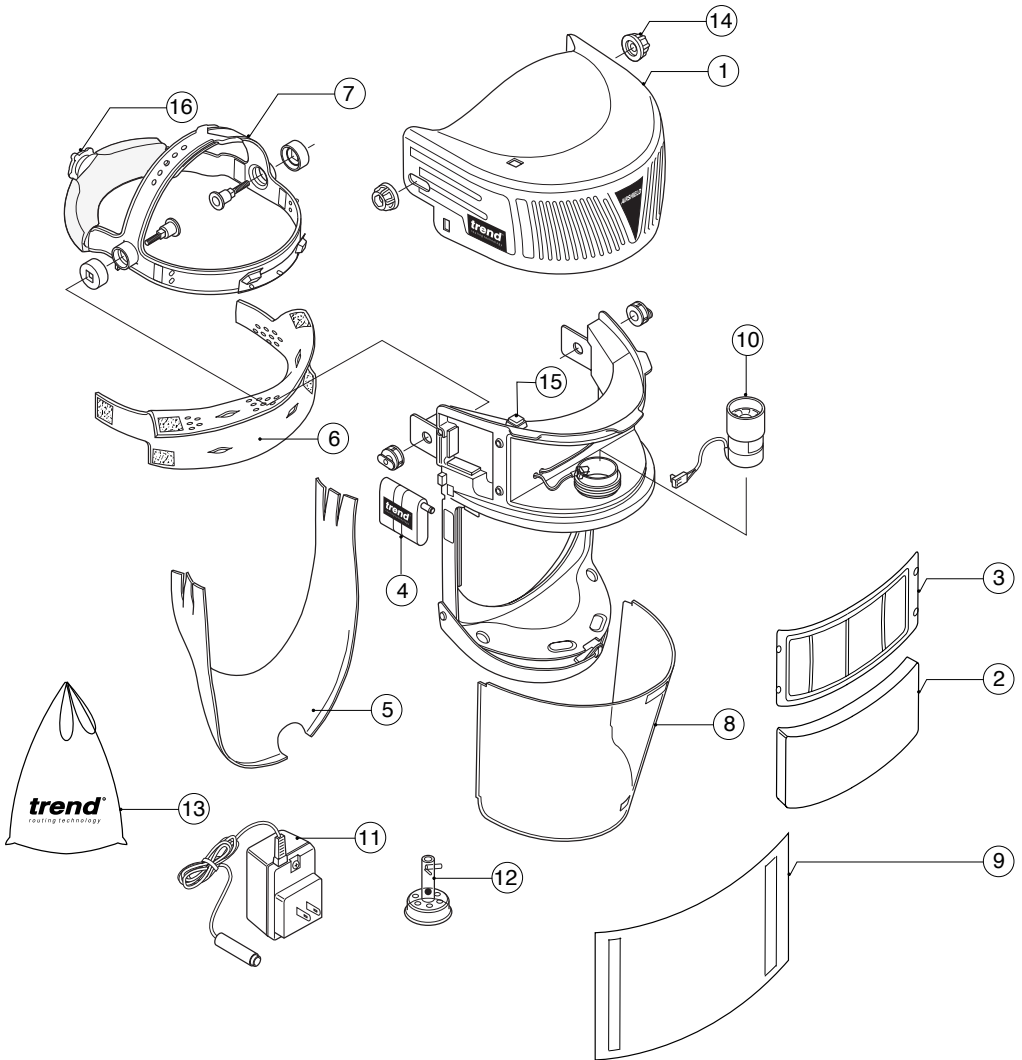
ANSI Z87.1 requires the visor to be stored in a clean dry area away from direct sunlight and heat, temp. 0-45°, atmospheric pressure 80kpa-130kpa,

ITEMS ENCLOSED

- 1 x Airshield complete
- 1 x Airflow Indicator
- 1 x 4 Hour Rechargeable Battery
- 1 x Disposable Visor Overlay - Clear
(may be already fitted)
- 1 x Battery Charger
- 1 x Carry Bag
- 1 x Instruction Manual
- 1 x Guarantee Card

DESCRIPTION OF PARTS

- ① Cover
- ② Pre-Filter
- ③ Main Filter
- ④ Battery Pack
- ⑤ Face Seal
- ⑥ Sweatband
- ⑦ Headband
- ⑧ Visor
- ⑨ Disposable Visor Overlay (Clear)
- ⑩ Fan/Motor Unit
- ⑪ Charger
- ⑫ Airflow Indicator
- ⑬ Carry Bag
- ⑭ Knob
- ⑮ Switch
- ⑯ Ratchet



SAFETY

General Safety

- Do not switch on the router with the router bit in contact with the workpiece.
- Clamp the workpiece securely to prevent it from moving during the routing operation.
- Always trail the cable away from the working area.
- Always remove the plug from the socket before making any adjustments to the machine.
- Check that the router bit is fitted securely. Be careful when handling router bits as they are sharp.
- Always keep the area around the workpiece and the floor clear of obstacles.
- The direction of routing must always be opposite to the bit's direction of rotation.
- Do not feed the cutter into the workpiece until it is at full speed.
- Always guide the router with both hands.
- Never exceed the maximum speed specified for the router bit.
- When you are finished, allow the machine to come to a complete stop.
- Do not allow objects to dangle over the work area i.e. do not wear loose clothing such as a tie. Roll sleeves back and ensure long hair is tied back.
- Check before starting to cut that clamps will not obstruct the path of the router. When cutting through the full thickness of the material, ensure that the bit cannot foul the vice, bench edge or other obstacles beneath the workpiece.

Airshield Safety Precautions

- It is recommended that Respiratory Protective Equipment should be stored in a cool dry place.
- For adequate protection the Airshield must fit or be adjusted to the size of the head.
- DO NOT clean with proprietary cleaning media or solvents, follow the instruction in manual.
- DO NOT apply paint, solvents, adhesives or self-adhesive labels which are not approved by Trend.
- DO NOT use Airshield without pre-filter and main filter fitted, with damaged seals and/or damaged visor.
- DO NOT use replacement parts except those supplied by Trend Machinery & Cutting Tools Ltd.
- To maintain the full efficiency of the Airshield, there must be no alteration to the structure or its component parts.
- When using two battery packs always fit two fully charged replacements.
- Toxic Dusts on the respirator or filters from usage should be handled in a safe manner in accordance with your chemical or material suppliers instructions. Used filters to be disposed of safely in the same manner.

If further information is required with regard to Airshield, please contact Trend Machinery & Cutting Tools Ltd.

BEFORE USE

Charge the battery pack/packs before use.

Ensure the Airshield is correctly assembled with pre-filter, main filter and either one or two fully charged battery packs fitted.

Battery Pack Charging



IMPORTANT!
Battery pack must be initially charged for 24 hours.

The Airshield is supplied with one rechargeable battery pack for four hours duration. For eight hours duration an additional rechargeable battery pack and battery charger is required.

Check that the voltage shown on the charger is suitable for the mains supply. A thermal fuse protects the charger against short circuiting and overloading.

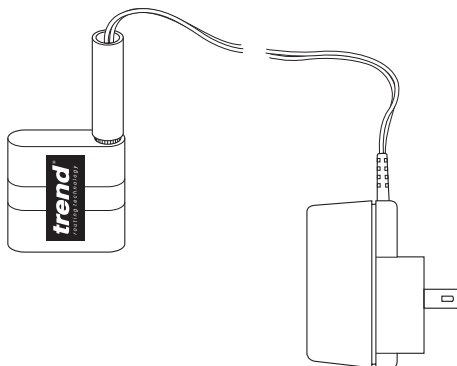
Push the battery pack connector into the charger socket and plug the charger into the AC supply socket.

Battery packs should be initially charged for 24 hours and 14 hours thereafter when fully discharged. A 3.5 hour charge will enable 1 hour of usage. Full working capacity of the battery will not be achieved until the battery has been through 3 or 4 complete charging cycles.



IMPORTANT!
The charger must be disconnected from the mains supply when not in use.

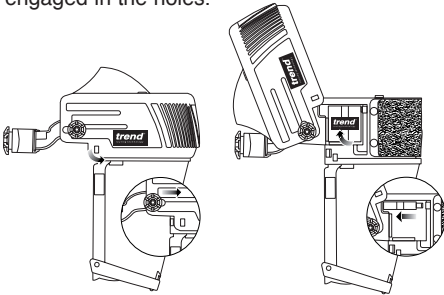
After the charging period, withdraw the charger from the AC supply socket and disconnect the battery pack from the charger.



ASSEMBLY & ADJUSTMENT

Battery Pack Removal and Replacement

Release the cover by lifting the left and right sides to disengage the lugs then pull forward and lift. The battery housings are located on either side of the main filter. Use two fully charged battery packs for eight hours duration or one battery pack for four hours duration. Plug a fully charged battery pack into the connector and push it down into the housing. Repeat for the opposite side if two battery packs are required. Lower the cover and push backwards to engage the lugs into the holes. Ensure the lugs are fully engaged in the holes.



Functional Test

The purpose of this test is to ensure that the airflow through the Airshield is in excess of Airshield minimum design value of 4.94 cf/min. Proceed as follows:

- Invert the Airshield and fit the air flow indicator over the fan-motor unit, ensure it is firmly pushed against the grommet.
- With the fan-motor unit running, hold the Airshield so that the air flow indicator tube is vertical and the holes around the base of the air flow indicator are not obstructed. The red ball must be at the top of the tube to ensure the minimum design flow rate is being exceeded.

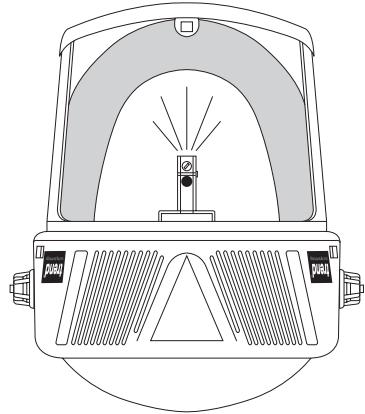


IMPORTANT!

When opening and closing top cover ensure knobs are loose, tabs are released and cover is slid forward. This prevents filters from rubbing against each other.

If the flow rate is not sufficient, replace or charge battery pack/packs and/or change the main filter and re-test.

After completing the functional test, switch the Airshield off and remove the air flow indicator.

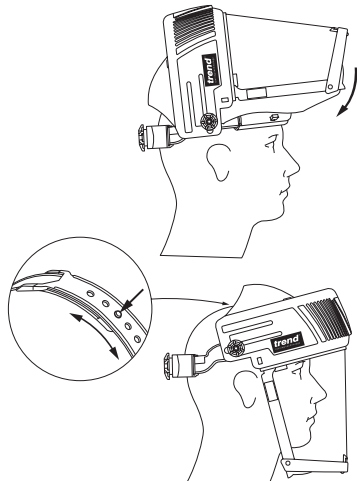


Fitting Procedure

Press and turn the ratchet knob counter-clockwise to enlarge the headband and lift the visor towards the back of the headband.

Fit the Airshield onto the head by entering the head into the headband.

Switch the fan-motor unit on and lower the visor over the face.



Press and turn the ratchet knob clockwise until a secure and comfortable fit is achieved. When removing, if necessary press and turn the ratchet knob counter-clockwise to loosen the headband.

Adjust the height of the visor as follows:

- Remove the Airshield.
- Press the stud through the hole on top half of headband.
- Slide the lower half to increase or decrease the height.
- Re-fasten headband by pushing the stud through the nearest hole and check the height of the visor when worn.
- Repeat above until a correct fit is achieved.



Important: Ensure that the unit is pivoted down fully such that the headband stops are against the main fan housing.



Important: The plastic headband lugs are designed to limit the movement of the visor to the face.

Adjusting the height will affect the fit around the chin.

Adjusting the face seal will affect the fit at the sides.

Ensure that the face seal around the chin and sides is pulled rearwards such that the seal deforms away from the frame and visor and not towards it.

Check the fit of the face seal in a mirror and/or run a finger around the line of the face seal to ensure contact.



WARNING!
At very high work rates, the pressure within the Airshield may momentarily become negative at peak inhalation.



WARNING!
Vacate the contaminated area immediately if the airflow is reduced or stops.



IMPORTANT!
If protective clothing is worn, ensure the bottom of the visor is not obstructed.

Removal Procedure

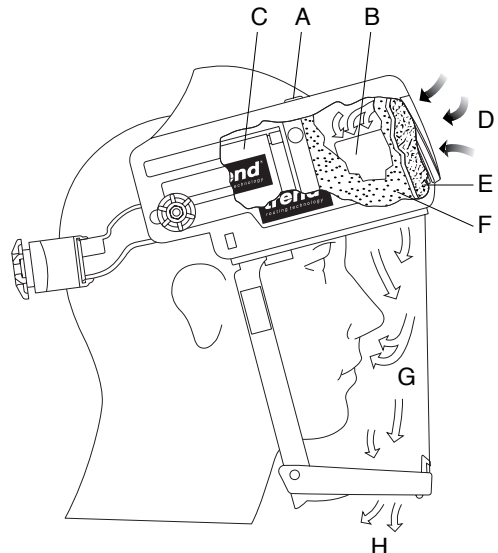


WARNING!
Vacate from contaminated area before removing the Airshield.

- Raise the visor and switch the fan-motor unit off.
- Lift the Airshield from the head.
- After finishing using the Airshield follow the maintenance procedures.

OPERATION

The switch (A) operates the fan-motor unit (B), powered by rechargeable battery pack(s) (C), which draws air (D) through the pre-filter (E) to remove larger particles of dust before being drawn through the main filter (F). The filtered air (G) is passed down over the face. Exhaled breath (H) leaves the Airshield through holes in the bottom of the visor frame.



MAINTENANCE AND CARE

After using the Airshield follow the procedure below:



WARNING!
Airshield should not be cleaned with compressed air, solvents, sterilising by heat or autoclaving, as this will cause damage.



IMPORTANT!
Precautions are to be taken to prevent inhalation of harmful dust or contaminant on the surface or retained on the filters.

- Carefully remove bulk contamination from the Airshield and wipe down with a damp cloth containing a mild detergent solution.
- Clean and sterilise all Airshield parts by wiping down the visor, face seal and headband with visor wipes (ref. AIR/WIPE) (Sodium Hypochlorite or Ethylene Oxide Gas have also been proved effective).



WARNING!
Gamma sterilisation is effective but causes embrittlement of plastic components and is not recommended.

- Release the cover by lifting the left and right lower sides to disengage the lugs then pull forward and lift.
- Remove the pre-filter and main filter as described. Dispose of in accordance with local health and safety regulations.
- Remove battery pack(s). Ensure battery pack is clean and recharge.
- Wipe down with a damp cloth containing a mild detergent solution to remove any loose dust from inside the cover. Do not apply pressure to the fan blades, to clean use a soft brush.
- Fit replacement pre-filter and main filter.
- Fit fully charged battery pack/packs.

- Operate the switch to check the function of the fan-motor unit.

- Carry out the functional test.

Replace if deficient after the following checks:

1. Excessive abrasion and scratches on the visor.
2. The face seal for its seal to the visor and for holes.
3. Fit and fastenings to the headband.



IMPORTANT!
Scratched or damaged oculars (visor) may not offer full protection and therefore should be replaced.

Specific instructions for cleaning and disinfection of visor

Clean regularly with a damp cloth - do not use hydrocarbons, chemicals, cleaning fluids or solvents on the visor. If necessary, a mild solution of washing-up liquid and warm water may be used.

Routine Checks

The expected life of the visor is approximately 3 years if well maintained and cleaned. (Care must be taken not to scratch the visor).

This manual contains relevant guidance on routine maintenance, however, you may wish to introduce additional checks as required by OSHA. The following table shows the frequency of these checks.

Operation	Frequency
Clean Internally and Externally	Daily
Visual Inspection	Daily
Charge Battery Pack/Packs	Daily
Functional Test*	Daily, Weekly and Monthly

* Remarks: Dust from wood, grain and cement may suit more frequent replacement of pre-filter to extend the life of the main filter. No filter should be left in the hood/helmet for more than 1 month if in daily use or 3 months if used infrequently.

Monthly - All items checked and signed by Operator.

Quarterly - All items checked and signed by Supervisor.

Symptom	Cause	Remedy
Reduced airflow	Cover air holes blocked	Clear air holes
	Pre-filter clogged	Fit a new pre-filter
	Main filter clogged	Fit a new main filter
	Battery flat	Fit a recharged battery pack(s)
No airflow	Airshield switched OFF	Press switch to ON
	Switch faulty	Return to manufacturer
	Battery pack not fitted	Fit a fully charged battery pack
	Battery pack connection	Push fully home
	Battery pack discharged	Fit a fully charged battery pack
	Fan-motor unit failure	Fit replacement fan-motor unit

STORAGE

The Airshield should be placed in the carry bag, stored within a temperature range of 32°F to 113°F and out of direct sunlight. Replacement filters are to be left in their sealed bags and expiry dates to be checked regularly.

TRANSPORTATION

The complete Airshield should be transported in the carry bag provided. Good quality commercial packing should be used.

REPLACEMENT OF SPARE PARTS

Replacement parts and accessories supplied by Trend Machinery & Cutting Tools Ltd. should only be used. The use of accessories not supplied by Trend Machinery & Cutting Tools Ltd. will not be guaranteed and invalidate such National approvals as held by Trend Machinery & Cutting Tools Ltd. Modifications to the Airshield will make the approvals invalid and the use illegal under National Laws and Guidance.

Trend Machinery & Cutting Tools Ltd. replacement parts and accessories, must only be used with the Trend Airshield.

Battery Pack

- Release the cover by lifting the left and right lower sides to disengage the lugs then pull forward and lift.
- Insert finger into housing cut-out, lift battery pack and unplug from connector.
- Plug a fully charged battery pack into the connector. Push the battery pack down into the housing.
- If two battery packs are fitted repeat for opposite side. Lower the cover and push backwards to engage the lugs into the holes. Ensure the lugs are fully engaged in the holes. Carry out a functional test.

Battery Safety Precautions: Nickel Cadmium AA cells.

Never dispose of the battery pack by burning. All NiCad cells are subject to special waste disposal.

Always use the approved charger.

DO NOT 'short' the battery contacts.

DO NOT attempt to break into the battery case.

If the battery case breaks accidentally, avoid contact with contents. Wash contaminated skin with lots of water and seek medical attention if necessary.

Pre-Filter

- Release the cover by lifting the left and right lower sides to disengage the lugs then pull forward and lift.



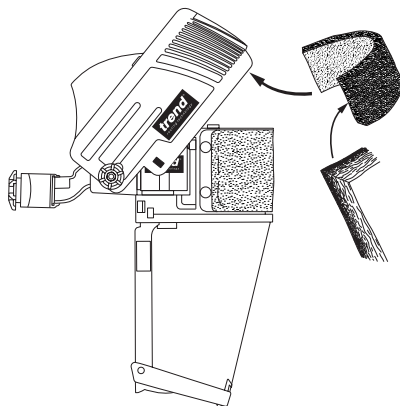
WARNING!
Precautions are to be taken to prevent inhalation of harmful dust or contaminant retained on the pre-filter and inside the cover.

- Pull pre-filter away from inside the cover and dispose of in accordance with local health and safety regulations. Never re-use a pre-filter.
- Wipe down with a damp cloth to remove any loose dust from inside the cover.
- Attach the coarse side of the replacement pre-filter onto the hook fastener strips inside the cover. Lower the cover and push backwards to engage the lugs into the holes. Ensure the lugs are fully engaged in the holes. Carry out a functional test.



IMPORTANT!

When opening and closing top cover ensure knobs are loose, tabs are released and cover is slid forward. This prevents filters from rubbing against each other.



Main Filter

- Release the cover by lifting the left and right lower sides to disengage the lugs then pull forward and lift.

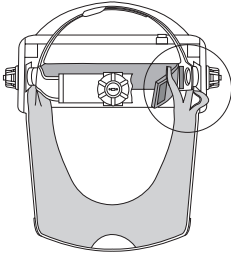
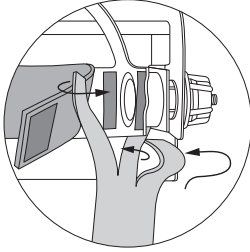


WARNING!
Precautions are to be taken to prevent inhalation of harmful dust or contaminant retained on the main filter and inside the cover.

- Pull the corners of the main filter to release the four press studs from the housing.
- Dispose of in accordance with local health and safety regulations. Never re-use a main filter.
- Wipe down with a damp cloth to remove any loose dust from inside the cover and housing.
- Fit a new main filter by attaching the two press studs onto the housing. Support the housing and press along the main filter edges, attach the other end onto the two press studs. Ensure the filter seal is fully seated on the housing. Lower the cover and push backwards to engage the lugs into the holes. Ensure the lugs are fully engaged in the holes. Carry out a functional test as described previously.

Face Seal

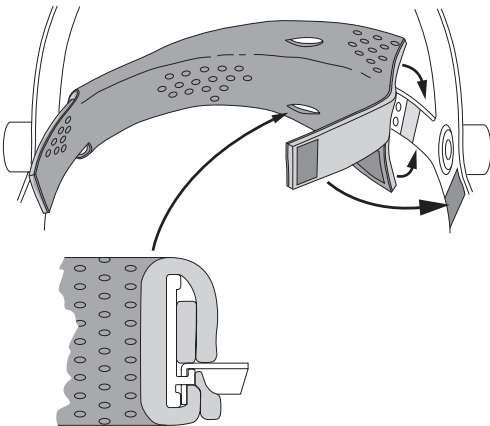
- Pull the face seal away from the hook fastener strip on visor frame.
- Establish the centre of the replacement face seal and attach the brushed nylon side onto the hook fastener strip on the bottom of the visor frame. Continue attaching the face seal to the visor frame and ensure no gaps are on the end of the face seal and visor frame.
- Adjust the position of the face seal to achieve close contact around the face.



IMPORTANT!
The knob assembly for the headband is adjusted to relieve pressure to the temples.

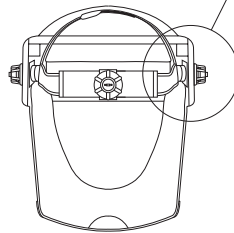
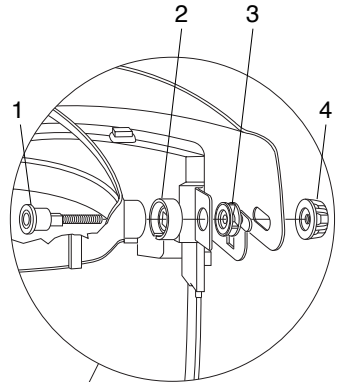
Sweatband

- Pull apart to separate hook fasteners and remove the sweatband from the headband. Replacement of the sweatband is the reverse of the above procedure. Ensure the foam surface is fitted against the headband and the slits are fully fitted over the headband.



Headband

- Pull apart to separate hook fasteners to remove the sweatband from the headband.
- Detach each end of the face seal from the headband.
- Unscrew and remove the knob (4). Push the pivot pin (1) out through the cover washer (3), torque washer (2) and headband. Repeat for the opposite side to release the headband and remove the torque washers (2).
- Replacement of the headband is the reverse of the above procedure. Ensure the torque washers (2) are assembled onto the headband correctly.



Visor Overlay

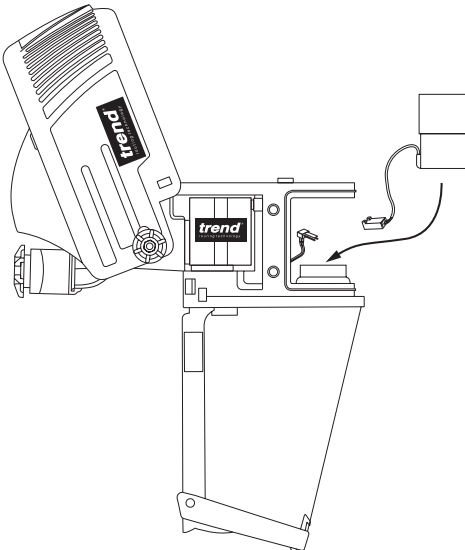
- Peel away visor protector and ensure visor surface is clean.
- Peel backing paper from adhesive strips on replacement visor protector. Position centrally onto visor surface, press down adhesive strips and remove protective paper.

Fan-Motor Unit

- Remove the main filter and battery pack/packs.
- Disconnect fan-motor unit plug from socket (flip-up locking pin on connector male and pull apart socket). Withdraw the fan-motor unit from retaining grommet.
- Replacement of the fan-motor unit is the reverse. Of the above procedure (note fan orientation). Fitting will be made easier with the visor removed and with the use of a water based lubricant such as liquid soap. Apply a small amount of lubricant around the inside of the retaining grommet before insertion of the fan. Carry out a functional test.

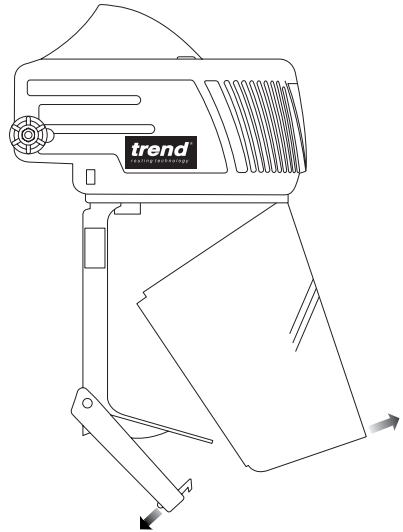


IMPORTANT!
Hold the fan by the sides only,
do not push or apply any
pressure to the fan blades.



Visor

- Disengage tab from centre of visor and lower the flap. Carefully press the sides of the visor and lift it from the visor frame.
- Flex replacement visor and insert the top and sides into the visor frame ensuring that the top visor tabs slide outside of the frame. Swing the bottom of the visor into place, lift the flap and engage the latch through the visor centre hole.



RECYCLING

Airshield, accessories and packaging should be sorted for environmentally friendly recycling.

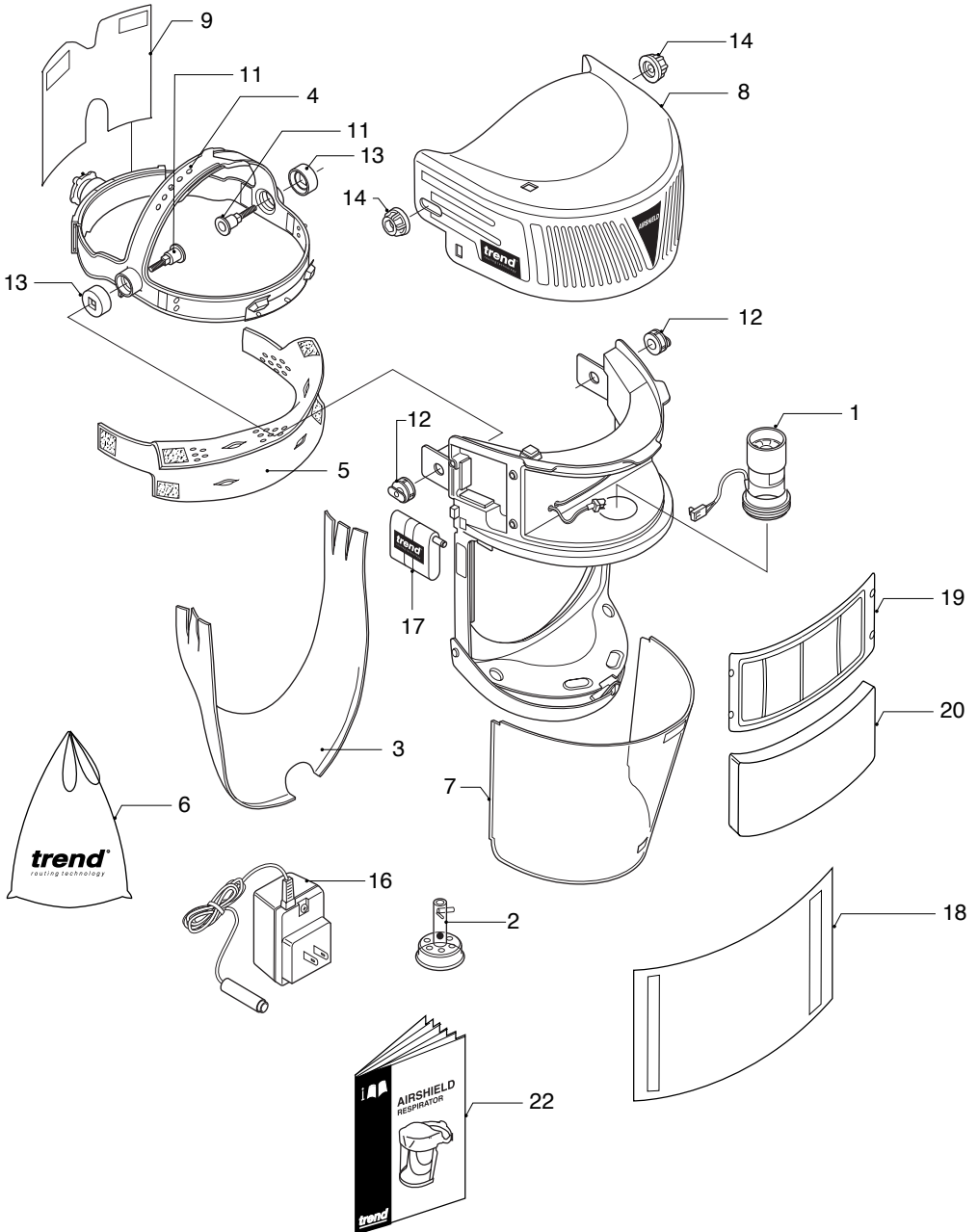
GUARANTEE

The Airshield carries a manufacturers guarantee in accordance with the conditions on the enclosed guarantee registration card.

AIRSHIELD USA - SPARE PARTS LIST			v1.0 04/2003
Item	Qty	Description	Ref.
1	1	Fan/Motor	WP-AIR/01
2	1	Airflow Indicator	WP-AIR/02
3	1	Face Seal	WP-AIR/03
4	1	Headband	WP-AIR/04
5	1	Sweatband USA	WP-AIR/05/USA
6	1	Carry Bag	WP-AIR/06
7	1	Visor USA	WP-AIR/07/USA
8	1	Cover USA	WP-AIR/08/USA
9	1	Rear Comfort Pad USA	WP-AIR/09/USA
10	-	-	-
11	2	Pivot Pin	WP-AIR/11
12	2	Cover Washer	WP-AIR/12
13	2	Torque Washer	WP-AIR/13
14	2	Knob	WP-AIR/14
15	-	-	-
16	1	Charger 120v USA	AIR/5L/USA
17	1	Battery 4 Hour - 3.6 volt DC	AIR/4
18	0	Visor Overlay - Clear (pack of 10)	AIR/3C
19	0	THP2 Filter (pack of 3)	AIR/1
20	0	Pre-Filter (pack of 3)	AIR/2
21	-	-	-
22	1	Manual USA	MANU/AIR/USA

AIRSHIELD USA SPARE PARTS DIAGRAM

v1.0 04/2003



MANU/AIR/USA v2.0



RECYCLABLE

Email: _____ sales@trend-usa.com
Web: _____ www.trend-usa.com