

ROYAL FILTERMIST



FX300 | FX575 | FX900 | FX1200

Installation, Operation and Maintenance Manual

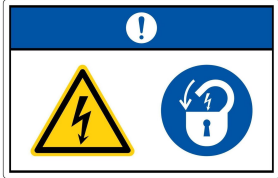
No part of this document may be made public or shared without the express permission of Curran Manufacturing, LLC.

Table of Contents

General Information	4
Installation	5
Direct Mounting to Machine Tool	5
Floor Stand Mounting Procedures	6
Electrical Connection	8
Starter/Isolator	8
Overload Settings and Terminal Connection	10
Maintenance	11
Interim Service	11
Full Service	12
Spares	15
Warranty and Performance Guarantee	16
Warranty	16

General Information

A Royal Filtermist unit is an oil mist collector that uses centrifugal impaction to remove or reclaim oil mist, coolant, fume and steam from manufacturing operations. This manual describes how to install and maintain your Royal Filtermist unit. Please read all instructions before commencing any installation or maintenance work. Original instructions are in English, all other languages are translations of this.



WARNING! At least 120 seconds must be allowed for the inner drum to stop rotating before the case is removed.



WARNING! The unit is intended for indoor use only.



WARNING! The unit is to be used on wet applications only, e.g., oil, emulsion, coolant or steam. It is not to be used on flammable, explosive, corrosive or dry applications, e.g., dust, smoke, acid.



WARNING! Isolation from any power supply shall either be visible (i.e., a visible break in the power supply circuits) or the isolation device is actuated to the off position and physically locked off.



WARNING! Oil leaks can be a hazard. The complete system should be checked regularly for possible oil leaks - daily visual checks of both unit and extraction duct are recommended.



WARNING! Contact with oils, coolants, etc., can cause skin disorders. Avoid contact with skin and eyes and wear PVC, neoprene or nitrile gloves, safety glasses and overalls when cleaning or working on the filter.



WARNING! The unit must not be operated without the case fitted.

Installation

The following are typical installations and cover the majority of applications. For more advice on these or other installation methods please contact your local supplier.

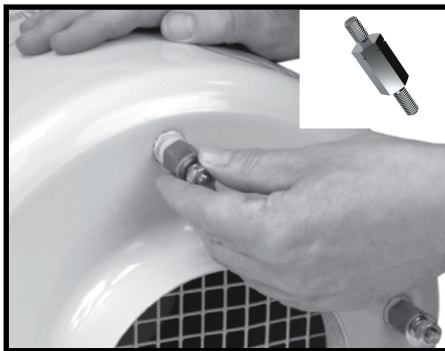
Always try to position the extraction point as far as practically possible from the cutting area of the machine and so that mist is drawn away from the operator's working area. On installation when possible, the unit should be positioned for ease of access for maintenance, e.g., between **41 inches** and **54 inches** above the working level (providing the efficiency of the unit isn't compromised).

All photographs are for illustration purposes only.

Direct Mounting to Machine Tool



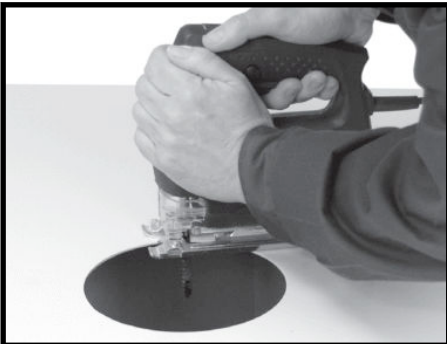
Step 1. Remove the four insert screws in the base of unit.



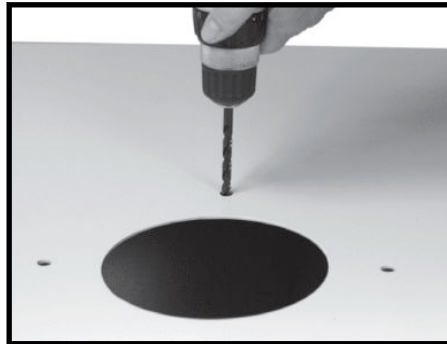
Step 2. Fit four case studs with the notched edge facing towards the Filtermist unit (supplied with unit).



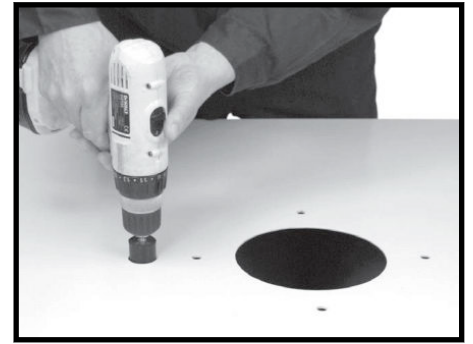
Step 3. Fit foam collar seal around inlet *spigot* (supplied with unit).



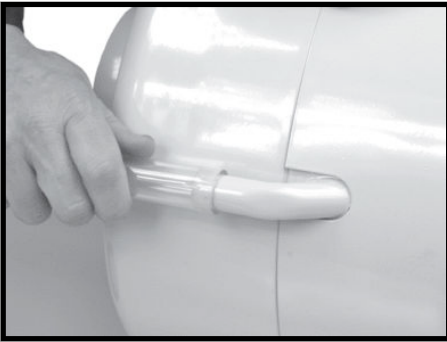
Step 4. Cut extraction hole in machine enclosure.



Step 5. Drill four case stud fixing holes (see product specifications table for hole size and case stud hole PCD).



Step 6. Cut hole for oil return hose (if required).



Step 7. Fit oil return hose and position tube to drain oil back to machine enclosure, sump or collection vessel.



Step 8. Position unit and secure.



WARNING! Always ensure that the machine can support the weight of the unit.



IMPORTANT! There must be no kinks or "U" bends in the return hose. The end of the hose must not be submerged.

Floor Stand Mounting Procedures

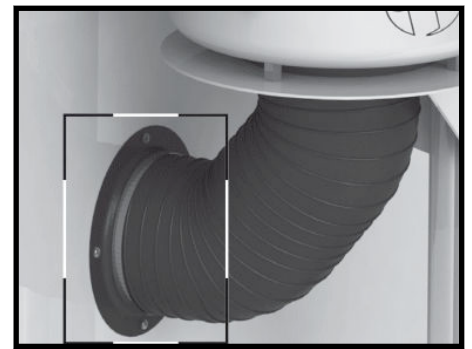
If you have a Royal **FX300** or **FX575** model, follow this procedure to mount your unit to a floor stand.



Step 1. Fit four case studs with the notched edge facing towards the Filtermist unit (supplied with unit).



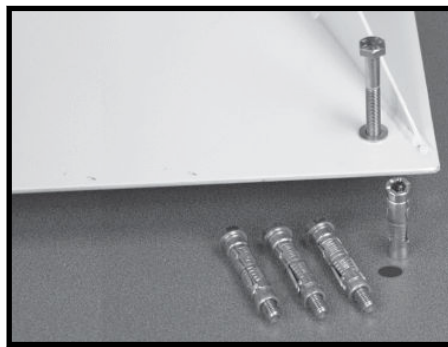
Step 2. Fit unit to stand (supplied separately) and secure.



Step 3. Connect inlet of unit to extraction hole using suitable duct and adaptor (supplied separately).



Step 4. Fit oil return hose and position tube to drain oil back to machine enclosure, sump or collection vessel.



Step 5. Secure stand to floor with floor bolts.

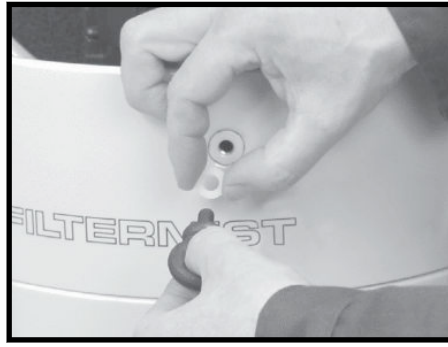


IMPORTANT! There must be no kinks or "U" bends in the return hose. The end of the hose must not be submerged.

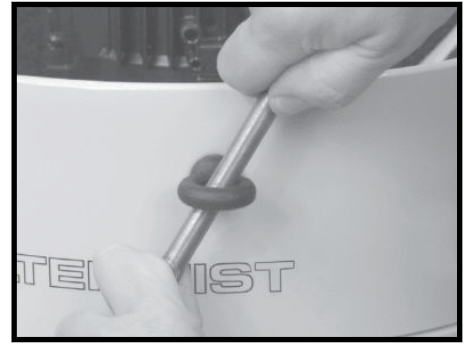
If you have a Royal **FX900** or **FX1200** model, follow this procedure to mount your unit to a floor stand.



Step 1. Remove the four insert screws in top of unit at 90° intervals.



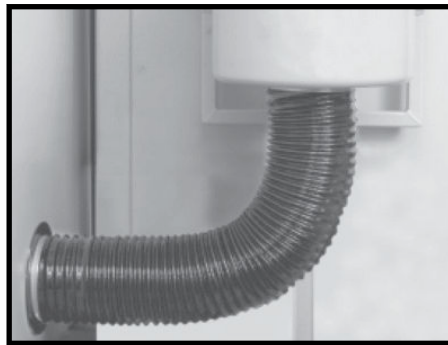
Step 2. Screw in four eyebolts with nylon washers.



Step 3. Tighten eyebolts until horizontal.



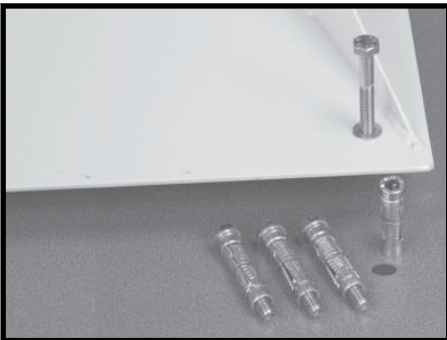
Step 4. Position unit in stand and secure unit with bolts (supplied with unit).



Step 5. Connect inlet of unit to extraction hole using suitable duct and adaptor (supplied separately).



Step 6. Fit oil return hose and position tube to drain oil back to machine enclosure, sump or collection vessel.



Step 7. Secure stand to floor with floor bolts.



IMPORTANT! There must be no kinks or "U" bends in the return hose. The end of the hose must not be submerged.

Electrical Connection

Royal Filtermist motors are wound for **STAR (high voltage)** and **STAR/STAR (low voltage)** connection. A connection diagram can be found inside the motor terminal box. The motors must be connected via a **three-phase, direct-on-line** starter and isolator with suitable thermal overloads or via an independent supply in the machine control panel. On start-up the motor will draw current in excess of that shown on the motor plate. Ensure that appropriate fuses are used.



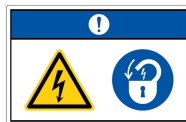
DANGER! The motor is set for HIGH voltage (400-480v) operation as standard. If LOW voltage operation is needed, change the terminal connections as shown below to avoid permanent damage to the motor.



IMPORTANT! The internal drum of the unit must run in the direction indicated by the arrow on the upper section and/or warning label and must run continuously. To correct the rotation, swap any two supply wires. The unit can only be started by using the control device provided for that purpose - this also applies when restarting the machinery after a stoppage.



Starter/Isolator



The overload starter must be selected to suit different sized units or voltages and current ratings; contact your local distributor for more information. The Royal Filtermist unit must be provided with a clearly identified, readily accessible electrical isolation point providing all-pole disconnection which has the facility for lock-off, and is positioned between **2 feet** and **5.6 feet** above the working surface. If an isolator is used, it will act as an on/off switch for the Royal Filtermist unit. The unit should be turned on whenever the machine tool is operational.



Figure 1. The visual appearance of the starter/isolator, showing internal (left) and external (right) views.

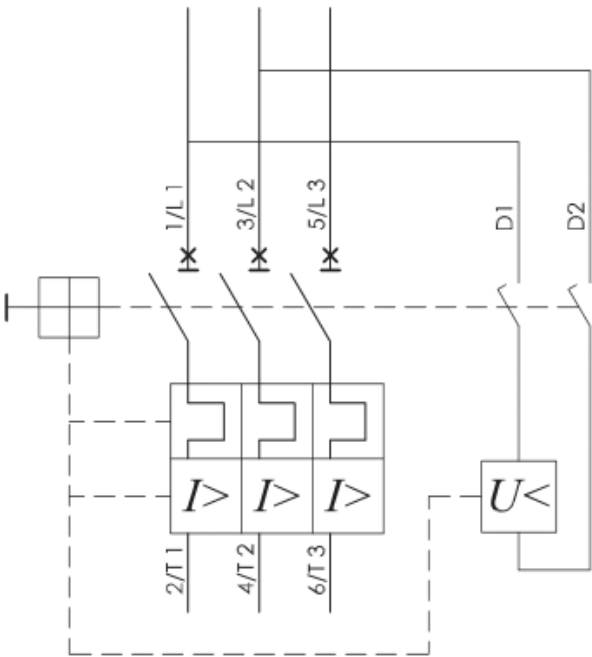
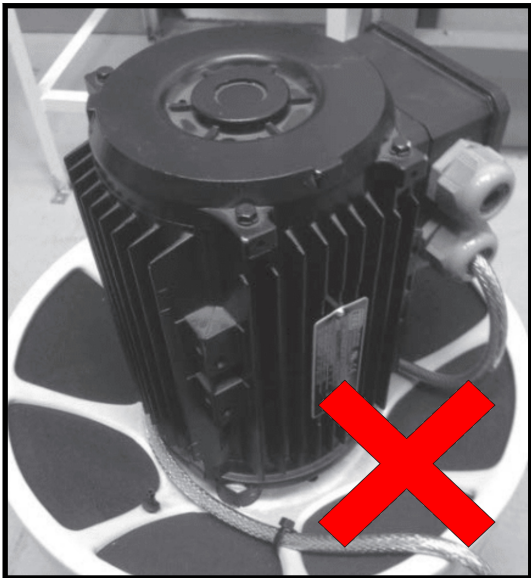


Figure 2. Wiring diagram for the starter/isolator.



IMPORTANT! Ensure when connecting power to the unit that excess electrical cable is NOT wrapped around the motor.

Table 1. Further Installation Data

	Model			
	FX300	FX575	FX900	FX1200

Machine Enclosure Volume	Model			
	< 80 cubic feet	60-120 cubic feet	90-180 cubic feet	> 120 cubic feet
Airflow	295 CFM	560 CFM	900 CFM	1200 CFM
Inlet Diameter	6"	6"	6"	8"
Extraction Hole Diameter	6.1"	6.1"	6.1"	8.1"
Case Stud Hole PCD	9.9"	9.9"	10.8"	10.8"
Case Stud Hole Diameter	0.4"	0.4"	0.4"	0.4"
Unit Weight	31 lb	33 lb	51 lb	61 lb
Unit Noise	65 dB	67 dB	70 dB	71 dB

Overload Settings and Terminal Connection

The recommended overload settings and terminal connections are provided here.



IMPORTANT! Overloads are to be set no higher than 125% of the motors full load current.

Table 2. Recommended Overload Settings for High and Low Voltage Connections

Recommended Overload Settings									
		Low Voltage (STAR/STAR)				High Voltage (STAR)			
		200v	208v	220v	230v	400v	440v	460v	480v
		50Hz	60Hz	60Hz	60Hz	50Hz	60Hz	60Hz	60Hz
0.75HP	FLC	2.7	2.6	2.6	2.6	1.35	1.3	1.3	1.3
2.0HP	FLC	6.3	6.3	6.3	6.3	3.15	3.15	3.15	3.15
3.0HP	FLC	8.8	9.4	9.4	9.4	4.4	4.7	4.7	4.7

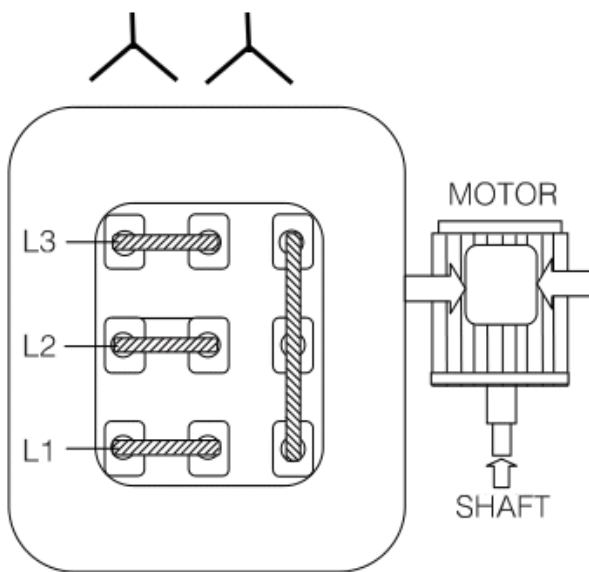


Figure 3. STAR/STAR schematic diagram.

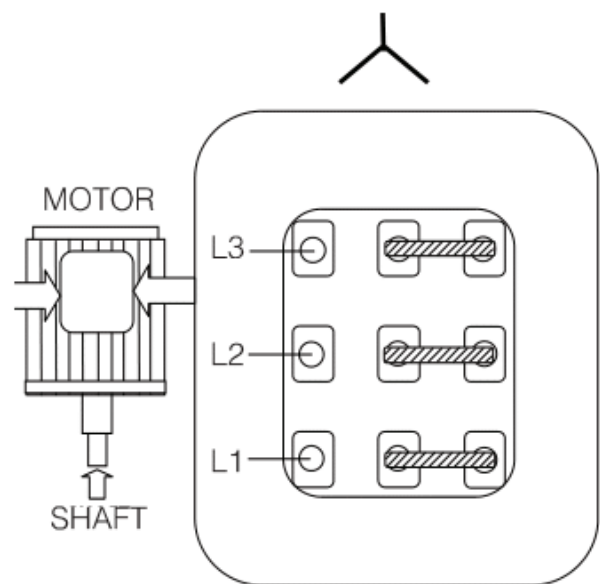


Figure 4. STAR schematic diagram.

Maintenance

It is important that you take good care of your unit by ensuring that a regular sequence of maintenance checks are carried out at specific intervals - failure to carry out maintenance could result in insufficient extraction from the machine and a deterioration of efficiency.

Please ensure that you:

- Check condition of any ductwork ensuring that all connections are tight.
- Check cleanliness of any grilles in the system and ensure that fishtail hoods (if fitted) are clean.
- Check airflow indicators (if fitted) are operating correctly and connections to the ductwork are clean and clear.

Please note that maintenance should always be carried out in accordance with the following guidelines.



IMPORTANT! In more arduous conditions, e.g., grinding or cast iron machining, the units should be checked and cleaned on a more frequent basis, according to duty. Contact your supplier for details of maintenance plans and spares kits.



IMPORTANT! Use only genuine spares – use of unauthorised parts may affect performance adversely and invalidate the warranty.

Interim Service



Step 1. Undo safety latch and clips.



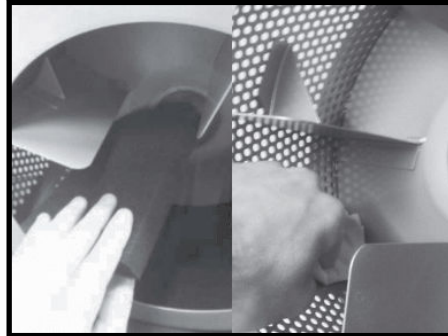
Step 2. Separate top and bottom of case.



Step 3. Remove old seal.



Step 4. Clean area where top and bottom of case join and clean drain hole.



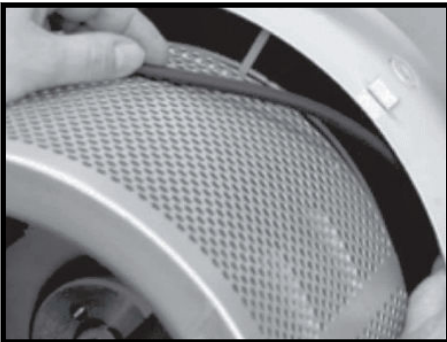
Step 5. Remove old drum pads, clean inside of drum and inspect drum for signs of damage.



IMPORTANT! Damaged drums should be replaced.



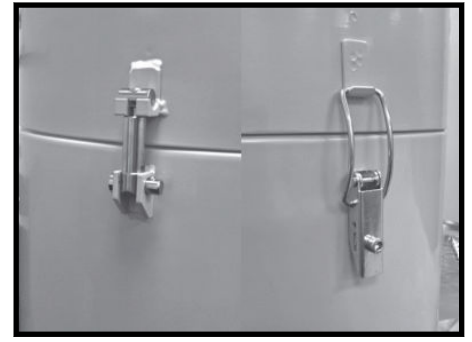
Step 6. Fit new drum pads.



Step 7. Fit new seal.



Step 8. Check inlet grille is clear.



Step 9. Re-assemble unit.



IMPORTANT! Ensure safety latch and clip are securely fastened.

Full Service



Step 1. Undo safety latch and clips.



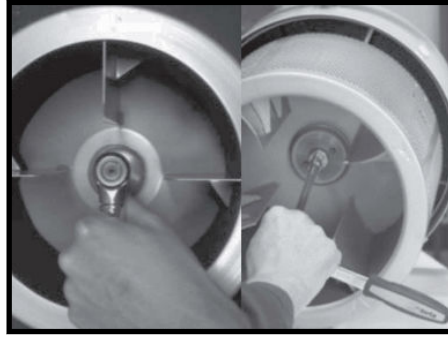
Step 2. Separate top and bottom of case.



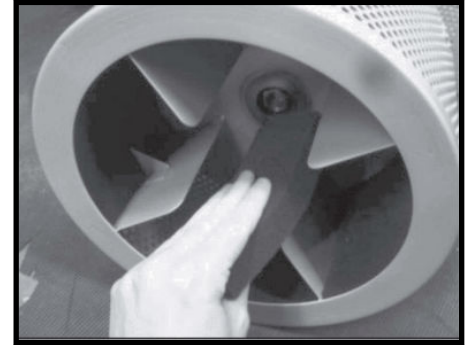
Step 3. Remove old seal.



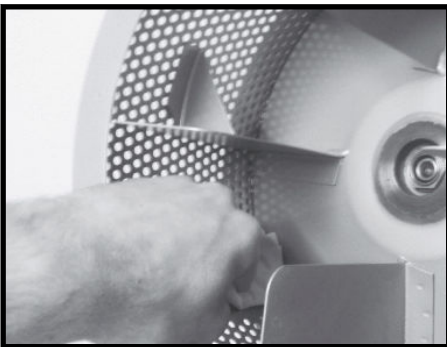
Step 4. Clean areas where top and bottom of case join and clean drain hole.



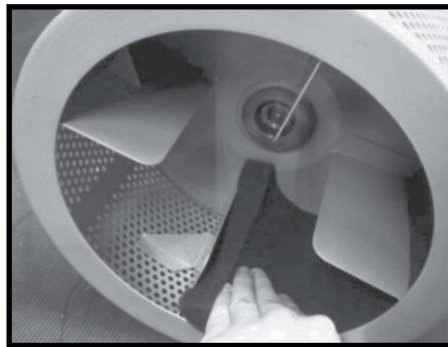
Step 5. Remove drum.



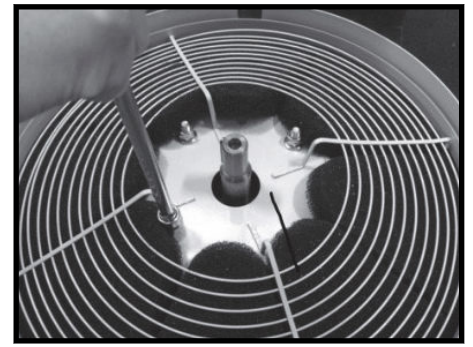
Step 6. Remove old drum pads.



Step 7. Clean inside and outside of drum.



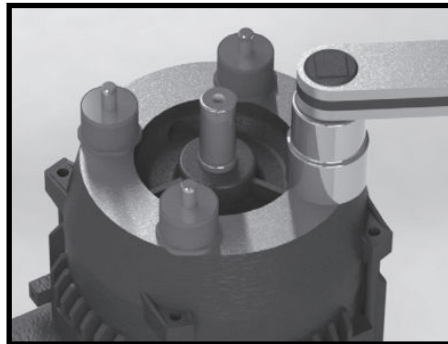
Step 8. Fit new drum pads.



Step 9. Remove motor mounting nuts.



Step 10. Withdraw motor from housing.



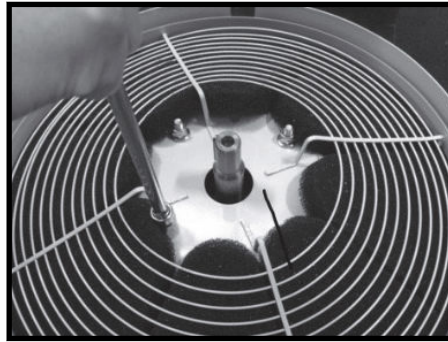
Step 11. Remove old motor mounts and replace with new mounts. Tighten mounts to 8Nm.



Step 12. Remove old silencer and fit new silencer.

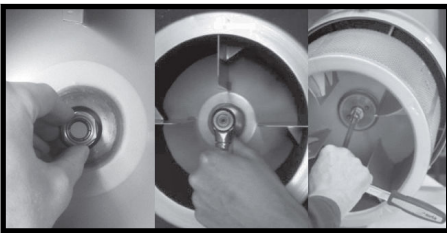


Step 13. Re-fit motor to top of case.



Step 14. See right.

IMPORTANT! Fit new motor mounting nuts and tighten (5 Nm for FX300 and FX575 units; 8 Nm for FX900 and FX1200 units).



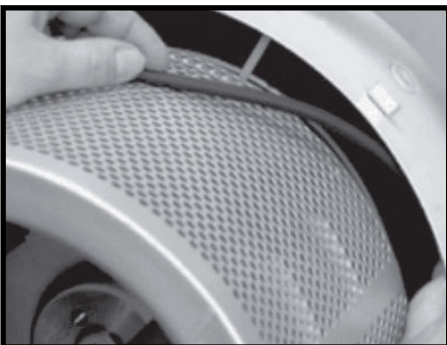
Step 15. See right.

IMPORTANT! Ensure bush (if your unit has one), shaft and drum hub are clean and free from debris before re-fitting the drum. If your unit includes a drum bush, tighten to 20Nm. If it includes taper collar(s), tighten bolt to 8Nm. For Royal Filtermist FX300 and FX575 models tighten to 20Nm, for FX900 and FX1200 models tighten to 8Nm.



IMPORTANT!

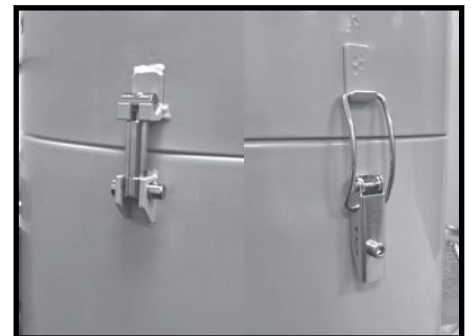
Check that taper collars are fitted correctly before tightening the bolts.



Step 16. Fit new seal.



Step 17. Check inlet grille is clear.



Step 18. Re-assemble unit. **Ensure safety latch and clip are securely fastened.**

Spares

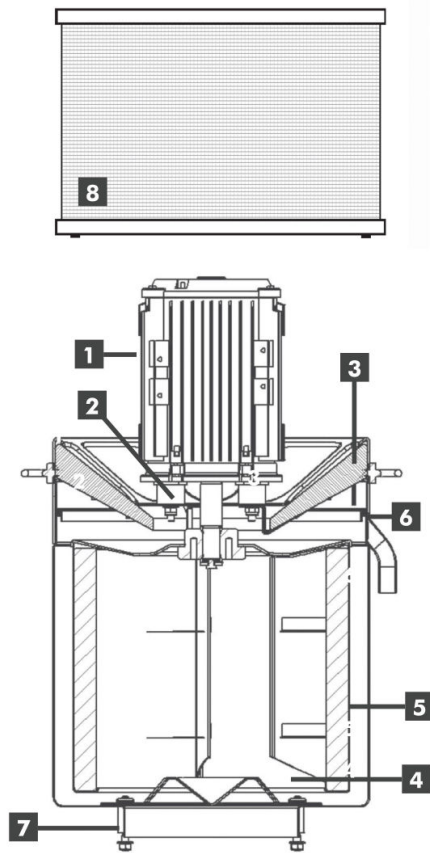


Figure 5. A schematic cross-section of a Royal Filtermist FX unit, with parts indicated by arrows.



NOTE The parts on this page are for models with a blue serial number. If you have an older model unit with a white, yellow or black serial number label please contact Royal Products.

Table 3. Spare part numbers for Royal Filtermist FX units

Item	Model	Part Number
1. Motor	FX300 FX575	30450
	FX900 FX1200	30454
2. Motor Mount Set (Includes four mounts and required hardware)	FX300 FX575	30440
	FX900 FX1200	30442
3. Silencer	FX300 FX575	30520
	FX900 FX1200	30422
4. Drum	FX300	30560
	FX575	30566
	FX900	30462
	FX1200	30464
5. Drum Pads (Set of 4)	FX300	30410
	FX575	30416
	FX900	30412
	FX1200	30414
6. Housing Seal	FX300 FX575	30430
	FX900 FX1200	30432
7. Direct Mounting Kit (includes collar seal, mounts and required hardware)	FX300 FX575	N/A
	FX900	30302
	FX1200	30304
8. Complete After Filter (fits over the Filtermist motor and includes toggle clips)	FX300 FX575	30200
	FX900 FX1200	30205
Complete Maintenance Kit (Includes items 2,3,5 and 6)	FX300	30500
	FX575	30506
	FX900	30402
	FX1200	30404

Warranty and Performance Guarantee

Warranty

We warrant that within five years from the date of shipment if the Royal Filtermist unit sold by us is in the possession of the original buyer from an authorised distributor, we will replace or repair, at our option, free of charge, any part or parts, other than the electric motor and consumable items, i.e., drum pads and silencers, "O" ring seals, flexible ducting, etc., which upon examination we find to be defective in workmanship or material, provided that, on our request, the product or parts thereof are returned to our plant, along with satisfactory documentation that the Royal Filtermist unit has been properly used and maintained.

The electric motors are covered by a separate one year warranty issued by the manufacturer and can usually be rebuilt at a local repair station.

This warranty is in lieu of all other express or implied warranties (including without limitation and warranty of merchantability or fitness for a particular purpose). In no event shall we be liable for any special indirect or consequential damages (including but not limited to, lost profits or other damages from loss of production) caused by defective material, or by unsatisfactory performance of the product, or by any other breach of contract by us.

Contact your Royal Filtermist supplier for details of maintenance plans and spares kits. **CALL TOLL FREE!**
1-800-645-4174

This page is intentionally left blank.

This page is intentionally left blank.

This page is intentionally left blank.



Supplied by:

**Royal Filtermist, 200 Oser Avenue,
Hauppauge NY11788, USA**
A division of Curran Manufacturing, LLC
Telephone: **1-800-645-4174**
Email: **info@royalproducts.com**
Web: **<http://www.royalproducts.com>**