

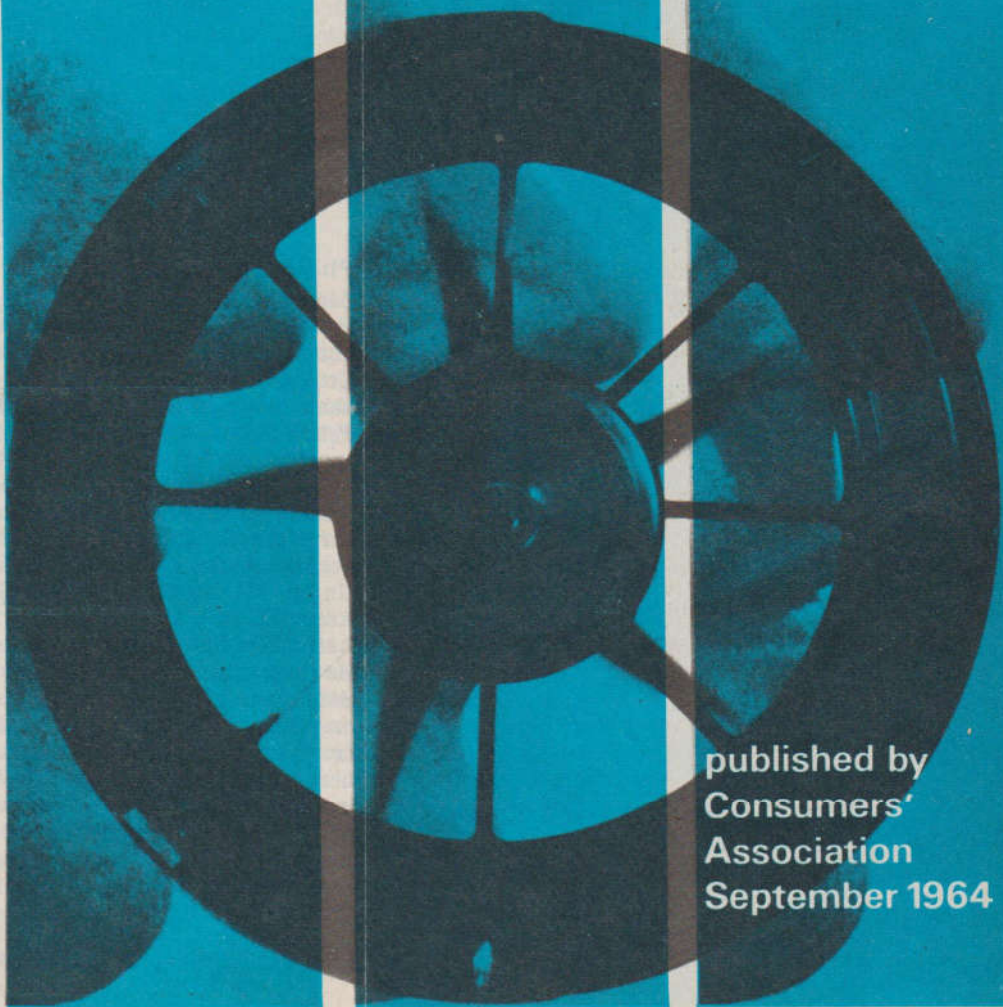
Which?

Extractor fans

Coal
Ironing boards

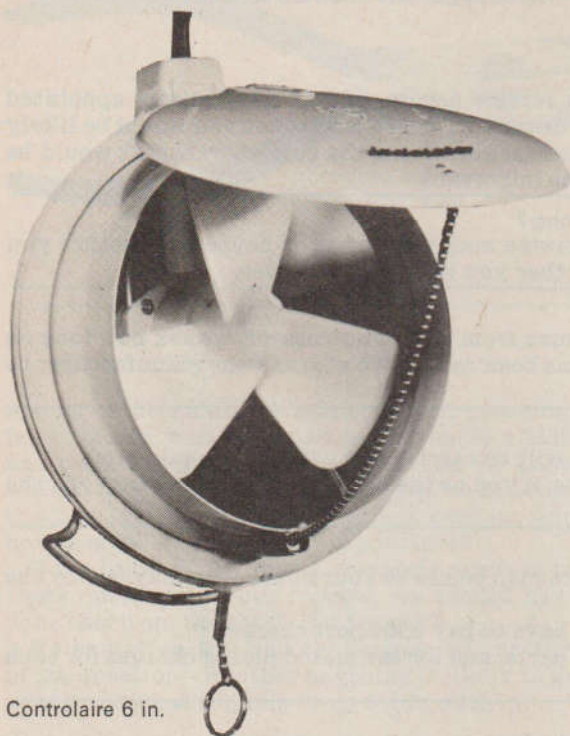
Fabrics and
fibres 2: yarns

Repairs and
servicing



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Extractor fans for windows



Controlaire 6 in.

In most houses in this country, there is quite enough ventilation. Indeed in the winter the problem is usually to stop too much cold air flowing through a room. But some rooms do have a ventilation problem, particularly kitchens and bathrooms where you may want to get rid of condensation or cooking smells.

Extractor fans are sold as an answer to this problem.

We tested 17 fans ranging in size from 4 in. to 9 in. They cost from about £3 to £18. The ones we have tested could all be installed in a pane of glass and mounted in a window frame. This does not involve any structural alterations and need not cost any more than it costs to buy a pane of glass, have a hole cut in it and have it fitted to the window. You will probably need slightly thicker glass than ordinary window glass.

There are other fans which can be fitted in an outside wall. They have the advantage that you may be able to put them where they would be

most efficient, but they are obviously more difficult to install. There are alternative models for wall fitting of some of the window models we tested.

Mounting

Any of the fans we tested might interfere with the opening of a sash window. But they would not normally cause difficulty in other sorts of window. The Table shows how easy it was to mount them. Although one or two were slightly tricky to fit, you normally have to do this only once.

Shutters and switches

The Table gives details of the kind of switch each fan had. Some switched on only at the mains. Others switched on at the fan itself, either when the shutter was opened or at a separate switch. The most practical arrangement was where the switch was coupled with the shutter.

The most common type of shutter was simply a hinged flap which pulled down over the outside of the fan. Some had iris shutters which closed round the centre of the fans. There was no shutter included in the basic price of the VENT-AXIA fans. You could choose (at extra cost) either an iris shutter or an automatic shutter (a ring of very light metal flaps which fell into a closed position when the fan was off, but were held open by the pressure of air when it was on). The EKCO HI-FLO fan had no shutter at all, which meant that cold air could blow in when the fan was off.

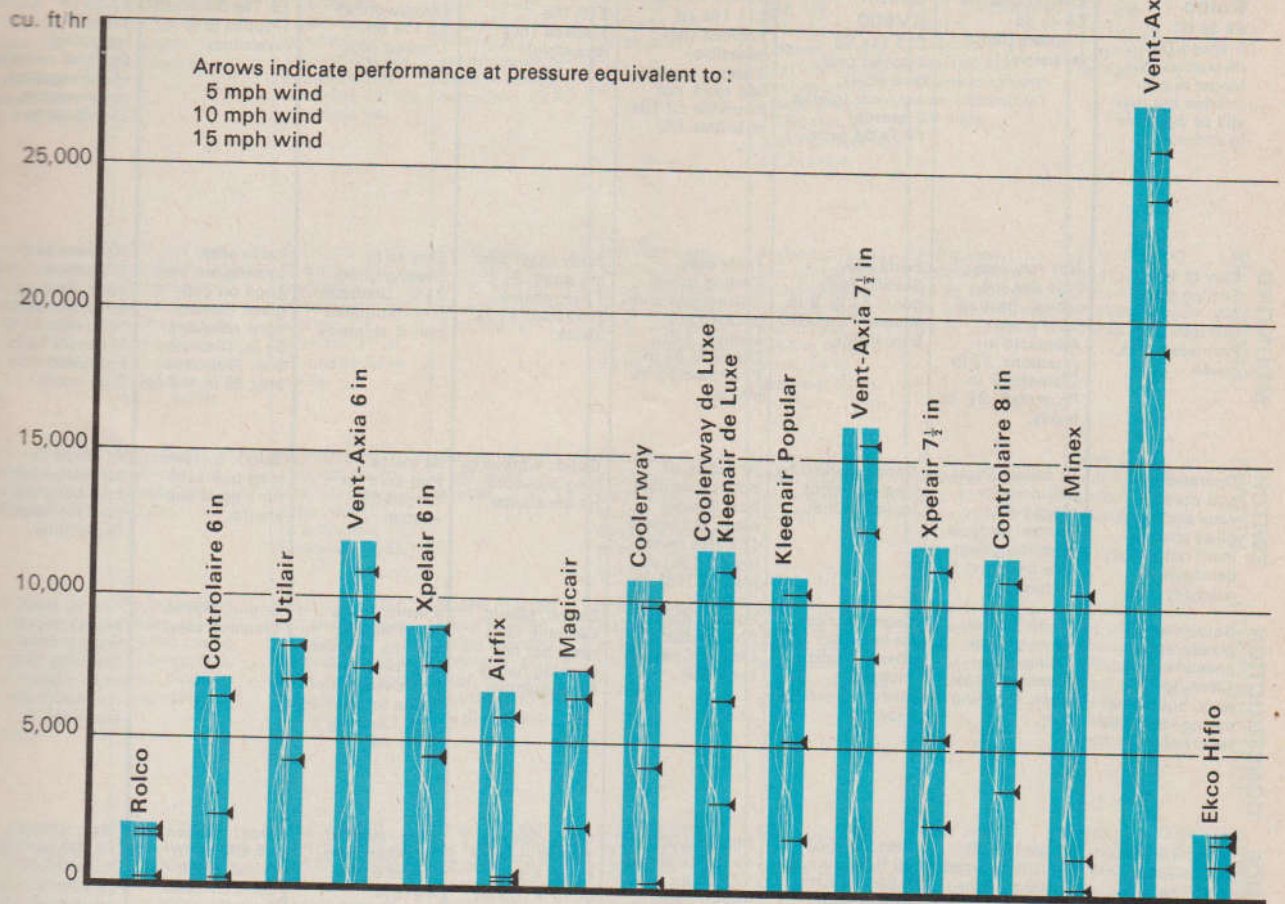
Several of the fans had control boxes which enabled you to set and sometimes to reverse the flow of air. In some cases these cost extra. Only for the more powerful fans would there be much point in running them at lower speeds, but being able to blow air into the room might well be useful in hot weather.

Performance

A fan's performance is measured by the amount of air in cubic feet it moves in a given time. This is usually given in cubic feet per hour. To get enough ventilation one person normally needs at least 600 cu ft of air an hour. An open window should give you more than this in 2 to 5 minutes. So in most circumstances you do not really need a fan to prevent a fug.

To solve the condensation problems created in kitchens and bathrooms you need a much higher ventilation rate. Cooking a meal can produce as much as 5 lb of water (even more with gas cookers) - some of which is held as water vapour and the rest of which is deposited on cold surfaces such as walls and windows. Extractor fans can reduce condensation by removing the warm air before the water-vapour has a chance to condense. Condensation will be most severe in very small rooms (there is less air to hold the water vapour) and when it is very cold. To reduce condensation in kitchens in cold weather you

Fan performance



will need a rate of ventilation which will change all the air from about 15 to 20 times an hour. An open window would usually give you at least this, but you may not want to open the window - it may be raining, or you may not want to have people peering at you in your bath. To get enough ventilation in an average kitchen with the window shut you would need a fan which takes out about 10,000 cu ft/hr to 13,000 cu ft/hr. You can work out the extraction rate your kitchen needs in this way: find the volume of the room (multiply height by width by length) and multiply by the number of times you want to change the air.

The fans we tested were claimed to have extraction rates of from 3,500 cu ft/hr to 30,000 cu ft/hr. To find out how much air they did in fact extract we measured the fans' performance by method 8 from the British Standard on Methods of Testing Fans for General Purposes. Some manufacturers have told us that they use method 9, of which the British Standard says 'has been retained as a simple test for a small fan for a specific duty, although more accurate methods are available... The inlet volume recorded... is known to differ

from the true inlet volume.' This may explain the difference between some of the figures quoted in leaflets and some figures we found which were lower. What we found agreed with the claims for the VENT-AXIA fans, the XPELAIR 6-inch and the MINEX. The AIRFIX air flow was twice that claimed. Again using method 9, we were also able to find out how well the fans worked under various conditions of pressure. The fan is subjected to pressure when a wind blows against the fan from outside or when the air inlet to the room is restricted.

The Diagram shows the results we found when there was no pressure and with pressures roughly equivalent to a wind blowing against the fan at 5, 10 and 15 mph. Many of the fans were badly affected by adverse pressures and some hardly worked at all against the 15 mph equivalent. The VENT-AXIA fans did much better than the others in these conditions. Of course in some wind conditions you can get an effect of suction outwards and in these conditions the fans should always work better. But equally you would also get better ventilation then by opening a window.

4 inch

Rolco

£3 9s 6d
1-speed (not reversible). No longer in production but may still be available in shops.

6 inch

Controlaire

£8 4s 8d
1-speed (not reversible)

Utilair

KV600
£13 11s 6d
2-speed (not reversible); regulator (giving 8 speeds)
£4 7s 6d extra.

Vent-Axia ♦

£11 16s 7d
1-speed (not reversible)
3-speed control box extra, not reversible £3 10s;
reversible £4.

Xpelair ♦

£10 18s
1-speed (not reversible)

6½ inch

Airfix

(Woolworths)
£2 17s 6d
1-speed (not reversible)

7 inch

Magicair 160

£5 15s 6d
1-speed (not reversible)

7½ inch

Coolerway

£7 1s 1d
1-speed (not reversible)
Optional variable speed regulator, not reversible,
£1 18s extra.

MOUNTING

Easy to fit. Seating good. 2lb. Diameter 7 in. Protruded 3 in. inside.

Not very easy: hole size too critical. Seating fairly good. Adequate instructions. 2½ lb. Diameter 8 in. Protruded 2½ in. inside.

Fairly easy. Seating fairly good. 5½ lb. 9 in. square. Protruded 5 in. inside.

Fairly easy. Seating good. Instructions complicated but explicit. 6 lb. Diameter 8½ in. Protruded 5½ in. inside.

Fairly easy. Seating good. 3½ lb. 7½ in. square. Protruded 3½ in. inside.

Easy to fit. Seating good. 3½ lb. Diameter 8 in. Protruded only 2 in. inside.

Fairly easy. Seating not very good on thin glass. Instructions adequate. 5½ lb. Diameter 8 in. Protruded only 2½ in. inside.

Not very easy: 3 separate operations. Seating good. Instructions adequate. 3½ lb. Diameter 10 in. Protruded only 2 in. inside.

SWITCH

Operated by pull-cord for vane shutter. A good arrangement but switch damaged in reliability test.

At mains. Short pull-cord for hinged-flap shutter. Air flow direction adjustable by lifting fan on hinge.

Good: worked by long pull-cord for iris shutter.

At mains, or optional control box. Shutter extra: automatic (£2 10s, reversing £2 15s) or iris (£2 10s).

Good: worked by long pull-cord for iris shutter.

At mains. Pull-cord for hinged flap shutter.

Good: by fairly long pull-cord for hinged flap shutter.

At mains or optional control box. Long pull-cord for hinged-flap shutter.

CONSTRUCTION

Sound; metal blades, stove enamel casing. Cleaning fairly easy, but part of casing had to be removed.

Plastic blades, stove enamel casing. Fan assembly rather loose. Cleaning easy.

Sound, except for loose fan guard. Plastic (metal fan guard). Cleaning easy.

Sound; plastic. Sharp edge on blades. Cleaning fairly easy.

Sound, plastic. Cleaning fairly easy, but fan housing had to be dismantled.

Plastic. Fan a loose fit on spindle (makers say fixing now improved), poor hinge for shutter flap. Cleaning fairly easy.

Sound, plastic. Cleaning easy.

Sound, metal blades, stove enamel case. Cleaning fairly easy. Blades removable for cleaning.

PERFORMANCE

Max: 3,500 cu ft/hr claimed, 1,800 cu ft/hr found - very low.

Max: 10,000 cu ft/hr claimed, 7,100 cu ft/hr found. Badly affected by 10 mph wind equivalent.

Max: 14,000 cu ft/hr claimed, 8,590 cu ft/hr found. Badly affected by 15 mph wind equivalent.

Max: 12,000 cu ft/hr claimed, 12,000 cu ft/hr found. Satisfactory even at 15 mph wind equivalent.

Max: claimed 10,000 cu ft/hr, found 9,220 cu ft/hr. Barely satisfactory at 15 mph wind equivalent.

Max: claimed 3,000 cu ft/hr, found 6,900 cu ft/hr. Ineffective against 10 mph wind equivalent.

Max: claimed 16,800 cu ft/hr, found 7,560 cu ft/hr. Satisfactory up to 10 mph wind equivalent only.

Max: claimed 16,000 cu ft/hr, found 10,800 cu ft/hr. Barely satisfactory at 10 mph wind equivalent.

NOISE

Fairly noticeable.

Fairly noticeable.

Fairly noticeable.

Noticeable, particularly at highest speed.

Fairly noticeable.

Fairly noticeable.

Noticeable; and pull-cord chain tended to rattle.

Fairly noticeable.

SAFETY

Earthed. Potentially dangerous: live switch terminals accessible to test finger; mains terminals not properly marked; no cord anchorage.

All-insulated. Satisfactory.

All-insulated. Electrically unsatisfactory: supply cord wrongly colour-coded.

Earthed. Satisfactory.

Earthed. Satisfactory.

All-insulated. Electrically unsatisfactory: easy to touch motor spindle protected by one layer of insulation only.

All-insulated. Potentially dangerous: test pin could touch live switch parts and test finger other parts with single layer insulation.

Earthed. Satisfactory.

VALUE FOR MONEY

Not recommended because it was electrically potentially dangerous.

Relatively cheap but not very powerful.

Without the speed regulator which seemed unnecessary £13 11s 6d was a lot to pay for a fan with only moderate performance.

Fairly powerful and well constructed. Fairly expensive, particularly since control box and shutter were extra.

Rather expensive for a fan with only a moderate extraction rate.

Though very cheap its performance under pressure was poor and it was electrically unsatisfactory.

Not recommended because electrically potentially dangerous.

Fairly good value for money for a fan with a moderately high extraction rate except against pressure.

Coolerway de luxe
£12 19s 1d
2-speed (reversible)
(Identical to Kleenair de luxe, £12 19s 7d)

Not very easy: 3 separate operations. Seating good. Instructions adequate. 3½ lb. 10½ in. square. Protruded only 1½ in. inside.

At control box on wall. Long pull-cord for hinged-flap shutter.

Sound, but rough edge on shutter; metal blades, stove enamel case. Cleaning fairly easy, blades removable.

Max: claimed 16,000 cu ft/hr, found 11,800 cu ft/hr. Barely satisfactory at more than 10 mph equivalent.

Fairly noticeable.

Earthed. Satisfactory.

We do not consider it as good value for money as the Coolerway which cost £5 18s less and had a similar performance.

Kleenair Popular
£8 13s 10d
1-speed (not reversible)

Not very easy: 3 separate operations. Seating good. Inadequate instructions. 3½ lb. 10½ in. square. Protrudes only 1½ in. inside.

At mains. Long pull-cord for hinged-flap shutter.

Sound; metal blades, stove enamel casing. Cleaning fairly easy, blades removable.

Max: 16,000 cu ft/hr claimed, 11,000 cu ft/hr found. Barely satisfactory at 10 mph wind equivalent.

Noticeable.

Earthed. Satisfactory.

Moderate performance except under pressure. Similar to Coolerway but cost more.

Vent-Axia ♦
£14 15s 8d
1-speed (not reversible)
3-speed control box extra, not reversible £3 10s, reversible £4.

Fairly easy. Seating good. Instructions complicated but explicit. 7 lb. Diameter 10 in. Protruded 5½ in. inside.

At mains, or optional control box. Shutter extra: iris (£3) or automatic (£3, reversible £3 5s.)

Sound, plastic; but sharp edges on blades. Cleaning fairly easy, motor and blades removable.

Max: 18,000 cu ft/hr claimed, 16,100 cu ft/hr found. Satisfactory even at 15 mph wind equivalent.

Fairly noticeable.

Earthed. Satisfactory.

Relatively expensive, but had second best performance, adequate for kitchens and bathrooms, so good value for money.

● **Best buy**

Xpelair
£17 16s 3d
1-speed (not reversible)
speed regulator extra, 4-speed reversible, £3 6s.

Fairly easy. Seating good. 9½ lb. 11½ in. square. Protruded 4 in. inside.

Good: by pull-cord to iris shutter.

Sound; plastic, stove enamel motor housing. Cleaning fairly easy, but fan housing has to be dismantled.

Max: 18,000 cu ft/hr claimed, 12,000 cu ft/hr found. Barely satisfactory at 10 mph wind equivalent.

Quiet.

Earthed. Satisfactory.

Relatively expensive for an average performance.

8 inch
Controlaire
£12 12s
1-speed (not reversible)

Not very easy. Seating fairly good. Instructions adequate. 4½ lb. Diameter 10 in. Protruded 2½ in. inside.

At mains. Rather short pull-cord for hinged-flap shutter. Airflow direction adjustable by lifting fan on hinge.

Sound; plastic blades, stove enamel casing. Cleaning easy.

Max: 17,650 cu ft/hr claimed, 11,360 cu ft/hr found. Badly affected at 15 mph wind equivalent.

Fairly noticeable.

All-insulated. Satisfactory.

Moderate performance, comparable with much cheaper Coolerway. So not as good value for money.

8½ inch
Minex Super Mk III
£10 16s 9d
2-speed (reversible) *a/s/o* cheaper non-reversing 1-speed version
£7 5s 10d, 2-speed control box £2 2s extra

Awkward fitting into rubber ring round window opening. Hole size critical. Seating fairly good. 3½ lb. Diameter 9½ in. Protrudes 3½ in. inside.

At control box. Short pull-cord for hinged-flap shutter.

Sound; plastic blades and shutter, stove enamel metal casing. Cleaning easy.

Max: 12,400 cu ft/hr claimed, 13,500 cu ft/hr found. Ineffective at 10 mph wind equivalent.

Quiet.

Earthed. Electrically unsatisfactory: strain on cord transmitted directly to motor windings, no anti-spread washers for earth terminals (makers say now remedied).

Moderate performance; modified version would be fairly good value for money.

9 inch
Vent-Axia ♦
£17 (no purchase tax)
1-speed (not reversible)
3-speed control box (reversible) £5 extra

Fairly easy. Seating good. 7½ lb. Diameter 11 in. Protruded 4½ in. inside.

At mains, or optional control box. Shutter extra, iris (£3 10s) or automatic (£3 17s 6d).

Sound; plastic. Cleaning fairly easy, motor and fan removable.

Max: 30,000 cu ft/hr claimed, 27,700 cu ft/hr found. Very high extraction rate even against pressure.

Fairly noticeable.

Earthed. Satisfactory.

Very powerful, but expensive. And it is not likely that you would need such high extraction rates.

tangential
Ekco Hi-Flo EF 20
£5 15s 2d
1-speed (not reversible)

Easy. Seating good. 2½ lb. 7 in. x 5½ in. Protrudes 5½ in. inside.

Very short pull-cord for switch. No shutter.

Sound; metal fan unit, plastic casing. Cleaning difficult: complete removal and dismantling needed. No instructions.

Max: 3,600 cu ft/hr claimed, 2,400 cu ft/hr found - very low.

Fairly noticeable.

Earthed. Electrically unsatisfactory; possible strain on earth terminal, no terminal markings.

Very low extraction rate, difficult to clean, and electrically unsatisfactory. Poor value for money.

MOUNTING

SWITCH

CONSTRUCTION

PERFORMANCE

NOISE

SAFETY

VALUE FOR MONEY

Cooking smells

Cooking smells may be a nuisance if they spread through the house and linger in the rooms. An extractor fan used during and after cooking not only expels some of the vapour from cooking but also, by creating a draught towards the kitchen window, helps to prevent cooking smells permeating the rest of the house.

We carried out a series of tests to find out how large the extraction rate had to be to remove the smells from cooking onion and bacon in a small room. Fans with about 12,000 cu ft/hr took about 45 minutes to reduce the smell from 'very strong' to 'faint'. Even the most powerful fan (about 30,000 cu ft/hr) was not much quicker. The smallest fans were only a little better than no fan at all when the smell took about 85 minutes to fade.

Noise

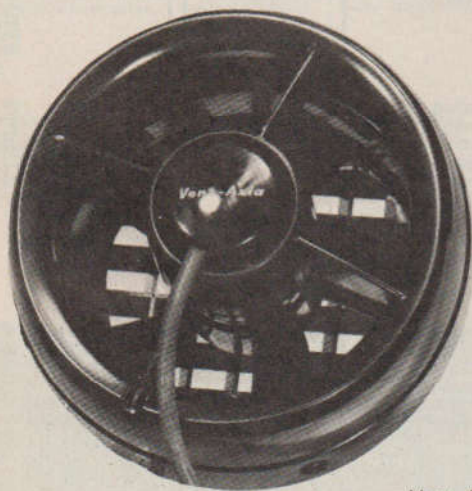
We measured the sound made by the extractor fans with instruments and also assessed it subjectively. Some made a more noticeable hum than others. People found the intermittent vibrations and rattles which some made a nuisance.

Running costs

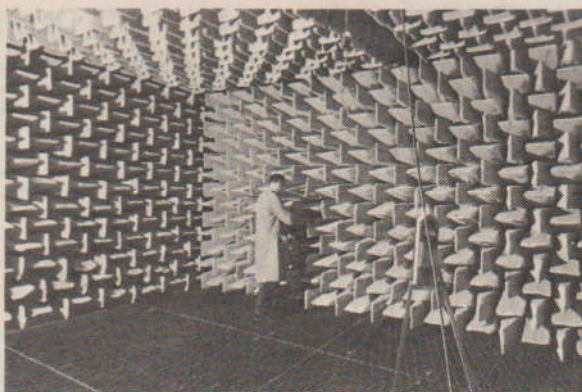
The running costs of even the most powerful fan would not be much more than it costs to keep an electric light burning. But as with any method of ventilation you will, of course, lose some heat.

Reliability

We ran all the fans for 230 hours, for part of the time under slightly higher and slightly lower voltages than normal, and switched them on and off 1,000 times. On one the switch became faulty but all the others showed no signs of wear.



Vent-Axia 7 1/2 in.



The echo-free chamber where we measured noise made by the extractor fans

Value for money

You can usually get all the fresh air you need by opening the window occasionally, but there are times when it may be convenient to leave the window closed and have an extractor fan provide the necessary ventilation continuously.

In kitchens and bathrooms which need high ventilation rates, fans can help to reduce condensation on walls and windows. Fans with extraction rates of about 12,000 cu ft/hr and above made a noticeable difference to cooking smells, but none of them would always prevent smells getting into the rest of the house.

An advantage of extractor fans for windows is that they can generally be installed at very little expense. A disadvantage is that you can not always place them in a position where they will be most effective - directly over a cooker, for instance.

So if you buy an extractor fan, it will be because you really need artificial ventilation. In that case you will want a fan which works well all the time, even in adverse conditions. The VENT-AXIA fans performed best. They were expensive - £11 16s 7d for 6 in., £14 15s 8d for 7 1/2 in., £17 for 9 in., and you had to pay extra for shutters, and also for control boxes if you wanted them. In spite of this we think that the best value for money would be the VENT-AXIA 7 1/2 in. So we pick as

Best Buy

- Vent-Axia 7 1/2 in. £14 15s 8d (shutter and control box extra)

If you can't afford to pay VENT-AXIA prices the choice lies between the AIRFIX which was very cheap (£2 17s 6d) with a not very high extraction rate, and was electrically unsatisfactory, the COOLERWAY (£7 1s 1d) and the MINEX SUPER MK. III (£10 16s 9d) both of which gave fairly good rates except under adverse wind conditions.

Extractor fans for windows September 1964

Repairs and servicing

Extractor fans are reliable and don't usually need repairs. This means that the picture we are giving you here about the arrangements manufacturers have made to look after them is probably clearer than it would be with, say, washing machines.

All the information here is information which the manufacturers themselves have given us. But you should be able to insist that the manufacturer carries out in practice what he has told us. We have not done any tests ourselves to see what actually happens.

Who carries out repairs?

In every instance, the manufacturer, plus (for EKCO, VENT-AXIA and COOLERWAY) Electricity Boards, and (for COOLERWAY) all dealers too.

How widely spread is the service organisation?

For servicing by manufacturers, there is normally one depot, but EKCO has 6 and XPELAIR and VENT-AXIA 8. However, as fans can be posted for repair, a good spread of depots is not essential.

What are you supposed to do when something goes wrong?

You can either take it to the dealer or send it to the manufacturer for all except MINEX and CONTROLAIRE - manufacturer only. Only with KLEENAIR, VENT-AXIA and XPELAIR can you also summon a manufacturer's service man to your house. You can have it collected by ROLCO, who provide a replacement while it is being repaired.

How long will the service man take to arrive?

Again, this applies only to KLEENAIR (up to 14 days, 7 on average), VENT-AXIA (up to 3 days, 1 on average) and XPELAIR (up to 7 days).

How long will the repair take?

EKCO, KLEENAIR, VENT-AXIA and COOLERWAY said the fan would take not more than 7 days to repair if it was posted to them, UTILAIR 7 to 10. MINEX, ROLCO and XPELAIR did not say definitely.

XPELAIR, COOLERWAY, CONTROLAIRE, VENT-AXIA and KLEENAIR said they would send spare parts by return of post, MINEX and EKCO within 7 days, and UTILAIR 14. AIRFIX said they would repair or send spare parts by return of post, MAGICAIR in 3 days.

What will repairs cost?

For a visit to your house, XPELAIR charge £1 1s plus the cost of any parts (fair wear and tear excepted, they say). KLEENAIR have no fixed charge for this. VENT-AXIA charge for parts and labour.

If you send the fan to the manufacturers for repair, you pay the postage for all except ROLCO.

We do not believe that fans need repair very often, so we are not giving the price list of spare parts. The most common fault appears to be a broken pull cord, and the cost of replacing this is small. Estimated labour charges for fitting

a new motor varied from £1 (COOLERWAY) down to 3s (AIRFIX and MINEX). UTILAIR, CONTROLAIRE and XPELAIR did not quote labour costs.

VENT-AXIA include carriage and labour charges in their repair prices. ROLCO said there would never be any charge for repairs or parts, unless the damage was caused by deliberate misuse.

Is there a maintenance contract?

Only VENT-AXIA and XPELAIR provided one. The annual cost for XPELAIR was 12s 6d to 17s 6d (according to model), and you got two routine visits a year. If the service man did any repairs, these cost 7s 6d plus the cost of any parts. For VENT-AXIA, the annual cost was £2 8s 6d to £2 15s depending on where you lived, and you got two routine visits a year. You pay for any parts except motor parts suffering from fair wear and tear.

For how long will spare parts be available?

EKCO said 7 years, KLEENAIR at least 10, COOLERWAY, CONTROLAIRE, ROLCO and MINEX said indefinitely. The only manufacturers who were making fans 10 years ago (XPELAIR and VENT-AXIA) still stock spares for these models. AIRFIX said 3 years, MAGICAIR 5 to 6; VENT-AXIA said 10 years after they stop production of any fan.

How is the guarantee carried out, in practice?

What is covered? For all the fans, defects caused by faulty materials or workmanship.

None of the manufacturers say you would have to pay labour or carriage costs for these repairs.

Although their guarantees say nothing about this, KLEENAIR say they include fans damaged by misuse or mishandling, and COOLERWAY and MINEX say they repair any faulty fans unless their is definite evidence of misuse.

For how long? All the guarantees lasted for 12 months, except AIRFIX (only 6) and XPELAIR (two years). COOLERWAY told us that they 'do not register dates of sale. . . . Therefore all requests are treated sympathetically'.

Any special conditions? Most guarantees imposed no special conditions. Even where they did, the manufacturers usually told us these would be waived if the fault was caused by defective materials or workmanship. But the AIRFIX guarantee excluded wear and tear, and said 'this Guarantee becomes void if the Extractor Fan has been adjusted or repaired by any unauthorised person.' AIRFIX told us that these terms were interpreted strictly.

MAGICAIR and UTILAIR do not issue a printed guarantee. MAGICAIR told us that they would repair any defect caused by faulty materials or workmanship within 12 months.

UTILAIR say: 'Faulty fans returned under guarantee will be repaired or replaced free of charge . . . [including units which had] developed faults under normal wear and tear. Units damaged by unfair treatment would be specially reviewed.'

Extractor fans September 1964

We gave the claimed extraction rate of the XPELAIR 7½ in. fan as 18,000 cu ft/hr. This figure applied to the model designed for a 60 cycle AC supply. The model we tested was for a 50 cycle supply. The extraction rate claimed for this is 15,000 cu ft/hr. We are sorry for this mistake.