

Series 3 Cabinet Fan Quietscroll Cabinet Fan

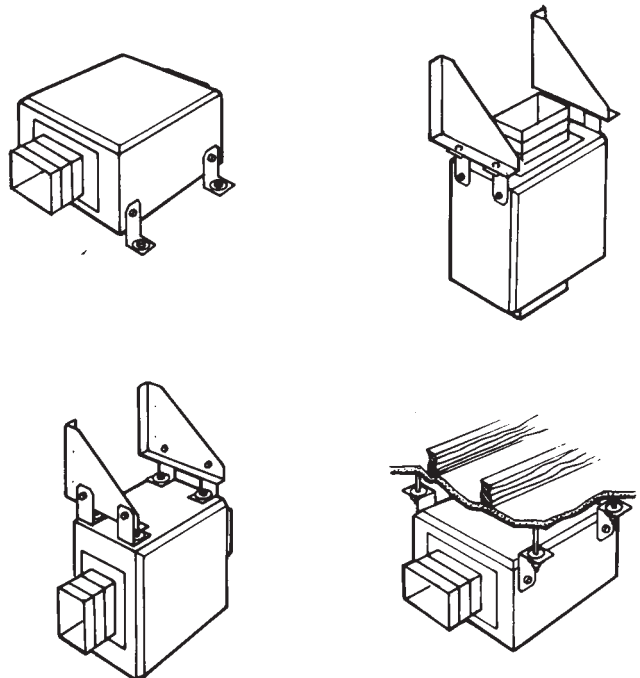
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Introduction

Series 3 Cabinet Fans and Quietscroll Cabinet Fans are each produced in six sizes, coded respectively 3CF and 3QSCF followed by the unit size. Apart from the extent of acoustic treatment, they are basically identical and are treated as such in this publication. Each fan incorporates a direct-driven high efficiency double inlet forward curved centrifugal impellers running in metal scrolls. Resilient mounting kits (optional) are available with all units in the Cabinet Fan range. Silencers, mounting brackets, speed controls and run-on timers are also supplied as optional extras.

All units incorporate a manual duty-trimming device which enables adjustment of unit during installation.

Silencers bolt on the fan units in place of removable spigot plates with which the units are normally terminated. The plates are then fitted to the outer ends of the silencers. Fan

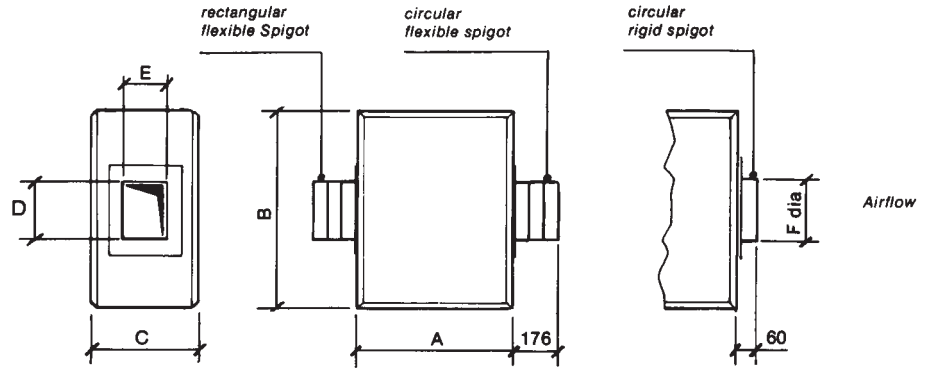
units and silencers thus become integrated assemblies for direct fitting into ductwork.

Resilient mounting kits contain the appropriate number of mounting feet complete with resilient mounts.

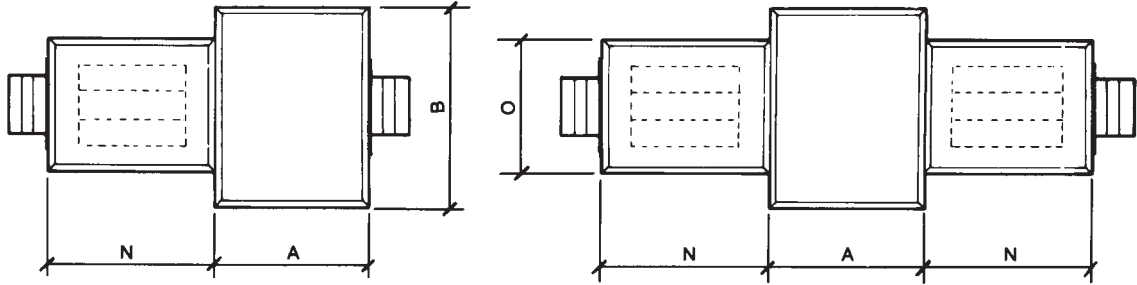
Fan units are complete with a two metre length of mains cable terminating in a moulded, fused three-pin plug. Run-on timers, when supplied, keep the fan running for a period after switch off. The period is adjustable between 5 and 30 minutes nominal. Two types of run-on timer are available, both for interposing between the electrical mains supply and the fan unit. One type (QSTIM) is fitted with a three-pin plug. The other type (QSTIMX) is fitted with an isolator switch and a terminal strip for connection of the fan unit's integral cable, the three-pin plug now being dispensed with.

Units are supplied for single phase operation only.

Dimensions and weights



Unit only, showing spigot alternatives



Unit plus one silencer

Unit plus two silencers

Unit Code	Case overall			Spigot			Silencer		Weight (kg) Fan Unit		
	A	B	C	D	E	F dia	N	O	3CF	3QSCF	Silencer
3CF100, 3QSCF100	450	495	238	150	100	125	600	452	11.5	13.5	12
3CF150, 3QSCF150	465	710	303	200	150	200	600	452	19.0	22.0	14
3CF190, 3QSCF190	560	710	370	200	150	200	600	452	26.0	30.0	16
3CF220, 3QSCF220	700	684	476	400	150	250	600	632	32.0	38.0	23
3CF240, 3QSCF240	700	684	476	500	300	400	600	632	35.0	40.0	23
3CF270, 3QSCF270	700	684	476	500	300	400	600	632	38.0	43.0	23

Dimensions in mm.

Ancillary codes

Unit code	Silencer	Mounting Bracket	Resilient Mounting Kit		
			Unit only	Unit + 1 silencer	Unit + 2 silencers
3CF100, 3QSCF100	3QSIL100	3BRKT100	3QAV1	3QAV1	3QAV2
3CF150, 3QSCF150	3QSIL150	3BRKT190	3QAV1	3QAV1	3QAV2
3CF190, 3QSCF190	3QSIL190	3BRKT190	3QAV1	3QAV2	3QAV3
3CF220, 3QSCF220	3QSIL270	3BRKT220	3QAV1	3QAV2	3QAV3
3CF240, 3QSCF240	3QSIL270	3BRKT240	3QAV2	3QAV3	3QAV3
3CF270, 3QSCF270	3QSIL270	3BRKT270	3QAV2	3QAV3	3QAV3

Spigot options

	Circular rigid spigot	Rectangular flexible spigot	Circular flexible spigot	Blank plate
3CF units 3QSCF units	Optional Optional	Optional Optional	Optional Optional	Optional Optional

Fig. 1 — Unit/Silencer dimensions and weights, ancillary codes, spigot options

INSTALLATION

General

Fan units can be mounted in any attitude, including upside down. See fig. 3. and 4. They should always be positioned, however with enough space to allow easy removal of the cover, followed by withdrawal of the fan and motor assembly if required.

Silencers are delivered separated from the fan unit. Before installation, assemble together by removing the spigot plates (one or both depending upon number of silencers) from the fan unit, bolting silencers in their place and then fitting the plates to the ends of the silencers.

Handling

Handle equipment carefully to avoid damage and distortion. When lifting mechanically, use spreaders to make sure that slings, webbing, etc., do not bear on the casing.

Rigid mounting (applicable only to Cabinet Fans not supplied with resilient mounting kits)

The method adopted is the responsibility of others. Note, however, that fan unit and silencer cases have captive M8 nuts which can be used, after removing the M8 screws plugging them. Optional mounting brackets can be employed, the fixing

holes being on the same centres as the nuts.

On resilient mountings (see fig. 3 and 4) Preparations

Suspension rods/fixing screws are not supplied. Recommended thread sizes are:-

Resilient Mounting Kit	Thread Size
QSA1, QSA6	M8
QSA2, QSA5	M6

When required, drill suitable holes in support structure to receive the particular sizes.

Note that the large round washers included in the resilient mounting kit are for fitting above or below resilient mountings, as required by the particular method of mounting, to safeguard the installation against break-up of, or damage to, a mounting. The washers will adequately support the unit under such circumstances.

Fit the mounting feet to the unit/silencer cases as shown in the various sketches in fig. 3 and 4 (does not apply when the unit is to be suspended horizontally from the wall, when the feet are to be assembled to the mounting brackets instead. Make sure that the feet are positioned and orientated

as necessary or the form of installation decided upon.

Floor mounting

Position fan unit or fan unit/silencer combination where required. Fix through the resilient mounts. For centres see fig. 2. Connect ductwork.

Suspended from ceiling

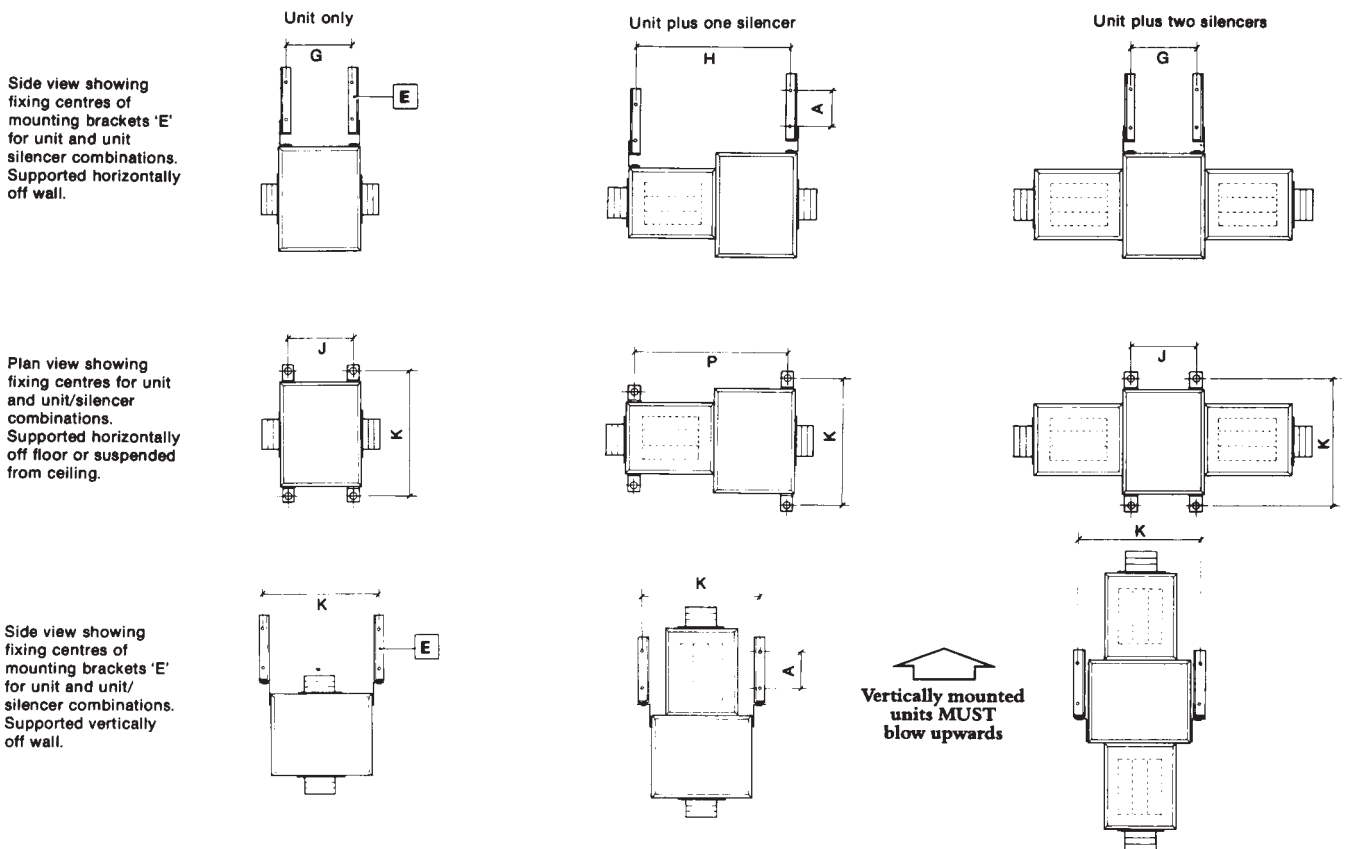
Prepare suitable supports in the ceiling. For centres see fig. 2. Lift the fan unit or fan unit/silencer combination into position. Fix with suspension rods, fitting the large round washers in the mounting kit over the rods **below the resilient mounts**. Connect ductwork.

Supported horizontally from wall

Fit mounting brackets to the wall, using fixing holes which are of 9.1mm diameter. See fig. 2. for centres. To the outside of the arms fit the mounting feet in the kit as shown in the sketches. Lift the unit or fan unit/silencer combination into position and fix with suspension rods, fitting the large round washers in the mounting kit over the rods **above the resilient mounts**. Connect ductwork.

Supported vertically from wall

Fit mounting brackets to the wall, using holes of 9.1mm diameter. For centres see fig 2. Fix the fan unit or fan unit/silencer combination to the brackets. Connect ductwork.



Unit Code	Dimensions in millimetres					Mounting Bracket Holes A
	G	H	J	K	P	
3CF100, 3QSCF100	348	1024	374	591	974	110
3CF150, 3QSCF150	363	1039	389	806	989	175
3CF190, 3QSCF190	458	1134	484	806	1084	242
3CF220, 3QSCF220	598	1274	624	780	1224	462
3CF240, 3QSCF240	598	1274	624	780	1224	462
3CF270, 3QSCF270	598	1274	624	780	1224	462

Fig. 2 — Centres for fixing units

Dimensions in mm

INSTALLATION (Con't)

Adjusting the duty using Integral trimming device.

Where system requirements allow, the unit flow-rate may be adjusted using the integral trimming device during, or after installation.

The air-flow rate can be regulated by means of a control arm situated at the side of the unit and which may be engaged in one of a number of locating holes.

Adjustment is effected by pulling the spring loaded control arm away from the case, moving it to the required position and re-engaging the arm in the appropriate hole.

When the control arm is at right angles to the airflow through the unit, the trimming device is inoperative and the normal fan performance will be delivered.

The flying lead is pre-wired to a connection block and blanking plate assembly. During installation, engage connection block with its mating half within the unit and secure blanking plate with screws provided to side casing.

Installation of a run-on timer

Choose a suitable position, within easy reach of the free end of the fan unit's flying lead unless the timer is to be used in conjunction with a speed control (see the Wiring Diagrams on fig. 5). In this case, the position of the timer relative to the fan unit is not critical.

To install, unclip the outer section of the timer cover and then release the plate carrying the outlet socket (QSTIM) or the isolator switch (QSTIMX) to the extent of its leads. Fix the timer through its corner mounting holes.

Installation of a speed control

Controls can be mounted on any firm surface in any attitude, through fixing holes in their bases. These become available when covers are removed. Drill and plug the mounting surface as necessary, positioning controls so that the cover retaining screws will remain accessible. This is particularly important if a battery of controls is being fitted. Fix with No. 8 woodscrews (not supplied) or equivalent.

For wiring purposes, covers have 20 mm conduit knockouts, whilst bases of NSC2 controls have 20 mm holes for the alternative passage of cables and those of NSC11, NSC12 and NSC13 fixing holes for a 20 mm series conduit box.

Electrical connections (fig. 6)

-Fan unit to be used without run-on timer or speed control

Fit a suitable 13amp outlet socket box in a convenient position to accept the plug on the end of the fan unit's flying lead. Wire the outlet box to the mains supply, through a suitable control switch.

Fan unit to be used with run-on timer only

If not already carried out, unclip the outer

section of the timer cover and then release the plate fitted with the outlet-socket (QSTIM) or the isolator switch to the extent of its lead.

If a QSTIMX (the one with the isolator QSTIMX switch), cut off the plug on the end of the fan unit's flying lead. Wire the cable to the timer's output terminal strip.

Whatever the timer type, wire its input terminal strip to the mains supply as typically shown in the wiring diagram. If a QSTIMX, fuse the supply circuit at 5 amp.

Re-fit the outlet socket/isolator switch plate and the outer section of the timer cover.

Fan unit to be used with speed control only

Fix a suitable 13 amp outlet socket box in a convenient position to accept the plug on the end of the fan unit's flying lead. Wire the outlet box to the speed control (control 2 to LINE, 3 to NEUTRAL, earth to EARTH) and the speed control to the mains supply.

Fan unit to be used with run-on timer and speed control

Fix a suitable 13 amp outlet socket box in a convenient position to accept the plug on the end of the fan unit's flying lead. Wire the outlet box to the speed control (control 2 to LINE, 3 to NEUTRAL, earth to EARTH).

If not already carried out, unclip the outer section of the timer cover and then release the plate fitted with the isolator switch. Wire the speed control to the timer's output terminal strip L to L, N to N and earth to earth). Wire the timer's input terminal strip to the mains supply as typically shown in the wiring diagram.

Testing after installation

Ensure that the covers of the fan unit, run-on timer and speed control, as included, are fitted. Check that the plug on the end of the fan unit's flying lead is fitted with a 5 amp fuse and is mated with the particular outlet socket. This does not apply when a QSTIMX is fitted, but ensure that its isolator switch is in the ON position.

Switch on and check that the fan runs satisfactorily. If a speed control is fitted, check that it regulates speed as required.

Switch off. If a run-on timer is fitted, check that the fan does run-on. Time the run-on period, which is adjustable between 5 and 30 minutes. Units are normally set at Works to the shortest

period. To adjust, proceed as described under ROUTINE MAINTENANCE.

ELECTRICAL DETAILS

Because run and start currents depend upon the duty of an individual unit and associated system, values quoted in the table below are nominal. The values stated on the Test Certificate, available on request, are those obtained during factory testing. Start currents are instantaneous values.

Run currents will be exceeded if the fan unit is operated with its cover removed. It is therefore recommended that the fan is not run for prolonged periods under these conditions.

ROUTINE MAINTENANCE

Isolation

Before commencing, electrically isolate the fan unit from the mains supply by withdrawing its plug from the socket outlet. This does not apply, however, if a QSTIMX is fitted. In this case, isolate with the isolator switch on the face of the timer.

Maintenance periods

The first maintenance should be carried out three months after commissioning and thereafter at twelve-monthly intervals. These intervals may have to be shortened, however, if the unit is operating in adverse environmental conditions or handling heavily polluted air.

General cleaning and inspection

Clean and inspect the exterior of the unit, silencers and resilient mountings, as fitted. Check tightness of fixing devices.

Remove unit cover. As it is normally more convenient to clean and inspect fan and motor assembly out of the unit, it is recommended that it be removed (see REPLACEMENT OF PARTS). Clean out the case left in situ. Inspect interior.

Inspect and clean the fan and motor assembly as follows, taking care at all times not to damage, distort or disturb balance of the impeller:-

- Lightly brush away dirt and dust, paying particular attention to any build-up at motor ventilating slots. If necessary, very carefully remove with a suitable blade or scraper.
- Stubborn dirt at the impeller may be carefully removed with a stiff nylon brush.
- Check all parts for security and condition. Check that the impeller rotates freely.

Re-fit the assembly back to the unit, then replace the unit cover.

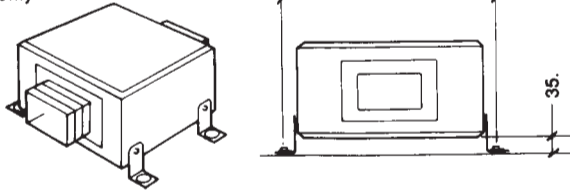
Table of Fan Speeds, Motor Details and Temperature

Unit Code	Nominal fan speed		Motor details			Maximum Permissible Temperature of Air passing over motor °C
	r.p.s.	r.p.m.	Input power watts	Nominal run and start		
				f.l.c.	s.c.	
3CF100, (3QSCF100)	34(34)	2040(2040)	83(83)	0.60(0.60)	0.7(0.7)	60
3CF150, (3QSCF150)	21(21)	1260(1260)	97(97)	0.55(0.55)	0.8(0.8)	60
3CF190, (3QSCF190)	21(21)	1260(1260)	229(238)	1.48(1.54)	2.3(2.3)	60
3CF220, (3QSCF220)	21(20)	1260(1200)	325(350)	1.30(1.35)	2.3(2.3)	60
3CF240, (3QSCF240)	17(18)	1020(1080)	638(636)	3.20(3.20)	4.5(4.5)	60
3CF270, (3QSCF270)	20(20)	1200(1200)	1225(1244)	5.01(5.00)	9.0(9.0)	60

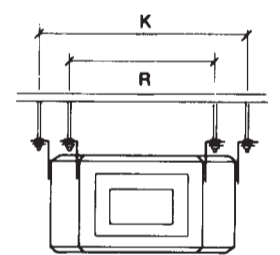
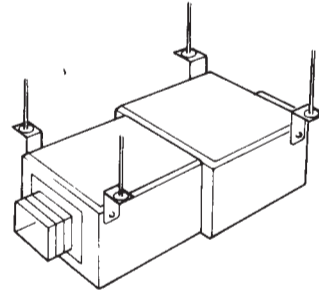
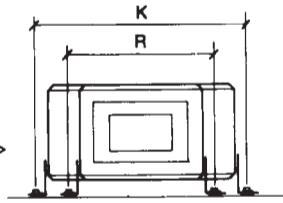
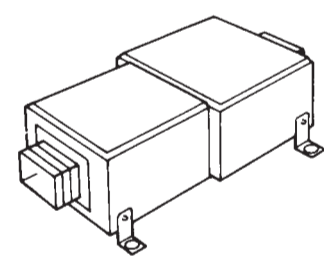
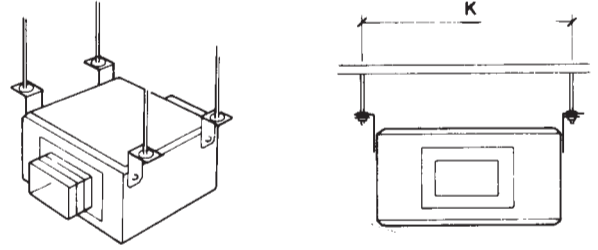
Unit, unit/silencer(s) supported horizontally off floor.

Unit, unit silencer(s) suspended from ceiling.

Unit only

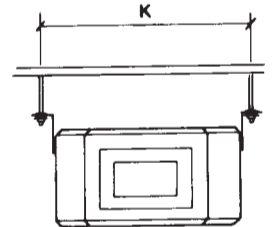
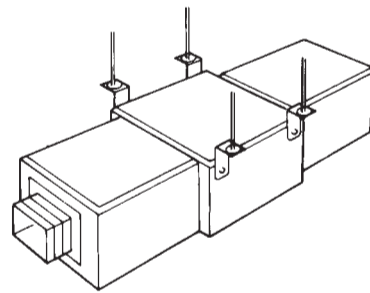
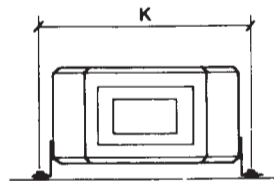
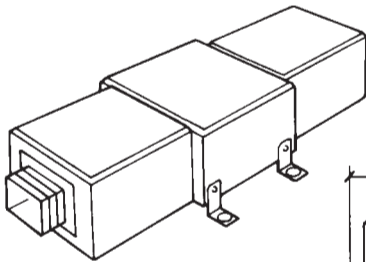


Unit only



Unit plus one silencer

Unit plus one silencer



Unit plus two silencers

Unit plus two silencers

Dimensions in mm

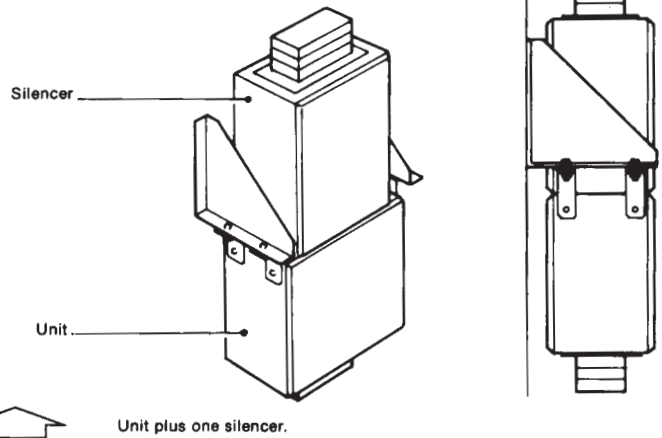
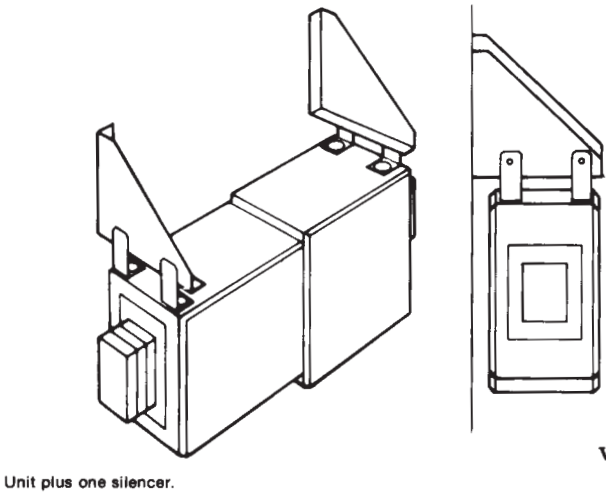
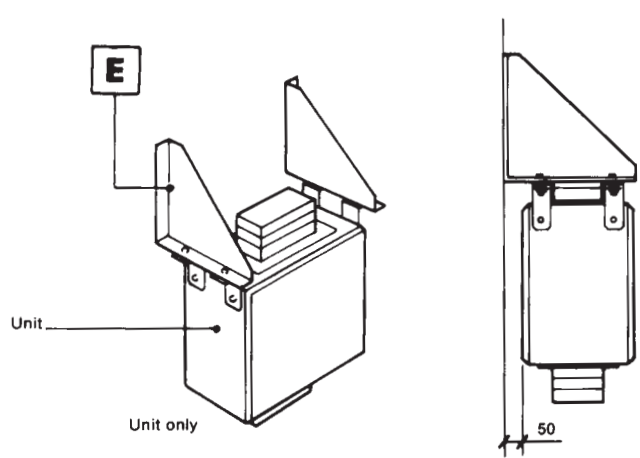
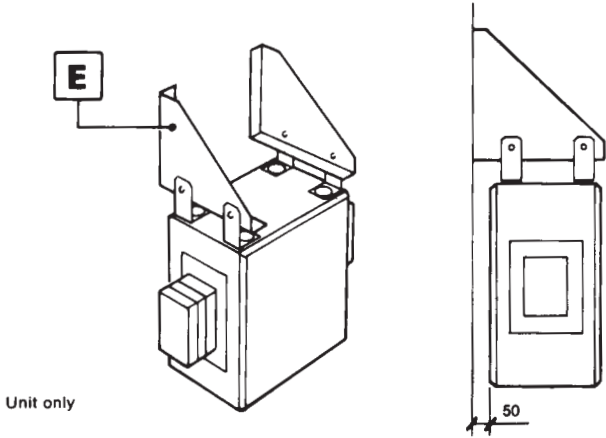
Unit Code	Dimensions in mm	
	K	R
3CF100, 3QSCF100	591	540
3CF150, 3QSCF150	806	548
3CF190, 3QSCF190	806	548
3CF220, 3QSCF220	780	728
3CF240, 3QSCF240	780	728
3CF270, 3QSCF270	780	728

Dimensions in mm

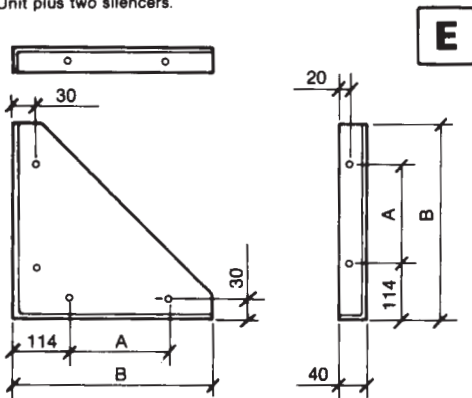
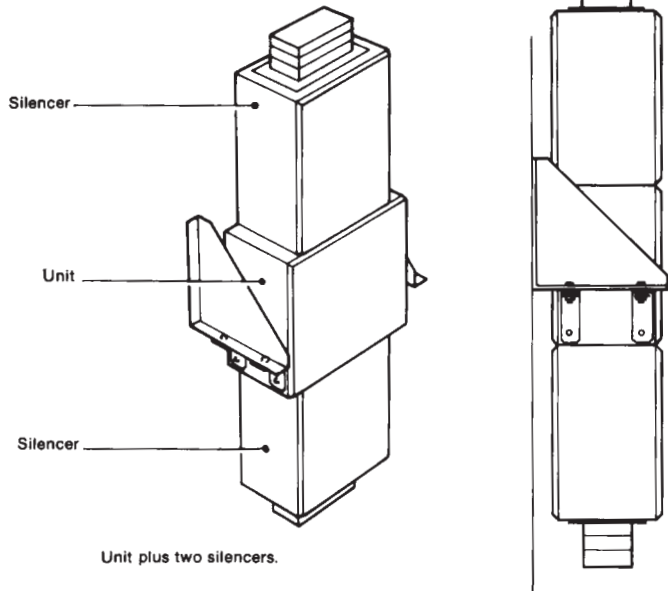
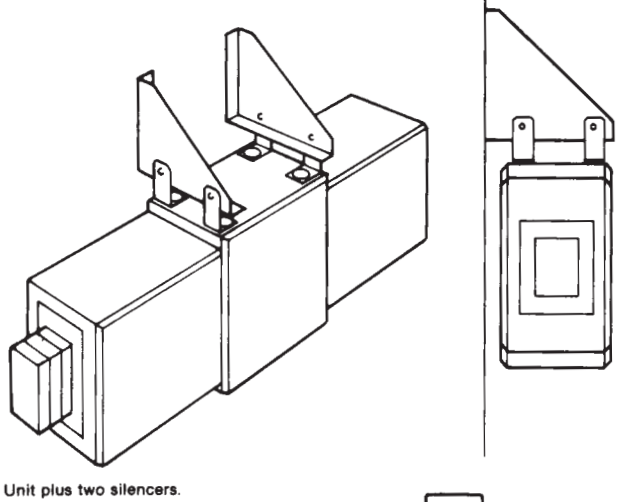
Fig. 3 — Installation of unit/silencer combinations off floor and from ceiling on resilient mountings

Unit, unit/silencer(s) suspended horizontally from wall.

Unit, unit/silencer(s) suspended vertically from wall.



Vertically mounted units MUST blow upwards



Dimensions in mm

Fig. 4. Installation of unit/silencer combinations suspended from wall.

Code	Unit	A B	
		A	B
3BRKT100	100	113	262
3BRKT190	150	178	394
3BRKT190	190	245	394
3BRKT270	220	351	500
3BRKT270	240	351	500
3BRKT270	270	351	500

Lubrication

Motors have sealed-for-life bearings and therefore need no lubrication.

Testing

Test run the fan unit. If a speed control is fitted, check that it regulates speed as required. If a run-on timer is fitted, check the run-on period after the control switch (light or similar) is switched off. Timer limits are adjustable between 5 and 30 minutes nominal. If resetting is required, proceed as follows.

Adjusting timer run-on period

Isolate the timer from the mains supply. Unclip the outer section of the timer cover and then release the plate carrying the outlet socket/isolator switch to the extent of its leads. With a narrow screwdriver re-set the potentiometer at the printed circuit within the unit. Rotating clockwise lengthens run-on period, anti-clockwise shortens it.

Re-fit outlet socket-isolator switch plate and the cover section. Time new run-on period. Repeat procedure as necessary.

REPLACEMENT OF PARTS

The only part likely to require replacement is the complete fan and motor assembly, due possibly to a failed motor or damaged impeller.

Before commencing, electrically isolate the fan unit from the mains supply by withdrawing its plug from the socket outlet. This does not apply, however, if a QSTIMX is fitted. In this case, isolate with the isolator switch on the face of the timer.

Remove the fan unit cover. Disconnect the internal electrical socket from the plug at the fan/motor assembly. Remove the nuts, screws, washers and tubular spacers lining the rubber grommets at the mounting holes, supporting the assembly

as necessary whilst doing so. Lift the assembly out of the fan casing.

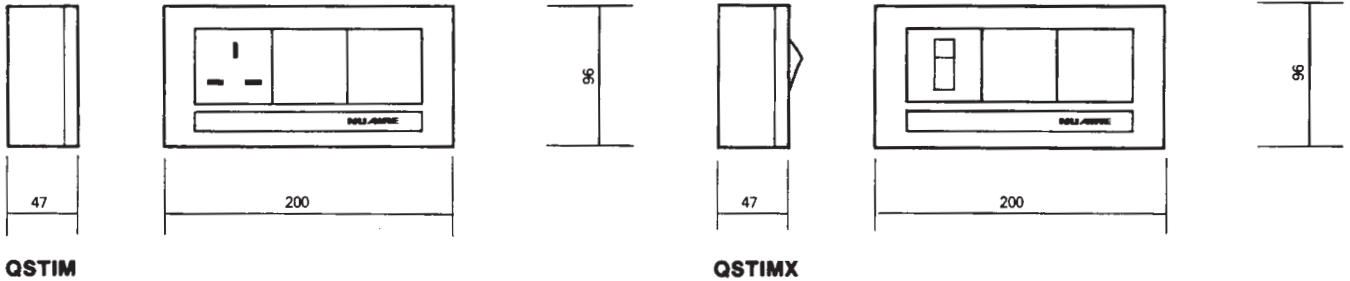
Make sure that grommets are fitted at the mounting holes of the replacement assembly. Mount the assembly to the plenum plate. Press the tubular spacers into the grommets from the outlet chamber side. Secure with the nuts and screws, with plain washers under the nuts and under the screw heads. Tighten onto the ends of the tubular spacers. Re-connect the internal plug and socket. Refit unit cover.

SCHEDULE OF PARTS

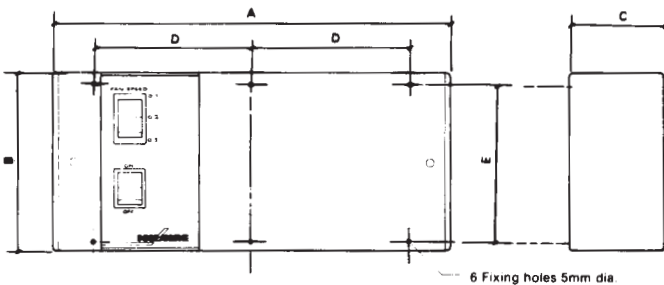
When ordering spare parts please quote the serial number of the unit, together with the part number, if quoted. If not quoted, please fully describe the part. Serial number will be found on the identification plate fixed to the unit.

Unit code	Fan/motor assembly			
3CF100	530082			
3CF150	530080			
3CF190	530078			
3CF220	530153			
3CF240	530158			
3CF270	530643			
3QSCF100	530082			
3QSCF150	530080			
3QSCF190	530078			
3QSCF220	530153			
3QSCF240	530158			
3QSCF270	530643			

Run-on timer dimensions



Speed control dimensions



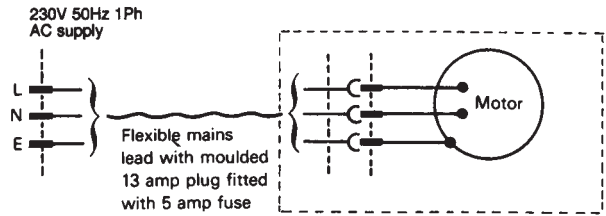
Speed Control Type	Dimensions mm					Weight (kg)
	A	B	C	D	E	
SPCON 2	317	140	75	125	124	1.25
SPCON 11	317	186	117	123	170	3.50
SPCON 12	317	186	117	123	170	3.50
SPCON 13	317	186	117	123	170	4.25

Speed control selection

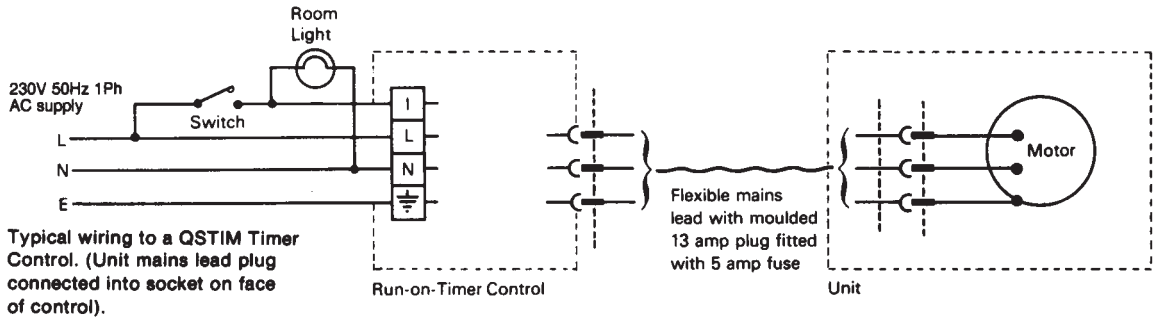
Code	SPCON 2	SPCON 11	SPCON 12	SPCON 13
Control position	3	3	3	3
Enclosure	Metal	Metal	Metal	Metal
3CF100, 3QSCF100	X	-	-	-
3CF150, 3QSCF150	-	X	-	-
3CF190, 3QSCF190	-	-	X	-
3CF220, 3QSCF220	-	-	X	-
3CF240, 3QSCF240	-	-	-	X
3CF270, 3QSCF270	-	-	-	-

Fig. 5 - Run-on timer dimensions, speed control dimensions and selection

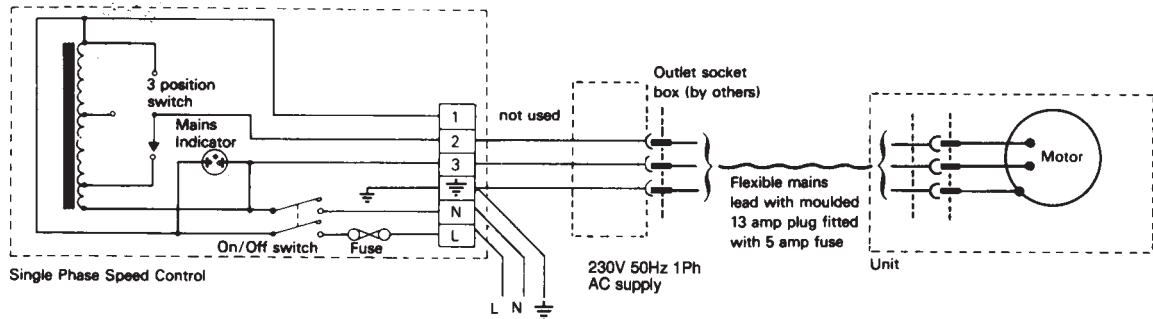
Unit Wiring Diagram



Typical Wiring Diagram when using Run-on-Timer



Typical wiring diagram when using a Speed Control



Typical wiring diagram when using a Speed Control and Run-on-timer Control

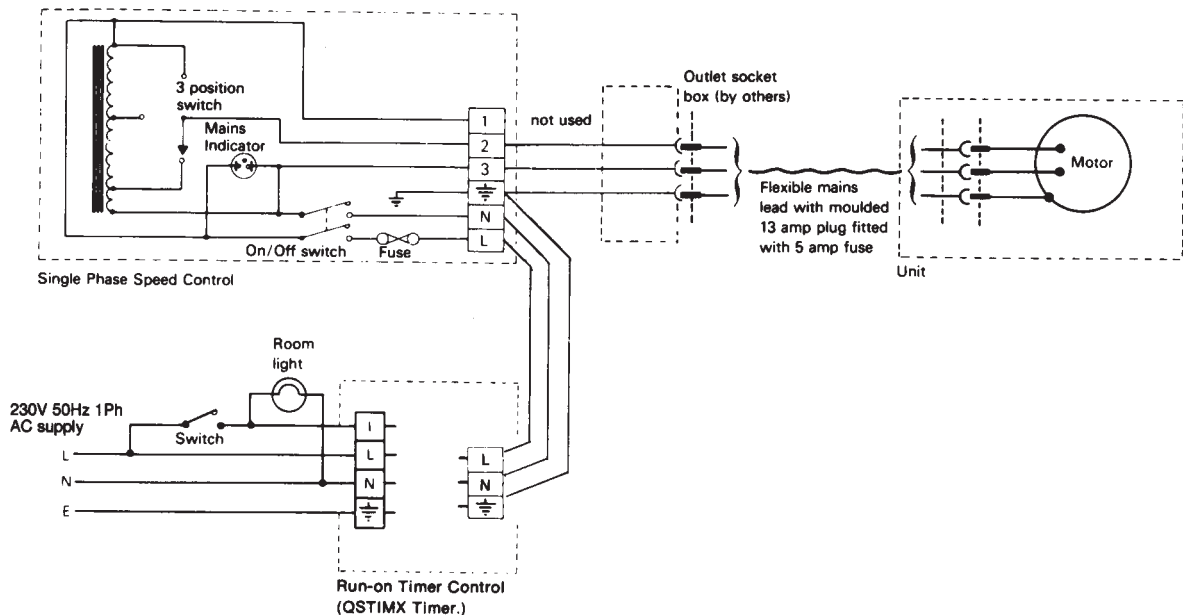


Fig. 6 – Wiring diagrams