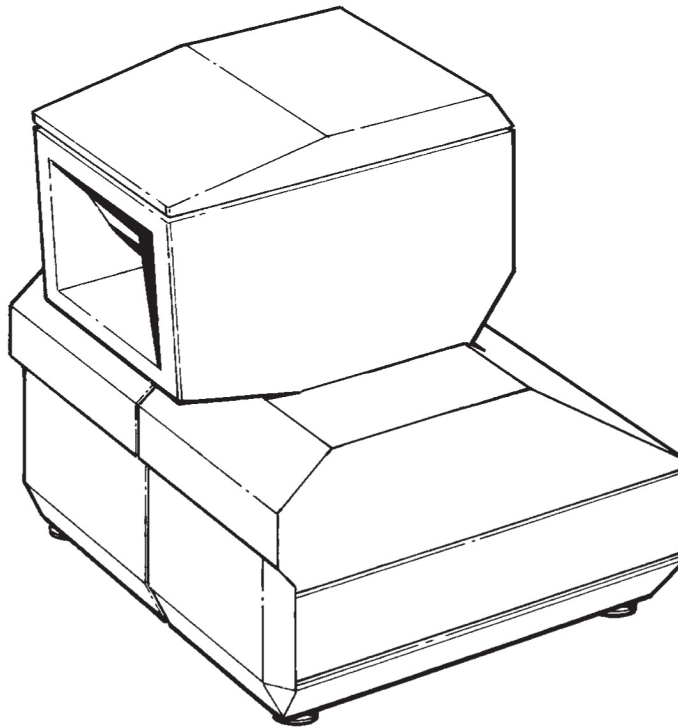


MANUAL

CK-2436



WARNING - Reliance on this Manual Could Result in Severe Bodily Injury or Death!

This manual is out-of-date and is provided only for its technical information, data and capacities. Portions of this manual detailing procedures or precautions in the operation, inspection, maintenance and repair of the product forming the subject matter of this manual may be inadequate, inaccurate, and/or incomplete and cannot be used, followed, or relied upon. Contact Conair at info@conairgroup.com or 1-800-654-6661 for more current information, warnings, and materials about more recent product manuals containing warnings, information, precautions, and procedures that may be more adequate than those contained in this out-of-date manual.

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MNL-00100

CONAIR

Contents

1.	Introduction	3
2.	Technical specification	4
	Dimensions	4
	Data	4
	Sound level	4
3.	Functional description	5
	General	5
	Safety system	6
4.	Safety instructions	7
	General	7
5.	Installation	8 - 12
	Unpacking and mounting the hopper	8
	Measures prior to start	9
	Electrical connection	9
	Checks prior to first start	10
	Opening/closing of doors and hopper	10
	Opening/closing of hopper and suction hopper	11
	Control of knife tolerance	11 - 12
6.	Operating and daily maintenance	13
	Starting and stopping	13
	Inspection	13
	Daily inspection	13
	Weekly inspection	13
	Cleaning	14 - 15
	Trouble shooting, If the granulator does not start.....	15 - 16
7.	Service	17 - 28
	Changing the knives	17
	- Dismantling the rotating knives	17
	- Dismantling the fixed knives	17
	Fitting the knives	18 - 20
	Sharpening the knives	21 - 22
	- Sharpening the fixed knives	21
	- Sharpening the rotating knives	22
	Pre-setting and fitting of the set knives	23 - 24
	- Rotating knives	23
	- Fixed knives	24
	Belts, inspection and adjustment	25
	Lubrication	25
	Dismantling/mounting of the cutter pulley	26 - 27
	Cutter pulley changing of friction lining	28
8.	List of spare parts	29 - 31
9.	Wiring diagram	32
10.	Layout	33
11.	Accessories	34
12.	Transport and storage	35

1. Introduction

This manual is for CONAIR's granulators model 2436.

The designation K refers to machines insulated against noise, and KU refers to machines with a suction blower.



Read the manual prior to installing and using the machine.



Observe care when the knives are accessible, they are sharp and can cause personal injury!

CONAIR's granulators are designed for the granulation of injection moulded, blow moulded and extruded plastic waste. The granulator size and performance are designed according to the type of waste.

For the granulation of other products or materials approval should be obtained from the head office in order for the warranty regulations to be valid.

The granulator is designed so that maintenance and service can be done quickly and easily, including both routine maintenance and replacement of materials.

All service should be conducted by trained service personnel.

This manual contains instructions for both handling and service.

Chapter 7 contains instructions directed towards service personnel.

Chapter 11 contains the machine's optional equipment.

The other chapters contain instructions for the operator.

The granulator is delivered with manual, tool kit and touch-up paint.

Sharpening and pre-setting fixtures for knives are two practical accessories which although they are not included with the delivery of the machine can be ordered.

Modification or rebuilding of the granulator must be approved. With the objective of preventing personal injury the machine warranty and product assurance must be valid.

If you have any questions please contact your local dealer or head office.

We reserve the right to change technical specification without prior notice.

2. Technical specification

Dimensions

Overall size of the machine

2436 (l x w x h) 2710 x 2520 x 2725 mm

Data

Serial Number _____

Motor power _____

V-belts _____

Voltage _____

Blower type (optional) _____

Rotating knives _____

Fixed knives _____

Screen _____

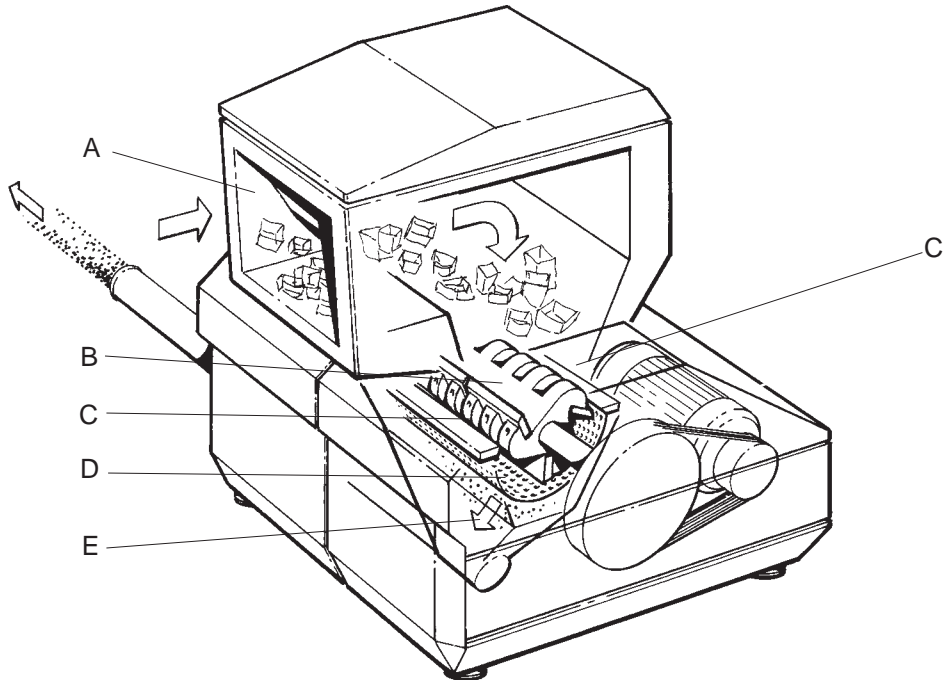
Weight -K approx. 7500 kg

..... -KU approx. 7700 kg

3. Functional description

General

Granulator 2436 is designed for grinding plastic waste.



The granulator is controlled with the start/stop function on a control panel.

The plastic waste is feed into the hopper (A) and drops down into the granulator housing, where the rotating knives (B) cut up the plastic waste against the fixed knives (C).

The knives cut up the plastic waste to smaller and smaller granules, down to a size which can pass through the screen (D) in the bottom of the granulator housing.

The hole size of the screen determines the size of the granules. There are screens with different hole sizes, and these can easily be changed to ensure the correct granule size.

After the granules have passed through the screen they are collected in a box. This granule box (E) is emptied manually on machine 2436. If the granulator has suction blower 2436 the blower sucks the granules to a cyclone, where the air is separated.

The granules can then be sent back to the plastic machine, injection moulder or to a container for later use.

The suction hopper, screen and screenbox have been designed so that they are easy to clean.

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The hopper can be opened to ensure good accessibility for cleaning and maintenance.

The knives can be sharpened. Sharpening is most easily done in a special fixture. (The fixture is not included in the delivery of the machine but is a very practical accessory which can be ordered.)

Safety system

There are rotating knives in the granulator and a safety system to prevent personal injury.

Emergency stop: The granulator has an emergency stop placed on the control panel by the distribution box. The granulator can also be fitted with extra emergency stops.

The emergency stop is activated by pressing the button. It is reset by turning the button in the direction of the arrow (anti-clockwise).

Safety switches: The granulator has a number of safety switches. The switches stop the granulator if doors, hopper, or screenbox change position.

The switches are placed in the following positions:

- 1 By the magnetic lock.
- 2 By the locks to the doors (under the doors).
- 4 By the hopper lock cylinder, 2 on right-hand side and 2 on left-hand side.
- 1 By the hopper hinge.
- 1 By the screenbox hinge.

On order for the machine to start:

The hopper must be lowered and locked.

Doors and screenbox must be closed (screenbox raised).

4. Safety instructions

General

CONAIR MARTIN granulators are designed to granulate injection moulded, blow moulded or extruded plastic waste.

The specific technical data for this machine concerning capacity, power and performance etc. is given in chapter 2.

The granulator is equipped with safety switches which stop the machine if the doors, hopper or screenbox are opened during operation.

The following safety measures should be followed when using the machine:



- **Electrical installation must only be conducted by authorised personnel!**
- **Always switch off the power with both the main switch and the granulator switch when the granulator is opened for service and maintenance.**
- **Never put your hands into the granulator openings unless both the main switch and the granulator switch are switched OFF (0 position).**



- **Observe care when the knives are accessible, they are sharp. If the rotor is turned manually - do this with care!**
- **Observe care when opening or closing the hopper and screenbox, so as not to trap bodily parts.**
- **The granulator cannot be started before the screenbox, front doors and hopper are closed.**



= **DANGER! High Voltage!**

This label is on the distribution box door and on terminal boxes.



= **DANGER! Risk of cut or pinch injury!**

This label is placed where there is the risk of cut or pinch injury, by the hopper and screenbox.

Follow the instructions in this book to avoid person injury or damage to the machine.

5. Installation



All instructions **must** be followed in the given order to avoid injury or damage.

Observe care when handling the knives, they are sharp and result in personal injury.

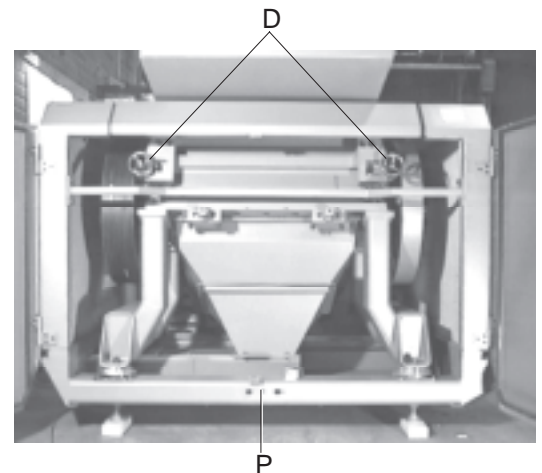
The granulator must only be connected to the mains by an authorised electrician.

Unpacking and mounting the hopper.

Place the granulator in position and adjust the machine feet until the granulator is standing horizontally.

Mount the hopper as follows:

- Mount two eyebolts (M12) on the top part of the hopper.
- Loosen the screws which are holding the top part of the hopper.
- Lift the top part of the hopper away.
- Mount two eyebolts (M20) on the hopper housing.
- Open the machine doors.
- Loosen the screws which are holding the rear plate.
- Take the wooden pieces away, which are holding the rear plate.
- Loosen and take the socket screws away from the hinge.
- Screw in the wheels (D) for the hopper lock cylinder so that the hopper lock clamps can pass free.
- Take one lock-ring and the pin in the upper bracket, for the screw-jack away.
- Lift the hopper housing carefully to the granulator.
- Mount the socket screws for the hinge, and adjust so that the hopper closes properly.
- Tighten the socket screws, 600 Nm.
- Mount the upper bracket for the screw-jack to the hopper with pin and lock-ring.
- Loosen and take away the eyebolts from the hopper housing.
- Mount the eyebolts on the top part of the hopper.
- Lift and mount the top part to the hopper housing and tighten the screws.
- Take the eyebolts away from the top of the hopper.
- Mount the rear plate.
- Screw out the wheels for the hopper lock cylinder.



Measures prior to starting for the first time

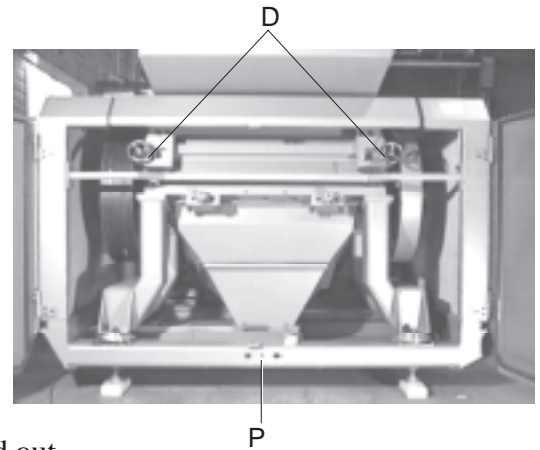


- Place the granulator in position and adjust the machine feet until the granulator is standing horizontally.
- Remove the transport lock (P).
A screw for the magnetic lock for the doors. The granulator cannot be started before this screw has been removed.

NOTE! If the transport lock is removed before the electrical connection is carried out and the doors are closed:

The will not be able to be opened before the electrical connection is carried out.

- Clean the granulator from the anti-rust coating before it is used.
The unpainted parts of the machine are treated with an anti-rust oil prior to delivery and transportation.
- Check the knife clearance and tightening torque on the attachment bolts for the knives.



Two hours after first start

Check the knife clearance again and tightening torque of the attachment screws for knives; check the attachment screws for both the fixed and rotating knives.

Electrical connection



The granulator should be connected by an authorised electrician.

- Fit the distribution box and connect the cabling as per the markings in the wiring diagram, see chapter 9.
- Connect the granulator to the mains. The fuse size is indicated in the wiring diagram.
- The granulator is delivered with the electrical equipment connected for dextrorotary field. Check with a phase-sequence indicator and connect the granulator to a dextrorotary field. The granulator now has the correct direction of rotation.
- Make sure that the main switch in the distribution box is in the ON position.
- Switch on the control switch on the distribution box.
- Press the start button.
- Press the stop button (see chapter 6).
- Switch off the main switch.

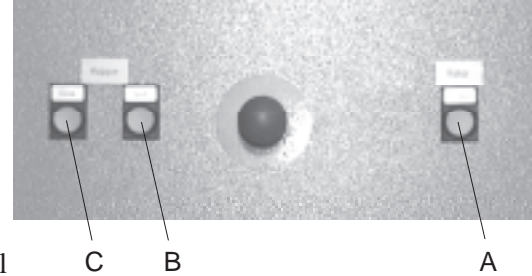
Checks prior to first start

Opening/closing of doors and hopper

Opening of doors

Stop the granulator.

A relay delays the voltage to the door's magnetic lock long enough for the granulator to stop before the catch (F) releases and the doors can be opened.



This is indicated when the lamp in the control switch (A) on the control panel goes on.

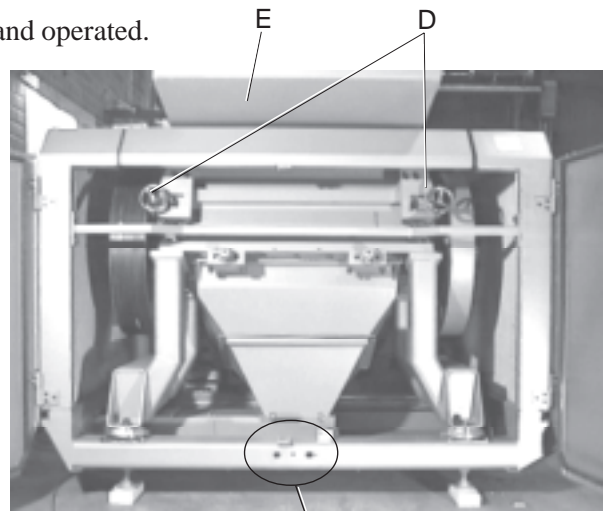
Do not try to open the doors before the time relay has released. This will block the magnetic lock. If this occurs press in and bolt the doors with the door handle again. The door lock will then take up the strain instead of the magnetic lock.

Opening of the hopper

The granulator is for safety reasons two-hand operated.

The doors should be open.

Screw in the wheels (D) so that the hopper lock clamps are released and the safety switches are activated.



Press in at the same time the buttons to the control switch (A) and the button "Open" (B) on the control panel.

Hold both buttons pressed until the hopper (E) is completely open.

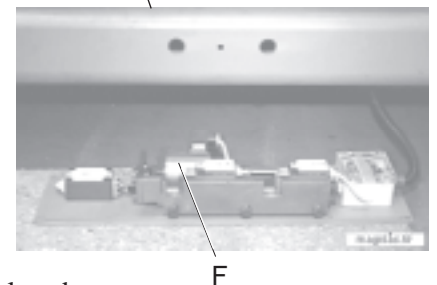
A limit switch stops the screw motor when the open is completely open.

Closing the hopper and doors

NOTE! Before the hopper is closed make sure that the meeting surfaces are free from granules!

If the safety switches do not sense "Closed position" the granulator will not start.

Press at the same time the buttons to the control switch (A) and "Close" (C) on the control panel.



Hold both buttons pressed until the hopper is completely closed.

A limit switch stops the screw motor when the hopper is closed.

Screw out the wheels (C) so that the hopper lock clamps lock the cylinders.

Close the front doors. Turn the door handle to locked position (handle down). The magnetic lock engages when the machine is started.



Opening/closing of screenbox and suction hopper

Opening:

Open the front doors (see previous page).

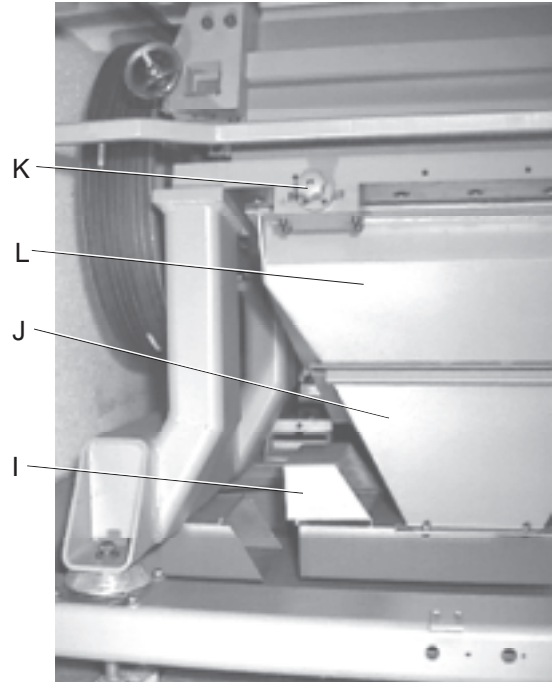
1. Lift up the channel divider (I).
2. Pull out the suction hopper (J).
3. Release the two knobs (K) to stop.
4. Lift down the spring-loaded screen-box (L).

Closing:

NOTE! Make sure that the mating surfaces are free from granules.

Otherwise the granulator will not start.

1. Lift up the spring-loaded screen-box (L).
2. Screw in the two knobs (K)
3. Push in the suction hopper (J).
4. Lift down the channel divider (I).



Control of knife clearance



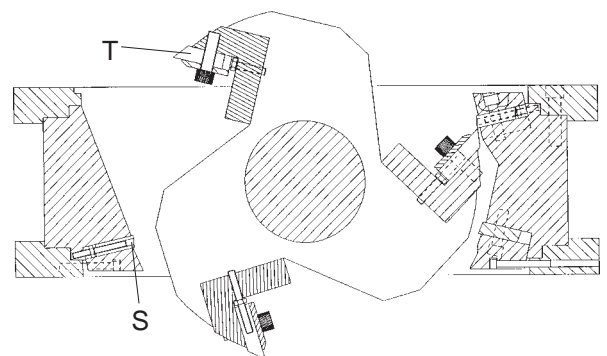
Observe care when handling the knives, they are sharp and cause person injury.

To check the clearance between the fixed knives and the rotating knives the hopper and screenbox must be opened.

1. First check the clearance between the rear fixed pair of knives (S) and the rotating pair of knives (T) with a feeler gauge. Recommended clearance is 0.20 - 0.40 mm.
2. If the clearance is correct - continue to item 7.

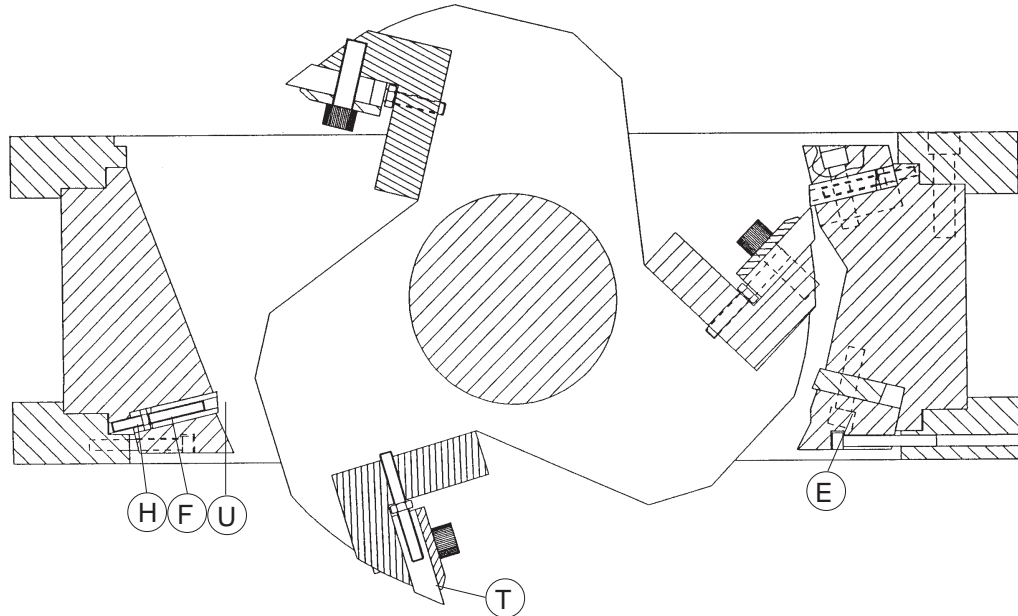
Otherwise, adjust the fixed knives as follows unless a fixture for pre-setting of the knives is used, see chapter 7.

Note! Do not adjust the rotating knives..



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3. Release the 3 attachment screws (E) which hold the fixed knife.
4. Adjust the clearance with the adjustment screw (F).
5. Tighten the attachment screws (E), tightening torque 300 Nm.



6. Check that the adjustment screws (F) are flush with the support screws (H).
7. Check the clearance between the front fixed pair of knives (U) and the rotating pair of knives (T) in the same way.
8. Refit all parts.
9. Close the screenbox and hopper.

6. Operating and daily maintenance

Starting and stopping

Starting and stopping are controlled with the push switch on the control panel.

Note! Never stop the granulator before all the material in the hopper and granulation housing is completely granulated. Residual material will brake the rotor in the granulator when restarted. The motor will be overloaded and the overload protection will trigger.

Inspection

There must not be any plastic material left in the granulator when inspection is carried out.

Daily inspection

- **Flaps in the hopper.** Check the flaps are good condition. Replace damaged flaps immediately. Damaged flap parts can drop down into the granulator housing and damage the knives. Damaged flaps can also be thrown out by the machine.
- **Emergency stop.** Check the emergency stop function. Start the granulator and stop it with the emergency stop button(s).

Reset by turning the emergency stop button in the direction of the arrow (anti-clockwise).

Weekly inspection

Cables. Check the machine's electric cables for wear, abrasion or other damage. Damaged cables should be immediately replaced.

Safety switches. The switches are placed at the following points:

- 1 By the magnetic lock - by the screenbox.
- 2 By the lock to the doors (under the doors).
- 4 By the hopper's lock bolts, 2 right-hand side and 2 left-hand side.
- 1 By the hopper hinge.
- 1 By the screenbox hinge.

Doors: Check the magnetic lock to the doors.

- Start the granulator. Check that the doors cannot be opened.

- Stop the granulator. A relay delays the voltage to the magnetic lock. The granulator should manage to stop before the magnetic lock releases and the doors can be opened.

This is indicated by a lamp in the distribution box door. The lamp goes on when the doors can be opened.

Open the right-hand door. Try to start the granulator - the granulator should not be able to be started with an open door - close the door.

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Open the left-hand door. Try to start the granulator - the granulator should not be able to be started with any door open - make sure than both doors are properly closed.

Hopper. Check the safety switch for the hopper. Set the hopper in open position. Make sure that the doors are closed and locked. Try to start the granulator.

Always close the hopper with the doors open. Otherwise the lock bolts on the doors and hopper be damaged.

Hopper lock. Release the wheel to the right of the lock clamp. Close the doors. Try to start the granulator - it should not be possible to start since the hopper is not properly locked.

Check also the left lock clamp. Close the doors. Try to start the granulator – it should not be possible to start unless both lock clamps for the hopper are properly locked.

The hopper opener's screw-jack. Check that the limit switch stops the jack's motor in the end positions for "Open" and "Close".

Screenbox. Leave the screenbox open. Close the hopper and bolt the doors. Try to start the granulator - the granulator should not be able to be started with open screenbox (the safety switch is placed by the screenbox hinge).

Monthly inspection

V-belts: Check the tension of the V-belts and that all belts are in good conditions (see page 25 for V-belt tension).

Cleaning



Cleaning should be carried out every month or at least once every 300 hours.

NOTE! Set the main switch and the granulator switch in position "OFF" when the hopper and screenbox has been opened for cleaning.



Observe care when handling the knives, they are sharp and can cause personal injury.

1. Open the doors, hopper and screenbox.
2. Remove the outer rigid flap. Fold it up horizontally and pull it straight out. The inner flaps are flexible.



DANGER!

Never try to simplify cleaning between the knives by changing or increasing the clearance between the pair of knives on the rotor. The knives are centred in pairs to the middle of granulator housing. The maximum clearance between the pair of knives is 0.50 mm. If the knife setting is changed the granulator can be seriously damaged!

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3. Clean the hopper, flaps, screen, screenbox and suction hopper.
4. Clean the granulator housing and frame.
5. Clean the transport conduit, suction hopper, blower, conduit to the cyclone and the cyclone.
6. Reset. The granulator must be empty of all plastic material before it is restarted.

Trouble shooting

If the granulator does not start

- Check the magnetic lock for the front doors.
The granulator will not start if the safety switches are in the wrong position. Check that the doors are properly closed and that the safety switches close.
- Check that the emergency stop is not activated. Reset by turning the button(s) in the direction of the arrow (anti-clockwise).
- Check the motor's overloading protection.

A bi-metal relay (F1) in the distribution box triggers if the motor is run to stop or overloads the granulator.

This is indicated by a small green pin (P) which sticks out from the relay.

Reset by pushing in the Reset button.

The small green pin (P) will go back into the relay again.

- Check that both wheels for the hopper's lock clamps are screwed in properly.

The granulator will not start if any of the safety switches have disconnected the current.

- Check that the hopper is properly lowered down.

The granulator will not start if the hopper is not properly closed. The safety switches will break the current. Close the hopper - see page 11.

- Check that the screenbox is closed.

The granulator will not start if the screenbox is open. The safety switches will break the current. Close the screenbox - see page 12.

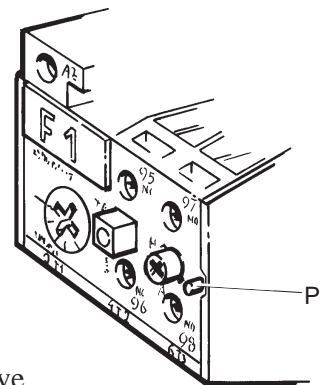
- Check the blower's motor protection switch (2436).

The granulator will not start unless the suction blower starts. Check the motor protection switch Q2 in the distribution box. *)

If the motor protection switch has switched "Off" the switch will be in position "0". Reset - set the switch button to position "I".

- Check the conveyor's motor protection switch (2436).

The granulator will not start if the conveyor does not start. Check the motor



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protection switch Q3 in the distribution box. *)

If the motor protection switch has switched "Off" the switch will be in position "0". Reset - set the switch button to position "I".

- Check the granulator's knives and the knife clearance.

If the granulator's knives are unsharp or the clearance is incorrect this can result in stoppage. The granulator's overloading protection will trigger. Check the knives. Sharpen or replace the knives, see next chapter.

*) Check also the wiring diagram in chapter 9 for amendments or modifications.

7. Service

All service should be carried out by trained personnel to avoid personal injury and damage to the machine.

Changing the knives

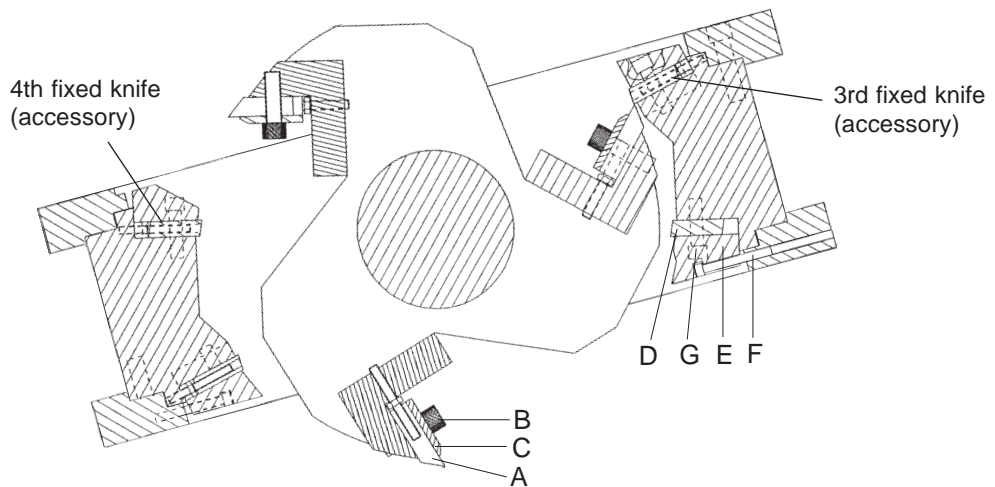
Check the wear to the screen in connection with changing the knives. Replace the screen when the holes begin to become pear shaped.

Open the front doors, hopper and screenbox.

Replace damaged screws for safety reasons!

Observe care when handling the knives, they are sharp and cause personal injury.

Use protective gloves!



Dismantling the rotating knives

Remove the screws (B) on the pair of guides (C). The pair of knives (A) are now loose.

Dismantling the fixed knives

1. Remove the screws (G), 4 pcs/knife.
2. Leave the guide (E) on the support screws (F), 2 pcs/guide.
3. Remove the fixed knife (D).
4. Clean the surfaces where the pair of knives have been.

To remove the guides lift them up and towards the cutter.

NOTE! The guides for the fixed knives must not be switched during fitting.

If the guides are removed from the granulator housing:

- Mark the guides with a marker pen.

If the guides are switched during fitting the granulator housing will be damaged when starting.



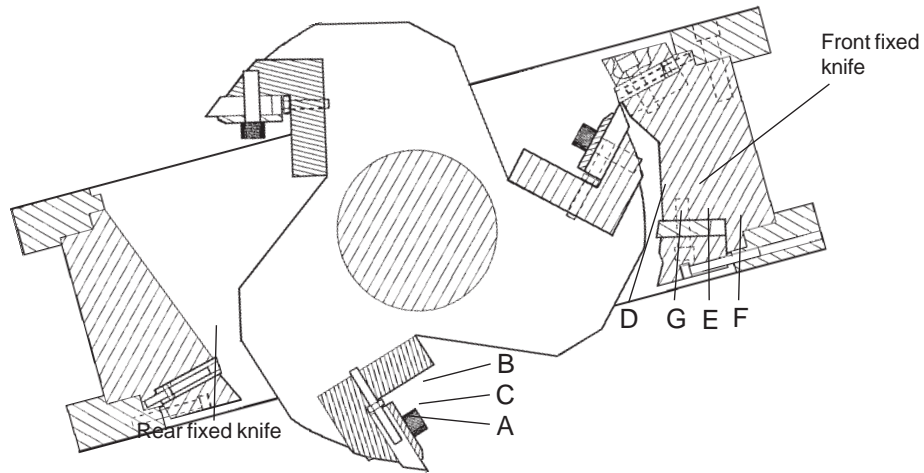
Fitting the knives



(Fitting of third and fourth fixed knife, see chapter 11, accessories.)

NOTE! The guides for the fixed knives must not be switched during fitting. If the guides are switched the granulator housing will be damaged when starting.

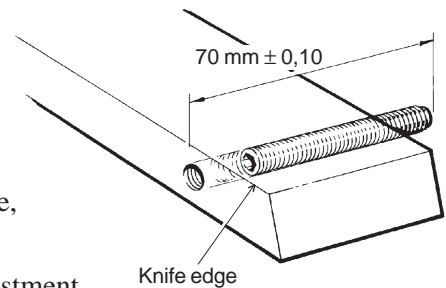
1. Fit the front pair of fixed knives (D) from underneath.



- Clean the surfaces where the pair of knives are to sit.
- Fit the pair of guides, place the guides (R) on the support screws (F).
The front pair of guides can be identified by measuring the surface which has a recess for the support screws, width 83.5 mm.
- Set the knives. Set in exactly 70 mm between the knife edge and the front edge of the adjustment screws. **NOTE!** Clearance = $\pm 0,10$ mm.

Setting the knives is easiest in a pre-setting fixture, see page 23.

- Fit the pair of knives, and make sure that the adjustment screws are flush with the rear edge of the glued stop screws.



NOTE! The screws in the back edge of the knife position are glued!

- Fit the attachment screws (G), tightening torque 300 Nm.

2. Fitting of the pair of rotating knives.

When changing the knives the attachment screws (B) should be replaced with new ones.

- Clean the knife attachments.
- Set the knives.
- Fit at pair of knives without guides. Use two attachment screws (B) for each knife and fit loosely.



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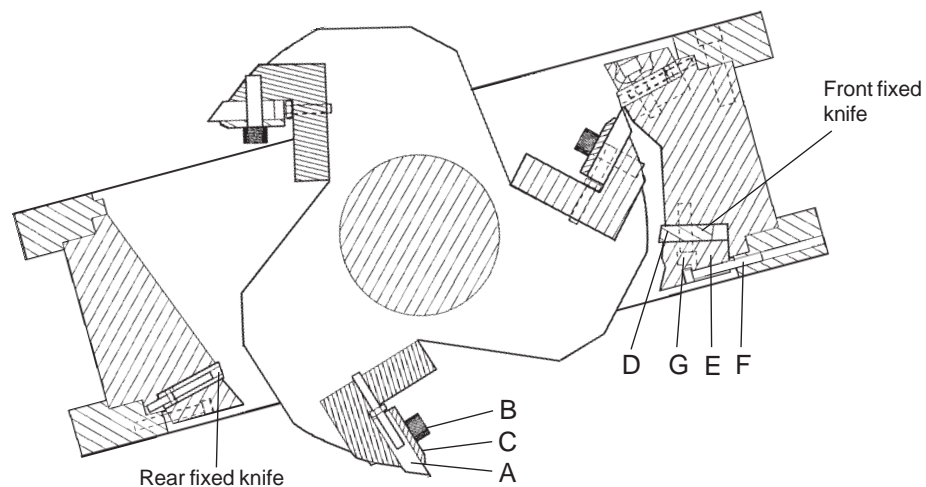
- Screw in the knives' adjusting screws, so that the pair of knives can pass the front fixed knife easily.



- Make sure that the knives' adjusting screws are flush with the fixed screws in the rear edge of the knife position.

NOTE! The screws in the rear edge of the knife position are glued!

- Set the knife clearance to 0.20 - 0.40 mm, to the front fixed knife.
- Hold a feeler gauge between the rotating knife and fixed knife.
- Screw the knives' adjusting screws to the fixed screws in the rear edge of the knife position until the feeler gauge begins to stick, and then the setting is ready.
- Remove the attachment screws.



- Fit the support guides (C). - NOTE! One pair, left/right guide.
- Fit the attachment screws (B) loosely.
- Centre the pair of knives in the middle of granulator housing.



NOTE! Max. clearance in the centre, between the pair of knives is 0.50 mm.

- Make sure that the knives are flush with the rear edge of the knife position.
- Tighten the attachment screws, tightening torque 600 Nm.

3. Fit the rear fixed pair of knives from underneath.

- Clean the surfaces where the pair of knives and guides should sit.
- Fit the pair of guides, and place the guides (E) on the support screws (F).

The rear pair of guides can be identified by measuring the surface which has a recess for the support screws, width 91 mm.

- Fit the pair of knives, and make sure that the adjusting screws are flush with the glued stop screws in the rear edge of the knife position.
- Fit the attachment screws (D) loosely.
- Set the knives to the pair of fitted rotating knives. Adjust the knife clearance with the adjusting screws to 0.20 - 0.40 mm.
- Tighten the attachment screws (D), tightening torque 300 Nm.

4. Fit the other pairs of rotating knives, one pair at once

- Clean the knife attachments.
- Set the knives to the front fixed knife.
- Fit a pair of knives without guides. Use two attachment screws (B) for each knife and fit loosely.
- Screw in the knives' adjusting screws, so that the pair of knives can freely pass the front fixed knife.
- Make sure that the knives' adjusting screws are flush with the fixed screws in the rear edge of the knife position.



NOTE! The screws in the rear edge of the knife position are glued!

- Set the knife clearance to 0.20 - 0.40 mm to the front fixed knife.
- Hold a feeler gauge between the rotating knife and fixed knife.
- Screw the knives' adjusting screws to the fixed screws in the rear edge of the knife position until the feeler gauge begins to stick, and then the setting is ready.
- Remove the attachment screws.
- Fit the support guides (C). - NOTE! One pair, left/right guide.
- Fit the attachment screws (B) loosely.
- Centre the pair of knives in the middle of the granulator housing.



NOTE! Max. clearance in the centre between the pair of knives is 0.50 mm.

- Make sure that the knives are flush with the rear edge of the knife position.
 - Tighten the attachment screws, tightening torque 600 Nm.
5. Re-check the tightening torque on the knives' attachment screws; fixed knives 300 Nm and rotating knives 600 Nm.
 6. Re-check the knife clearance, check with both rear and front fixed knives. The clearance should be 0.20 - 0.40 mm.

Sharpening the knives



Observe care when handling the knives, they are sharp and can result in personal injury.

General

NOTE! The knives should be sharpened by an experienced technician. Only sharpen the marked surface!

The knives must be sharpened exactly so as to achieve the correct cutting and clearance angles. Otherwise the granulator will lose its efficiency.

Use CONAIR MARTIN's sharpening fixture 2436 and surface grinder with magnetic table when sharpening the knives. The fixture is not included with the delivery of the machine but is a very practical accessory which can be ordered.

The knives must be cooled when sharpening. Use plenty of water. The knives must absolutely not be burned or blued or else they will lose their wear resistance and durability.

If the knives are burned or blued they cannot be repaired by grinding off the tarnished and burned colour. The hardened knife is completely ruined and has lost all its wear resistance and durability.

Sharpening the fixed knives

NOTE! Only sharpen the marked surface!

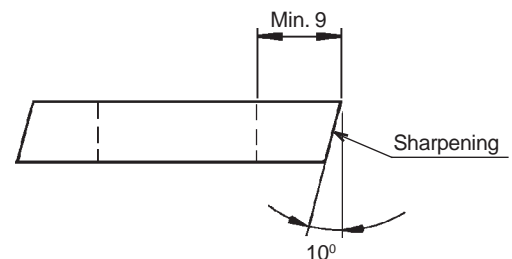
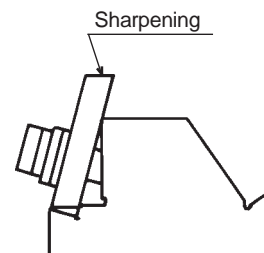
Observe the given dimensions when sharpening the knives.

- Remove the set screws and fix the knives on the left-hand side of the fixture.

Use a surface grinder so that the cutting angle is exactly 10° .

- The knives can be sharpened to a maximum as shown in the diagram.

After this the knives are consumed and must be replaced with new ones.



CONAIR

Sharpening the rotating knives

NOTE! Only sharpen the marked surface!

To avoid imbalance sharpen all the knives equally.

Use CONAIR's sharpening fixture 2436, surface grinder and magnetic table when sharpening the knives. The fixture is not included in the delivery of the machine but is a very practical accessory which can be ordered.

Hold the complete knife set well balanced. Sharpening fixture 2436 ensures the exact cutting and clearance angles.

Sharpen the knife's worst clearance angle first.

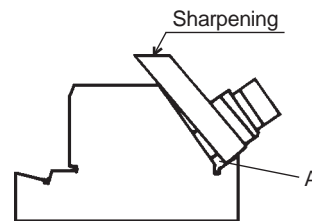
Sharpen until the all the irregularities on the knife edge have disappeared.

Retain the setting on the surface grinder and sharpen all the knives equally.

- Remove the set screws and brace the knife in the right-hand side of the fixture with the spacer "A" below the knife's lower part (see diagram).

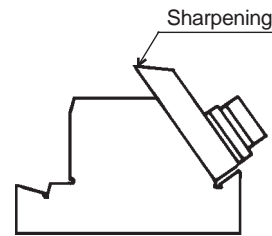
Spherical washers should be used when tightening.

Use a surface grinder so that the clearance angle will be exactly 40° .



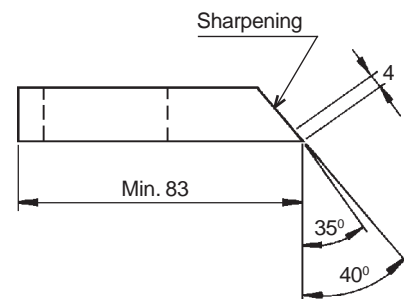
- Release the knife and remove the spacer "A" under the bottom part of the knife.

Use a surface grinder so that the cutting angle of the knife will be exactly 35° .



- The knives can be sharpened to a maximum as shown in the adjacent diagram.

After this the knives are consumed and must be replaced with new ones.



Pre-setting and fitting of the set knives

Pre-setting of the knives is easiest to do with a fixture. The fixture is not included on delivery of the machine but is a very practical accessory which can be ordered.

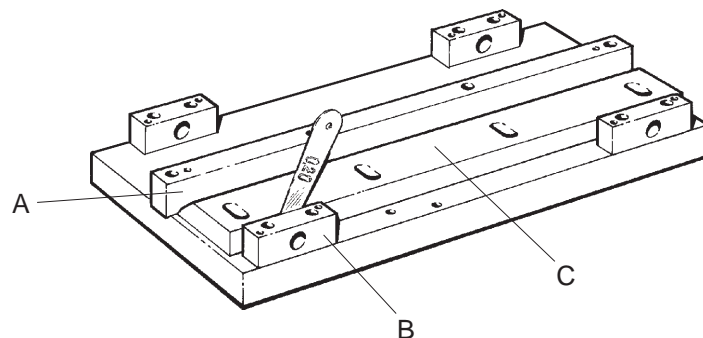
The fixture has two adjustment positions. One position for the fixed knives and one for the rotating knives.



NOTE! The knives should be sharpened before they are set.

Pre-setting and fitting of the pair of rotating knives:

- Screw in the adjustment screws on the knives (C).
- Place the knives in the fixture in the position for rotating knives, with the edge downwards to the middle key (A).



- Screw out the adjustment screws to the inserts (B).
- Hold a 0.20 mm feeler gauge between the adjustment screws and inserts.
- Screw out the adjustment screws until the feeler gauge begins to stick. The setting is now ready.

Fit one pair of knives at once



When changing the knives the attachment screws (B) should be replaced with new ones.

- Clean the knife attachments.
- Fit one pair of knives with the support guides - NOTE! left/right guide.
- Fit the attachment screws loosely.
- Centre the pair of knives in the middle of the granulator housing.



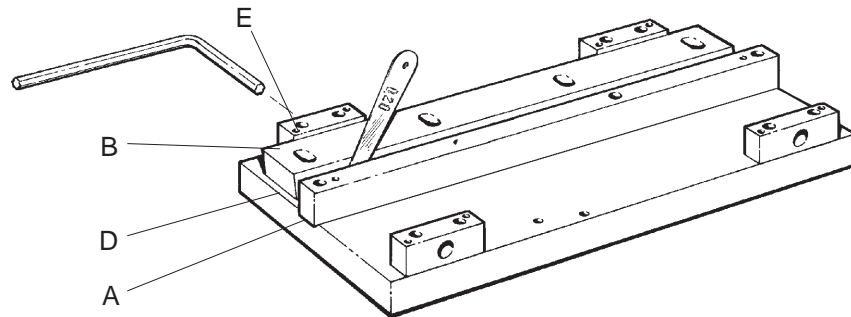
NOTE! Max. clearance in the centre, between the pair of knives is 0.50 mm.

- Make sure that the knives are flush with the back edge of the knife position.
- Tighten the attachment screws, tightening torque 600 Nm.
- Re-check that the knife clearance is 0.20 - 0.40 mm.

CONAIR

Pre-setting and fitting of the fixed knives

- Screw in the adjustment screws inside the fixed knife (D).
- Place the knife in the fixture in the position for fixed knives, with the blade upwards and the adjustment screws' key-grip to the inserts (B).
- Screw the adjustment screws in to the key (A), with a hex key through the hole (E) in the inserts.



- Hold a 0.20 mm feeler gauge between the front edge of the adjustment screws and middle key.
- Screw in the adjustment screws so that the feeler gauge begins to stick. The setting is now ready.



NOTE! When setting the adjustment screws are screwed inwards into the knife! The front edge of the hex screws to the middle key (A) in the fixture.

Fitting of the fixed knives



NOTE! The guides for the fixed knives must not be switched during fit-ting. If the guides are switched the granulator housing will be damaged when starting.

- The fixed pair of knives are fitted from underneath.
- Clean the surfaces where the pair of knives and guides should sit.
- Fit the pair of guides, and place the guides on the support screws.

The front and rear pair of guides can be identified by measuring the surface which a recess for support screws – front guide width 83.5 mm
rear guide width 91 mm

- Fit the pair of knives, and made sure that the adjustment screws are flush with the glued stop screws in the rear edge of the knife position.



NOTE! The screws in the rear edge of the knife position are glued!

- Fit the attachment screws, tightening torque 300 Nm.
- Re-check that the knife clearance is 0.20 - 0.40 mm.

Belts, inspection and adjustment

The tension of the V-belts must be adjusted after 30 operating hours.

Inspection:

- Open the granulator (see page 11).
- Load each of the V-belts with the belt tensioner 50 Nm at the mid point between the cutter and motor pulley at right angles to the V-belts.

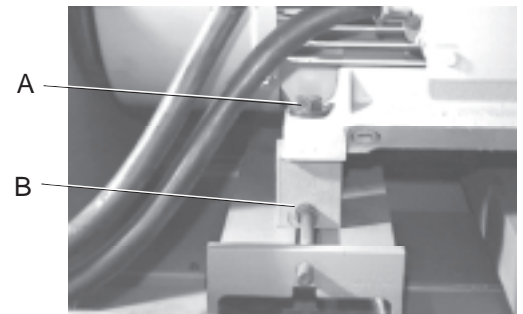
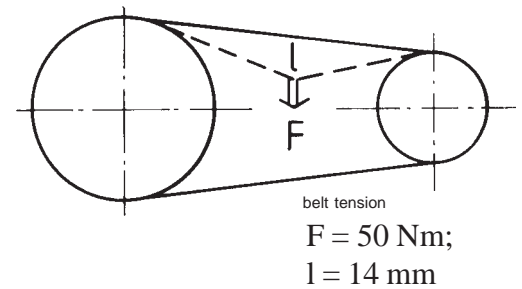
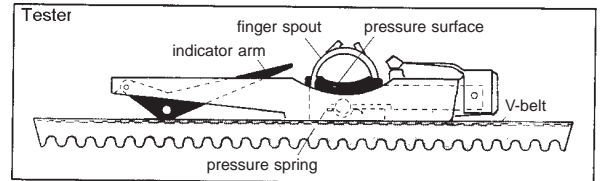
Measure the deflection and adjust if necessary the distance between the pulleys until the tension is correct.

It should be possible to bend the V-belt down 14 mm.

Adjustment:

- Release the motor's attachment screws (A) slightly, 4 pcs.
- Adjust the belt tension with the adjustment screws (B), 2 pcs, until the correct belt tension is obtained.
- Tighten the motor's attachment screws (tightening torque 220 Nm).

Check and adjust the V-belts monthly.



Lubrication

On delivery the bearings are filled with grease.

CONAIR recommends the following when fitting and lubricating the bearings.

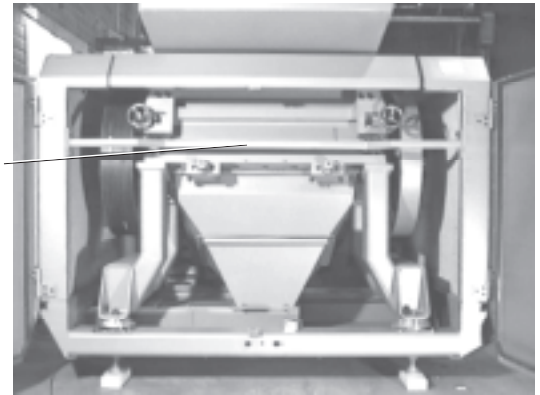
Bearing housing + bearings:	SNH 218 TG + 23218 CC
Grease volume:	850 g of grease when changing the bearings. 100 g of grease per bearing/lubrication nipple for re-lubrication.
Lubricant:	Appropriate lubricants: 1 BP; BP grease XRB2-EP 1 Castrol: Spheerol AP 2 1 ESSO; Beacon 2, Beacon 3 1 Gulfcrown Grease FF2E 1 Mobil; Mobilux Grease 2 1 Shell; Shell Alvania 3
Lubrication interval:	1000 operating hours or every year.
Lubrication points:	Granulator housing: 2 pcs grease nipples, one nipple to each bearing housing. Electric motor: 2 pcs grease nipples, front and rear bearings on electric motor. Screw: 1 grease nipple on top of the screw.

Dismantling/mounting of the cutter pulley

To gain access to the cutter pulley the left-hand side cover must be dismantled.

- Follow the instructions in chapter 5.
- Remove the 5 screws for the rear covers.
- Open the hopper.
- Fix a chain on each side, from the hole in the back edge of the rear over to the hole in the back edge of the hopper.
- Close the hopper. It will serve as a lever to open both covers.
- Remove the stay (A).
- Remove the attachment screws to the left-hand side cover, 2 +2 pcs on the inside, and 6 pcs on the outside of the long side.

Now lift off the side cover by means of a suitable lifting device.



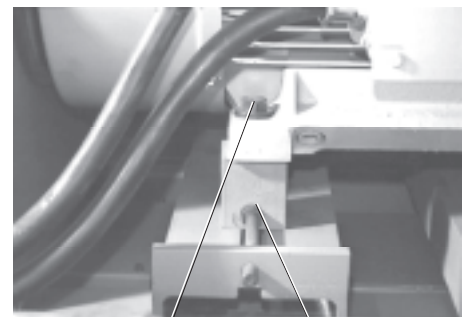
Dismantling of the cutter pulley

- Reduce the V-belt tension.

Release the motor's attachment screws, 4 pcs (B).

Now release the adjustment screws, 2 pcs (C). (Depending on the size of the motor the spacer blocks under the motor feet are of different sizes.)

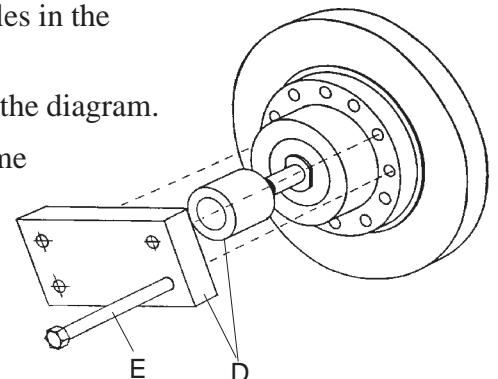
- Remove the V-belts.
- Open the folding lock washer for the centre screw.
- Release and remove the centre screw and cover washer. B
- Remove the 4 screws corresponding to the holes in the withdrawing tool (D).



- Place the withdrawing tool with spacer as per the diagram.

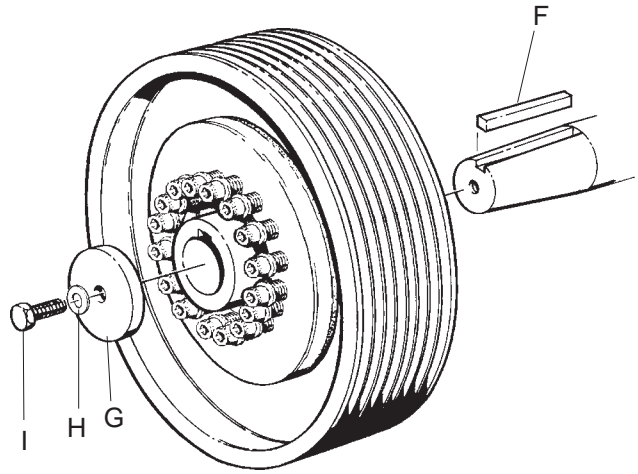
Tighten the screws (E) crosswise, with the same torque, and increase the torque on the screws stepwise until the cutter pulley releases.

- Lift off the pulley by means of a lifting device.



Fitting of the cutter pulley

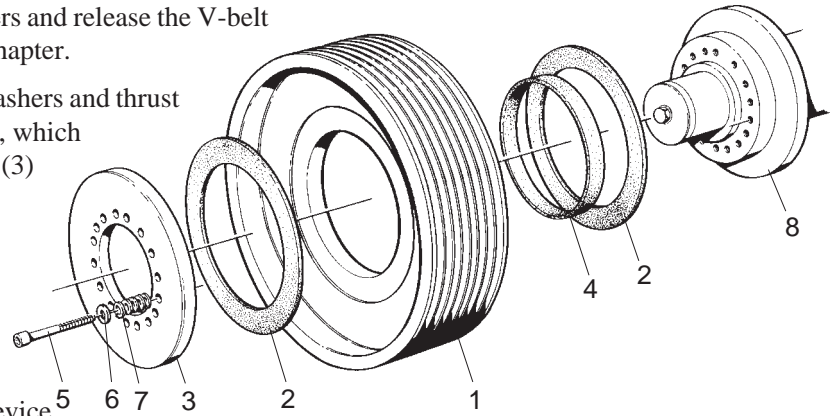
- Fit the cross-key (F) in the groove on the cutter shaft.
- Lift the cutter pulley in position by means of a lifting device.
- Fit the cover washer (G), folding lock washer (H) and centre screw (I).
- Tighten the centre screw with stepwise increased torque to 700 Nm.
- Fold the lock washer so that it locks the centre screw.
- Fit the V-belts and adjust the V-belt tension, see page 25.
- Re-fit the hoods and stay.
- Lift back the side cover with the lifting device.
- Fit the left-hand side cover with 2 + 2 screw on the inside, and 6 pcs on the outside long side.
- Fit the stay (A).
- Close the two rear covers (which are held with the chain) by means of opening the hopper. Remove the chain.
- Fit the 5 screws for the rear cover.



Dismantling of the cutter pulley and replacement of the friction lining

Dismantling of the pulley

1. Remove the outer covers and release the V-belt tension, see previous chapter.
2. Remove the screws, washers and thrust washer (5, 6, 7) 16 pcs, which hold the clamp washer (3)
3. Remove the clamp washer (3).
4. Remove the outer friction lining (2).
5. Lift off the pulley (1) by means of a lifting device.



Replacement of the friction lining

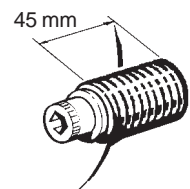
1. Remove the slip ring (4).
2. Remove the inner friction lining (2) (the lining to the pulley hub).
3. Clean and degrease the surfaces where the friction lining is to be placed. If the friction surfaces are very worn or skew worn they must be milled flat so as not to damage the new lining.
4. Place the new inner lining (2) against the pulley hub (8).
5. Fit the new slip ring (4).

Fitting of the pulley

1. Clean and degrease the surfaces which the friction lining is to work against. If these surfaces are very worn or skew worn they must be milled flat so as not to damage the new lining.
2. Lift the pulley in position by means of a lifting device. Observe care when the pulley is fitted so that the slip ring (4) is not damaged.
3. Fit the outer friction lining (2) against the clamp washer (3).
4. Now fit the clamp washer (3) with screw, washer and the same number of thrust washers (5, 6, 7).

NOTE! The thrust washers (7) are spherical and should be fitted in pairs, the concave sides to each other.

5. Tighten the screws crosswise in steps with the same torque. Increase the torque stepwise until the distance is 45 mm between the pulley's clamp washer and screw washer - see diagram.
6. Fit the protective covers.



Dismantling of the pulley hub

First dismantle the cutter pulley, see previous page, and then dismantle the pulley as above.

8. List of spare parts

General

Use only original spare parts from CONAIR when changing machine parts.

Orders can be made to the representative in the country where the machine is purchased.

When ordering spare parts indicate:

- The machine type/designation as per the label on the machine.
- The serial number as per the label on the machine.
- The article number as per this list of spare parts.
- The number of parts.

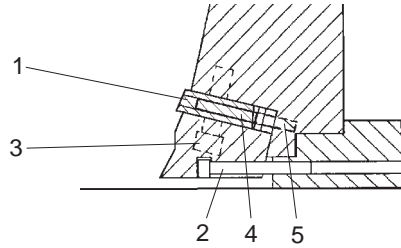
The list of spare parts includes the following:

	Page
Knives, fixed and rotating knives	30
Friction clutch, cutter pulley	30
Blower system F40 with cyclone AX20.....	31
Blower system HZS 18/45	31

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Knives, fixed and rotating knives

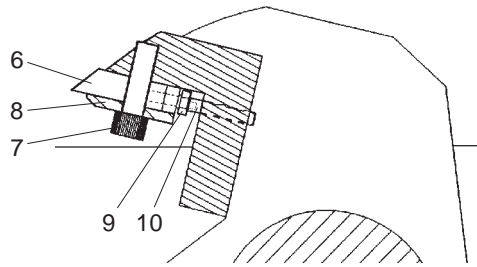
Fixed knives



Pos.	Qty.	Part No	Part
1	4	2-19811	Knife
2	8	9-40793	Screw
3	16	9-40669	Screw
4	8	9-40594	Adjustment screw*
5	8	9-40041	Adjustment screw**

*) Pre-set, **) Glued

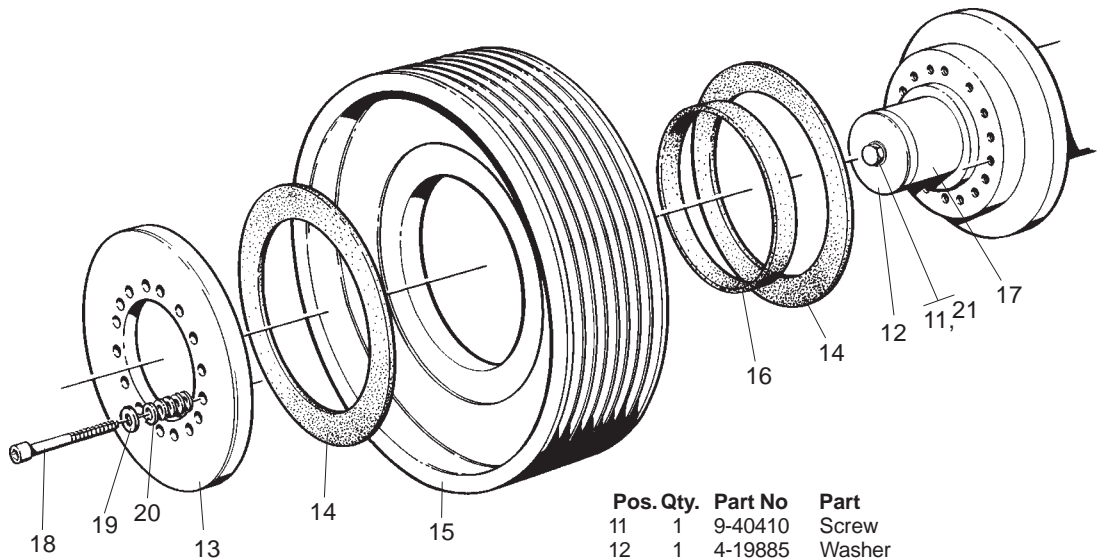
Rotating knives



Pos.	Qty.	Part No	Part
6	3	2-19812	Knife
	3	2-19813	Knife
7	24	9-40596	Screw
8	3	2-19798	Guide
	3	2-19799	Guide
9	12	9-40249	Adjustment screw*
10	12	9-40081	Adjustment screw**

*) Pre-set, **) Glued

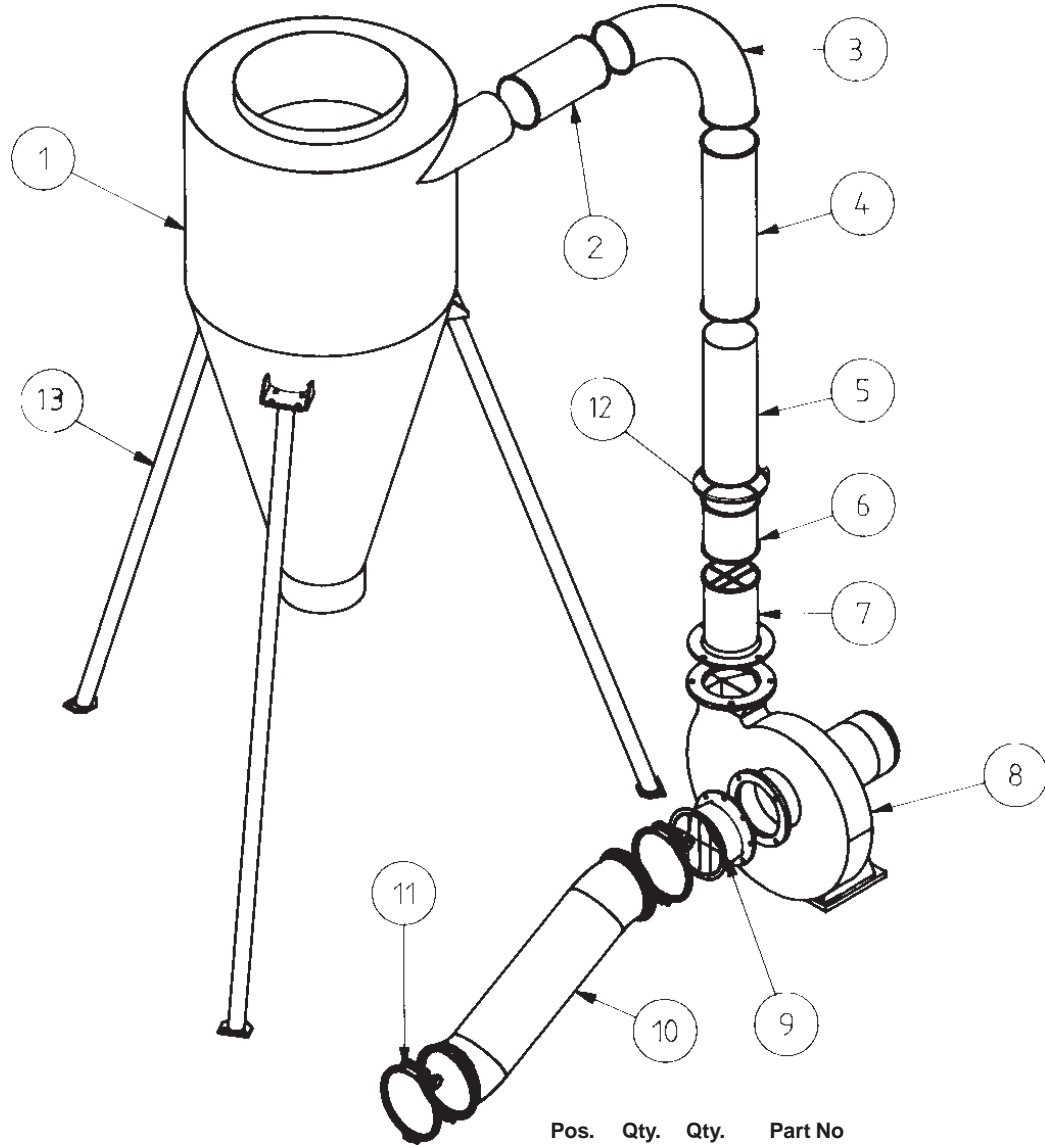
Friction clutch, cutter pulley



Pos.	Qty.	Part No	Part
11	1	9-40410	Screw
12	1	4-19885	Washer
13	1	3-06777	Cover washer
14	2	9-50188	Friction lining
15	1	9-30201	Pulley
16	1	9-50189	Slip ring
17	1	2-19881	Hub
18	16	9-40597	Screw
19	16	9-40642	Washer
20	320	9-50197	Thrust washer
21	1	4-07714	Folding lock washer

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Blower system F40 with cyclone AX 20
Blower system HZS 18/45



Pos.	Qty.	Qty.	Part No
1	1	1	2-03101
2	1	1	4-11767
3	1	1	4-11769
4	1	1	4-11766
5	1	1	9-20105
6	1	1	9-20197
7	1	1	4-08683
8	1	1	4-18754
9	1	1	9-91343
10	1	1	9-20190
11	2	2	4-08675
12	6	6	3-03268
13	3	3	2-12743
			9-20107
			4-00493

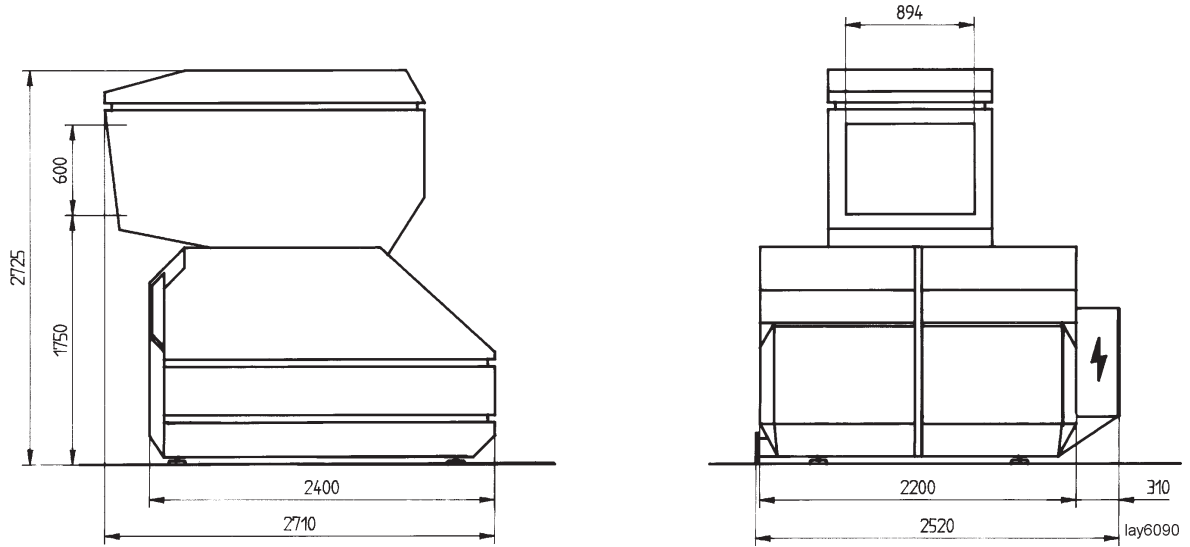
9. Wiring diagram

These standard components may be included in the electrical equipment for granulator 2436.

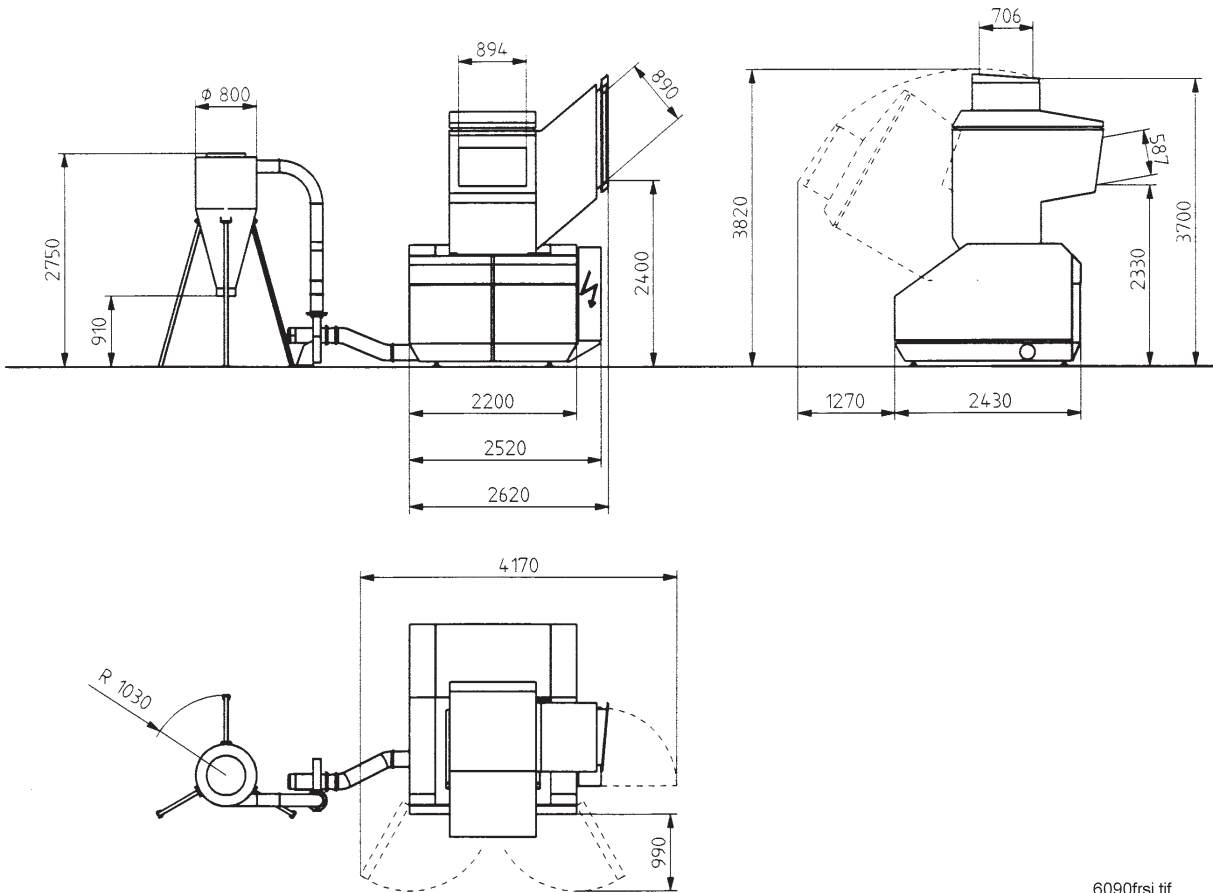
F1	Overcurrent relay, granulator motor
F14	Automatic fuse, auxiliary transformer
F15	Fuse, operating voltage (glass tube)
H1	Pilot lamp
K1	Mains contactor
K2	Contactor, delta -
K3	Contactor, start Y
K4	Time relay Y/- switching
K5	Contactor, blower motor
K6	Contactor, belt conveyor
K7	Overcurrent relay
K8	Speed relay
M4	Granulator motor
M2	Blower motor
M3	Motor for conveyor
M4	Motor for jack/hopper
Q1	Main switch
Q2	Motor protection, blower
Q3	Motor protection, belt
S1	Emergency stop
S2	Stop button granulator
S3	Start button granulator
S4	Extra emergency stop
S5	Safety switch
S6	Safety switch
S7	Safety switch
S8	Speed relay
S9	Switch open/close, hopper
S10	Switch open, hopper
S11	Switch close, hopper
S12/13	Safety switch
S14	Switch, door lock
S15-19	Safety switch
S20-21	Limit switch for screw, hopper
P1	Hour counter
T1	Auxiliary transformer
T2	Current transformer
U1	Metal detector
X1	Terminal blocks
X2	Terminal, blower
X3	Terminal, belt conveyor
X4	Terminal, metal detector

10. Layout

2436, Front feed



2436, Front and side feed, Blower F-40, Cyclone AX-20



6090frsi.tif

11. Accessories

As accessory equipment the granulator can be fitted with a third and fourth fixed knife to increase the efficiency of the granulator.

Knife, fixed third, low model

The granulator housing is prepared for the fitting of a third fixed knife.

Release the screws and remove the dummy knife located in the front edge of the granulator housing.

Conduct a pre-setting*) on the fixed third knife.

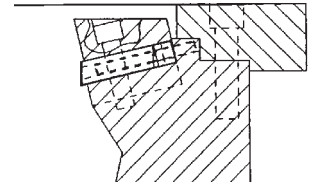
– See fitting of the fixed knives, page 18.

Fit the knife loosely.

Check that the clearance between the rotating knives and the third fixed knife. Use a 0.20 mm feeler gauge.

Recommended clearance is 0.20 - 0.40 mm.

If the clearance is correct - tighten the attachment screws, tightening torque 300 Nm.



Knife, fixed fourth

The granulator housing can be prepared for the fitting of a third fixed knife.

Release and remove the attachment for the fourth knife in the back edge of the granulator housing.

Conduct a pre-setting*) on the fixed fourth knife.

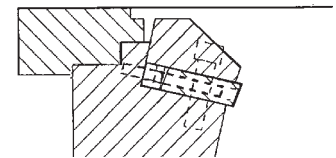
– See fitting of the fixed knives, page 18.

Fit the knife loosely.

Check that the clearance between the rotating knives and the fourth fixed knife. Use a 0.20 mm feeler gauge.

Recommended clearance is 0.20 - 0.40 mm.

If the clearance is correct - tighten the attachment screws, tightening torque 300 Nm.



*) Pre-setting of fixed knives is easiest to do with a fixture. See page 23. The fixture is not included on delivery of the machine but is a very practical accessory which can be ordered.

12. Transport and storage

General

The machine should be transported by trained personnel.

The machine is delivered packed in protective plastic foil, fixed to a pallet with straps.

Unpacking and checking

- Check that the machine has not been damaged during transport.

NOTE! Report any damage to the forwarding agent.

- Do not unpack the machine before it has been transported to where it is going to be used.
- Check with the delivery note that the delivery is complete.

Lifting and transport to place of use

The machine weighs approx. 7500 - 8000 kg.

For requisite area see Layout, chapter 10.

The machine can be lifted and handled by means of a fork-lift truck, if the truck has long forks.

NOTE! The length of the forks must be at least 2700 mm.

Positioning in place of use

See Installation, chapter 5.

Storage

The machine is packed for transport to the place where it is to be used.

On delivery it is protected with Castrol DWX 22 anti-rust oil.

Long-term storage/Conservation

- Store the machine in a room with a stable, dry temperature.
- Treat the machine's unpainted surfaces with anti-rust agent, e.g. Castrol DWX 22. DWX 22 will protect the machine up to 12 months, alternatively DWX 160 will provide protection for 24 - 36 months.

Attention! Unpacking

Important before unpacking and lifting the hopper.

Mounting of the hopper housing on the machine.

- Mount two eyebolts (M12) on the top part of the hopper.
- Loosen the screws which are holding the top part of the hopper.
- Lift the top part of the hopper away.

- Mount two eyebolts (M20) on the hopper housing.
- Open the machine doors.
- Loosen the screws which are holding the rear plate.
- Take the wooden pieces away, which are holding the rear plate.
- Loosen and take the socket screws away from the hinge.
- Screw in the wheels for the hopper lock cylinder so that the hopper lock clamps can pass free.
- Take one lock-ring and the pin in the upper bracket, for the screw-jack away.
- Lift the hopper housing carefully to the granulator.

- Mount the socket screws for the hinge, and adjust so that the hopper closes properly.
- Tighten the socket screws, 600 Nm.
- Mount the upper bracket for the screw-jack to the hopper with pin and lock-ring.
- Loosen and take away the eyebolts from the hopper housing.
- Mount the eyebolts on the top part of the hopper.
- Lift and mount the top part to the hopper housing and tighten the screws.
- Take the eyebolts away from the top of the hopper.
- Mount the rear plate.
- Screw out the wheels for the hopper lock cylinder.