

# Oscillator 460

Manual P/N 768 607 E  
– English –

**Keep for Future Reference**



NORDSON (UK) LTD. • STOCKPORT



#### **Order number**

P/N = Order number for Nordson products

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# Declaration of Conformity

## 98/37/EC

## 73/23/EEC

We,

**Nordson (U.K.) Limited**

of

**Ashurst Drive, Cheadle Heath, Stockport, Cheshire, SK3 0RY,  
United Kingdom**

declare that under our sole responsibility for supply/manufacture of the product(s)

**Product Name** 460 Oscillator

**Model Number(s)** 765231 (MK IV) and 736200 (MK V)

**Product Options** All

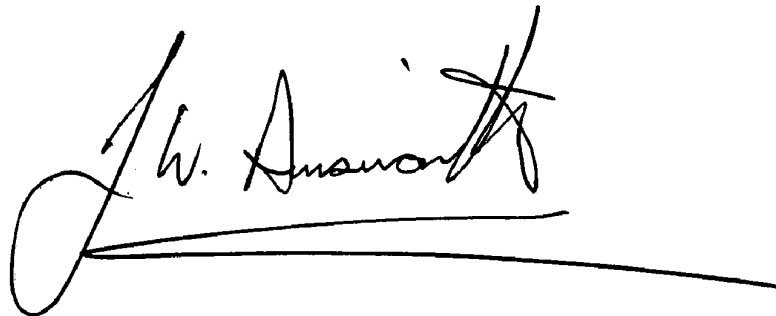
to which this declaration relates, is in conformity with the following standards and other normative documents

**Safety** BS EN 60204-1:1993  
"Safety of Machinery – Electrical equipment of machines"

EN 60335:Part 1:1988  
"Safety of household and similar electrical appliances"

BS EN 292:1991  
"Safety of machinery – Basic concepts, general principles for design"

following the provisions of 98/37/EC and 73/23/EEC Directives

A handwritten signature in black ink, appearing to read 'J. Ainsworth', with a long horizontal line extending to the right.

Jim Ainsworth  
General Manager

Nordson (U.K.) Ltd., 5th March 2001

NB ref EN45014 (BS7514)



# Table of Contents

---

## ***Congratulations on the Purchase of Your Nordson Product***

---

Your Safety is Important to Nordson .....	O-1
Manufacturer of Equipment .....	O-1

---

## ***Nordson International***

---

Europe .....	O-3
Distributors in Eastern & Southern Europe .....	O-3
Outside Europe / Hors d'Europe / Fuera de Europa .....	O-4
Africa / Middle East .....	O-4
Asia / Australia / Latin America .....	O-4
Japan .....	O-4
North America .....	O-4

---

## ***Section 1 Safety***

---

1. Introduction .....	1-1
2. Qualified Personnel .....	1-1
3. Intended Use .....	1-1
4. Regulations and Approvals .....	1-1
5. Personal Safety .....	1-2
6. Fire Safety .....	1-3
7. Action in the Event of a Malfunction .....	1-4
8. Disposal .....	1-4

---

## ***Section 2 Description***

---

1. Intended Use .....	2-1
2. Features .....	2-2

---

**Section 3**  
**Installation**

---

- 1. Transport ..... 3-1
- 2. Unpacking ..... 3-1
- 3. Removing ..... 3-1
- 4. Storage ..... 3-1
- 5. Disposal ..... 3-1
- 6. Setting Up the Unit ..... 3-2
- 7. Electrical ..... 3-2
- 8. Commissioning ..... 3-3

---

**Section 4**  
**Operation**

---

- 1. Daily Operation ..... 4-1

---

**Section 5**  
**Maintenance**

---

- 1. Daily Maintenance ..... 5-1
- 2. After First Month or 500 Hours ..... 5-1
- 3. Every Six Months or 3000 Hours ..... 5-1
- 4. Carriage Rollers ..... 5-2
  - Disassembly ..... 5-3
  - Assembly ..... 5-3
- 5. Variator replacement ..... 5-4
  - Disassembly ..... 5-4
  - Assembly ..... 5-4

---

**Section 6**  
**Troubleshooting**

---

- 1. Important Hints for Troubleshooting ..... 6-1

---

**Section 7**  
**Parts**

---

- 1. Introduction ..... 7-1
  - Using the Illustrated Parts List ..... 7-1
- 2. Parts List ..... 7-2

---

**Section 8**  
**Specifications**

---

- 1. Electrical ..... 8-1
- 2. Mechanical ..... 8-1
- 3. Noise ..... 8-1

# Congratulations on the Purchase of Your Nordson Product

Nordson equipment is engineered and manufactured in accordance with strict specifications, using high quality components and state-of-the-art technologies that assure reliable, long-term performance. Your product was thoroughly tested for proper operation prior to shipment.

Before unpacking and installing your new equipment, please read this manual. It is your guide to safe installation, productive operation and effective maintenance. We recommend that you keep the manual available for future reference.

---

## ***Your Safety is Important to Nordson***

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Carefully read the *Safety* section. Your product is designed for safe operation when used according to the published instructions. Potential hazards exist when operating instructions are not followed.

---

## ***Manufacturer of Equipment***

---

Nordson (U.K.) Ltd.  
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For a list of local Nordson organisations, see *Nordson International*.





# Nordson International

## Europe

Country		Phone	Fax
<b>Austria</b>		43-1-707 5521	43-1-707 5517
<b>Belgium</b>		31-13-511 8700	31-13-511 3995
<b>Czech Republic</b>		4205-4159 2411	4205-4124 4971
<b>Denmark</b>	<i>Hot Melt</i>	45-43-66 0123	45-43-64 1101
	<i>Finishing</i>	45-43-66 1133	45-43-66 1123
<b>Finland</b>		358-9-530 8080	358-9-530 80850
<b>France</b>		33-1-6412 1400	33-1-6412 1401
<b>Germany</b>	<i>Erkrath</i>	49-211-92050	49-211-254 658
	<i>Lüneburg</i>	49-4131-8940	49-4131-894 149
	<i>Düsseldorf - Nordson UV</i>	49-211-3613 169	49-211-3613 527
<b>Italy</b>		39-02-904 691	39-02-9078 2485
<b>Netherlands</b>		31-13-511 8700	31-13-511 3995
<b>Norway</b>	<i>Hot Melt</i>	47-23 03 6160	47-22 68 3636
	<i>Finishing</i>	47-22-65 6100	47-22-65 8858
<b>Poland</b>		48-22-836 4495	48-22-836 7042
<b>Portugal</b>		351-22-961 9400	351-22-961 9409
<b>Russia</b>		7-812-11 86 263	7-812-11 86 263
<b>Slovak Republic</b>		4205-4159 2411	4205-4124 4971
<b>Spain</b>		34-96-313 2090	34-96-313 2244
<b>Sweden</b>	<i>Hot Melt</i>	46-40-680 1700	46-40-932 882
	<i>Finishing</i>	46 (0) 303 66950	46 (0) 303 66959
<b>Switzerland</b>		41-61-411 3838	41-61-411 3818
<b>United Kingdom</b>	<i>Hot Melt</i>	44-1844-26 4500	44-1844-21 5358
	<i>Finishing</i>	44-161-495 4200	44-161-428 6716
	<i>Nordson UV</i>	44-1753-558 000	44-1753-558 100

## Distributors in Eastern & Southern Europe

<b>DED, Germany</b>	49-211-92050	49-211-254 658
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**Outside Europe /  
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- For your nearest Nordson office outside Europe, contact the Nordson offices below for detailed information.
- Pour toutes informations sur représentations de Nordson dans votre pays, veuillez contacter l'un de bureaux ci-dessous.
- Para obtener la dirección de la oficina correspondiente, por favor diríjase a unas de las oficinas principales que siguen abajo.

Contact Nordson	Phone	Fax
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**Africa / Middle East**

DED, Germany	49-211-92050	49-211-254 658
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**Asia / Australia / Latin America**

Pacific South Division, USA	1-440-988-9411	1-440-985-3710
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**Japan**

Japan	81-3-5762 2700	81-3-5762 2701
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**North America**

Canada		1-905-475 6730	1-905-475 8821
USA	Hot Melt	1-770-497 3400	1-770-497 3500
	Finishing	1-440-988 9411	1-440-985 1417
	Nordson UV	1-440-985 4592	1-440-985 4593

## *Section 1*

---

# ***Safety***

---



# Section 1

## Safety

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### **1. Introduction**

---

Read and follow these safety instructions. Task and equipment specific warnings, cautions, and instructions are included in equipment documentation where appropriate.

Make sure all equipment documentation, including these instructions, is accessible to all persons operating or servicing equipment.

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### **2. Qualified Personnel**

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Equipment owners are responsible for making sure that Nordson equipment is installed, operated, and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

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### **3. Intended Use**

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Use of Nordson equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property.

Some examples of unintended use of equipment include

- using incompatible materials
- making unauthorized modifications
- removing or bypassing safety guards or interlocks
- using incompatible or damaged parts
- using unapproved auxiliary equipment
- operating equipment in excess of maximum ratings

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### **4. Regulations and Approvals**

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Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Nordson equipment will be voided if instructions for installation, operation, and service are not followed.

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## **5. Personal Safety**

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To prevent injury follow these instructions.

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing any moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- While operating manual electrostatic spray guns, make sure you are grounded. Wear electrically conductive gloves or a grounding strap connected to the gun handle or other true earth ground. Do not wear or carry metallic objects such as jewelry or tools.
- If you receive even a slight electrical shock, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.
- Obtain and read Material Safety Data Sheets (MSDS) for all materials used. Follow the manufacturer's instructions for safe handling and use of materials, and use recommended personal protection devices.
- To prevent injury, be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.

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## 6. Fire Safety

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To avoid a fire or explosion, follow these instructions.

- Ground all conductive equipment in the spray area. Check equipment and workpiece grounding devices regularly. Resistance to ground must not exceed one mega-ohm.
- Shut down all equipment immediately if you notice static sparking or arcing. Do not restart the equipment until the cause has been identified and corrected.
- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Provide adequate ventilation to prevent dangerous concentrations of volatile materials or vapors. Refer to local codes or your material MSDS for guidance.
- Do not disconnect live electrical circuits while working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Shut off electrostatic power and ground the charging system before adjusting, cleaning, or repairing electrostatic equipment.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.

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**7.    *Action in the Event of a  
Malfunction***

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If a system or any equipment in a system malfunctions, shut off the system immediately and perform the following steps:

- Disconnect and lock out electrical power. Close pneumatic shutoff valves and relieve pressures.
- Identify the reason for the malfunction and correct it before restarting the equipment.

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**8.    *Disposal***

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Dispose of equipment and materials used in operation and servicing according to local codes.



## *Section 2*

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# ***Description***

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## Section 2

### Description

#### 1. *Intended Use*

The Nordson Oscillator 460 is designed for moving a maximum of sixteen powder spray guns over a workpiece with a stroke length variable between 80 and 460 mm, at a variable speed.

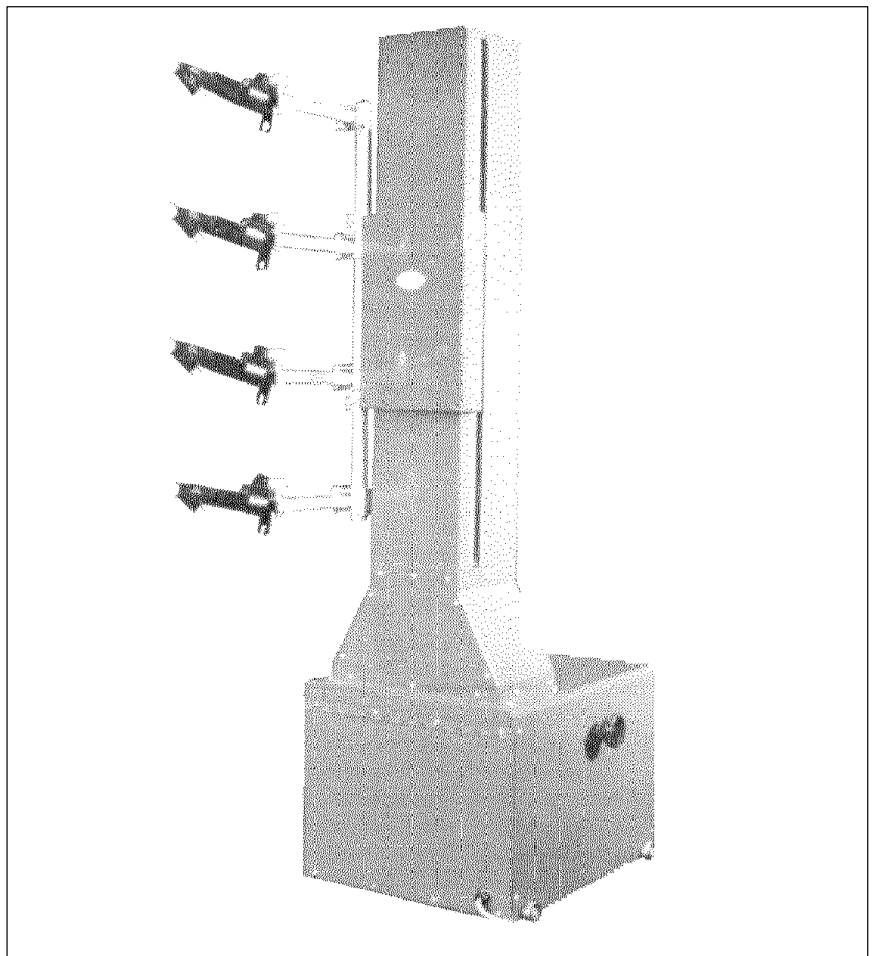


Fig. 2-1

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## **2. Features**

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- Adjustable speed.
- Adjustable stroke length.
- Smooth turn around.
- Low maintenance.

Flexible gun mounting arrangement. The Oscillator consists of a carriage that runs on a vertical column, the carriage is moved by an AC motor and variator that drives the carriage through a crank and arm.

The machine is supplied with a guide rail for accurate machine location.

The Oscillator 460 is fitted with a local stop/start device that allows the machine to be disconnected from the supply during maintenance.

## *Section 3*

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# ***Installation***

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## Section 3

# Installation



**WARNING:** Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

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### 1. Transport

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Transport the unit so as to avoid damage. Do not throw the unit. Use suitable packaging materials and sturdy cartons. See *Specifications* section for dimensions and weight.

Protect the unit from exposure to humidity, dust and vibrations.

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### 2. Unpacking

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Carefully unpack the unit to avoid damaging it. Check for damage caused during transport.

Save packing materials for possible later use. Otherwise recycle or dispose of properly according to local regulations.

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### 3. Removing

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Switch off the mains supply, then disconnect all electrical connections from the unit.

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### 4. Storage

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Pack the unit in suitable packing materials and sturdy cartons. Protect from humidity, dust and large temperature fluctuations (condensation).

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### 5. Disposal

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Dispose of properly according to local regulations.

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## **6.    *Setting Up the Unit***

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**WARNING:** Allow only qualified personnel to perform the installation. Observe safety instructions.

1. The oscillator column should be installed in a position where it will receive an unrestricted supply of cool air around its casing.
2. The column should be positioned in front of the gun openings and the guns mounted on the gun bars, install the cables and hoses using the supports provided, ensure they are free to move without pulling or kinking.
3. Withdraw the column and guns from the booth and go on with commissioning.
4. It is advisable to keep gun bar lengths to a minimum to reduce gun shake.

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## **7.    *Electrical***

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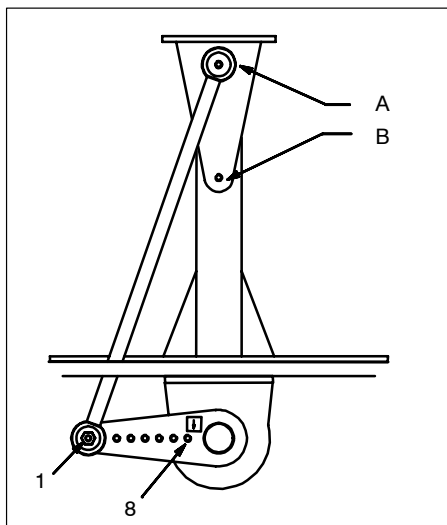


**WARNING:** Allow only qualified personnel to perform electrical connections. Observe the safety instructions.

The unit should be supplied via a wall-mounted starter, which should be labeled accordingly. In the event of a power loss the starter should be wired not to start-up on re-connection of power, but will require the start button to be re-pressed.



## 8. Commissioning



**WARNING:** Isolate from mains and clamp gun carriage when adjusting the stroke and when working underneath the gun carriage, or when covers are removed.

1. The crank arm and carriage bracket are drilled to allow several stroke lengths and offsets. Move the fixing bolts in the crank arm to either position A or B to change the offset. To change the stroke length move the fixing to any of positions 1 to 8; position 1 gives the longest stroke while position 8 gives the shortest stroke.
2. Connect the supply cable to the mains supply using a suitable disconnection device fitted with circuit protection.
3. Turn on the supply to the oscillator and depress the start button on the side of the machine. Check the crank arm for correct direction of rotation as shown by the direction arrow fitted to the crank arm. This is anti-clockwise looking at the motor shaft as in the above figure. The carriage should traverse up and down when the start button is pressed.
4. Set speed to that required by altering the control knob position.



**WARNING:** Do not change speed with the machine stationary, all speed changes must be carried out while the machine is running, failure to do so will result in damage to the variator.



## *Section 4*

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# ***Operation***

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## Section 4 Operation



**WARNING:** Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

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### 1. Daily Operation

---



**WARNING:** The Oscillator can move at high speeds and with large forces. Before switching ON/OFF set the speed controls to minimum and ensure that the area is clear of personnel . Failure to observe this may result in personal injury.

The machine may be disabled during servicing, by removing the interconnecting cable at the base of the machine.

1. To start the Oscillator, ensure that the main supply is energized. If there is a stop/start on the booth control panel this should be off, press the start button on the starter on the side of the oscillator. On the control panel press the stop start button.
2. If there is no stop/start on the booth control panel then the oscillator is started by pressing the start button on the side of the Oscillator.
3. The large control wheel on the side of the oscillator controls speed of traverse, turning it anti-clockwise increases the speed. Only change speed when the machine is in motion, failure to do so can damage the machine.
4. In case of the machine stopping of its own accord during operation, it should be isolated immediately and the troubleshooting guide consulted.



## *Section 5*

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# ***Maintenance***

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## Section 5 Maintenance



**WARNING:** Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.



**WARNING:** Breathing in certain airborne dusts (including finishing powders) may be hazardous to health. Ask the powder manufacturer for a Material Safety Data Sheet (MSDS) for information. Use appropriate respiratory protection.



**WARNING:** Before commencing any work on the column operate the isolator and disconnect the cable connecting the column to the controller.

### 1. Daily Maintenance

- Check gun bars, clamps and carriage tightness, adjust if necessary.
- Clean any powder from the Oscillator covers.
- Inspect slot seal brushes for damage.
- Listen for any excessive noise, investigate cause and rectify at earliest opportunity.

### 2. After First Month or 500 Hours

- Check carriage rollers, the column covers must be removed for this.
- Check nuts, bolts and all fixings for tightness.

**NOTE:** The variator is filled with synthetic oil and is sealed for life.

### 3. Every Six Months or 3000 Hours

- As per the first 500 hours.
- Inspect all parts for wear and replace as necessary.
- Inspect motor brushes replace when less than 7 mm.
- Inspect the variator if the seals are worn or leaking, replace the variator.

#### 4. Carriage Rollers

Each of the eight rollers may be replaced individually. This should only be done when the rollers show signs of wear.



**WARNING:** The rollers and column do not require lubrication by oil or grease. The rollers are made of a self-lubricating material. Application of oil or grease may cause premature wear.



**WARNING:** The carriage is heavy and should be clamped in place when working on it. Ensure that the isolator has been operated at the base of the column to disconnect the electrical supplies before working on the machine.

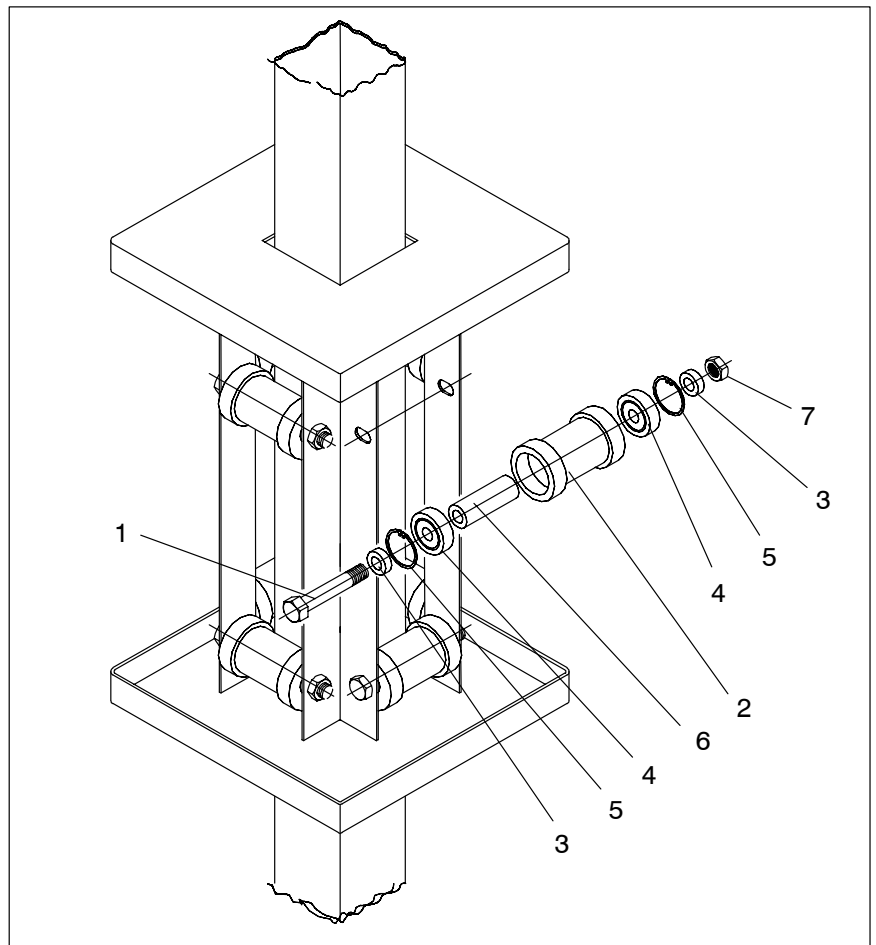


Fig. 5-1

**Disassembly**

1. Remove the column covers.
2. Remove the bolt (1) that passes through the roller (2) and nut (7).
3. Remove the roller (2), place the spacers (3) on one side for later assembly.
4. Release the bearings (4) in each end of the roller by removing the circlips (5). Remove the spacer (6) from inside the roller (2).

Inspect all the parts for damage and wear and replace as necessary.

**Assembly**

1. Place the long spacer (6) inside the roller (2).
2. Fit the bearings (4) to each end of the roller (2) and secure using circlips (5).
3. Fit the roller (2) into the carriage ensuring the short spacers (3) are fitted between the bearings (4) and the carriage.
4. Fit the bolt (1) and nut (7) then tighten to the point where the roller (2) will just move in the carriage frame.
5. Position the carriage so that the column runs centrally through the carriage.
6. Tighten the bolt (1) fully (6kgm or 46ftlb) on two adjacent sides of the carriage.
7. Using a lever between the centre part of the roller and the carriage to maintain pressure on the roller fully tighten each of the remaining bolts.
8. Check the carriage to roller clearance, The rollers should be set to contact the column with slight pressure. The roller should offer slight resistance to turning by hand. This ensures no free play and reduced wear.

**NOTE:** Recheck the roller clearance after approx. 40 hours running. Adjust as necessary.

9. Replace the covers and check for correct operation.

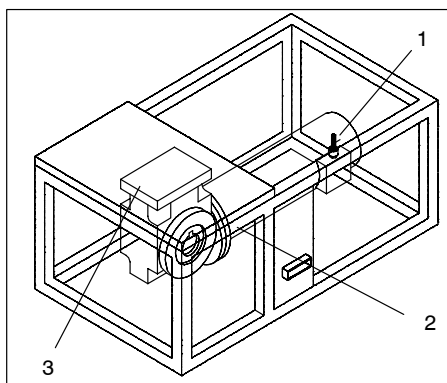
## 5. Variator replacement



**WARNING:** Replacement of the variator requires the Gunmover to be removed from the guide rails and laid horizontally. A minimum of two persons is required to complete this task, as the machine is heavy.

Service parts are not available for the variator, however, in view of the number of hours required to complete even a minor repair, a complete service replacement is recommended. Being the most cost effective, the new unit carrying the manufacturers guarantees.

### Disassembly



Remove the column covers.

1. Clamp the carriage to avoid movement.
2. Remove the motor wiring (1), where necessary identify each wire to ensure correct replacement.
3. Remove the variator by releasing the bolts (3) fixing it to the baseframe motor mounting.

At this point each component should be inspected and any damaged components replaced.

**NOTE:** The variator is a 'sealed for life' type and does not require the addition of further oil.

### Assembly

1. Fit the variator to the base frame motor mounting.
2. Refit the wiring to the motor.
3. Fit the covers and secure all fixings.

# ***Troubleshooting***

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# Section 6

## Troubleshooting



**WARNING:** Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

### 1. Important Hints for Troubleshooting

The following tables provide general information for the troubleshooting of basic problems. Sometimes more detailed information, circuit diagrams or measuring devices are also needed for troubleshooting.

It must be noted that a fault can occur for several reasons. It is advisable to check all possible causes for a given fault. Obvious causes of malfunction such as broken wires, missing fasteners etc., should be noted during visual inspections and corrected immediately.

The unit does not contain any user serviceable parts, approved parts available from Nordson must replace any parts that fail.



**WARNING:** Before commencing any work on the column operate the isolator and disconnect the cable connecting the column to the controller.

Problem	Possible Cause	Corrective Action
No motion when start button pressed. (Starter contactor does not energize) Note only for systems with oscillator controls on a booth control panel	No supply voltage	Check supply, continuity, fuse
	Faulty push button	Replace
	Faulty contactor	Replace

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
No motion when start button pressed (Contactor energized)	Starter overload protection or short circuit protection tripped  Carriage/variator jammed  Crank arm or connecting arm linkages broken	Check & reset, if it recurs check for motor fault or mechanical jam  Check for freedom of movement and identify fault area, repair as necessary. Note it is normal for the carriage to require the weight of 1–2 people to move it  Replace
Erratic motion	Loose carriage  Loose crank arm or connecting arm  Worn variator	Adjust wheels  Tighten taper lock  Replace
No speed control	Variator fault	Replace
Noisy operation	Slack crank arm or connecting arm  Carriage rollers loose	Check fixings  Adjust rollers
Gun bounce	Gun bars are too long	Shorten gun bars, brace and ensure clamps are tight



## *Section 7*

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# ***Parts***

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## Section 7

### Parts

#### 1. Introduction

To order parts, call the Nordson Customer Service Center or your local Nordson representative. Use the parts list, and the accompanying illustration, to describe and locate parts correctly.

#### **Using the Illustrated Parts List**

Numbers in the Item column correspond to numbers that identify parts in illustrations following each parts list. The code NS (not shown) indicates that a listed part is not illustrated. A dash (—) is used when the part number applies to all parts in the illustration.

The number in the Part column is the Nordson Corporation part number. A series of dashes in this column (-----) means the part cannot be ordered separately.

The Description column gives the part name, as well as its dimensions and other characteristics when appropriate. Indentions show the relationships between assemblies, subassemblies, and parts.

Item	Part	Description	Quantity	Note
—	000 0000	Assembly	1	A
1	000 000	• Subassembly	2	
2	000 000	• • Part	1	

- If you order the assembly, items 1 and 2 will be included.
- If you order item 1, item 2 will be included.
- If you order item 2, you will receive item 2 only.

The number in the Quantity column is the quantity required per unit, assembly, or subassembly. The code AR (As Required) is used if the part number is a bulk item ordered in quantities or if the quantity per assembly depends on the product version or model.

Letters in the Note column refer to notes at the end of each parts list. Notes contain important information about usage and ordering. Special attention should be given to notes.

## 2. Parts List

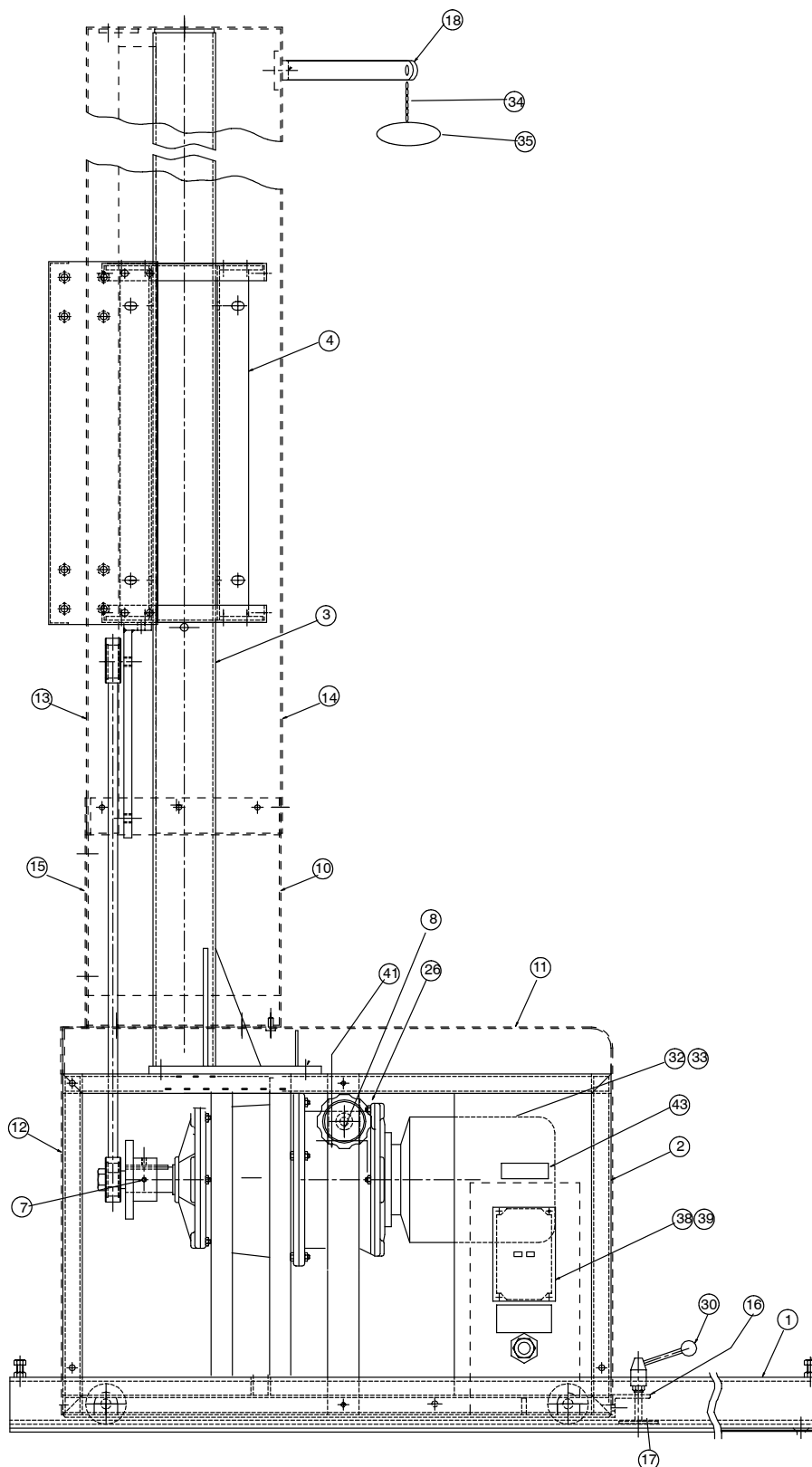


Fig. 7-1 Side Elevation

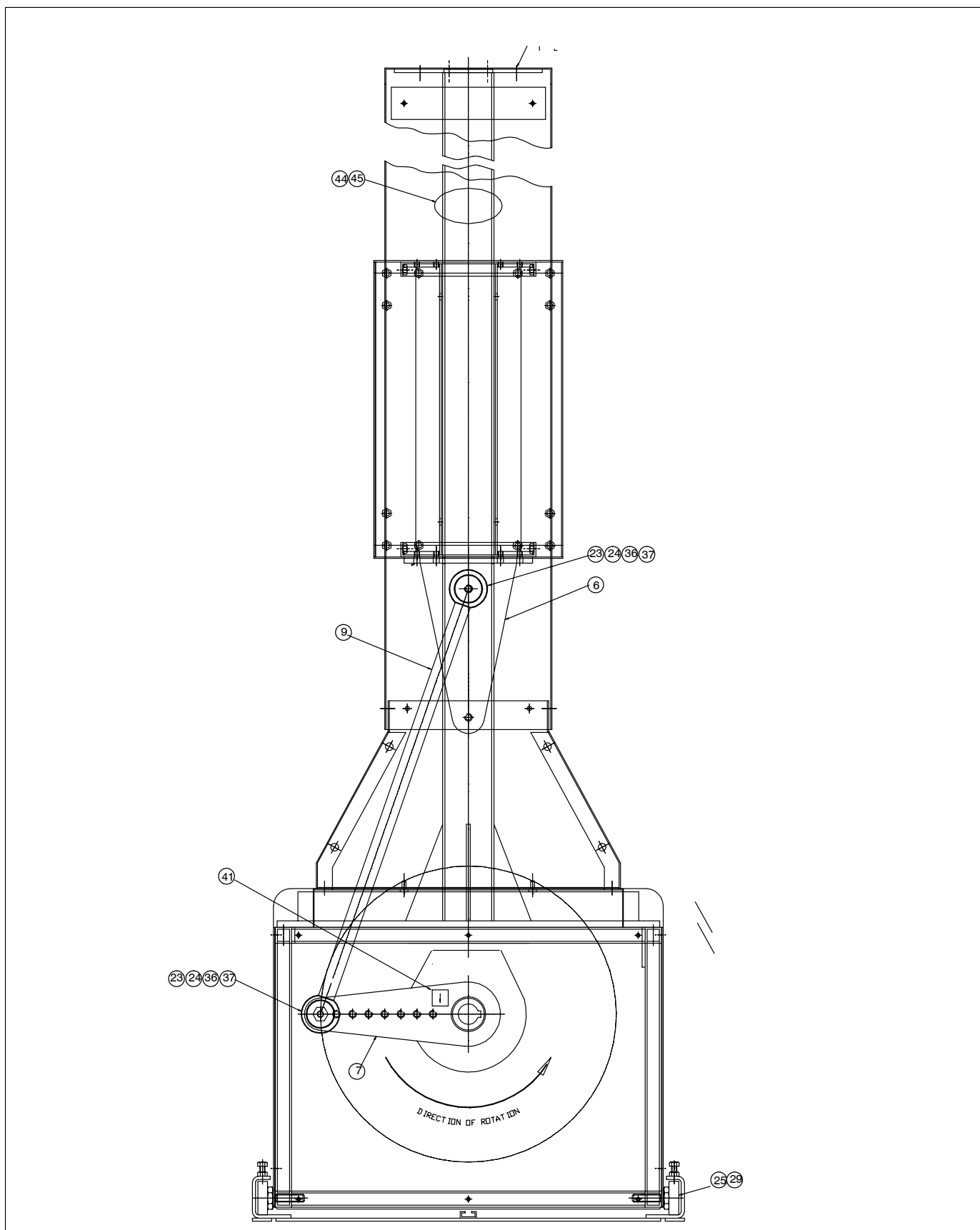


Fig. 7-2 Front Elevation

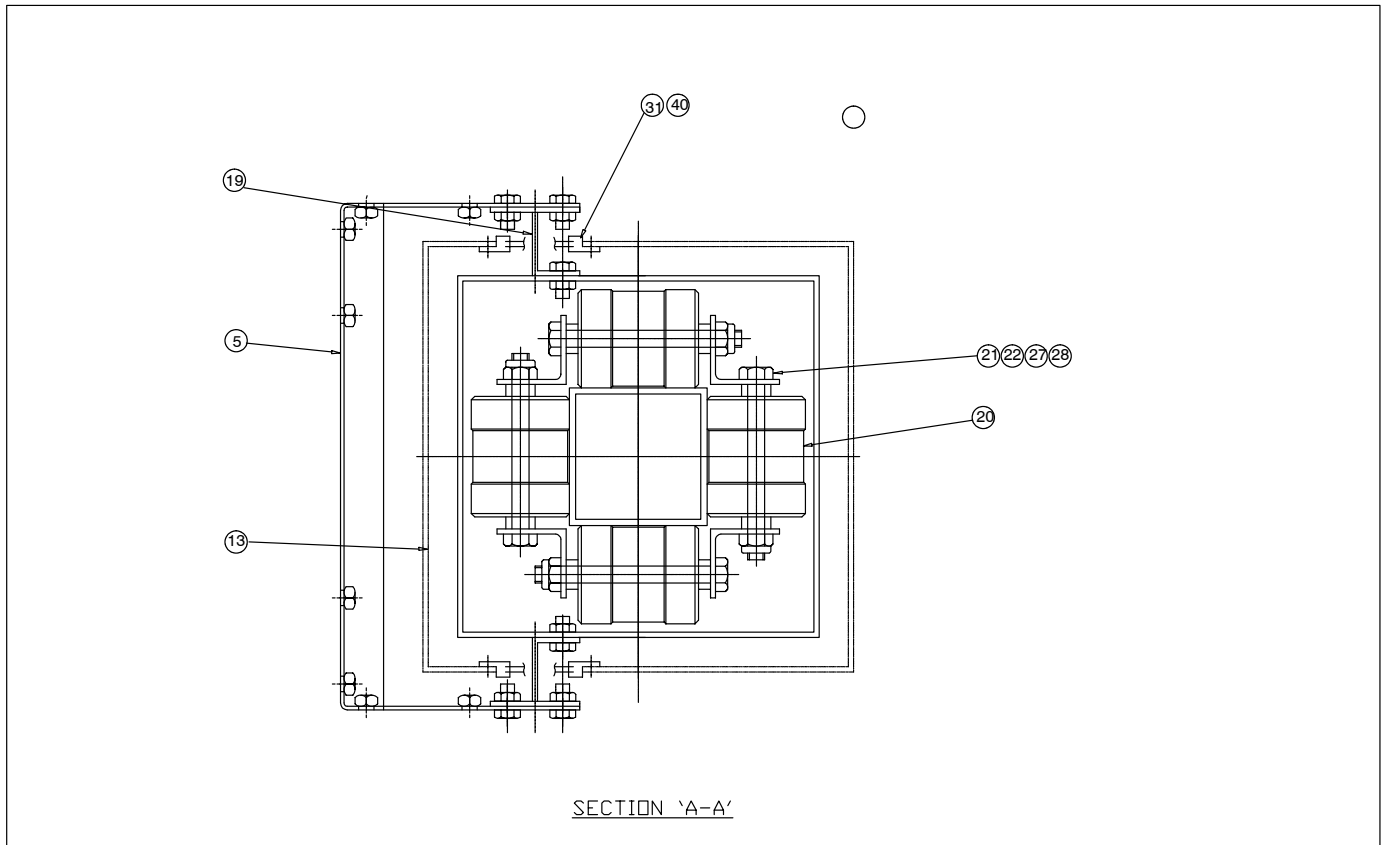


Fig. 7-3 Cross Section A-A

Item	Part	Description	Quantity	Note
–	765 231	Oscillator 460 MK IV Pre 2001	1	
–	736 200	Oscillator 460 MK V Post 2001	1	
1	767 327	• Rails	1	
2	765 227	• Base frame	1	
3	765 201	• Column & Base plate	1	
4	765 214	• Carriage	1	
5	765 213	• Carriage plate	1	
6	765 202	• Carriage bracket	1	
7	765 203	• Crank arm	1	
8	765 229	• Handle support frame	1	
9	765 215	• Connecting arm	1	
10	765 205	• Base column guard	1	
11	765 228	• Base frame cover	1	
12	765 207	• Front panel	1	
13	765 208	• Front column guard	1	

*Continued on next page*

Item	Part	Description	Quantity	Note
14	765 209	• Rear column guard	1	A
15	765 210	• Front cover	1	
16	767 317	• Catch bracket	1	
17	767 325	• Clamp plate	1	
18	765 222	• Hose support	1	
19	765 212	• Carriage mount	2	
20	767 310	• Roller	8	
21	767 312	• Spacer, short	16	
22	767 311	• Spacer, long	8	
23	765 220	• Spacer crank arm	2	
24	765 216	• Bearing crank arm	2	
25	767 316	• Wheel hub	4	
26	765 230	• Drive unit (Variator) TX5 (MK IV)	1	
	765 550	• Drive unit (Variator) TX10 (MK V)	1	
27	767 313	• Bearing roller	16	
28	767 314	• Circlip	16	
29	767 315	• Bearing wheel	4	
30	767 321	• Tension lever	1	
31	765 223	• Slot brushes	4	
32	769 133	• Gland (Motor)	1	
33	769 112	• Cable 3c + E	7M	
34	767 114	• Chain	1	
35	767 154	• Hose clamp	1	
36	765 219	• Shoulder screw	2	
37	765 217	• Circlip crank arm	4	
38	769 054	• Starter	1	
39	769 051	• Facia plate	1	
40	769 502	• M3.5 Rivscrew	20	
41		• Direction label	1	
42	769 900	• Earth label	1	
43	769 901	• Warning label	1	
44	984 529	• Speed nut	3	
45	136 418	• Name plate	1	

NOTE A: TX10 Variator can be fitted to a MK IV 460 Oscillators, but some modifications are required. Consult your local Nordson Representative for details

AR: As Required, NS: Not Shown





# ***Specifications***

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## Section 8 Specifications

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### 1. *Electrical*

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Voltage	415 Volt 3-phase
Frequency	50 Hz
Running current	1.8 A
Motor protection	IP55
Max ambient temperature	32 °C

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### 2. *Mechanical*

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Height	2059 mm
Width	600 mm
Width with rails	672 mm
Depth	704 mm
Depth with rails	1300 mm
Speed	7.6–44 rpm

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### 3. *Noise*

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Less than 70 dBA measured at a distance of 1m from the surface of the unit at a height of 1.6 m.

