HO Reciprocator

Manual P/N 736183A
– English –
Issued 11/05

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NORDSON GmbH • ERKRATH, GERMANY

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Notice

Trademarks

DECLARATION of CONFORMITY

PRODUCT: HO Reciprocator

Conformity has been verified following the provisions of the following directives:

APPLICABLE DIRECTIVES:

Directive 94/9/EC (ATEX)
Directive 98/37/EC (Machinery)

STANDARDS USED TO VERIFY COMPLIANCE:

EN 60204–1:1993 “Safety of machinery – Electrical equipment of machines”.

EN 1050:1998 ”Safety of machinery – Principles of risk assessment”.

EN 292: 1992 “Safety of machinery – Basic concepts, general principles for design”.

Part 1a – Basic terminology, methodology (UNI EN 292–1:1992).

Part 2a – Technical principles and sepcification (UNI EN 292–2:992/A1:1995).

EN418:1994 “Safety of machinery – Emergency stop equipment – Functional aspects – Principles for design”.

EN 954–1:1998 “Safety of machinery – Safety related parts of control systems – General principles for design”.

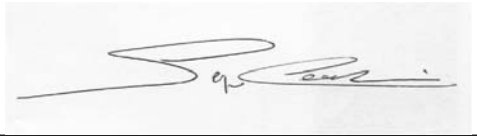
EN 294:1993 “Safety of machinery – Safety distances to prevent danger zones being reached by upper limbs”.

EN 811:1998 “Safety of machinery – Safety distances to prevent danger zones being reached by lower limbs”.

EN349:1994 “Safety of machinery – Minimum gaps to avoid crushing of parts of the human body”.

This product has been manufactured according to good engineering practice and conforms to the specified directives and standards described above.

CE Ex II 3D T 200C



Date: 25th March 2005

Sergio Cocchi
Technical Director Powder Group Europe

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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

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.

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For a list of local Nordson organisations, see *Nordson International*.

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Germany	*Erkrath*	49-211-92050	49-211-254 658
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	Nordson UV	49-211-9205528	49-211-9252148
Italy		39-02-904 691	39-02-9078 2485
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	Finishing	44-161-495 4200	44-161-428 6716
	Nordson UV	44-1753-558 000	44-1753-558 100

Distributors in Eastern & Southern Europe

DED, Germany	49-211-92050	49-211-254 658

Outside Europe / Hors d'Europe / Fuera de Europa

- For your nearest Nordson office outside Europe, contact the Nordson offices below for detailed information.
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	Nordson UV	1-440-985 4592	1-440-985 4593

Section 1
Safety

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.

Qualified Personnel

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.

Intended Use

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

Regulations and Approvals

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.

All phases of equipment installation must comply with all federal, state, and local codes.

Personal Safety

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.
- 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.

Fire Safety

To avoid a fire or explosion, follow these instructions.

- 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.
- 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.

Grounding

WARNING: Operating faulty electrostatic equipment is hazardous and can cause electrocution, fire, or explosion. Make resistance checks part of your periodic maintenance program. If you receive even a slight electrical shock or notice static sparking or arcing, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.

All work conducted inside the spray booth or within 1 m (3 ft) of booth openings is considered within a Class 2, Division 1 or 2 Hazardous location and must comply with NFPA 33, NFPA 70 (NEC articles 500, 502, and 516), and NFPA 77, latest conditions.

- All electrically conductive objects in the spray areas shall be electrically connected to ground with a resistance of not more than 1 megohm as measured with an instrument that applies at least 500 volts to the circuit being evaluated.
- Equipment to be grounded includes, but is not limited to, the floor of the spray area, operator platforms, hoppers, photoeye supports, and blow-off nozzles. Personnel working in the spray area must be grounded.
- There is a possible ignition potential from the charged human body. Personnel standing on a painted surface, such as an operator platform, or wearing non-conductive shoes, are not grounded. Personnel must wear shoes with conductive soles or use a ground strap to maintain a connection to ground when working with or around electrostatic equipment.
- Operators must maintain skin-to-handle contact between their hand and the gun handle to prevent shocks while operating manual electrostatic spray guns. If gloves must be worn, cut away the palm or fingers, wear electrically conductive gloves, or wear a grounding strap connected to the gun handle or other true earth ground.
- Shut off electrostatic power supplies and ground gun electrodes before making adjustments or cleaning powder spray guns.
- Connect all disconnected equipment, ground cables, and wires after servicing equipment.

Action in the Event of a Malfunction

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.

Disposal

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

Safety Labels

Table 1-1 contains the text of the safety label on this equipment. The safety label is provided to help you operate and maintain your equipment safely. See Figure 1-1 for the location of the safety label.

Tab. 1-1 Safety Label Text

Item	Description
1.	**WARNING:** Do not clean or lubricate whilst the machine is running
2.	**WARNING:** Do not remove safety devices and protections.
3.	**WARNING:** Check the effectiveness of protections and precautionary measures
4.	**WARNING:** High voltage
5.	**WARNING:** It is forbidden to use water to put out fires

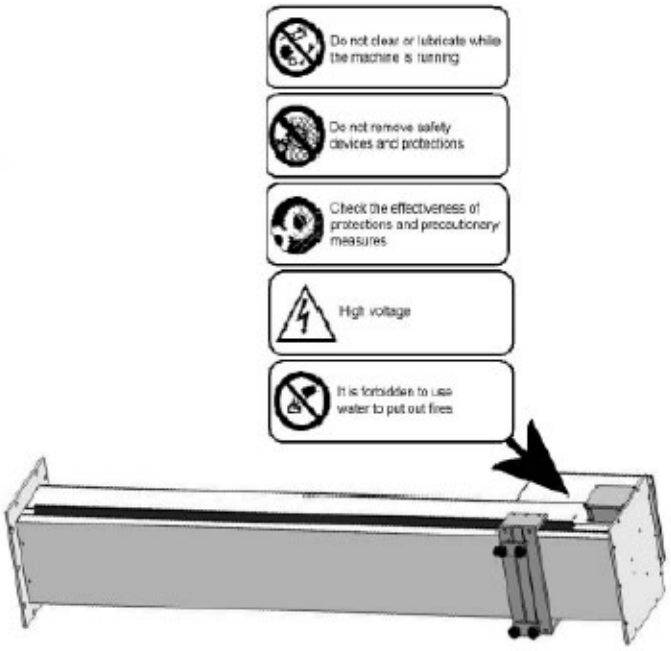


Fig. 1-1 Safety label position

Section 2
Description

The HO reciprocator ensures optimum conditions for powder coating by providing a consistent stroke length and speed for the spray guns mounted on its carriage, as well as regulating the gun to part distance.

Each reciprocator can be operated by its own control panel or alternatively via a PLC, and is designed to operate with a maximum weight capacity of 30kg.

See Figure 2–1. The unit consists of a steel structure (1), fixed on support legs (not shown) to ensure stability during operation.

The powder spray guns are connected by Nordson gun support bars to the carriage (2). The carriage movement is driven by a pulley and toothed belt system coupled with an electric motor. A guide, fixed inside the column structure, allows the carriage assembly to slide on its pair of dual wheels.

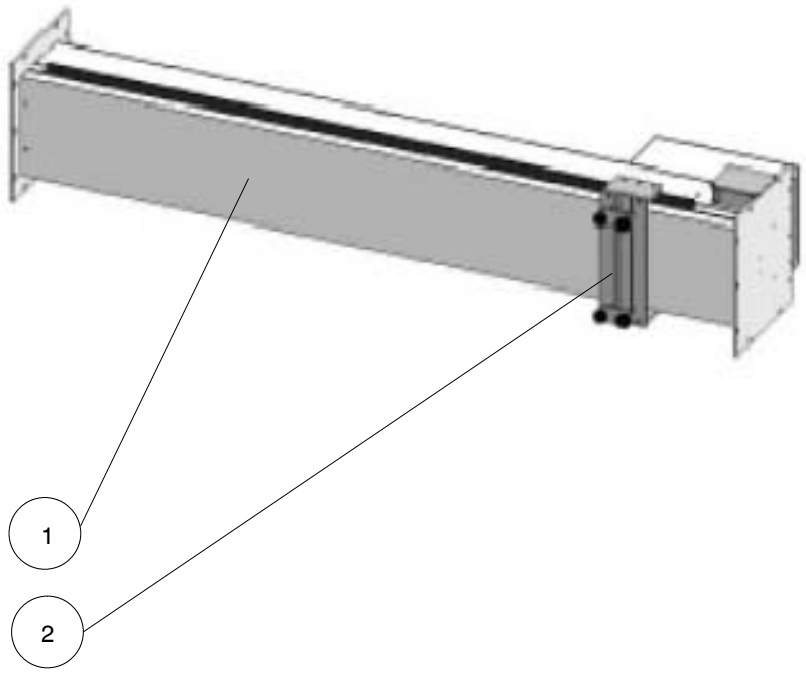


Fig. 2-1 HO Reciprocator

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.

WARNING: Risk of electrical shock. Disconnect and lock out input power to equipment before servicing. Failure to observe this warning may result in personal injury or death

Transport

Transport the unit horizontally so as to avoid damage. Use suitable packaging materials and sturdy cartons. See *Technical Data* section for dimensions and weights. Protect the unit from exposure to humidity, dust and vibrations.

See Figure 3-1 for lifting the reciprocator horizontally, ensuring that the forks of the fork lift truck do not damage the carriage assembly. Take in to account the additional weight at the motor end when balancing the gun mover on the forks.

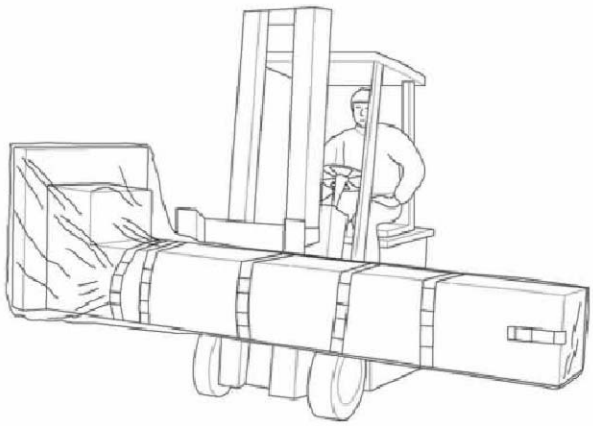


Fig. 3-1 Lifting the reciprocator horizontally

Unpacking

Carefully unpack the unit avoiding damage. Check for damage caused during transport. Save packing materials for possible later use, otherwise recycle or dispose of properly according to local regulations.

Removing

Switch off the main electrical and pneumatic supplies. Disconnect electrical connections from the unit.

Storage

Pack the unit in suitable packing materials and sturdy cartons. Protect from humidity, dust and large temperature fluctuations. Add a layer of grease to all moving parts to prevent rust.

Disposal

Dispose of properly according to local regulations.

Electrical

A single power supply cable is required to the reciprocator control panel, to be connected through a suitable electrical gland. For connection details see the relevant controller manual. Between the control panel and the reciprocator there are two cables, one for power, and the other for communications that come pre-wired to the reciprocator. Connect them both to the control panel using the plug fittings supplied with each cable.

Ensure that all the incoming electrical wires are suitably sized for the motor loading and adequate fuse/circuit protection is provided at the source of supply.

Setting Up

Use the following procedure to set up each machine

1. Ensure that the area for installation is clear and level with a minimum lighting level of 300 lux.
2. Position reciprocator by raising it with a fork lift truck to a horizontal position to the appropriate position at the booth. Take care to leave sufficient room for the powder spray guns and support arms once they are added above and below the reciprocator.
3. See Fig 3-2. Ensure that reciprocator is level horizontally, and is lined up correctly with the gun slot on the booth.

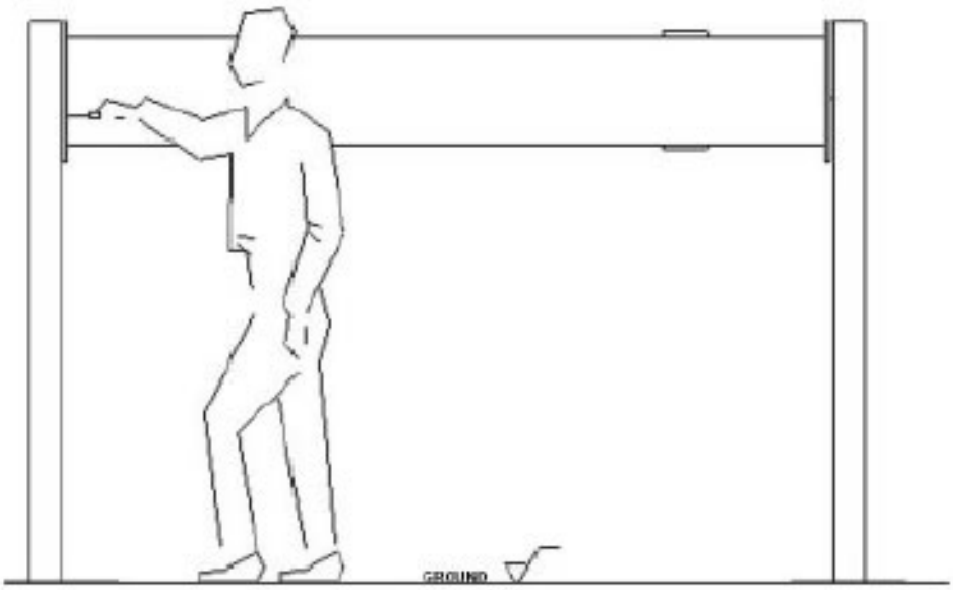


Fig. 3-2 Horizontal reciprocator installation

4. Attach the reciprocator to the support legs, using suitable bolts.
5. Ensure that the support legs are fixed to the floor with suitable bolts and grounded.
6. Designate a safe working area around the reciprocator to avoid injury to operators. Ensure that this area is not entered by operators in normal operation by surrounding it with a fence, or by painting the floor to denote a hazardous area.
7. See Figure 3-3. Attach the external carriage plates (1) on to the unit using two bolts per plate.

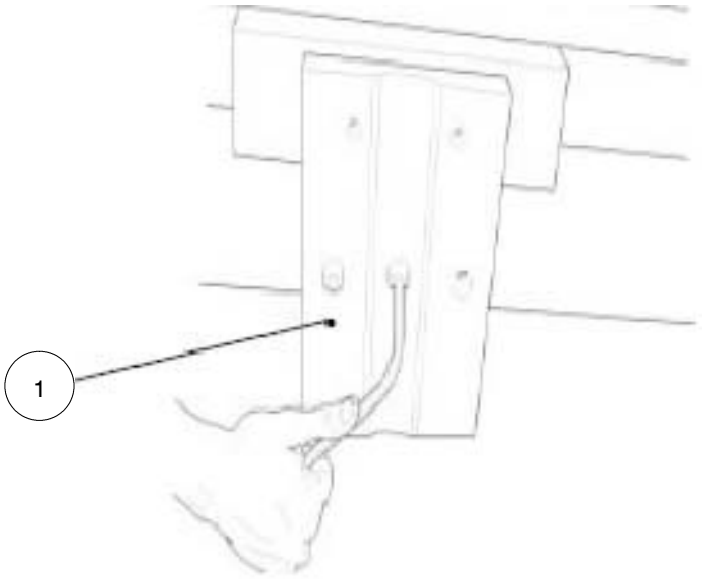


Fig. 3-3 Attaching external carriage plates

8. See Figure 3-4. Bolt 2 gun arm clamps (1) to the external carriage plates (2), and insert the gun support arm (3). Tighten the gun arm clamps to fix the gun support arm in the desired position for spraying.

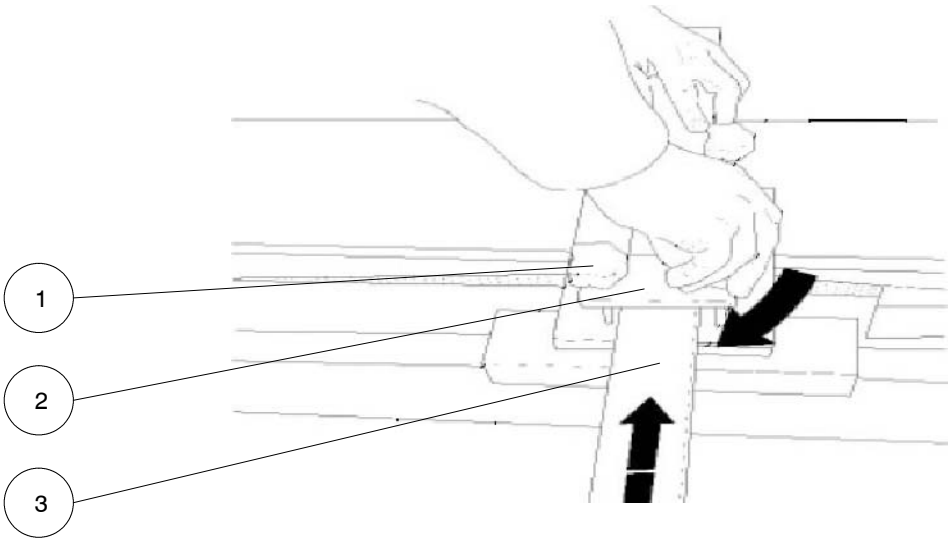


Fig. 3-4 Attaching gun arm clamps and gun support arm

9. Attach guns and additional gun support arms as required for the particular application.
10. Each unit is supplied with the stroke stops and limit switches positioned for maximum stroke. refer to the *Maintenance* section to modify this to prevent collision with the booth.

WARNING: The maximum weight capacity of the reciprocator is 30kg. The unit could malfunction if this limit is exceeded.

WARNING: Ensure that the gun support arms are earthed.

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.

The HA Reciprocator can be operated by different types of controllers.

Refer to the relevant controller manual for operation details.

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: Risk of electrical shock. Disconnect and lock out input power to equipment before servicing. Failure to observe this warning may result in personal injury or death.

Replacing the Motor

Use the following procedure to replace the motor.

1. Remove power from gun mover and isolate immediate area.
2. Remove spray guns and gun support arms from reciprocator.
3. Undo motor safety cover and lift off as shown in Figure 5-1.

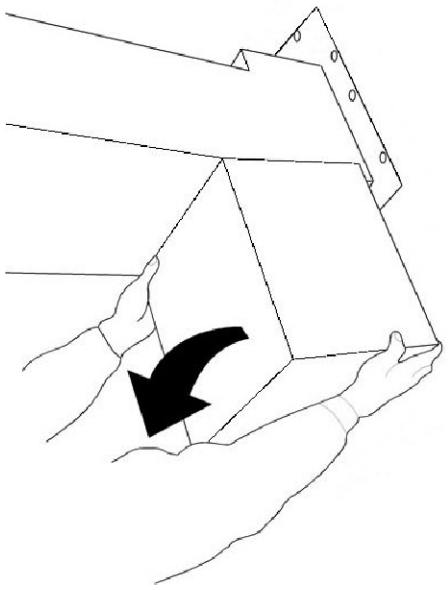


Fig. 5-1 Removing motor safety cover

4. Unbolt the upper safety guard taking care to remove it first from the base and lifting as shown in Figure 5-2.

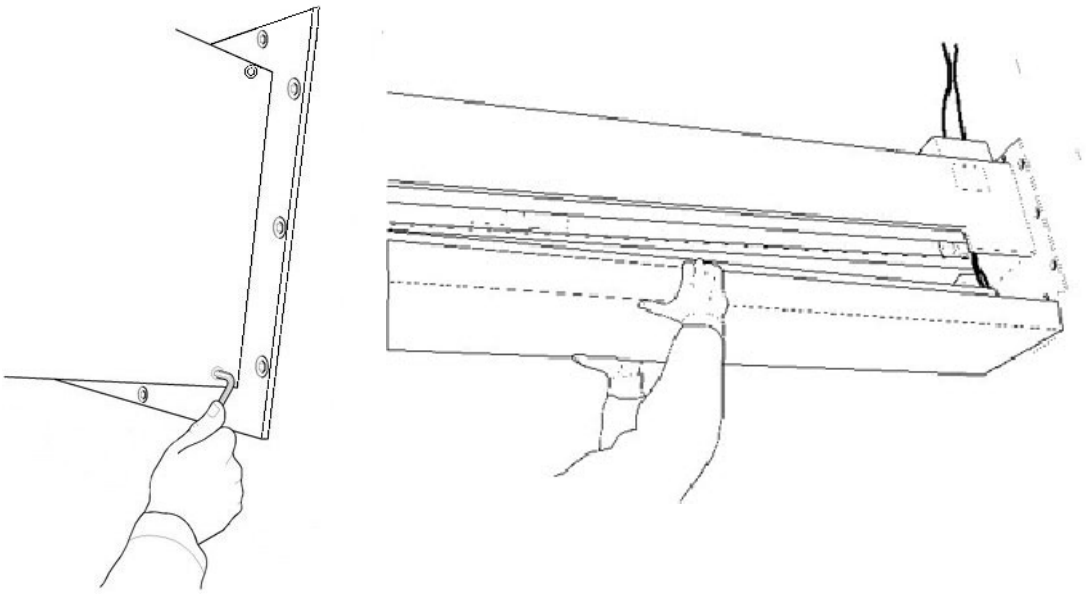


Fig. 5-2 Removing upper safety guard

5. Locate terminal box on the top of the motor and unscrew and remove cover.
6. Loosen terminals and remove wiring from the motor as shown in Figure 5-3.

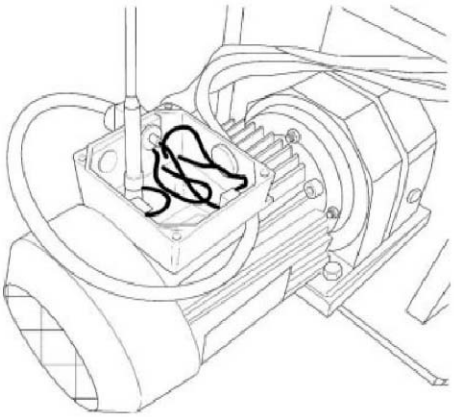


Fig. 5-3 Removing motor wires

7. See Figure 5-4. Remove the access panel on the column cover, and using a spanner, slacken the belt by unscrewing the bolts of the clamp (1).

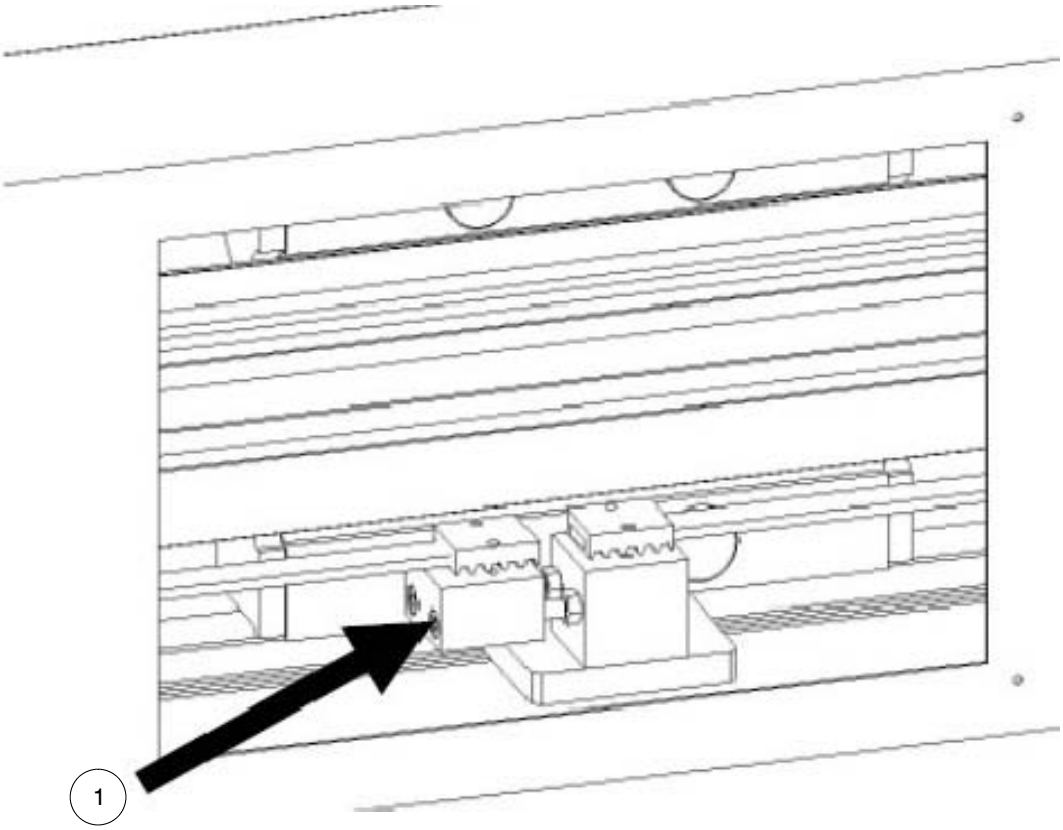


Fig. 5-4 Slacken the belt

WARNING: Do not remove the screws completely to avoid disconnecting the belt.

8. See Figure 5-5. Loosen the coupling of the joint near the pulley using a screwdriver.

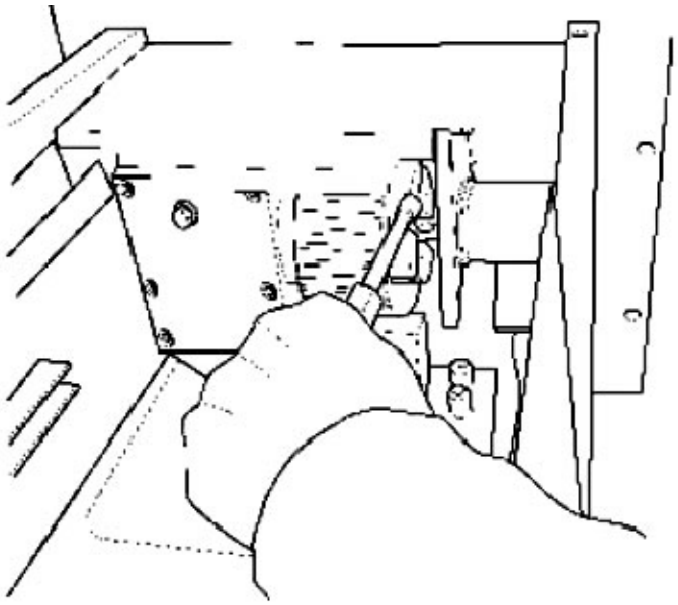


Fig. 5-5 Loosening the coupling

9. Unscrew the bolts of the motor, then remove it, as shown in Figure 5-6.

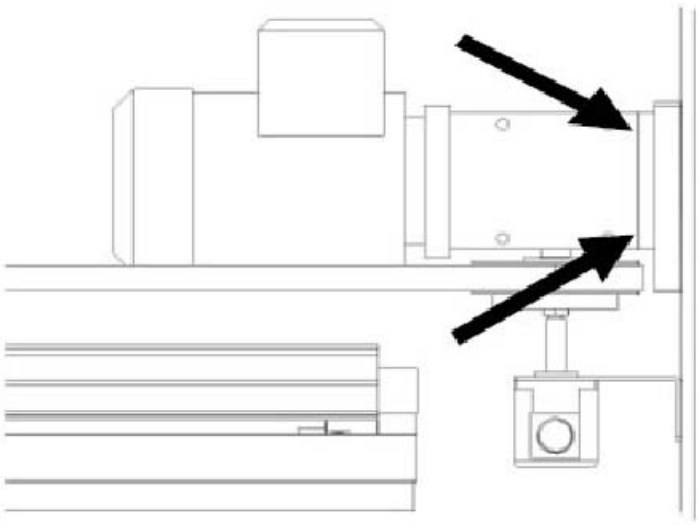


Fig. 5-6 Unscrewing the motor bolts

10. See Figure 5-7. remove the screws that attach the pulley to the motor.

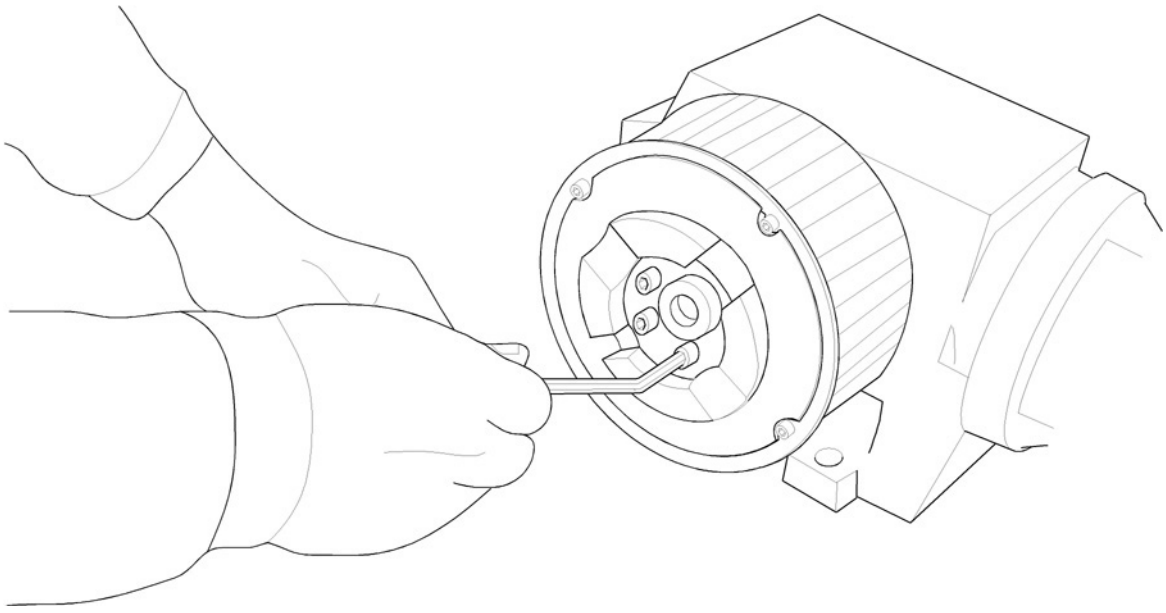


Fig. 5-7 Removing the pulley screws

11. Re-insert the screws removed in procedure 10 in to the ring block removal holes and remove the pulley as shown in Figure 5-8.

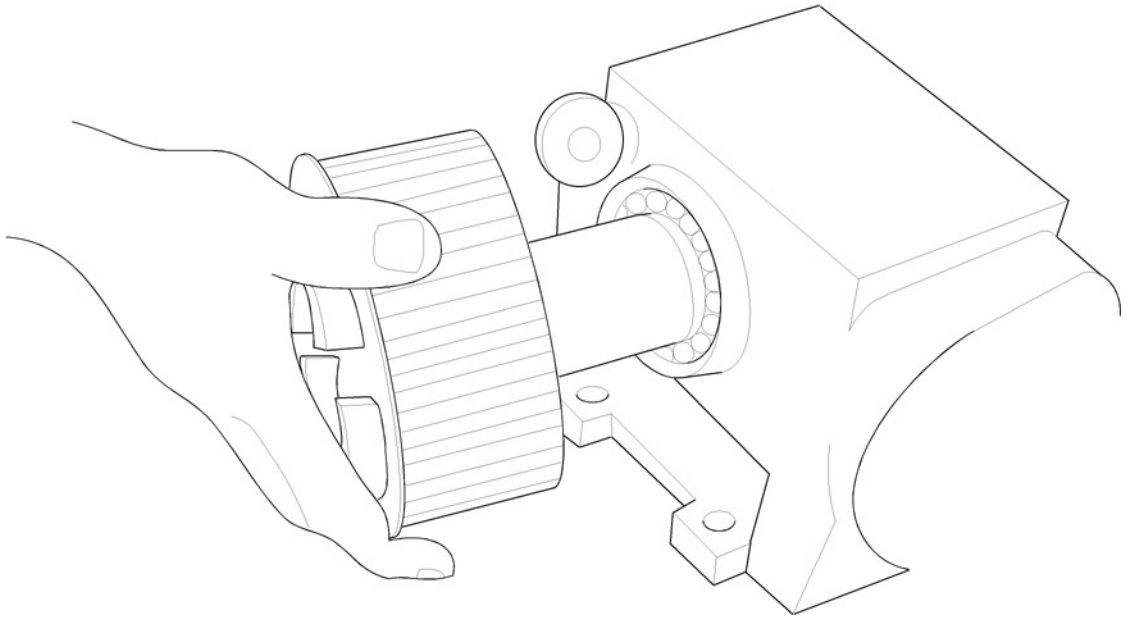


Fig. 5-8 Removing the pulley

12. Remove the ring block from the drive shaft as shown in Figure 5-9.

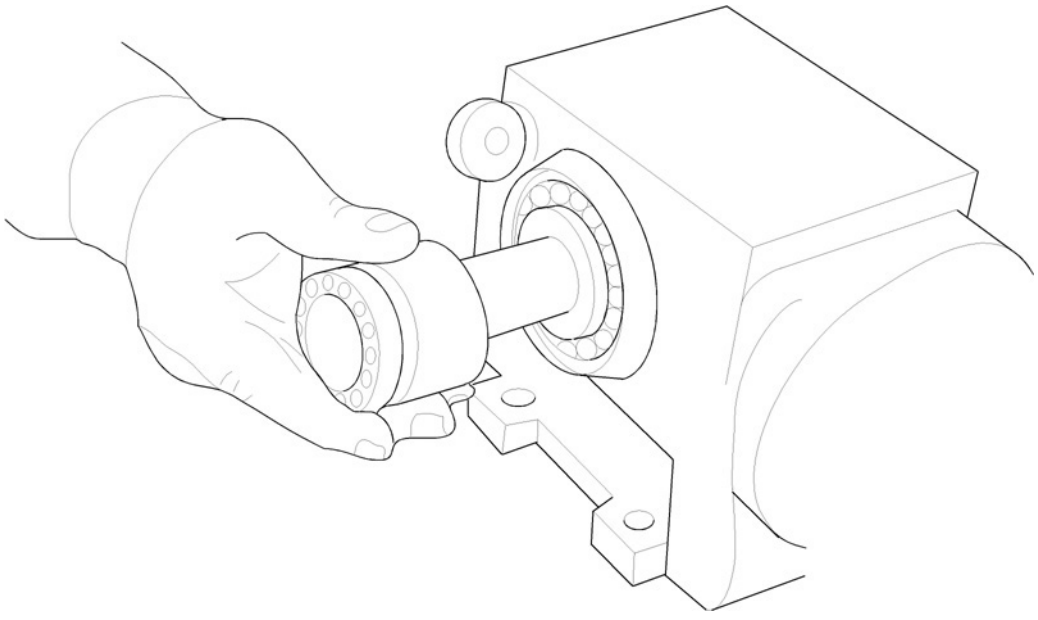


Fig. 5-9 Remove the ring block from the motor shaft

13. Remove the pivot of the driving shaft, as shown in Figure 5-10.

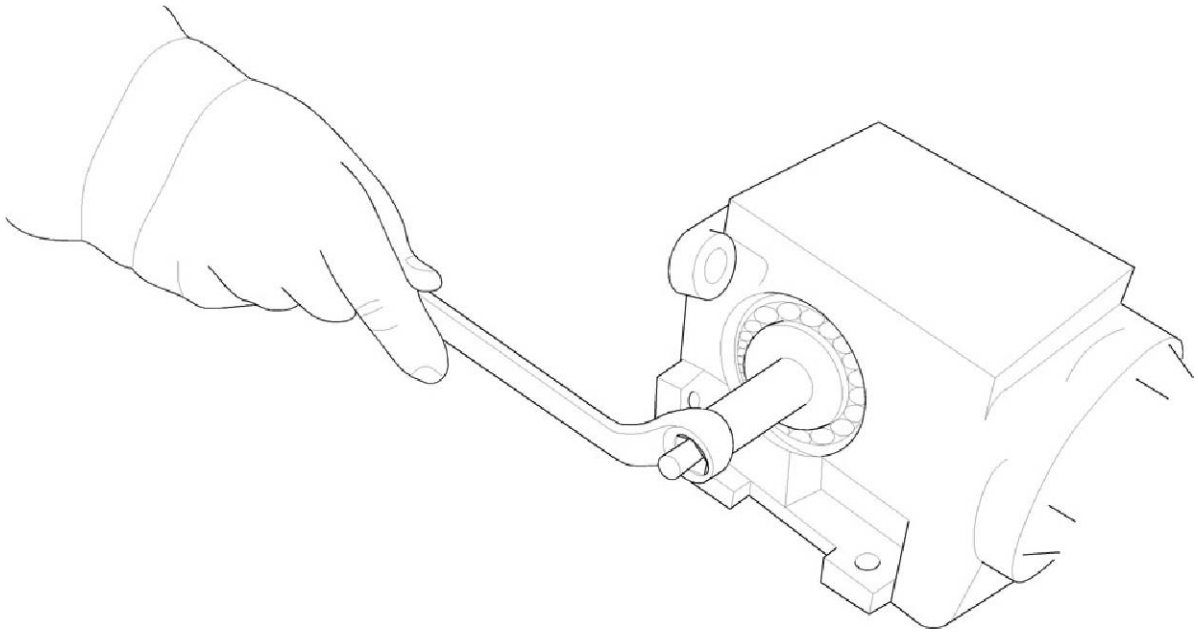


Fig. 5-10 Removing the drive shaft pivot.

14. Repeat the operations in reverse to fit the new motor.
15. Reset correct belt tension (see *Adjusting the Belt Tension*)

Encoder Replacement

To replace the reciprocator encoder use the following procedure.

1. Remove power from gun mover and isolate immediate area.
2. Remove spray guns and gun support arms from reciprocator.
3. Undo motor safety cover and lift off as shown in Figure 5-11.

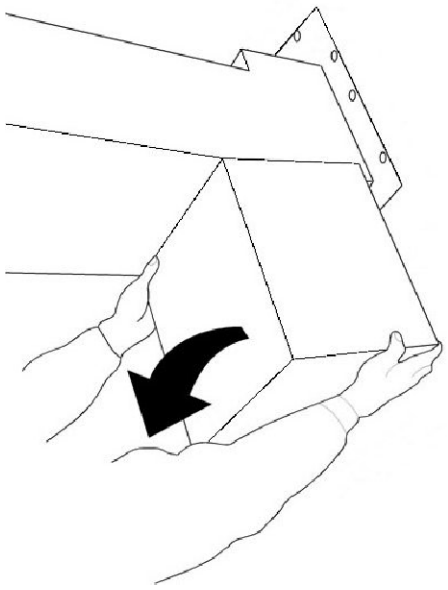


Fig. 5-11 Removing motor safety cover

4. Unbolt the upper safety guard taking care to remove it first from the base and lifting as shown in Figure 5-12.

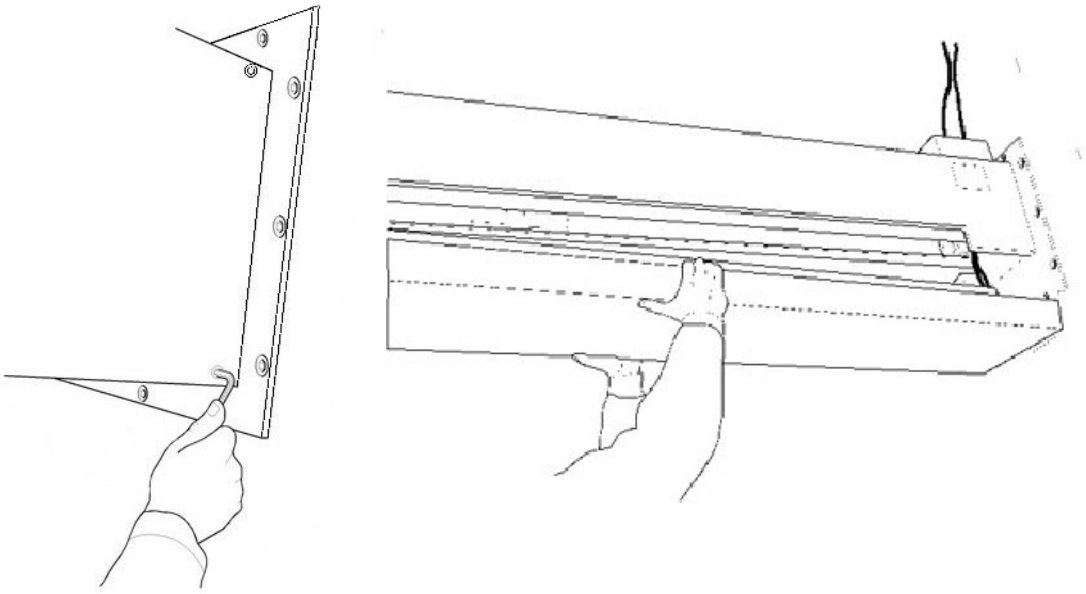


Fig. 5-12 Removing upper safety guard

5. See Figure 5-13. Loosen the coupling near the position sensor using a screwdriver and disconnect the encoder.

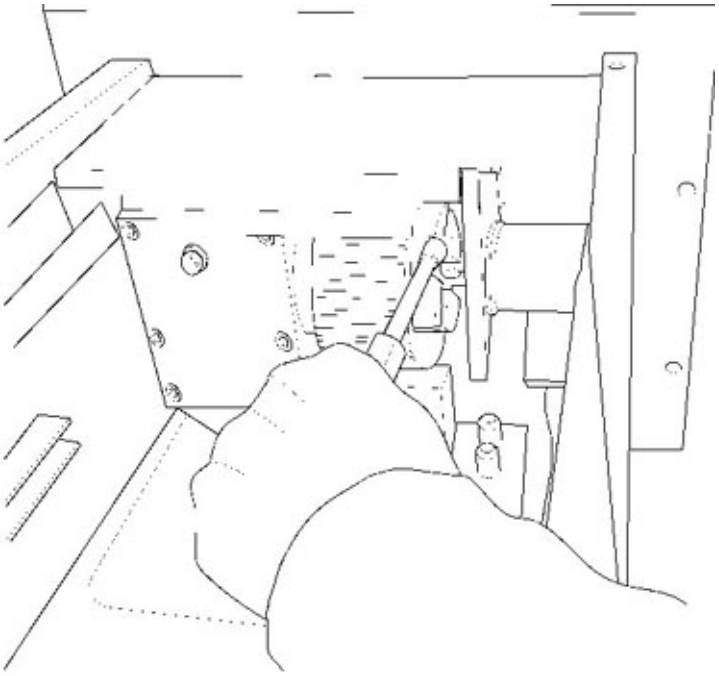


Fig. 5-13 Loosen coupling

6. See Figure 5-14. Unscrew the support screws (1) of the encoder to remove the bracket.

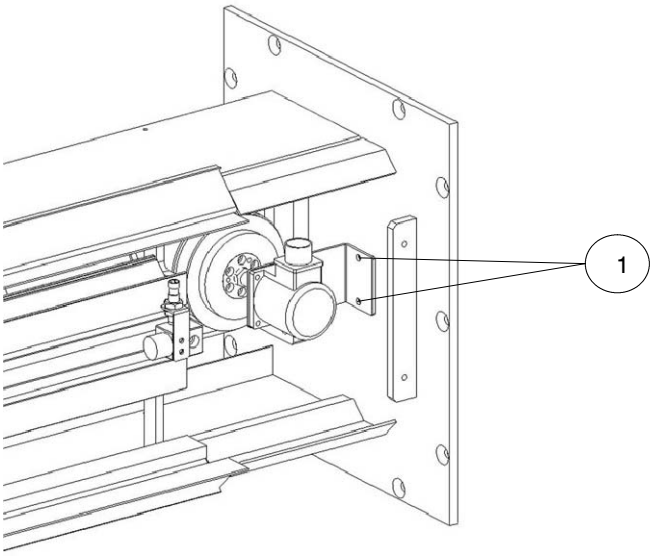


Fig. 5-14 Removing encoder

7. See Figure 5-15. Remove the encoder mounting screws.

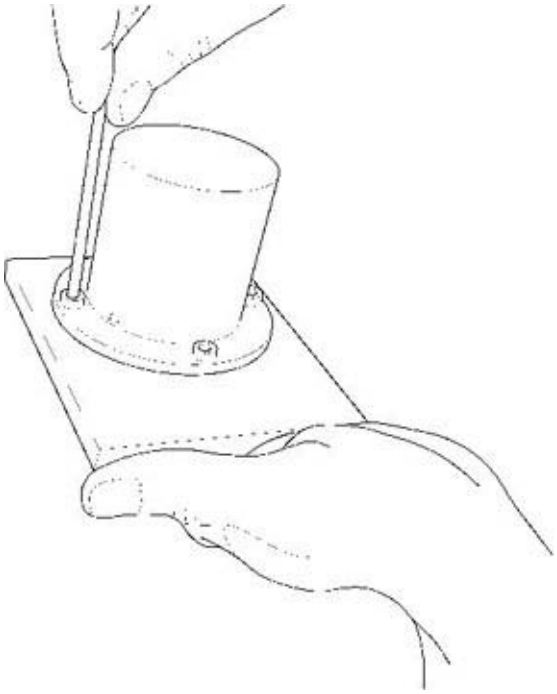


Fig. 5-15 Removing encoder mounting screws

8. To replace encoder follow the procedure in reverse.

Adjustment of Sliding Blocks

To adjust the gun support sliding blocks use the following procedure.

1. Remove power from gun mover and isolate immediate area.
2. Position the unit to allow easy all round access.
3. Remove spray guns and gun support arms from reciprocator.
4. Undo motor safety cover and lift off as shown in Figure 5-16.

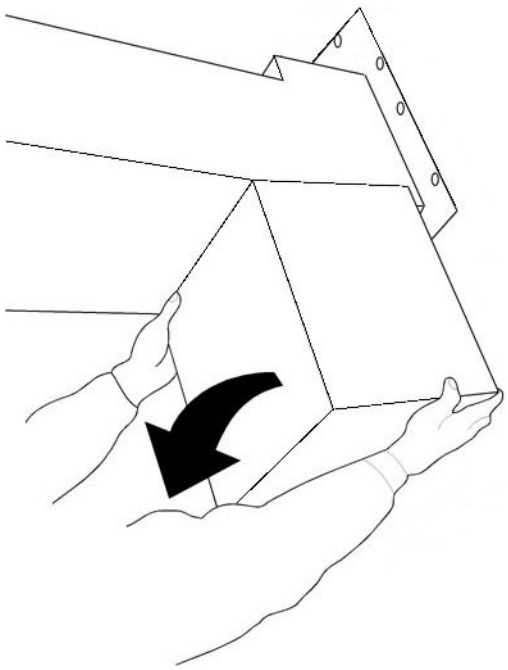


Fig. 5-16 Removing the motor safey cover

5. See Figure 5-17. Block the motor rotation by inserting a screwdriver in to the inner fan assembly.

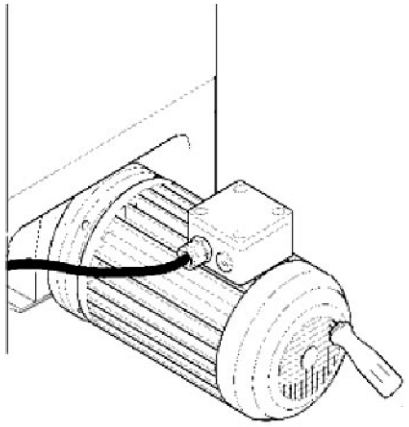


Fig. 5-17 Blocking the motor

6. Unbolt the upper safety guard taking care to remove it first from the base and lifting as shown in Figure 5-18.

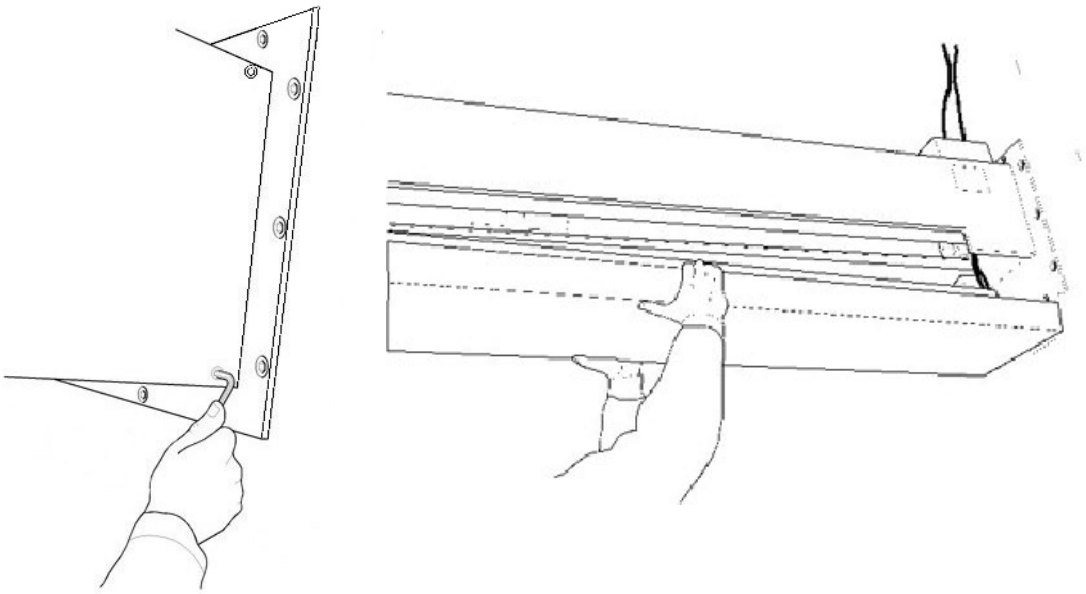


Fig. 5-18 Removing upper safety guard

7. Open the access panel on the column cover and position the trolley in line with it.

8. See Figure 5-19. Check the distance between the sliding blocks is consistent.

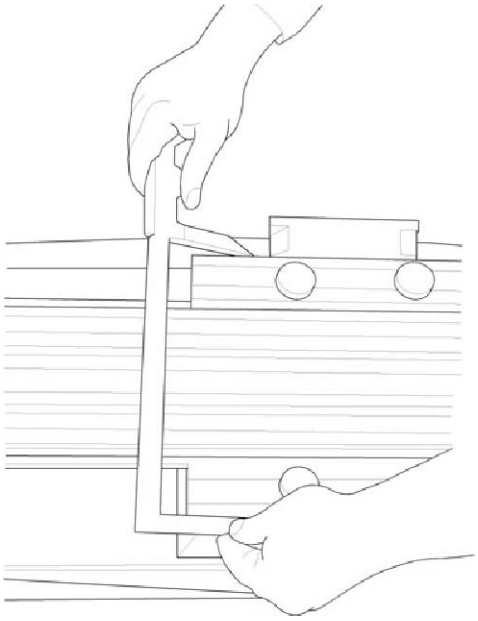


Fig. 5-19 Checking the sliding block distance

9. See Figure 5-20. Tension the eccentric pivots using a spanner until the spring washer preloads.

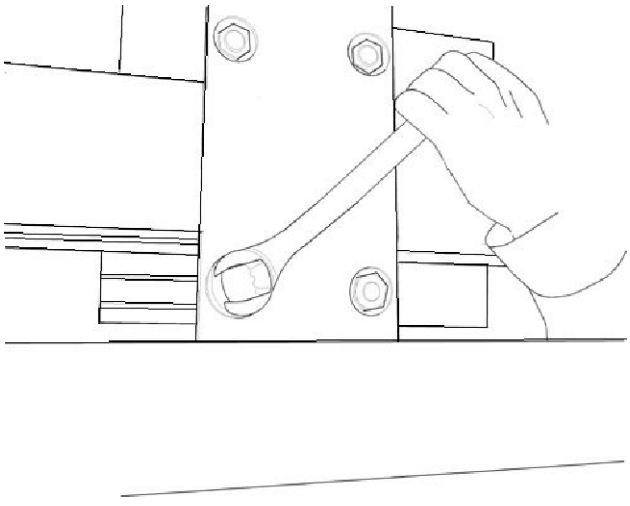


Fig. 5-20 Tensioning the eccentric pivots

10. See Figure 5-21. Adjust the eccentric pivot located in the cylindrical hole until the block and the bar are in contact. Also adjust the pivot in the slotted hole.

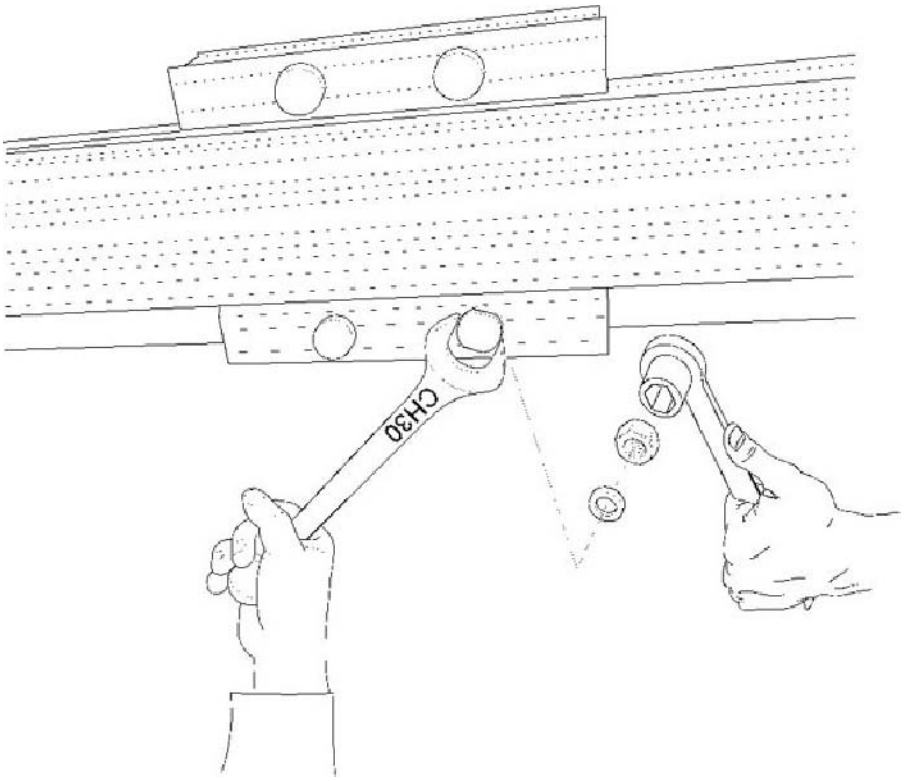


Fig. 5-21 Adjustment of sliding blocks

11. Repeat the previous two operations to get a better adjustment, making sure that the wheels can easily be slid on the bar by hand.
12. Remove screwdriver from motor assembly and reassemble the safety covers.

Belt Replacement

To replace the carriage wheels refer to *Replacing the Motor* instructions up to and including position 4. Then begin the following procedure.

1. See Figure 5-22. Block the motor rotation by inserting a screwdriver in to the inner fan assembly.

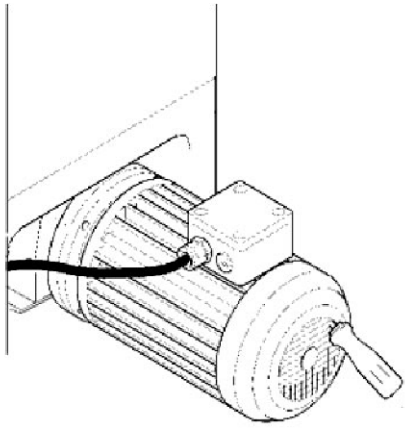


Fig. 5-22 Blocking the motor

2. Remove all gun supporting arms and guns.
3. See Figure 5-23. Loosen the belt tension bolts.

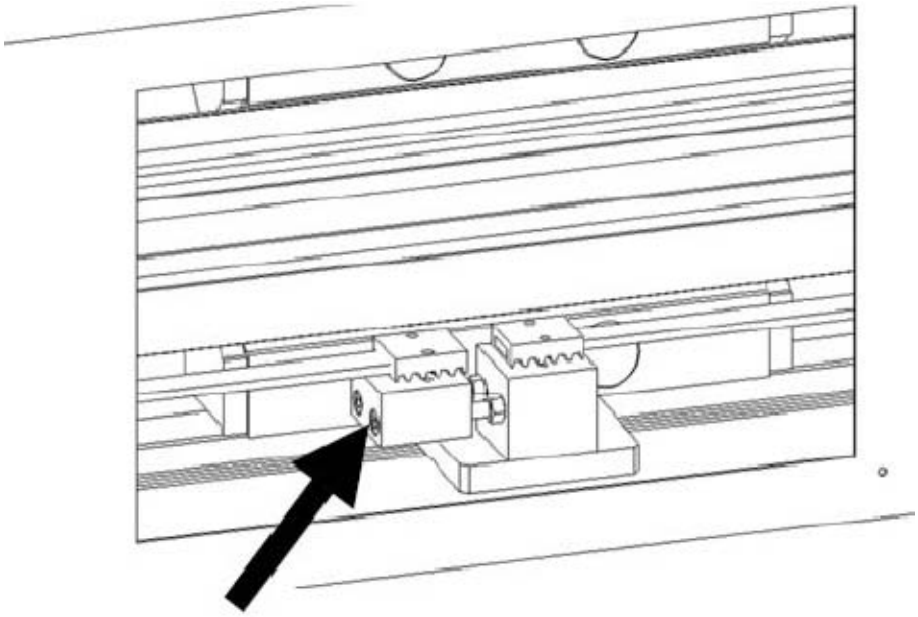


Fig. 5-23 Loosening the belt tension bolts

4. See Figure 5-24. Remove the four belt screws from the belt clamp to allow removal of the belt.

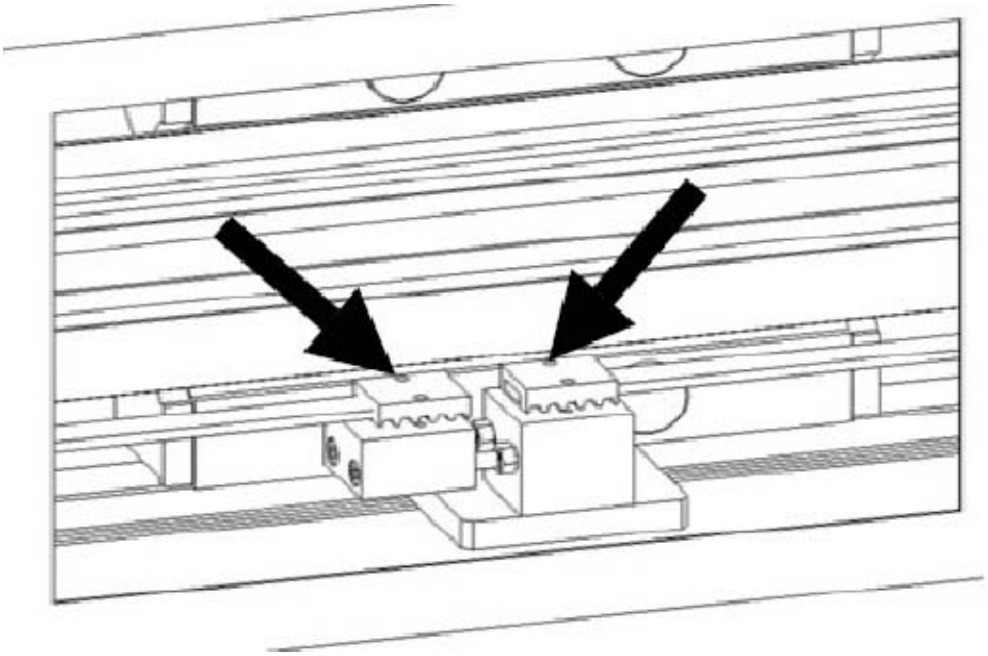


Fig. 5-24 Extracting the belt screws

5. Re-assemble with the replacement belt following the reverse order of operations for removal.
6. Ensure correct tension of the belt. See *Adjusting the Belt Tension*.

Adjusting the Belt Tension

Use the following procedure to adjust the tension of the belt.

1. Remove power from gun mover and isolate immediate area.
2. Position the unit to allow easy all round access.
3. Remove spray guns and gun support arms from reciprocator.
4. See Figure 5-25. Move the carriage against the flange near the snub pulley.

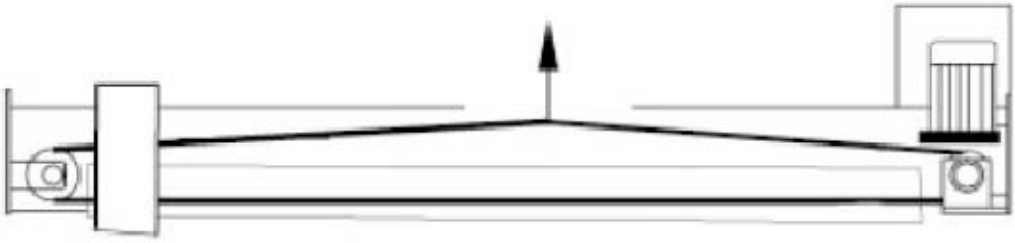


Fig. 5-25 Belt access area

5. See Figure 5-26. Slacken or tighten the belt tension by moving the screws (1), ensuring that the plates remain parallel when the operation is finished. See Figure 5-27 for the correct amount of deflection of the belt when pressed by hand, with respect to the stroke length of the reciprocator.

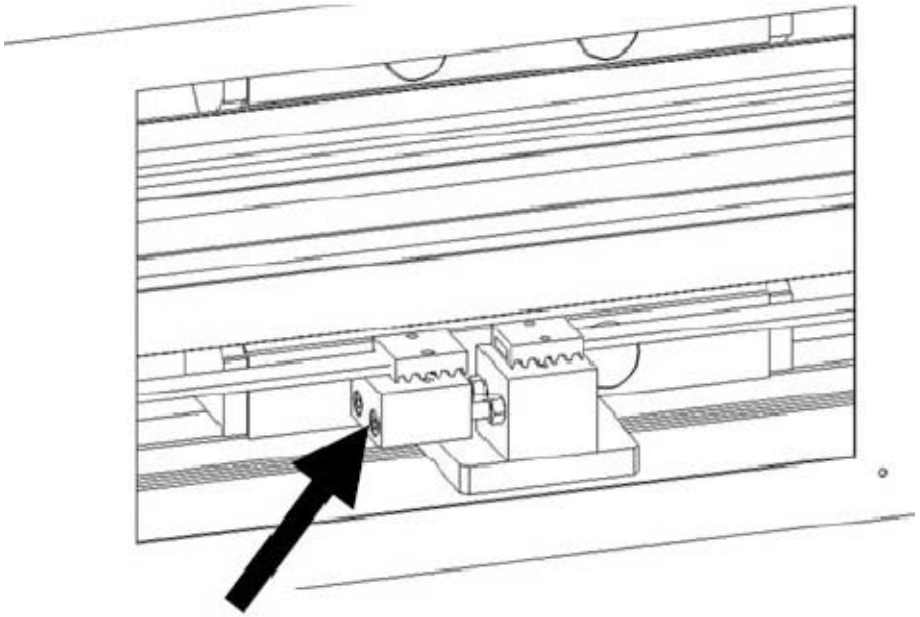
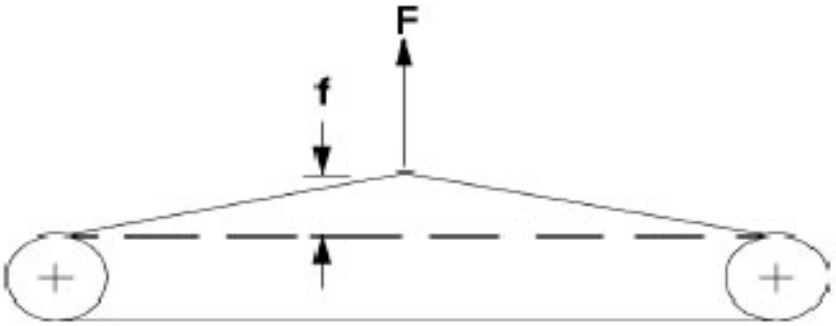


Fig. 5-26 Slacken or tighten the belt



F = 5 kg.

Model	HO 17	HO 22	HO 27	HO 32
f mm.	25	27	29	31

Fig. 5-27 Correct belt tension

6. Reassemble the access door.

Adjusting the Maximum Stroke

From delivery the reciprocator is set with its stops and limit switches at maximum stroke. To modify this, use the following procedure.

1. Remove power from gun mover and isolate immediate area.
2. Remove spray guns and gun support arms from reciprocator.
3. Remove the front safety cover, see Fig 5-28.

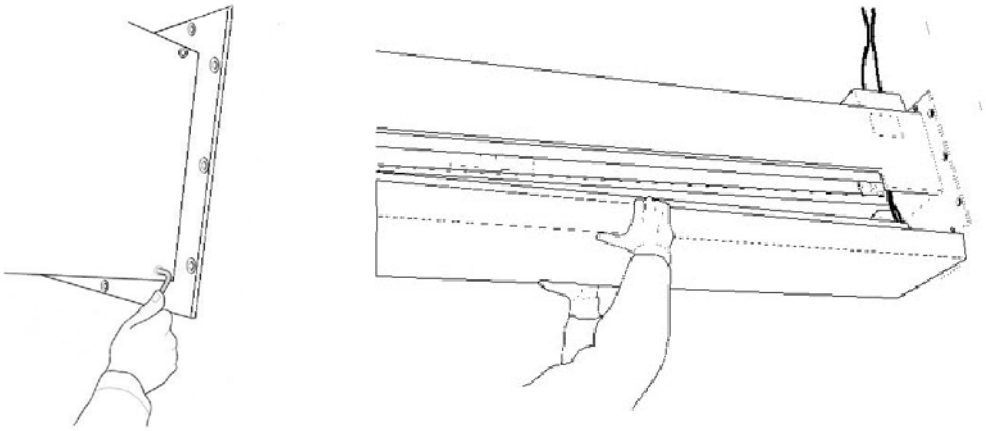


Fig. 5-28 Removing the front safety cover

4. See Fig 5-29. Unscrew the limit assembly, and slide it to the desired point of maximum stroke.

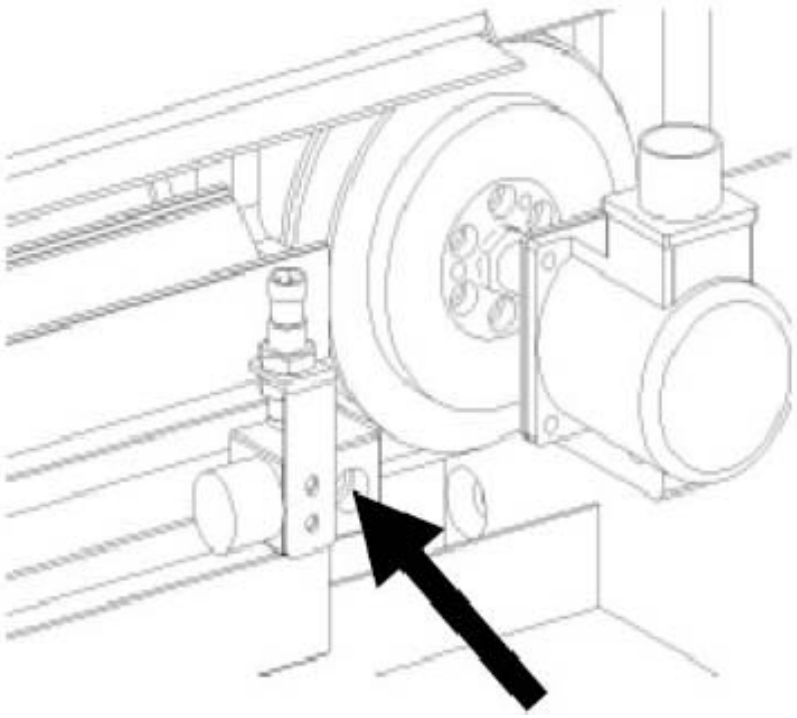


Fig. 5-29 Adjusting the limit assembly

5. Once the new limit point is set, re-assemble the reciprocator following the procedure in reverse.
6. Ensure that the new maximum stroke length is set up in the reciprocator controller.

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.

This section contains troubleshooting procedures. These procedures cover only the most common problems that you may encounter. If you cannot solve the problem with the information given here, contact your local Nordson representative for help.

Problem	Possible Cause	Corrective Action
1. Noise and vibration during stroke	Incorrect adjustment of carriage	Adjust carriage
	Worn out wheels on carriage	Replace wheels
	Dirt on carriage guide	Clean guide
2. Strong strokes during movement	Belt tension insufficient	Adjust belt tension
3. Noise during stroke reversal	Play in reduction gear	Replace gear motor
4. Loss of stroke reference points	Positioning encoder faulty	Replace encoder

Section 7
Parts

Introduction

To order parts, call the Nordson Customer Service Center or your local Nordson representative. Use this five-column 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.

- 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.

Item	Part	Description	Quantity	Note
—	0000000	Assembly	1	
1	000000	• Subassembly	2	A
2	000000	• • Part	1	

Motor Assembly

See Figure 7-1.

Item	Part	Description	Quantity	Note
1	736174	Motor and Gearbox, ATEX II 2G T3	1	
2		Ring Block	1	A
3		Pulley, Drive	1	A
4		Pin,Connection	1	A
5	736175	Connector, Encoder, 35mm	1	
6	736176	Encoder ATEX II 2G T3	1	
7		Encoder Support Bracket	1	A
NOTE A: Non Saleable				

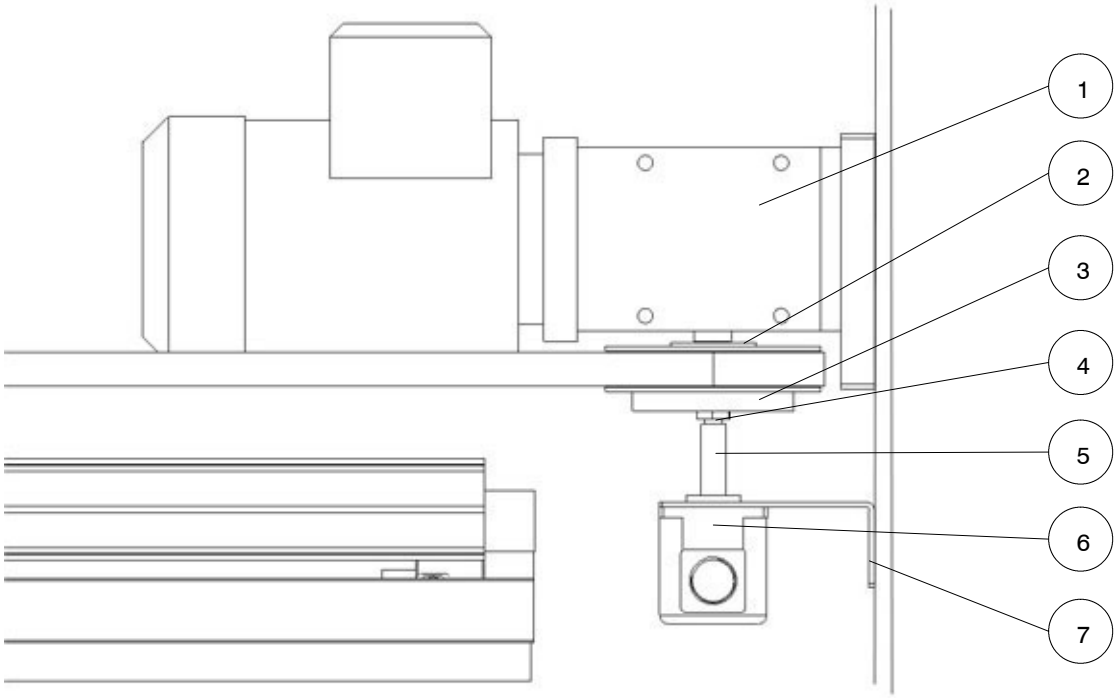


Fig. 7-1 Motor assembly

Carriage Assembly

See Figure 7-2.

Item	Part	Description	Quantity	Note
1		Plate, Belt Fixing	1	A
2	736177	Kit, Sliding Blocks, HO Recip	1	
NOTE A: Non Saleable				

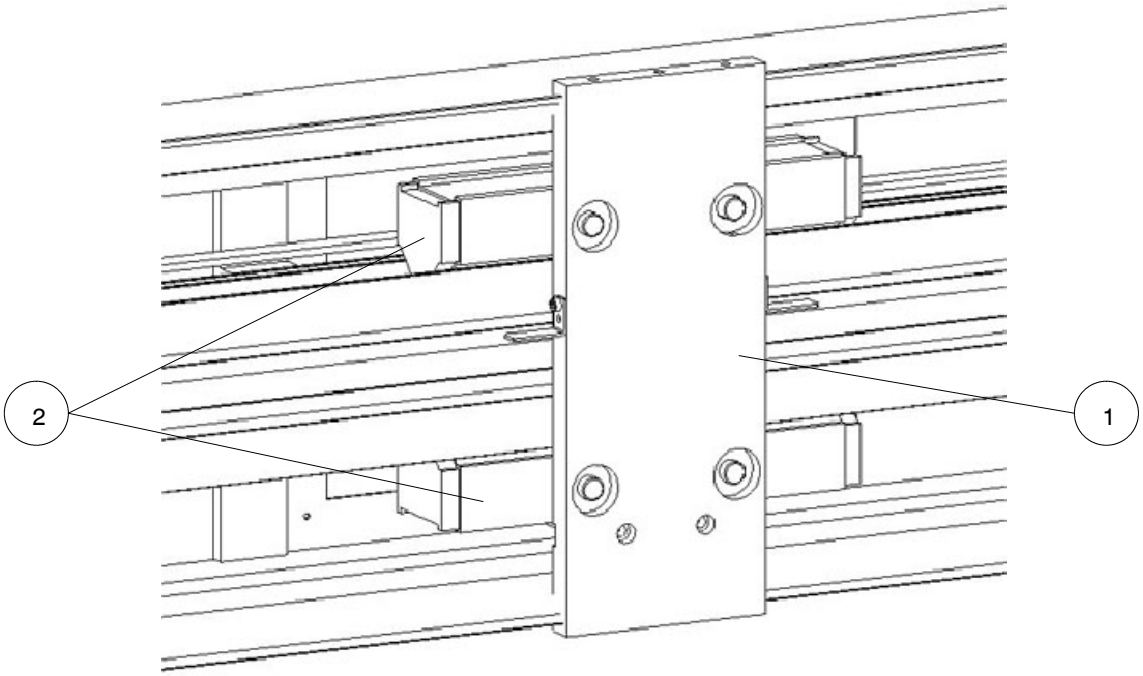


Fig. 7-2 Carriage assembly

End of Stroke Assembly

See Figure 7-3.

Item	Part	Description	Quantity	Note
1	736178	Limit Switch, ATEX II 2G T3	1	
2		Mechanical Lock	1	A
3		End of Stroke Stop	2	A
NOTE A: Non Saleable				

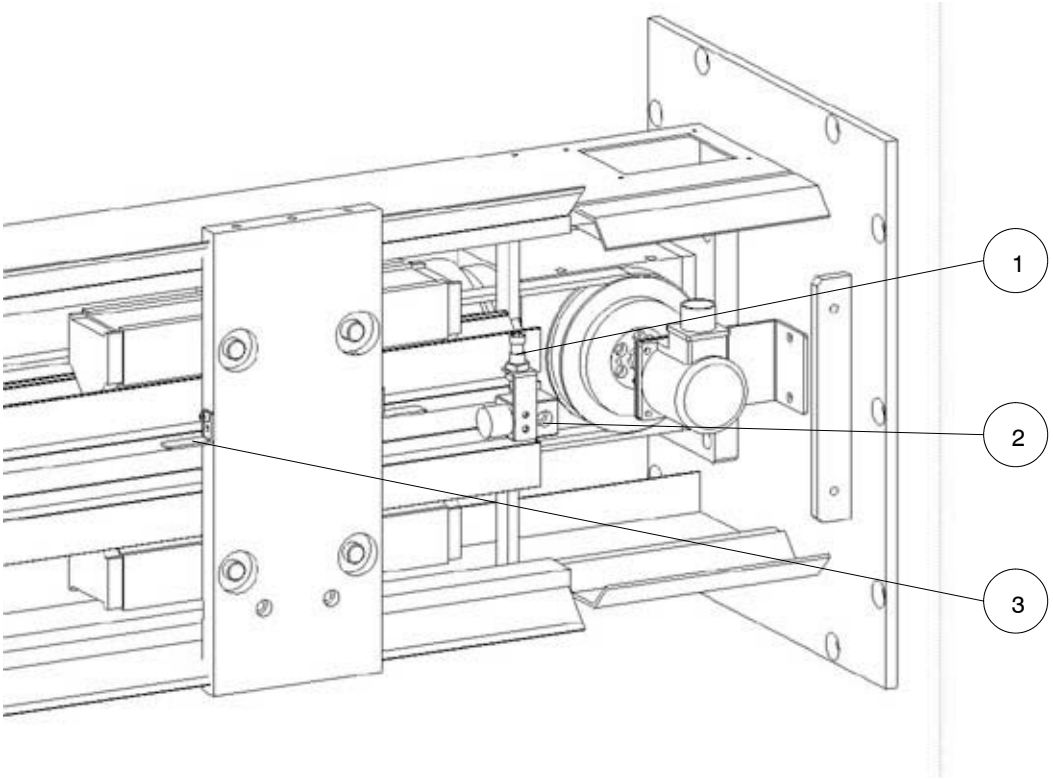


Fig. 7-3 End of stroke assembly

Top Pulley Assembly

See Figure 7-4.

Item	Part	Description	Quantity	Note
1		Pulley, Snub	1	A
2		Screw, M8 x 16	1	A
3		Support, Pulley	1	A
4		Screw, M10 x 30	2	A
5		Insert, Trapezoidal M10 x 50	2	A
NOTE A: Non Saleable				

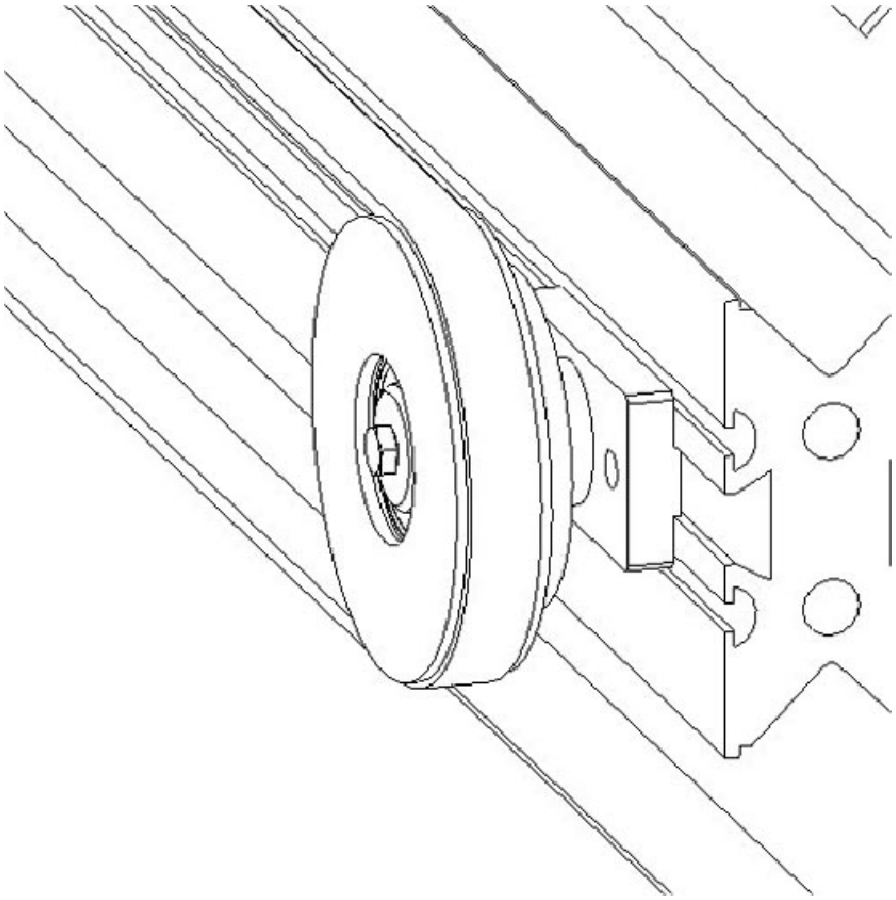


Fig. 7-4 Top pulley assembly

Belt Tension Assembly

See Figure 7-5.

Item	Part	Description	Quantity	Note
1		Screw, M8 x 80	2	A
2		Block, Tension, Recip	1	A
3		Plate, toothed	2	A
4		Nut, Hexagon, M8	2	A
5		Block, Tension, Fixed, Recip	1	A
6	736179	Belt, Toothed, HO17	1	B
6	736180	Belt, Toothed, HO22	1	B
6	736181	Belt, Toothed, HO27	1	B
6	736182	Belt, Toothed, HO32	1	B

NOTE A: Non Saleable
B: Dependent upon stroke length

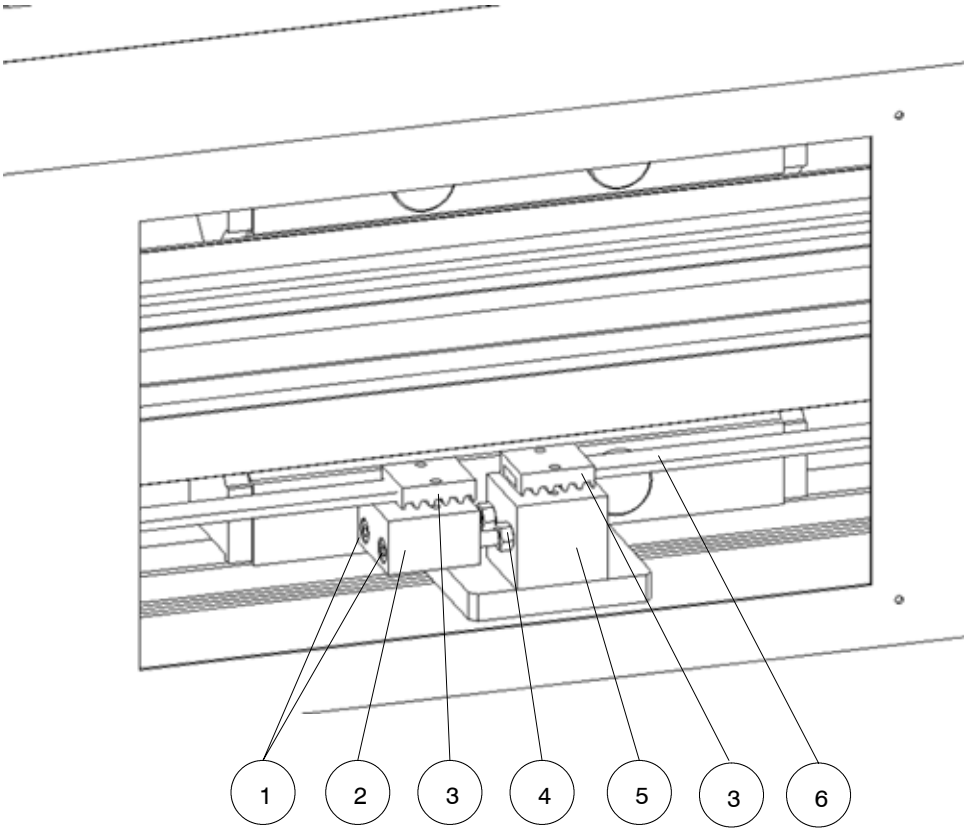


Fig. 7-5 Stroke sensor assemblies

Recommended Spare Parts

Recommended spare parts and quantities which are advised to be kept on stock by the user are listed in the following table.

Item	Part	Description	Quantity	Note
1	736179	Belt, Toothed, HO17	1	A
1	736180	Belt, Toothed, HO22	1	A
1	736181	Belt, Toothed, HO27	1	A
1	736182	Belt, Toothed, HO32	1	A
2	736174	Motor and Gearbox, ATEX II 2G T3	1	
3	736176	Encoder, ATEX II 2G T3	1	
4	736175	Connector, Encoder, 35mm	1	
5	736178	Limit Switch, ATEX II 2G T3	1	
NOTE A: Dependent upon size of stroke, for example Belt, toothed, HO17 fits a 1.7m stroke machine				

Section 8
Technical Data

Electrical

230v AC +/– 10%, 50Hz,

Rated Power 0.75Kw

Motor protection level IP55

Noise

Lower than 70 dBa

Operating Conditions

Operating area lighting

- Minimum 300 Lux

Operating temperature range

- +5 degrees C to 40 degrees C

Maximum humidity level during operation

- Maximum 50% at 40 degrees C
- Maximum 90% at 20 degrees C

Speeds and Capacity

Model	Part Number	Capacity (kg)	Minimum Speed (m/s)	Maximum Speed (m/s)
H0 17	736486	30	10	50
H0 22	736170	30	10	50
H0 27	736171	30	10	50
H0 32	736172	30	10	50

Marking

See Figure 8-1 for the CE label position on the side of the reciprocator. The CE label displays the following information.

- Name of the manufacturer
- Model
- Serial number and year of manufacture
- Power supply
- Certification mark
- Protection level
- Speed

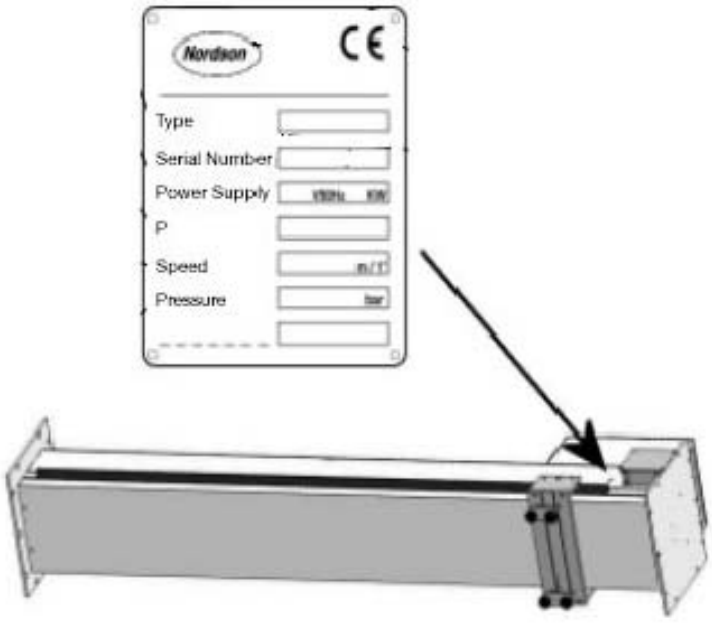


Fig. 8-1 CE label position

Weights and Dimensions

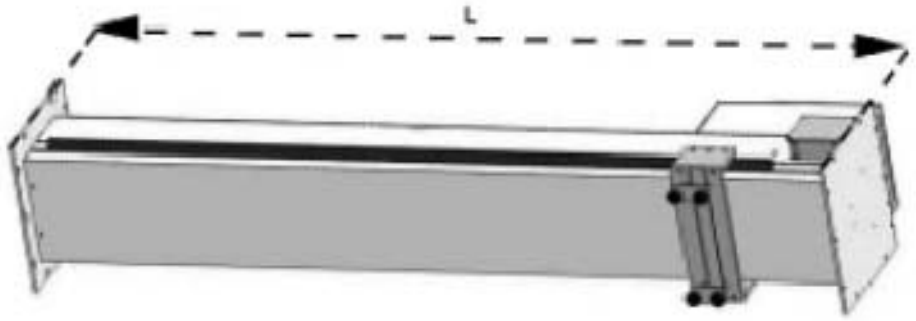
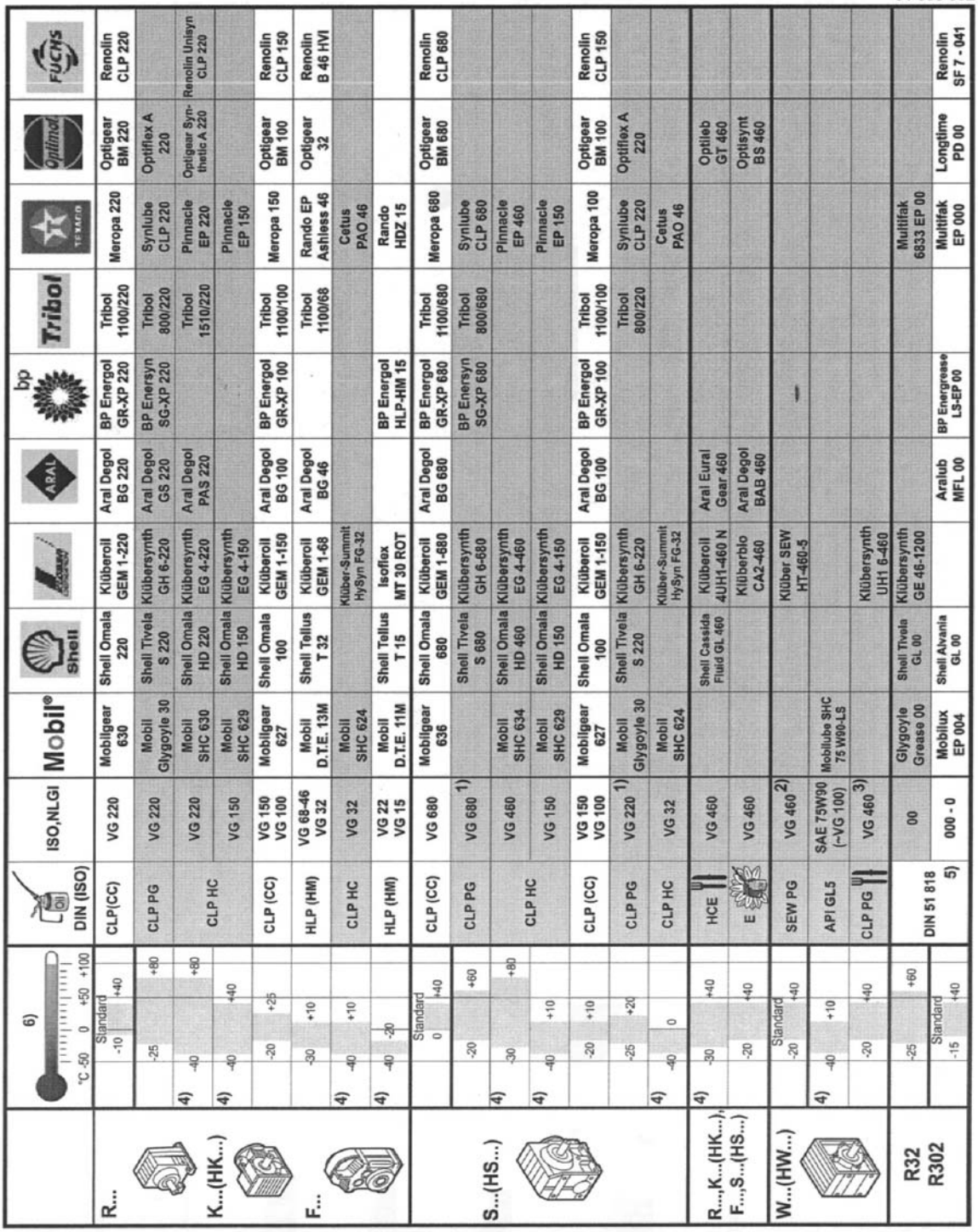


Fig. 8-2 HO Recip

Model	Part Number	Weight (kg)	Height (mm)	Useful Stroke L (mm)
HA 17	736486	180	2400	1700
HA 22	736170	200	2900	2200
HA 27	736171	220	3400	2700
HA 32	736172	240	3900	3200

Appendix A
Recommended Lubrication

See Figure A-1.



	6) °C -50 0 +50 +100	DIN (ISO)	ISO,NLGI	Mobil®	Shell		ARAL	bp	Tribol		Optimol	FUCHS
R...	Standard -10 +40	CLP(CC)	VG 220	Mobilgear 630	Shell Omala 220	Klüberoil GEM 1-220	Aral Degol BG 220	BP Energol GR-XP 220	Tribol 1100/220	Meropa 220	Optigear BM 220	Renolin CLP 220
K...(HK...)	-25 +80	CLP PG	VG 220	Mobil Glygoyle 30	Shell Tivela S 220	Klübersynth GH 6-220	Aral Degol GS 220	BP Enersyn SG-XP 220	Tribol 800/220	Synlube CLP 220	Optiflex A 220	
	4) -40 +80	CLP HC	VG 220	Mobil SHC 630	Shell Omala HD 220	Klübersynth EG 4-220	Aral Degol PAS 220		Tribol 1510/220	Pinnacle EP 220	Optigear Synthetic A 220	Renolin Unisyn CLP 220
	4) -40 +40		VG 150	Mobil SHC 629	Shell Omala HD 150	Klübersynth EG 4-150				Pinnacle EP 150		
F...	-20 +25	CLP (CC)	VG 150 VG 100	Mobilgear 627	Shell Omala 100	Klüberoil GEM 1-150	Aral Degol BG 100	BP Energol GR-XP 100	Tribol 1100/100	Meropa 150	Optigear BM 100	Renolin CLP 150
	-30 +10	HLP (HM)	VG 68-46 VG 32	Mobil D.T.E. 13M	Shell Tellus T 32	Klüberoil GEM 1-68	Aral Degol BG 46		Tribol 1100/68	Rando EP Ashless 46	Optigear 32	Renolin B 46 HVI
	4) -40 +10	CLP HC	VG 32	Mobil SHC 624		Klüber-Summit HySyn FG-32				Cetus PAO 46		
	4) -40 -20	HLP (HM)	VG 22 VG 15	Mobil D.T.E. 11M	Shell Tellus T 15	Isoflex MT 30 ROT		BP Energol HLP-HM 15		Rando HDZ 15		
S...(HS...)	Standard 0 +40	CLP (CC)	VG 680	Mobilgear 636	Shell Omala 680	Klüberoil GEM 1-680	Aral Degol BG 680	BP Energol GR-XP 680	Tribol 1100/680	Meropa 680	Optigear BM 680	Renolin CLP 680
	-20 +60	CLP PG	VG 680 1)		Shell Tivela S 680	Klübersynth GH 6-680		BP Enersyn SG-XP 680	Tribol 800/680	Synlube CLP 680		
	4) -30 +80	CLP HC	VG 460	Mobil SHC 634	Shell Omala HD 460	Klübersynth EG 4-460				Pinnacle EP 460		
	4) -40 +10		VG 150	Mobil SHC 629	Shell Omala HD 150	Klübersynth EG 4-150				Pinnacle EP 150		
	-20 +10	CLP (CC)	VG 150 VG 100	Mobilgear 627	Shell Omala 100	Klüberoil GEM 1-150	Aral Degol BG 100	BP Energol GR-XP 100	Tribol 1100/100	Meropa 100	Optigear BM 100	Renolin CLP 150
	-25 +20	CLP PG	VG 220 1)	Mobil Glygoyle 30	Shell Tivela S 220	Klübersynth GH 6-220			Tribol 800/220	Synlube CLP 220	Optiflex A 220	
	4) -40 0	CLP HC	VG 32	Mobil SHC 624		Klüber-Summit HySyn FG-32				Cetus PAO 46		
R...,K...(HK...), F...,S...(HS...)	4) -30 +40	HCE	VG 460		Shell Cassida Fluid GL 460	Klüberoil 4UH1-460 N	Aral Eural Gear 460				Optileb GT 460	
	-20 +40	E	VG 460			Klüberbio CA2-460	Aral Degol BAB 460				Optisynt BS 460	
W...(HW...)	Standard -20 +40	SEW PG	VG 460 2)			Klüber SEW HT-460-5		—				
	4) -40 +10	API GL5	SAE 75W90 (~VG 100)	Mobilube SHC 75 W90-LS								
	-20 +40	CLP PG	VG 460 3)			Klübersynth UH1 6-460						
R32 R302	-25 +60	DIN 51 818	00	Glygoyle Grease 00	Shell Tivela GL 00	Klübersynth GE 46-1200	Aralub MFL 00	BP Energrease LS-EP 00		Multifak 6833 EP 00		
	Standard -15 +40	5)	000 - 0	Mobilux EP 004	Shell Alvania GL 00					Multifak EP 000	Longtime PD 00	Renolin SF 7 - 041

Fig. A-1 Recommended lubrication