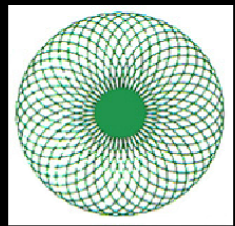


# **WINGET**



# **Croker**

## **CUMFLOW RP3000 ROTATING PAN MIXER**

# **PARTS & OPERATION MANUAL**

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The contents of this handbook although correct at the time of publication, may be subject to alteration by the manufacturers without notice and Winget Limited can accept no responsibility for any errors or omissions contained within the following pages. Nor can we accept any liability whatsoever arising from the use of this manual howsoever caused.

Winget Limited operate a policy of continuous product development. Therefore, some illustrations or text within this publication may differ from your machine

Winget Limited can accept no responsibility for incorrectly supplied spare parts unless the part number and a full description of the items required is given when the order is placed.

### **NOTE**

Imperial fixings (bolts, setscrews, nuts, washers etc) have been progressively changed to Metric. If in doubt as to whether you have a Metric or Imperial fixing please order the metric items listed, i.e. bolts or setscrews and associated or flat and spring washers to replace the existing items.

### **NOTE**

Electrical cables particularly those with copper conductors suffer from a condition known as 'relaxation' which may cause wiring to work loose over a period of time, it is recommended that the tightness of wiring connections and terminals are checked following the first month in service.

**OPERATING  
AND  
MAINTENANCE MANUAL**

**SECTION 1**

**GENERAL INFORMATION**

**RP3000**

## **COMPANY DETAILS AND GENERAL INFORMATION**

For any spares or service work, please contact:-

Winget Limited  
P.O. Box 41  
Edgefold Industrial Estate  
Plodder Lane  
Bolton  
Lancs  
BL4 OLS

Telephone No:	++ 44 (0) 1204 854650
Facsimile No:	++ 44 (0) 1204 854663
'E Mail'	<a href="mailto:crokersales@winget.co.uk">crokersales@winget.co.uk</a> <a href="mailto:parts@winget.co.uk">parts@winget.co.uk</a>

### **ORDERING SPARES**

To help us to complete your order promptly and correctly we need:-

- Machine type and serial number
- Description and quantity of parts required
- The full address to which the parts are to be sent

Winget Limited can accept no responsibility for incorrectly supplied parts unless the machine serial number, part number and a full description of the items required is given when the order is placed.

## **IMPORTANT NOTICE**

The CUMFLOW RP3000 is a high performance mixer

The following precautions are necessary to obtain the best results and to avoid damage to the MIXING STAR and DRIVE

**ENSURE TRANSIT BAR AND RING ARE REMOVED FROM DOOR BEFORE STARTING MACHINE.**

### **AGGREGATES**

Strict control of graded aggregates must be maintained  
Maximum size (see Technical Specification)

Oversize lumps of aggregate or rogue materials must be prevented from entering the Pan

### **MIXING STAR AND WHIRLER BLADES**

They are to a special shape and material to prolong wear life. They should not be modified in any way and only replaced with GENUINE 'CROKER' spares Obtained from **WINGET LIMITED**.

A daily check is advisable to ensure that the Blades/Wearing parts are secure and undamaged.

### **PAN RIM & BASE WEARING PLATES**

They must be replaced before excessive wear causes distortion.

### **MAXIMUM BATCH LOADS**

UNDER NO CIRCUMSTANCES should the Maximum Batch Loads quoted be exceeded nor should the mixer be or re-started when there is a mix in the Pan

### **MIXING PAN**

Ensure that the Mixing Pan is rotating concentrically and that the pan base is Rotating in horizontal place, otherwise damage may occur to the door mechanics.

## **WARNING**

**THE MANUFACTURER ACCEPTS NO RESPONSIBILITY FOR ANY DAMAGE OR FAILURE RESULTING FROM OPERATIONAL MISUSE OR MALPRACTICE. ANY MODIFICATIONS TO THE MACHINE WILL AFFECT ITS WORKING PARAMETERS AND SAFETY FACTORS. REFER TO THE MANUFACTURERS BEFORE FITTING ANY NON STANDARD EQUIPMENT OR PARTS.**

**THE MANUFACTURERS ACCEPT NO RESPONSIBILITY FOR ANY MODIFICATIONS MADE AFTER THE MACHINE HAS LEFT THE FACTORY, UNLESS PREVIOUSLY AGREED IN WRITING. THE MANUFACTURERS WILL ACCEPT NO LIABILITY FOR DAMAGE TO PROPERTY, PERSONNEL OR THE MACHINE IF FAILURE IS BROUGHT ABOUT DUE TO SUCH MODIFICATIONS, OR THE FITMENT OF SPURIOUS PARTS.**

**CROKER MIXERS**  
**OPERATIONAL AND SAFETY**  
**REQUIREMENTS**

**PRE-DELIVERY**

- 1.1 Drive coupling alignments, pan and star meshing of pan rack and drive gear.
- 1.2 Operating clearances star blade to pan. Fixed blade to pan wall.
- 1.3 Discharge blade to pan base.
- 1.4 Rollers to register ring.
- 1.5 Correct oil level in gearboxes. All grease points charged. Gear teeth greased.
- 1.6 Air system tested.
- 1.7 Door operation and seating.
- 1.8 No load test. Correct rotations.
- 1.9 Free rotation of whirler shaft and correct belt tension (when applicable)

**PRE INSTALLATION**

- 2.1 Check consignment.
- 2.2 Offload equipment using certified lifting gear of suitable capacity, by a competent person (see separate chart for nett weight).

**INSTALLATION**

- 3.1 Refer to contract arrangement and site instructions.
- 3.2 Mixer to be mounted on supports of adequate strength and rigidity to prevent undue vibration when mixing and securely bolted.
- 3.3 Mixer frame to be level on structure, add packers as required.
- 3.4 Check that pan is correctly seated on Rollers and that pan rack and drive gear are in correct mesh.



- 3.5 Check locating rollers to register ring.
- 3.6 Check operating clearances star blade to pan. Fixed blade to pan wall. Discharge blade to pan base. See maintenance section Ops Manual.

## **ELECTRICAL/PNEUMATIC SERVICES**

### **NOTE**

Electrical cables particularly those with copper conductors suffer from a condition known as 'relaxation' which may cause wiring to work loose over a period of time, it is recommended that the tightness of wiring connections and terminals are checked following the first month in service.

- 4.1 Refer to wiring diagram in Ops Manual. All wiring to be undertaken by a competent electrician.
- 4.2 Refer to pneumatic circuit diagram in Ops Manual. Connect compressor. Supply compressed air 5.5 bars as required (80psi).
- 4.3 Refer to wiring diagram in Ops Manual when connecting air control valves.
- 4.4 Remove transit bar and ring from door BEFORE starting mixer.
- 4.5 Ensure starters are mounted away from mixer on supports free of vibration.
- 4.6 Ensure starters are fitted with correct overloads – see technical specification power units.

## **OPERATION**

- 5.1 Correct oil level, gearboxes. Air line lubricator.
- 5.2 Mixing pan clear of loose nuts and bolts to prevent damage to fingers and blades.
- 5.3 Check correct rotation – mixing star – anti clockwise; mixing pan – anti clockwise, whirler – clockwise (when applicable). All when viewed from the top.
- 5.4 Discharge door and blade correct operation.
- 5.5 Blade operating clearances adjust in line with maintenance instructions.
- 5.6 Never exceed manufacturer's maximum capacity as detailed in specification.

## **SHUTDOWN**

- 6.1 Prior to any work being carried out mixer to be isolated and physically locked off. Recommended equipment double key exchange system.
- 6.2 Follow procedure detailed in company and users' Health and Safety Policy at all times.
- 6.2 Ensure all storage bins containing materials to be mixed are isolated.
- 6.3 Shut off water supply and drain off water tank or flowmeter.

## **MAINTENANCE**

- 7.1 Ensure that all maintenance is carried out in accordance with the Parts and Operating manuals and proprietary manufacturer's specific instruction.
- 7.2 Isolate electrical and other services to the mixer as section 6 above.
- 7.3 Service at recommended intervals.
- 7.4 Use Croker manufactured replacement parts supplied by **WINGET LIMITED**.

## **GENERAL**

- 8.1 Under no circumstances should the Maximum Batch Loads be exceeded by either weight and volume as stated in Technical Specification.
- 8.2 Mixer star blades are to be checked daily for damage.
- 8.3 Pan rim and base wearing plates must be replaced before excessive wear causes distortion.
- 8.4 Ensure mixing pan is rotating concentrically and pan base is rotating in horizontal plane.
- 8.5 Mixer must not be stopped and started when there is mix in the pan.
- 8.6 Refer to Contract Drawings for scope of supply and Site instruction notes outlining weights etc.
- 8.7 Refer to the Method Statement when installation and commissioning is responsibility of Winget Limited.

### **Nett Weights Max (kgs)**

9.1	RP50XD	788	RP1250XD	4840
	RP100XD	814	RP1500XD	4980
	RP200XD	1400	RP3000XD	7112
	RP400XD	2000	FP1000	4040
	RP550XD	2150	FP1500	4065
	RP850XD	2600	FP2000	4100

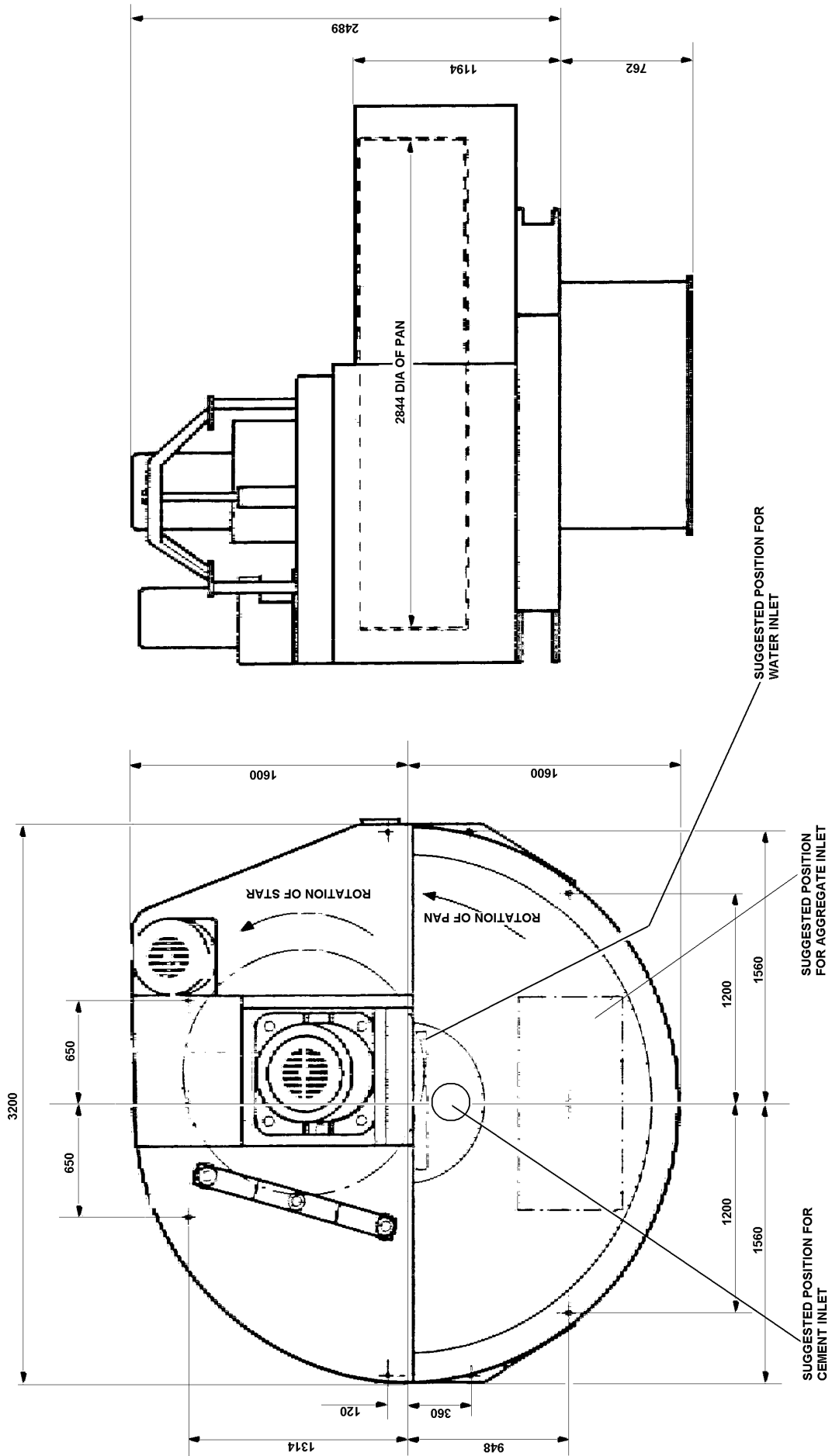
9.2 Refer to technical specification for nett weights of ancillary equipment or:-

9.3 Refer to contract drawing for nett weights of ancillary equipment.

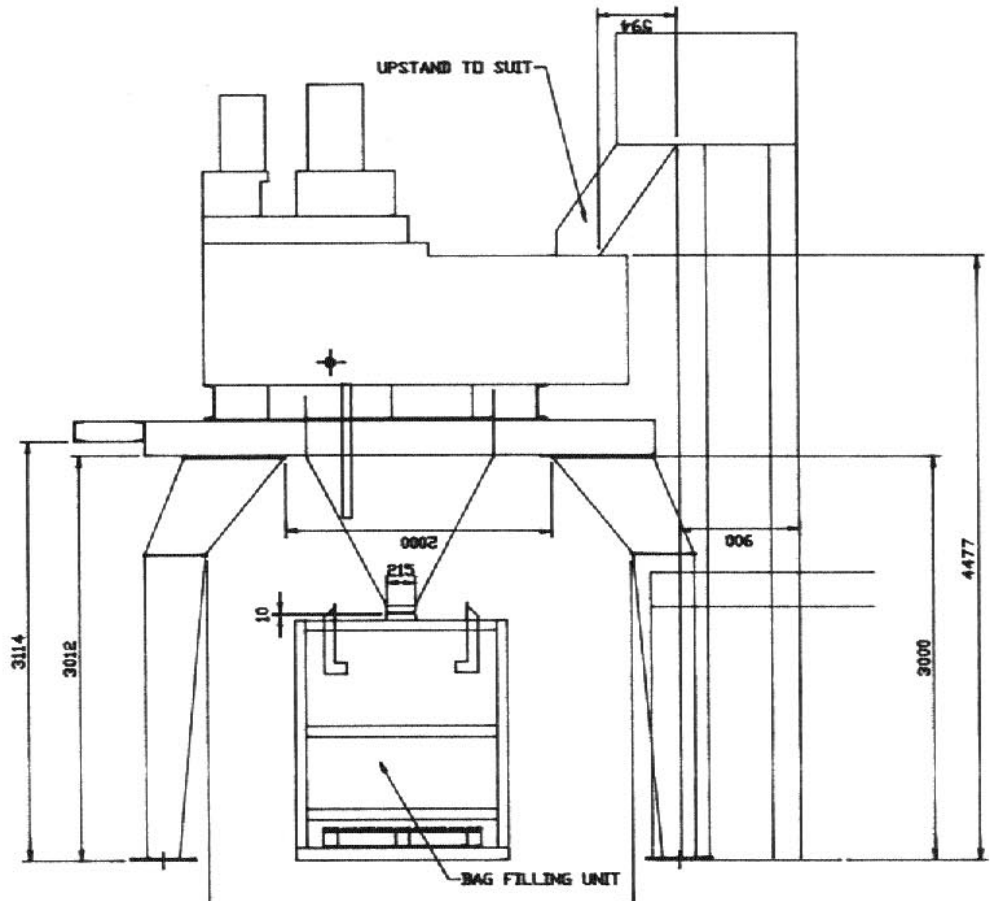
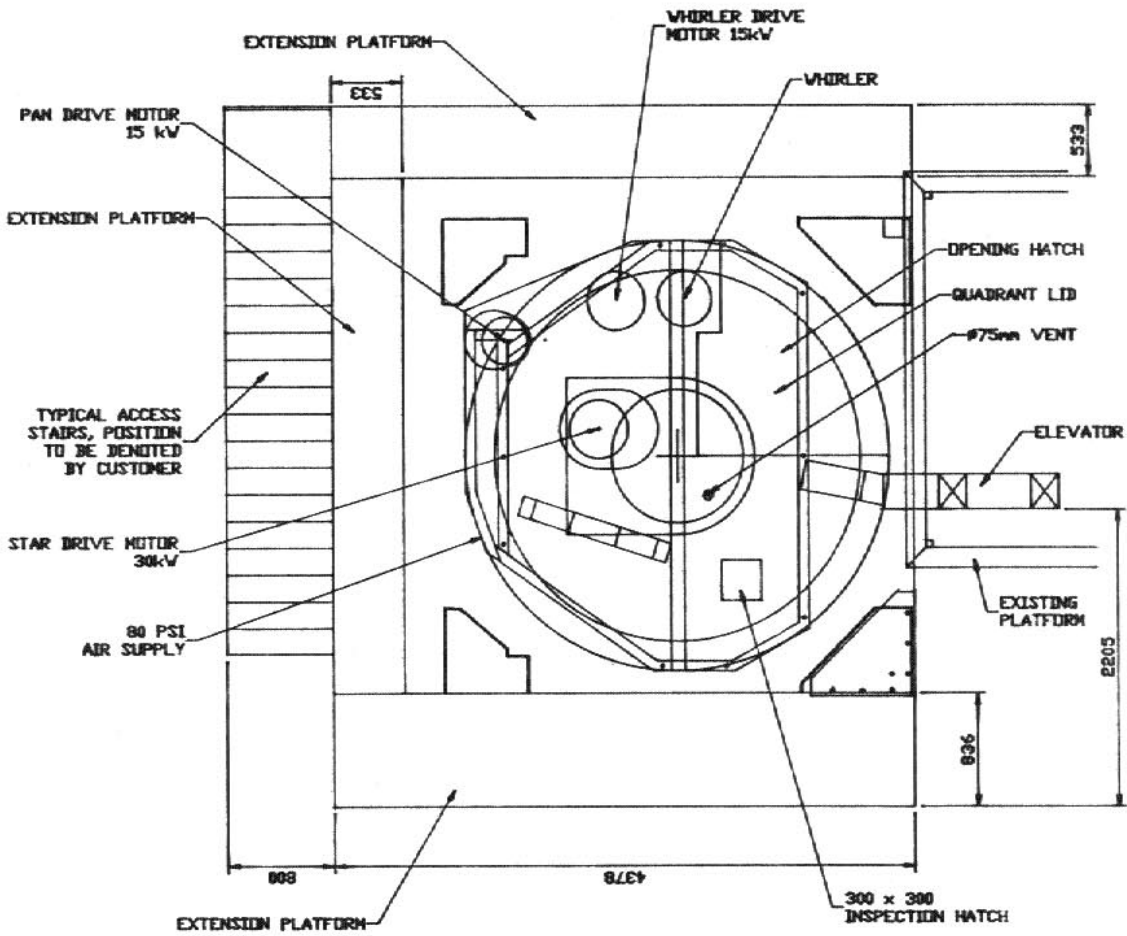
### **Miscellaneous**

8.1 Noise measured in accordance with Directive 79/113 EEC 85LPA.

# RP3000 GENERAL ARRANGEMENT



# RP3000 BASIC PLANT GENERAL ARRANGEMENT



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**OPERATING  
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MAINTENANCE MANUAL**

**SECTION 2**

**INSTALLATION AND OPERATING  
INSTRUCTIONS**

## **PRE-INSTALLATION**

On arrival of the equipment it is advisable to check that all packages listed on the consignment note have been received.

The equipment must be offloaded using certified lifting gear of suitable capacity, by a competent person.

When unloading the mixer, care must be taken to ensure the discharge chute remains clear of obstructions as the chute and door hang below the chassis.

An outline drawing and bolt hold plan is normally sent prior to the despatch of the machine and will enable preparations to be made for the installation. With the `picture` of what the machine will look like when it is assembled, the ancillary equipment dismantled for transport can easily be identified.



## INSTALLATION

Please refer to contract arrangement and site instructions as applicable.

It is recommended that a concrete foundation (to take foundation bolts – not supplied) should be provided for each leg of the support structure and runway when fitted. When the machine is supplied without a support structure it should be mounted on supports of sufficient strength and rigidity to prevent undue vibration when the machine is working. When making provision for a loading hopper pit it is strongly recommended that the pit is concreted out so that it can easily be kept clean and free from any build up which could prevent the bottom limit switch from operating correctly.

Before completing the installation, check that the main mixer frame is level with a spirit level. Packings should be inserted as required under the structure legs or main frame. The packings under the mixing pan roller brackets are set during manufacturing and must not be disturbed under any circumstances.

Check that the pan is seated and that the pan rack and drive gear are in mesh.. Also check that all the blade clearances are in line with the maintenance instructions.

On connecting to the power supply, the wiring diagram must be referred to. A check that the wiring is correct is rotation of the following:-

- The mixing pan and mixing star rotate anti-clockwise when looking from the top.
- The whirler unit rotates clockwise when looking from the top.

It is advisable to mount the starters away from the machine on supports free from vibration. Ensure that the starters are fitted with suitable overloads – see technical specification – power units. **NOTE:- it is recommended that the mains electricity supply is taken via an earth leakage circuit breaker.**

A simple Water Flow Meter is available as an option to the water tank this has a range usually of 0-100 litres and features an adjustable rate of flow indicator with a reset facility allowing very accurate measurement of water flow irrespective of pressure. The flow meter is usually fitted with a manual ‘on/off’ valve and can be protected by a washable inline strainer.

A supply of compressed air at 5.5 bars is required. The inlet for the connection from the air line is tapped ½” B.S.P. A drop in pressure will cause incorrect operation of the pneumatic system.

## **OPERATING THE MIXER (GENERAL)**

Before starting production the following points should be checked:-

- (1) That there is oil in
  - (a) the Pan Drive Gearbox
  - (b) the Star Drive Gearbox
  - (c) the Air Line lubricator (situated in the control valve box).
  - (d) The discharge blade oiler (if fitted)
- (2) The Mixing pan should be clear of loose nuts, bolts, spanners etc., as these will damage the fingers and blades.
- (3) Check that the Discharge Door and Discharge Blade are operating correctly.
- (4) Check that the blade clearances are correct and if necessary adjust, in line with the maintenance instructions.
- (5) See relevant section for ancillary equipment ie. Whirler and loader when fitted etc.
- (6) Check that the Water Tank is set to the required amount and is filling up to this level.(see later pages for further information on water tank operation)
- (7) When Weigh Gear is fitted check that the setting arrangements and lubrication requirements have been correctly carried out.
- (8) If a Flow Meter is fitted, check that the pointer is reset to zero and the strainer is free from debris.

### **IMPORTANT:**

The CUMFLOW is a high performance Mixer.

The following precautions are necessary to obtain the best results and to avoid damage to the Mixing Star and Drive.

### **AGGREGATES:**

Strict control of graded aggregates must be maintained. Maximum Size 38mm. Oversize lumps of aggregate or rogue material must be prevented from entering the Pan.

### **MIXING STAR BLADES:**

They are of a special shape and material to prolong wear life. They should not be modified in any way and only replaced by genuine 'WINGET CROKER' spares.

Daily check is advised to ensure that the Blades/Wearing Pieces are securely bolted and undamaged.

### **PAN RIM & BASE WEARING PLATES:**

They must be replaced before excessive wear causes distortion.

### **MAXIMUM BATCH LOADS:**

**Under no circumstances should** the Maximum Batch Loads quoted be exceeded nor should the Mixer be stopped and re-started when there is a mix in the Pan.

**After each mix the contents of the pan must be completely discharged before attempting to close the discharge door. At the end of each period of operation the mixing pan, mixing blades, discharge blade and fingers, discharge chute, discharge door and seating must be washed down to prevent concrete setting on them and so impairing the efficiency of the machine.**

### **WARNING:**

**THE MAUFACTURER ACCEPTS NO RESPONSIBILITY FOR ANY DAMAGE OR FAILURE RESULTING FROM OPERATIONAL MIS-USE OR MALPRACTICE.**

# **OPERATING INSTRUCTIONS FOR WEIGH GEAR MECHANISM**

## **HYDROSTATIC LOADCELL & GAUGE**

The Hydrostatic Load Cell is connected by a flexible capillary tube (approx 9.7 metres long) to a 300mm (12") diameter weigh gauge.

The whole system is assembled and filled with fluid under vacuum and under no circumstances should any of the components be disconnected, in the event of component damage the complete assembly should be returned to Winget Limited for repair.

The system is factory calibrated and any variation between the calculated tare and the actual tare recorded can be corrected by means of the tare adjustment knob on the side of the gauge.

With no load acting on the loadcell the pointer will be below zero, this is to accommodate the weight of the hopper. When the hopper is placed on to the loadcell the pointer will register zero. Final zero adjustment can be made via the zero adjustment knob on the side of the gauge housing.

## **ELECTRONIC LOADCELL & GAUGE**

The electronic Loadcell & Gauge consists of an electrically operated loadcell mounted on the weigher frame and connected to a remote mounted digital readout control box. The connecting lead should be protected from damage and the readout box mounted such that it is not affected by vibrations etc. The mounting instructions detailed within Section 9 of this manual should be followed to avoid excess vibrations damaging the control box. Section 9 also contains detailed advice on setting up, obtaining zero and operation of the loadcell and readout box and should be referred to before the equipment is operated.

### **NOTE THE FOLLOWING WIRING CONNECTIONS**

- + Excite RED
- Excite BLUE
  
- + Signal GREEN
- Signal YELLOW

## **OPERATING INSTRUCTIONS FOR 0-100 LITRE** **WATER FLOWMETER**

The simple manually operated 0-100 litre Water Flow Meter is available as an option to the water tank and is normally mounted on the side of the mixer feeding directly into the pan. The meter is normally fitted with 1" hose tail connectors but different sizes of water inlet connections to suit various hose diameters are also available. The meter is normally provided with a simple 'on/off' valve and inline filter/strainer mounted next to but down stream of the flowmeter.

### **OPERATION**

On a daily basis before use the strainer should be removed and checked for debris and obstructions, cleaned and refitted. Ensure the on/off valve is in the 'off' position and turn on the main water supply. Set the adjustable pointer on the dial face via the central knob to the required amount of water. Check the indicator reads zero, if not operate the reset lever on the side of the meter which will reset the indicator. Turn the on/off valve slowly to the 'on' position watching the movement of the indicator around the dial, when the indicator reaches the pointer sharply turn valve to the 'off' position. The indicator will register the amount of water delivered. Operate the reset lever to bring the indicator back to zero and repeat the operation for each batch of material mixed.

When shutting down the mixer either at night or at the end of each shift it is recommended that the main water supply to the flow meter and 'on/off' valve is shut off.

If it is expected that the overnight temperatures will drop to or close to freezing it is recommended that the Flow Meter, Valve, Filter and Pipework are drained to prevent damage.

# **OPERATING THE MIXER**

## **SAFETY NOTES**

Never operate the mixer unless you have read and fully understand the contents of the Operators Manual

Never operate the mixer whilst wearing loose fitting clothing

Never reach inside the Pan whilst it is rotating

Never operate any equipment unless you have received adequate training

Cement, certain other minerals and organic compounds can cause skin irritation leading to Dermatitis. Always use Personal Protective Equipment i.e. gloves etc to protect the skin from direct contact. If in any doubt about the materials being used consult your employers COSHH manual

Wear Eye protection to protect your eyes from dust and liquid splashes

Do not attempt to remove heavy parts single handedly, obtain assistance, or use suitable lifting equipment

Do not operate the mixer with any of the guards removed, safety devices or interlocks disconnected. They are there to offer you some protection, ensure they are correctly maintained

Carry out the daily maintenance before operating the mixer and report defects to your supervisors

Oils, Greases and Lubricants are skin irritants and prolonged direct skin contact can cause skin cancer. PPE or barrier creams should be used when carrying out maintenance work, wash your hands on completion

Always dispose of waste oils and lubricants in a proper manner, it is illegal to pour it down drains or bury it. Contact your local authority for a list of authorised disposal sites

Always disconnect the power supply at the mains before carrying out any maintenance work or cleaning the equipment down. Do not turn on the power until everything has dried out

Do not allow waste from the wash down process to enter the public drainage system unless it has been properly filtered.

Decals and Instruction Plates are attached to the equipment to warn against hazards and assist in the safe operation of the equipment, if damaged or defaced they should always be replaced.

It is likely that clutch and/or brake linings may contain asbestos and suitable precautions should be taken to avoid breathing in the dust, protective clothing should be worn. Hands should be washed immediately after handling components and old discarded parts or linings should be disposed of in a responsible manner in line with local or national regulations covering the disposal of asbestos waste.

**OPERATING  
AND  
MAINTENANCE MANUAL**

**SECTION 3**

**TECHNICAL SPECIFICATION  
AND MAINTENANCE**



# TECHNICAL SPECIFICATION OF CUMFLOW RP3000

<b><u>CAPACITIES:</u></b>	Maximum Batch Capacity	by Weight	4580kgs
		By Volume	3000 litres
<b><u>OUTPUT</u></b>	Batch output (Concrete)	@2.42Kg/ltr	1910 litres
		@2.162Kg/ltr	2120 litres
	Nominal Output		2000 litres
<b><u>FEED MATERIAL:</u></b>	Maximum Size		38 mm
<b><u>MIXER FRAME:</u></b>	Strongly constructed from welded Steel Channel		
<b><u>MIXING PAN:</u></b>	Steel Base Pan mounted on three wide track rollers with central discharge door. Pan Rim, Base and Discharge Door fitted with renewable Wearing Plates available in different materials. Anti clockwise rotation.		
<b><u>MIXING STAR:</u></b>	Triple Arm Mounting, Six Spring loaded Star Blades, 3 at Pan floor level and 3 for high level mixing. Anti clockwise rotation.		
<b><u>WHIRLER:</u></b>	Intermittent Blades mounted on vertical shaft.		
<b><u>DISCHARGE BLADE:</u></b>	Pneumatically operated in conjunction with the discharge door pneumatically operated.		
<b><u>FIXED BLADE:</u></b>	Spring loaded Pan side scraper assembly.		
<b><u>POWER UNITS:</u></b>	Mixing Star		30 kw
	Mixing Pan		15 kw
	Whirler		15 kw
<b><u>DRIVES</u></b>	Mixing Pan	Gear unit with steel pinion and cast rack	
	Mixing Star	Gear unit directly mounted	
	Whirler	Vee Rope Drive	
<b><u>SPEEDS</u></b>	Speed of Pan		8 rpm
	Speed of Mixing Star		39 rpm
	Speed of Whirler		720 rpm
<b><u>FREE AIR CONSUMPTION</u></b>	(PER BATCH OF 80 PSI)		68 Litres
<b><u>WEIGHTS (ULADEN)</u></b>			7500 kg

**ELECTRICS**

Motor Voltage	415v, 3ph, 50hz
Option	60hz
Control Voltage	110v

# MAINTENANCE

## IMPORTANT

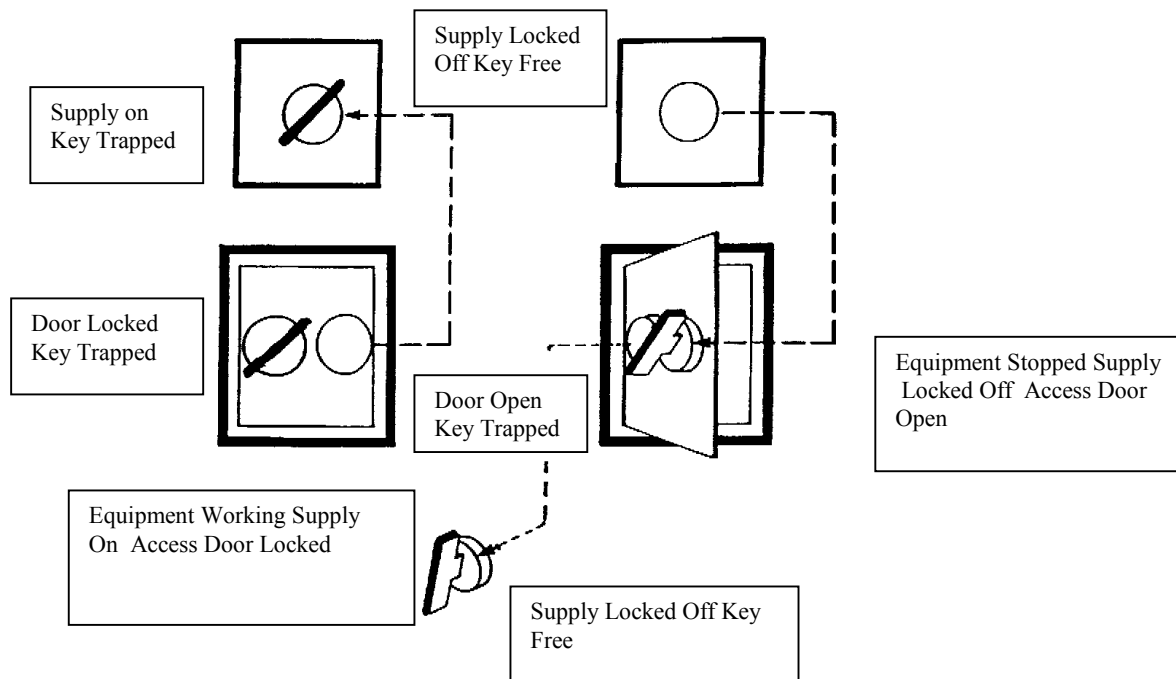
**ALWAYS ENSURE APPARATUS IS ISOLATED FROM MAINS SUPPLY BEFORE COMMENCING MAINTENANCE.**

## SHUTDOWN PROCEDURE

Prior to any work being carried out the apparatus is to be isolated and physically locked off.

We recommend a double key exchange system.

Safe access to equipment with one access door and one control point.



Follow the procedures detailed in your Health and Safety Policy at all times.

Ensure all storage bins containing materials to be mixed are isolated.

Shut down water supply and drain off any water tanks or flowmeter fitted

## MAINTENANCE OF MIXER

### IMPORTANT NOTE:

Ensure that all maintenance is carried out in accordance with the Parts and Operating Manual and any Proprietary Manufacturer's specific instruction.

### PROCEDURE

- 1 ISOLATE ELECTRICAL, PNEUMATIC AND OTHER SERVICES TO THE MIXER (see separate section).
- 2 Service at recommended intervals.
- 3 Use Croker manufactured replacement parts available from **WINGET LIMITED**.
- 4 Ensure all safety guards and interlocks are reinstated prior to operating the mixer.
- 5 Main items of wear (see Section 4).
  - A) Star Blades
  - B) Fixed Blade
  - C) Discharge Blade
  - D) Whirler Blades

Access to mixing pan internals is via the safety interlocks. Each of the above are bolted components and are replaced by simple method and usually achieved in situ without dismantling other components.

- E) Pan base and rim wearing plates are also bolted construction and can be replaced in situ. However, pan covers will need to be dismantled to provide the necessary access.
- F) Other items prone to less wear are star blade fingers, lower whirler shaft assembly and mixing star. Each can be replaced again in situ but pan covers would require tensing to provide necessary access.
- G) Pan rollers can be adjusted to accommodate wear during operation. These can be replaced when required in situ using jacking method to support pan and provide the necessary access.

## MAINTENANCE AND LUBRICATION

### NOTE:

### ALWAYS ENSURE APPARATUS IS ISOLATED FROM MAINS SUPPLY BEFORE COMMENCIGN MAINTENANCE

**Daily:-** Using Total Multis EP Grease (or equivalent), grease the following points through the automatic greasing system.

	<u>NO OF POINTS</u>
Fixed Blade Finger Bearing	2
Pan Rollers	3
Pan Locating Rollers	4
Discharge Door Cylinder Trunnion	2
Whirler Housing	2

Inspect and top-up if necessary.

Air Line Lubricator, use Total Azolla 27 (or equivalent) or suitable Pneumatic Tool oil. Discharge blade oiler use Azolla 27 (or equivalent). Automatic oiler unit. (when fitted)

### WEEKLY

Inspect and top-up if necessary.

- |                                   |  |
|-----------------------------------|--|
| 1. Star Gear Box                  | Use Total Carter EP320 (or equivalent) |
| 2. Pan Drive Gear Box             | Use Total Carter EP320 (or equivalent) |
| 3. Loader Winch Gearbox (Flender) | Use Total Carter EP220 (or equivalent) |

### INSPECT AND ADJUST

1. Pan Gear and Pinion- Apply Open Gear Lubricant (or equivalent), as required.
2. Adjust Star Blades, Fixed Blades and Discharge Blade to the following settings, also make sure that Blade Fingers are free in their bearings and that the springs are clear of obstructions.

**MIXING BLADE:** 3 mm clear of pan base. Adjust by moving the blade down its finger.

**DISCHARGE BLADE:** Just touching pan base when finger bridge is resting on stop sleeves. Adjust by moving bridge up or down fingers.

## **FIXED BLADE:**

(3 mm) clear of pan base and just touching pan rim. Adjust by moving hinge brackets along its slots and blade up or down its fingers. Re-set spring to 100 mm overall length after setting blade.

- (1) After the first week's running the Whirler Vee Belt Drive will need adjustment to take up initial wear/stretch. At the correct tension it should be just possible to twist each belt through 90° when gripped between finger and thumb midway between pulleys.
- (2) Loading Hopper Wire Rope – clean off grit etc. and inspect for broken strands. Clean and apply a suitable wire rope dressing.

## **500 HOUR MAINTENANCE FOR PAN AND STAR DRIVE GEAR UNITS**

After 500 running tours, the Gearboxes should be drained and thoroughly flushed with a light flushing oil and refilled with new oil of the correct grade ie. Total Carter EP320 or equivalent. It is advisable to drain, flush and refill with new oil after every 12 months, or more often if operating conditions are severe.

To fill the Gearboxes, remove the oil level plug and the filler breather plug and pour in oil until it flows from the level hole. Replace the plugs making sure that the vent holes in the filler breather plug are clear.

Approx capacity of Star Gearbox:	51 litres (11 gallons)
Approx capacity of Pan Gearbox:	23.5 litres (5.25 gallons)

## **MONTHLY:     Inspect:**

1. All blades for wear – replace when worn.
2. Pan rim, base and door wear plates – replace when worn
3. Pan Roller Bearings – replace if necessary
4. Pan Door Bearing – replace if necessary
5. Pneumatic system for leaks – repair or replace damaged parts.
6. Pneumatic Cylinders. Make sure that the door cylinder piston rod is at the end of its travel when the discharge door is just home in its seating.
7. Check the S.H. bushing (if used) securing the Mixing Star to the gearbox output shaft are tight.

8. **NOTE:**

For maintenance of Proprietary Items see relevant section.

**CAUTION:**      **BEFORE WORKING UNDER LOADING HOPPER, REST HOPPER ON SAFETY BOLTS. DO NOT FORGET TO REMOVE THESE BOLTS BEFORE RE-STARTING THE MACHINE**

(Item 45 on arrangement of Loader Section)

Loader Magnetic Brake – adjust if necessary, to the following instructions:-

Mounting:

Set the brake so that the horizontal centre-line of the shoe corresponds with the centre-line of the brake wheel shaft and the shoe pivots are equally spaced from the vertical centre-line.

Installing:

Slacken back equalising screw (Item 14) Slack nut (Item 5) and adjust screw (Item 3) to give required braking torque.

WARNING:

The end of the adjusting screw (Item 3) must always be visible in the hole at the end of the adjusting nut (Item 6).

Set nuts (Item 5) so that contact is made with the load spring block in the shoe lever when solenoid plunger has moved through half its stroke. Once properly set, this setting should not be altered. With solenoid plunger right down, set equalising screw (Item 14) to give equal friction lining clearances.

Tighten locknuts (Item 5 & Item 14) and be sure that the load spring bracket is in place.

Check adjustments frequently and lubricate brake shoe pivots. To adjust for wear, screw in adjusting screw (Item 3) until the adjusting nuts are clear and only touch lever (Item 1) when plunger is depressed through half its stroke.

When new linings are fitted, repeat all adjustments.

Orders and enquiries should always state full description of parts required. The serial number on the brake should always be quoted.

## **ANNUALLY:**

### **Air Line Lubricator (Early Type):**

1. Depressurise the unit, drain oil from reservoir.
2. Remove top cover and gasket (12)
3. Inspect poppet valve 'O' ring (13) and replace if badly worn.
4. Replace top cover and renew gasket (12).
5. Release adaptor and remove bottom cover, reservoir and 'O' rings.
6. As it is impossible to ensure the correct setting of the jetscrew without calibration, we recommend that the jet screw is not removed and a clean high pressure air line is connected to the bottom of the oil pick-up tube to ensure that the jet is clear.
7. Clean filter (11) with paraffin oil after removal from pick-up tube. Before replacing filter make sure that the bore of the pick-up tube is clean. This is very important.
8. Clean reservoir with paraffin oil or weak detergent.  
DO NOT CLEAN WITH ANY TYPE OF DEGREASING FLUID.
9. Replace reservoir and bottom cover using new 'O' rings (10).
10. Tighten adaptor.

### **Worm Reduction Gear Unit (Flender):**

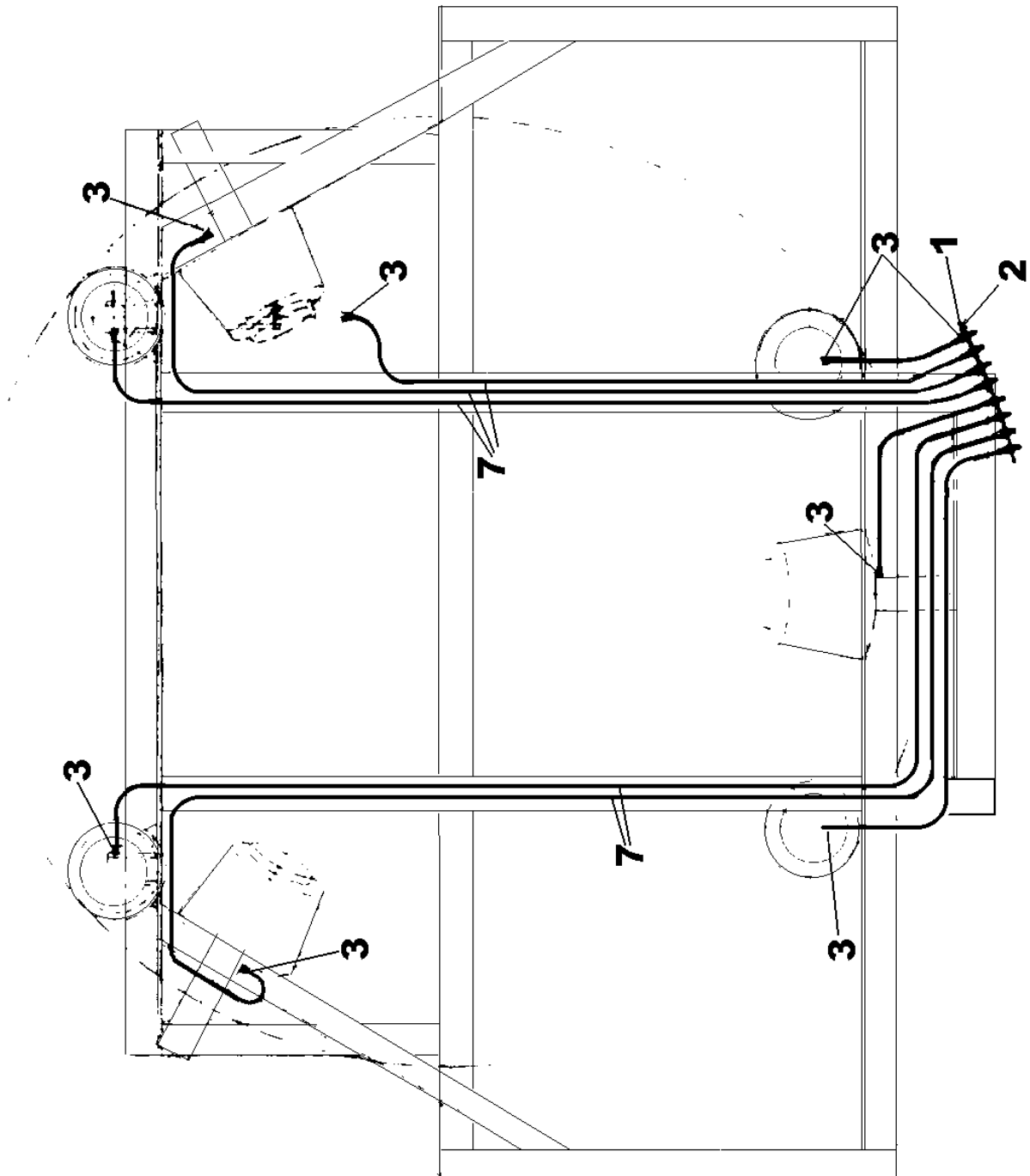
Drain and clean out the gear case and refill with Total Carter EP220 or equivalent. When running conditions are severe this procedure should be adopted more frequently. (Approx capacities – 10 Imperial Pints: 5.7 Litres: 1.6 American Gallons).

#### **NOTE**

Electrical cables particularly those with copper conductors suffer from a condition known as 'relaxation' which may cause wiring to work loose over a period of time, it is recommended that the tightness of wiring connections and terminals are checked following the first month in service.



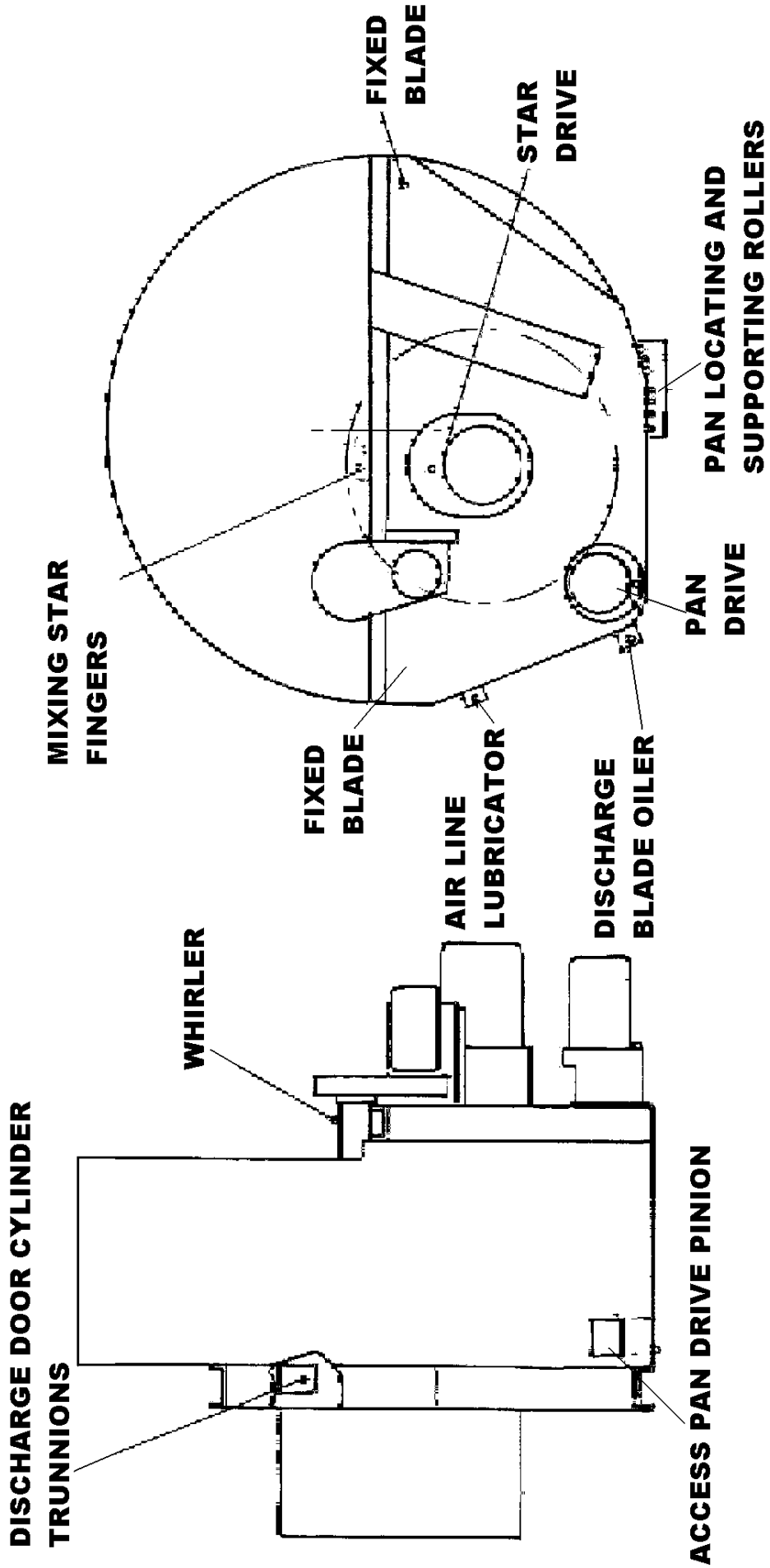
# LUBRICATION LAYOUT



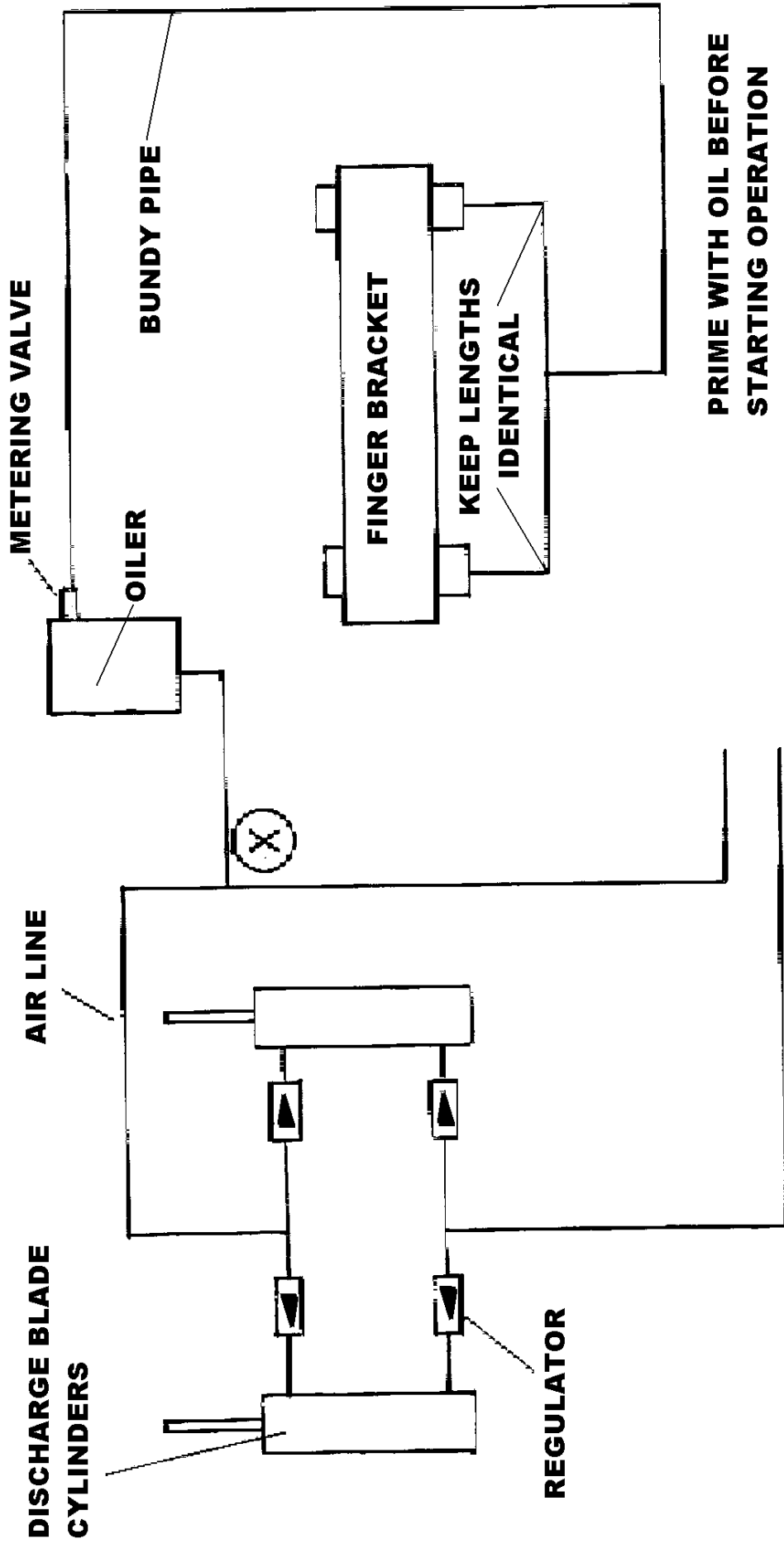
## LUBRICATION LAYOUT

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	
1	CR541428	LUBRICATION PANEL	1
2	131S01	GREASE NIPPLE	7
3	CR510012	STRAIGHT CONNECTOR	7
4	CR289006	STRAIGHT CONNECTOR	A/R
5	CR289004	TUBE NUT	A/R
6	CR269007	TUBE OLIVE	A/R
7	CR510415	BUND TUBE	A/R

# GENERAL LUBRICATION LAYOUT



# DISCHARGE BLADE LUBRICATION



**OPERATING**

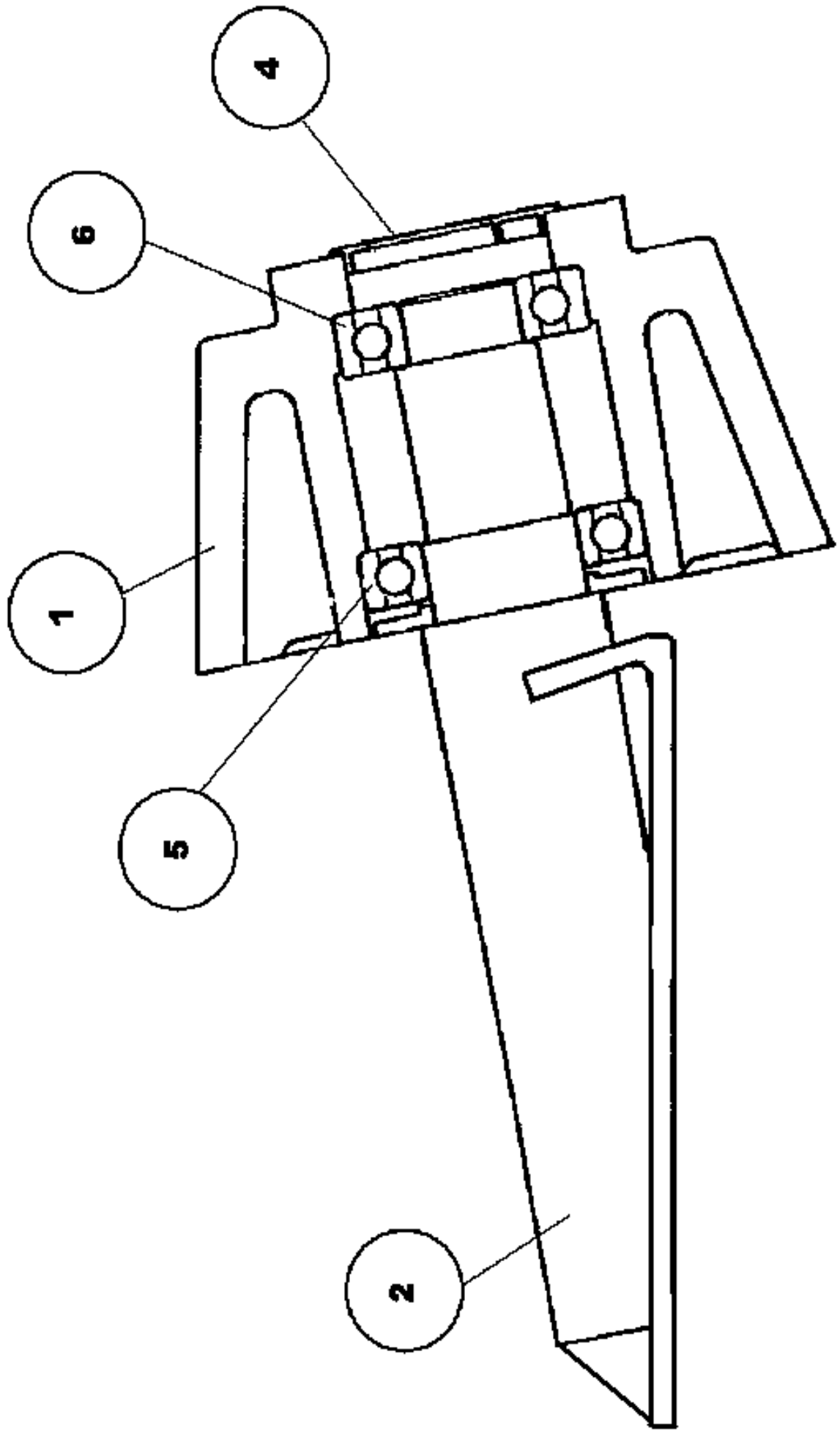
**AND**

**MAINTENANCE MANUAL**

**SECTION 4**

**MIXER SPARE PARTS**

RP3000 PAN SUPPORT ROLLER ASSEMBLY



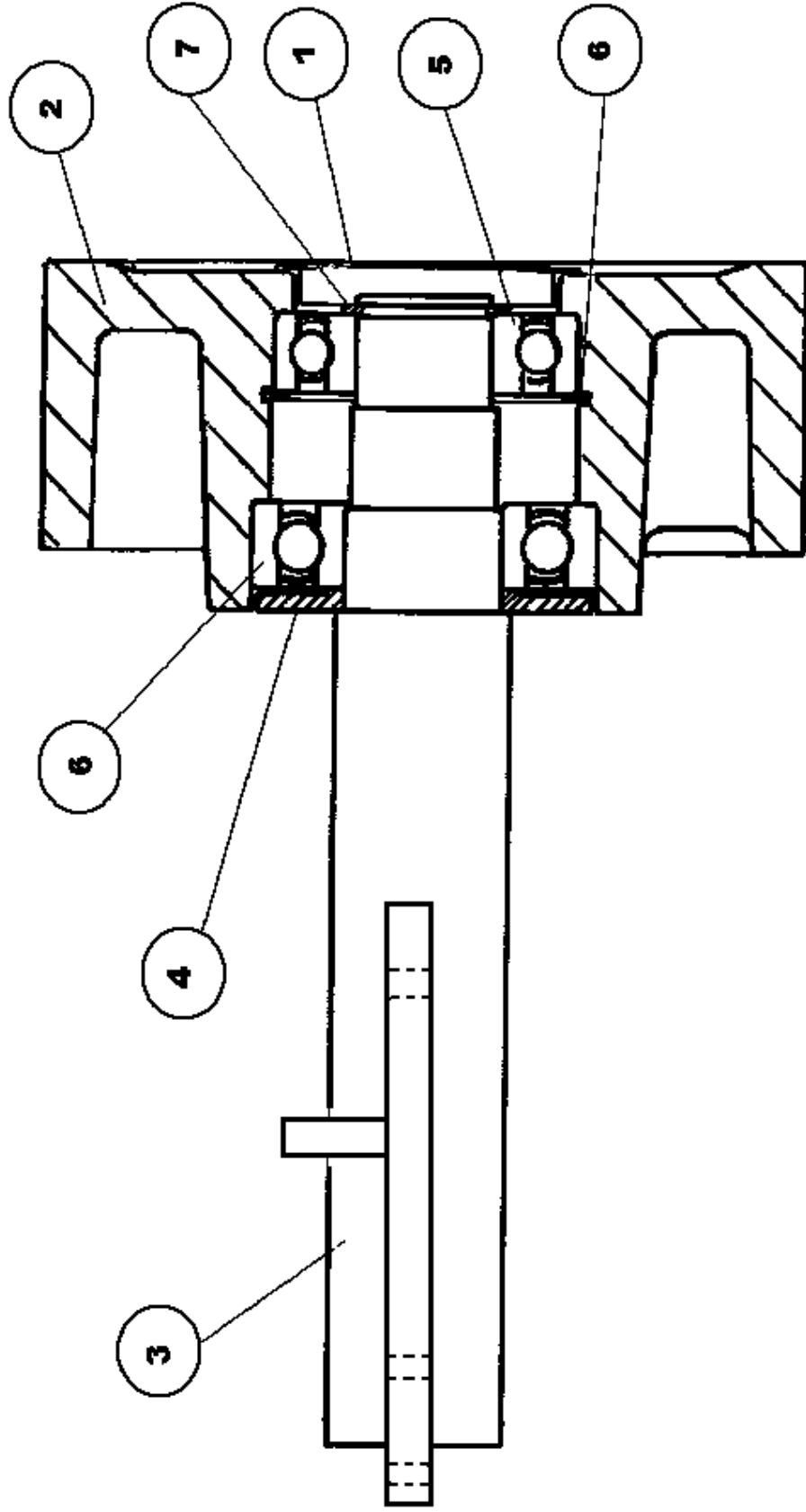
# RP3000 PAN SUPPORT ROLLER ASSEMBLY

1	CR210224	Pan Support Roller	3
2	CR260994	Pan Roller Spindle	3
4	CR54100074	Cap Dust Cover	3
5	CR150534	Radial Ball Bearing (Large Rear)	3
6	CR150533	Radial Ball Bearing (Small Front)	3

## Spindle Retaining Bolts, Not Illustrated

7	8S08Y	Bolt, M24 x 220mm	12
8	267S12	Washer Flat, M24	12
9	61S08	Nut Binx M24, Self Locking	12

# RP3000 PAN LOCATING ROLLER





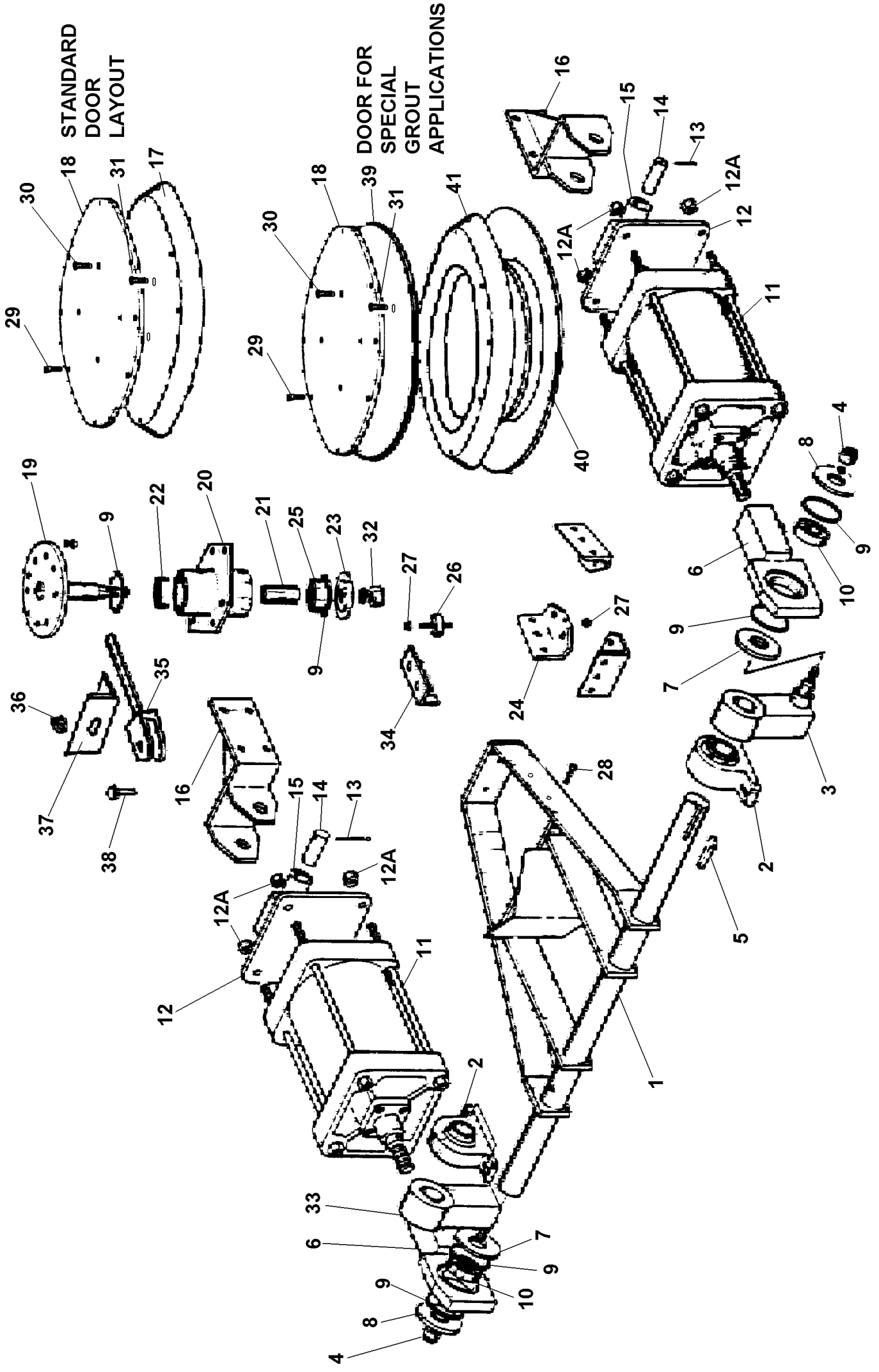
# RP3000 PAN LOCATING ROLLER ASSEMBLY

1	CR54100074	Cap Dust Cover	4
2	CR210003	Pan Locating Roller	4
3	CR520383	Locating Roller Spindle	4
4	CR490073	Dust Washer	4
5	CR150125	Bearing Upper (Small)	4
6	CR150126	Bearing Lower (Large)	4
7	CR240006	Retainer, Internal Circlip, Front	4
8	CR240007	Retainer, External Circlip, Rear	4

## Spindle Retaining Bolts, Not Illustrated

9	8S06P	Bolt, M16 x 100mm	24
10	267S09	Washer Flat, M16	24
11	61S06	Nut, Binx M16, Self Locking	24

# RP3000 PAN DOOR & CONTROLS



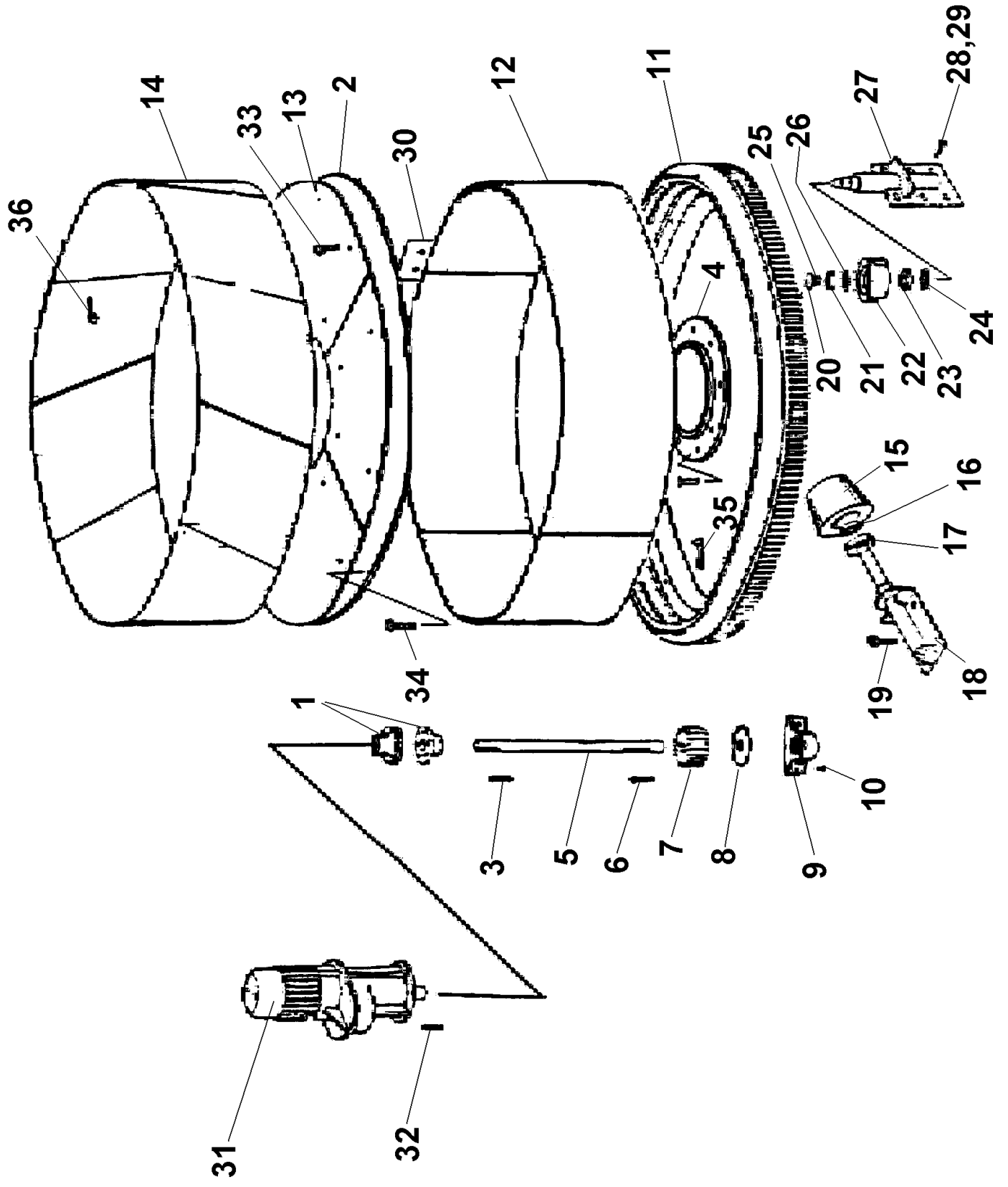
# RP3000 PAN DOOR & DOOR CONTROLS

1	CR261009	Door Arm	1
2	CR150524	Door Arm Bearing	2
3	CR261012	Door Arm Lever (R.H.)	1
4	163S06	Locking Nut, 5/8 B.S.F.Early Machines	2
4	61S06	Locking Nut, M16 Later Machines	2
5	CR329006	Key Gib Head, 16 x 10 x 150	2
6	CR261179	Piston, Rod End	2
7	CR490100	Piston Rod End Seal Washer, Inner	2
8	CR490101	Piston Rod End Seal Washer, Outer	2
9	CR560001	Felt (600mm Long)	2
10	88S07D	Bearing	2
11	CR110312	Air Cylinder	2
11A	CR110327	Seal Kit, for item 11	2
12	CR261014	Trunnion, Air Cylinder	2
12A	61S06	Nut, Binx M16 Trunnion Retaining	8
13	CR530064	Pin Split 5/32" x 1.5"	4
14	CR520420	Pin Pivot	2
15	CR180061	Silentbloc Bush	2
16	CR261015	Air Cylinder Trunnion Bracket	2
17	CR531299	Door, Standard Build	1
18	CR531300	Door Wear Plate, Mild Steel	1
18A	CR531300H	Door Wear Plate, Wear Resistant Steel	1
18B	CR531300SS	Door Wear Plate, Stainless Steel	1
19	CR261010	Door Retaining Pin	1
Note threads on Retaining Pin on Early Machines was 1.25" BSW, on Later Machines M30			
20	CR261011	Door Bearing Housing	1
21	CR531301	Bearing Spacer Sleeve	1
22	CR150528	Bearing, Upper	1
23	CR531302	Door Pin Seal Washer	1
24	CR531303	Door Bearing Support Angle	3
25	CR150527	Bearing, Lower	1
26	CR120003	Mount, Anti-vibration	6
27	61S04	Nut, Binx M10, Self Locking	12
27A	267S06	Washer Flat M10	12
28	11S05F	Screw Set M12 x 40	12
28A	267S07	Washer Flat M12	24
28B	61S05	Nut, Binx M12, Self Locking	12
29	52S04G	Screw, Countersunk M10 x 35	12
29A	17S05	Washer Spring M10	12
29B	7S04	Nut M10	12
30	52S06M	Screw, Countersunk M16 x 60	6
30A	17S08	Washer Spring M16	6
30B	7S06	Nut M16	6
31	52S04C	Screw, Countersunk Set M10 x 16	3
32	253S11	Nut Full 1.25" B.S.W. Early Machines	1
32A	78S12	Nut Thin Lock 1.25" B.S.W. Early Machines	1
32	59S09	Nut Nyloc M30 Later Machines	1
33	CR261012	Door Arm Lever (L.H.)	1
34	CR541312	Door Safety Retainer	3
35	CR260993	Air Cylinder Trunnion Bracket Adjusting Bolt	2
Note threads on Adj Bolt on Early Machines was 5/8" B.S.W. on Later Machines M16			
36	78S04	Nut Full 1/2" B.S.W. Early Machines	4

# RP3000 PAN DOOR & DOOR CONTROLS

36	7S06	Nut Full M16, Later Machines	4
37	CR260993	Adjusting Bolt Angled Retaining Bracket	2
38	79S07G	Bolt, Adjusting Bolt 5/8" B.S.W Early Machin	2
38A	10S05	Washer Flat 5/8	4
38B	76S07	Nut Binx 5/8" Self Locking	2
38	8S06H	Bolt, Adjusting Bolt M16 x 60 Later Machine	2
38A	267S09	Washer Flat M16	4
38B	61S06	Nut Binx, M16 Self Locking	2
39	CR539148	Door Top Plate (Special Grout Applications)	1
40	CR539149	Door Base Plate (Special Grout Applications)	1
41	CR479007	Polyurethane Door Seal (Special Grout Applications)	1
*	CR531308	Door Seating (Not Illustrated All Applications)	1

# RP3000 PAN & PAN DRIVE



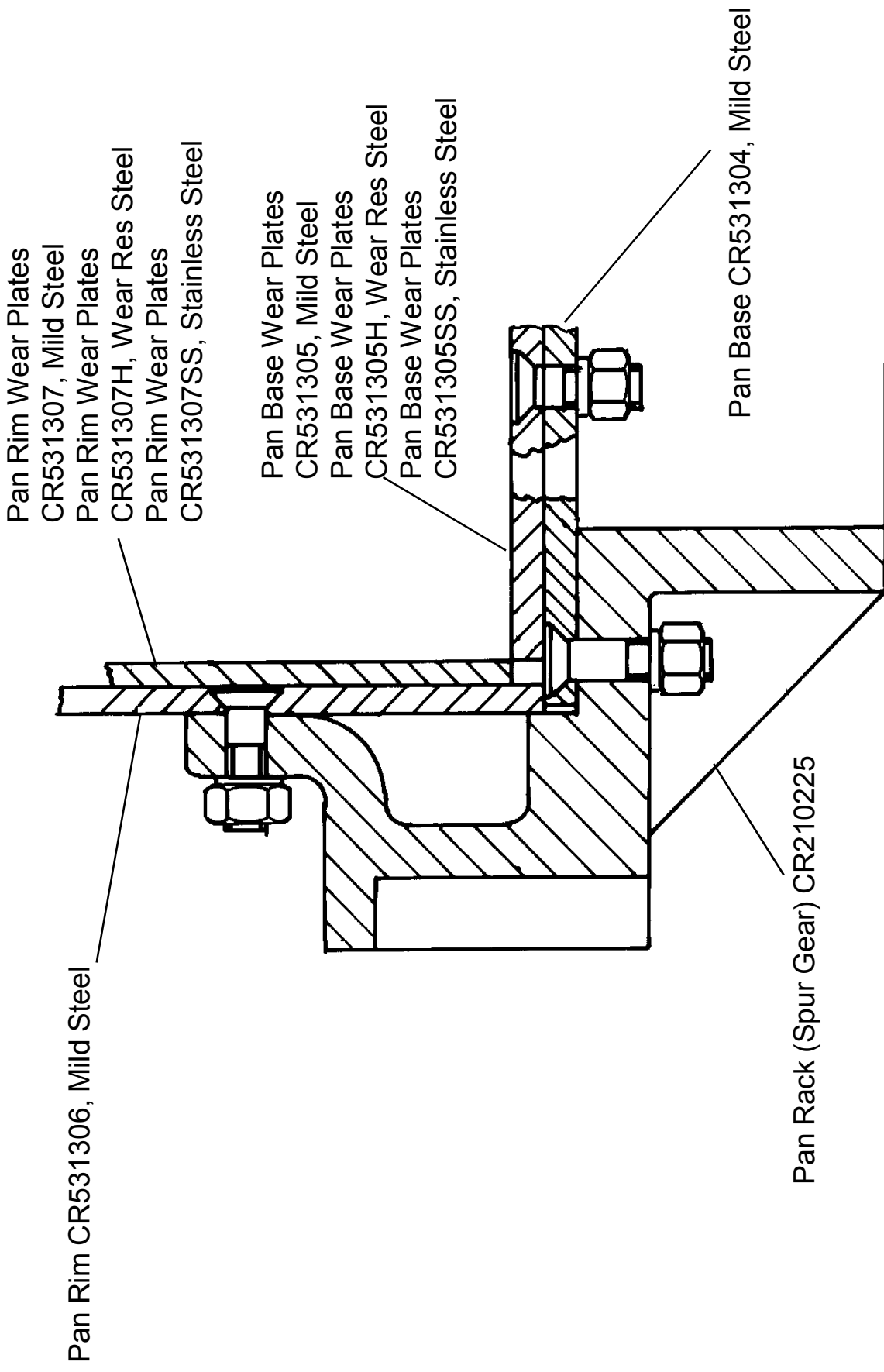
## RP3000 PAN & PAN DRIVE

1	CR210232	Motor Coupling	1
1A	8S06L	Coupling Bolts, M16 X 75	6
1B	59S11	Nut Nyloc M16	6
2	CR531304	Base Pan	1
3	CR320076	Key Gib Head, 20 x 12 x 120	1
4	CR531308	Door Seat	1
5	CR520460	Drive Shaft	1
6	CR320036	Key Gib Head, Pinion 3/4"x 1/2"x5.1/2"	1
7	CR460089	Drive Pinion	1
8	CR531298	Drive Shaft Bearing Cover	1
9	CR151100	Drive Shaft Bearing	1
10	8S07K	Bolt, Drive Shaft Bearing, M20 x 70	2
10A	267S10	Washer Flat M20	2
10B	61S07	Nut Binx M20 Self Locking	2
11	CR210225	Spur Gear, Pan Rack	1
12	CR531306	Pan Rim	1
13	CR531305	Pan Base Wear Plate, Mild Steel	4
13A	CR531305H	Pan Base Wear Plate, Wear Resistant Steel	4
13B	CR531305SS	Pan Base Wear Plate, Stainless Steel	4
14	CR531307	Pan Rim Wear Plate, Mild Steel	4
14A	CR531307H	Pan Rim Wear Plate, Wear Resistant Steel	4
14B	CR531307SS	Pan Rim Wear Plate, Stainless Steel	4
15	CR210224	Pan Support Roller	3
15A	CR54100074	Cap Dust Cover (Not Illustrated)	3
16	CR150533	Radial Ball Bearing, Small Front	3
17	CR150534	Radial Ball Bearing, Large Rear	3
18	CR260994	Pan Roller Spindle	3
19	8S08Y	Bolt, M24 x 220	12
19A	267S12	Washer Flat M24	12
19B	61S08	Nut Binx M24 Self Locking	12
20	CR54100074	Cap Dust Cover	4
21	CR150125	Bearing Upper Small	4
22	CR210003	Roller Pan Locating	4
23	CR150126	Bearing Lower Large	4
24	CR490073	Washer Dust	4
25	CR240006	Retainer, Internal Circlip Front	4
26	CR240007	Retainer, External Circlip Rear	4
27	CR260996	Spindle Pan Locating Roller	4
28	8S06P	Bolt, M16 x 100	24
28A	267S09	Washer Flat M16	24
28B	61S06	Nut, Binx M16, Self Locking	24
29	8S06H	Bolt, Positioning Locating Roller Spindle	6
29A	7S06	Nut, Bolt Locking M16	6
30	CR541652	Pan Rim Joint Plate	4
31	CR220208	Pan Drive Geared Motor	1
32	CR320076	Key Gib Head, 20 x 12 x 120	1
33	52S06K	Screw, Countersunk M16 x 50 (Wear Plate)	24
33A	100S03	Seal Bonded	24
33B	59S11	Nut Nyloc M16	24

## RP3000 PAN & PAN DRIVE

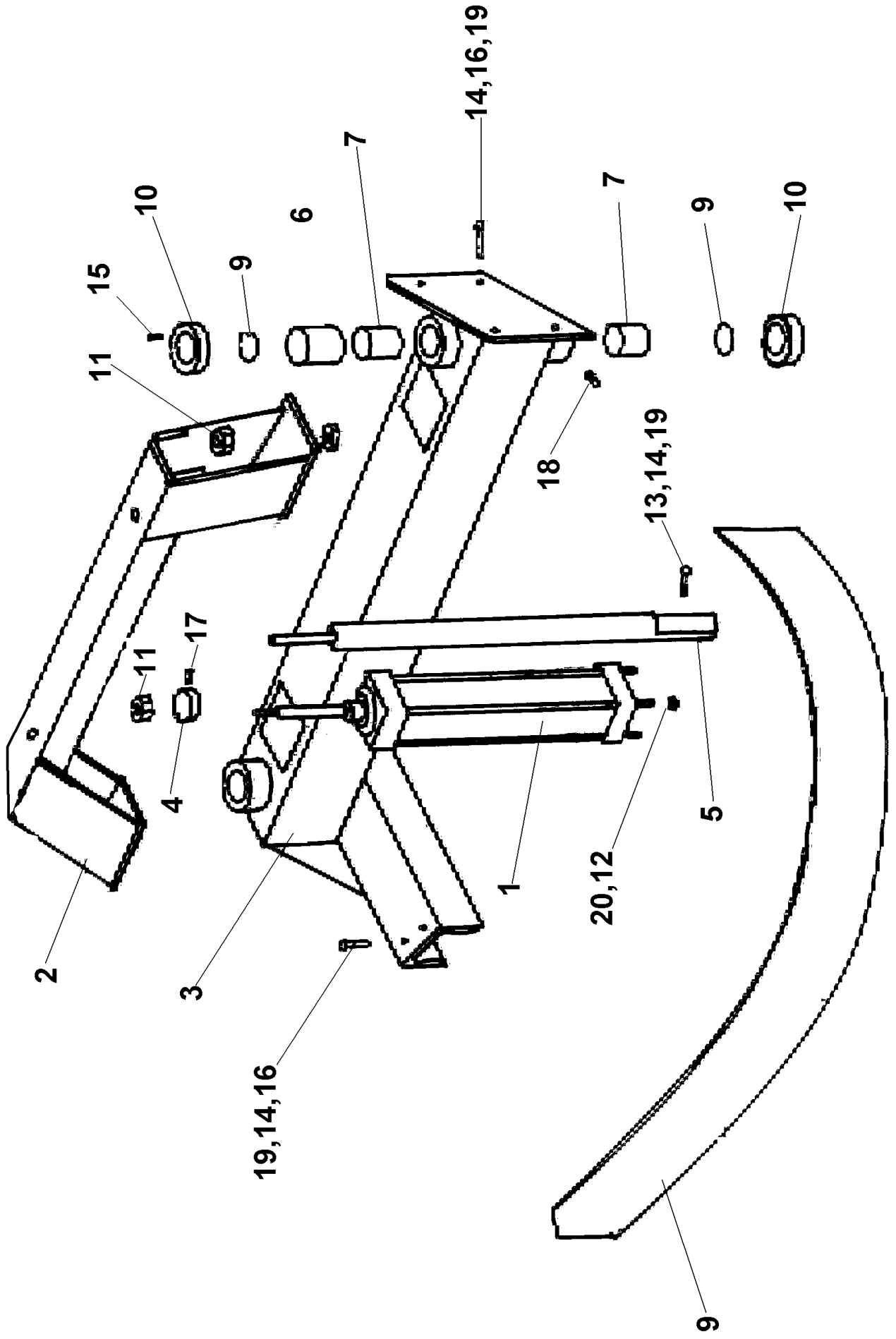
34	52S06T	Screw, Countersunk M16 x 100 (Pan Base )	12
34A	17S08	Washer Spring M16	12
34B	7S06	Nut M16	12
35	52S06M	Screw, Countersunk M16 x 60 (Pan Rack)	20
35A	17S08	Washer Spring M16	20
35B	7S06	Nut M16	20
36	52S05G	Screw, C/sunk M12 x 35 (Rim Wear Plate)	48
36A	17S06	Washer Spring M12	48
36B	7S05	Nut M12	48

# RP3000 PAN BASE, SIDE & RACK ARRANGEMENT





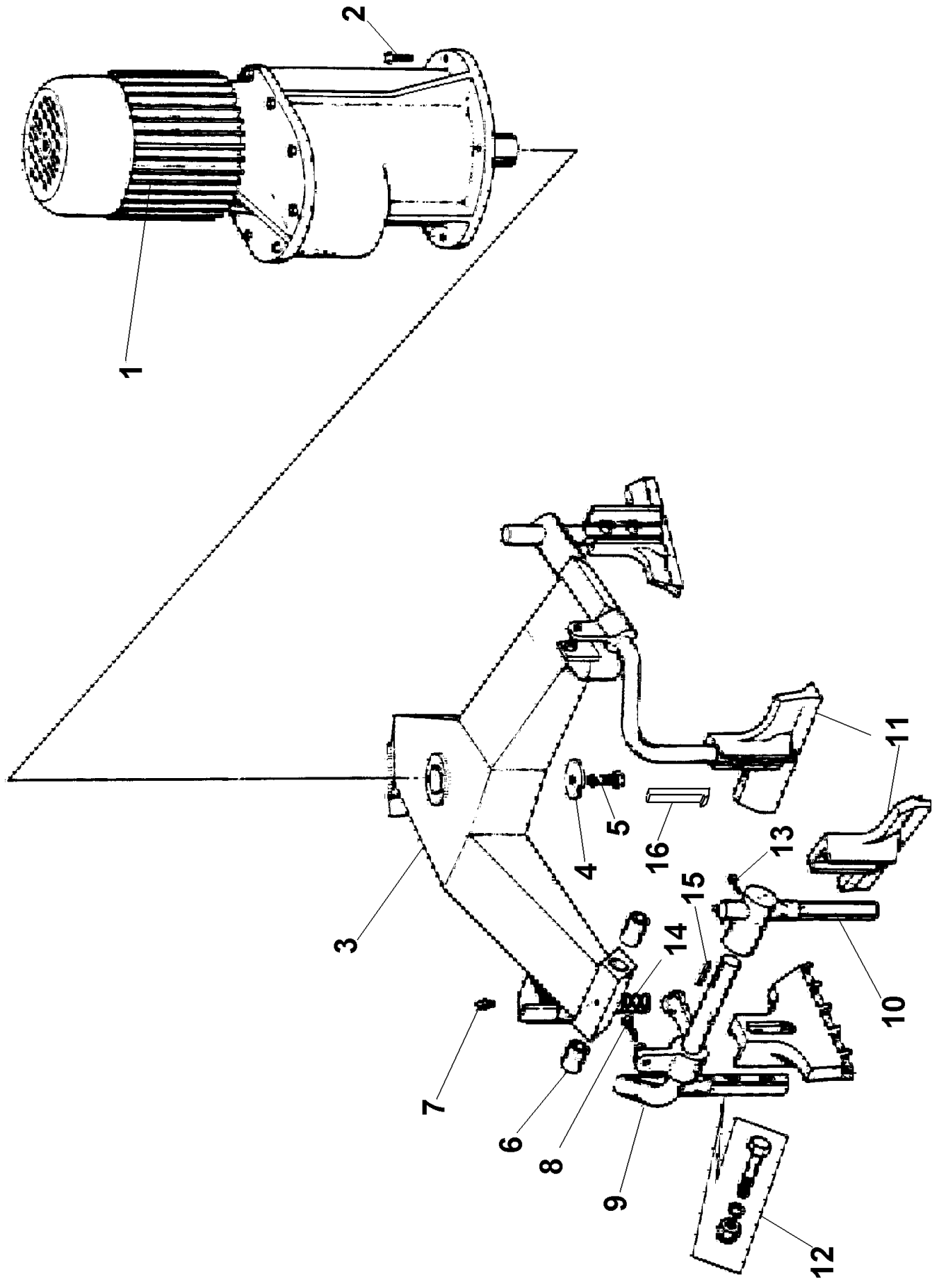
# RP3000 DISCHARGE BLADE



# RP3000 DISCHARGE BLADE

1	CR110313	Air Cylinder	2
1A	CR110325	Seal Kit, Air Cylinder	2
2	CR290999	Air Cylinder Bridge	1
3	CR290998	Discharge Blade Finger Bracket	1
4	CR531642	Piston, Rod End Assembly	2
5	CR531288	Discharge Blade Finger, Mild Steel	2
5A	CR531288SS	Discharge Blade Finger, Stainless Steel	2
6	CR539001	Stop Pipes, Blade Fingers	2
7	CR180065	Bush, Glacier	4
8	CR541304	Blade Discharge, Mild Steel	1
8A	CR541304H	Blade Discharge, Wear Resistant Steel	1
8B	CR541304SS	Blade Discharge, Stainless Steel	1
9	CR579000	Seal Wiper	4
10	CR539003	Housing Wiper Seal, Mild Steel	4
10A	CR539003SS	Housing Wiper Seal, Stainless Steel	4
11	2S09	Nut, Blade Finger, 1"BSF	6
12	7S04	Nut, Air Cylinder Retaining M10	4
12A*	CR531289	Cylinder Support Brackets (Not Illus)	2
12B*	11S06J	Screw Set, Support Bracket Retaining M16	4
12C*	267S09	Washer Flat M16	8
12D*	17S08	Washer Spring M16	4
12E*	7S06	Nut M16	4
13	52S06R	Screw, Countersunk M16 x 80, D/Blade	4
14	7S06	Nut M16	12
15	11S02D	Screw Set, M6 x 30	16
15A	17S03	Washer Spring M6	16
15B	267S04	Washer Flat M6	16
16	11S06D	Screw Set, M16 x 30	8
17	57S05D2	Screw Grub M8 x10MM	2
18	333601010	Nipple Grease	6
19	267S09	Washer Spring M16	12
20	17S05	Washer Spring M10	4
20A	267S06	Washer Flat M10	4

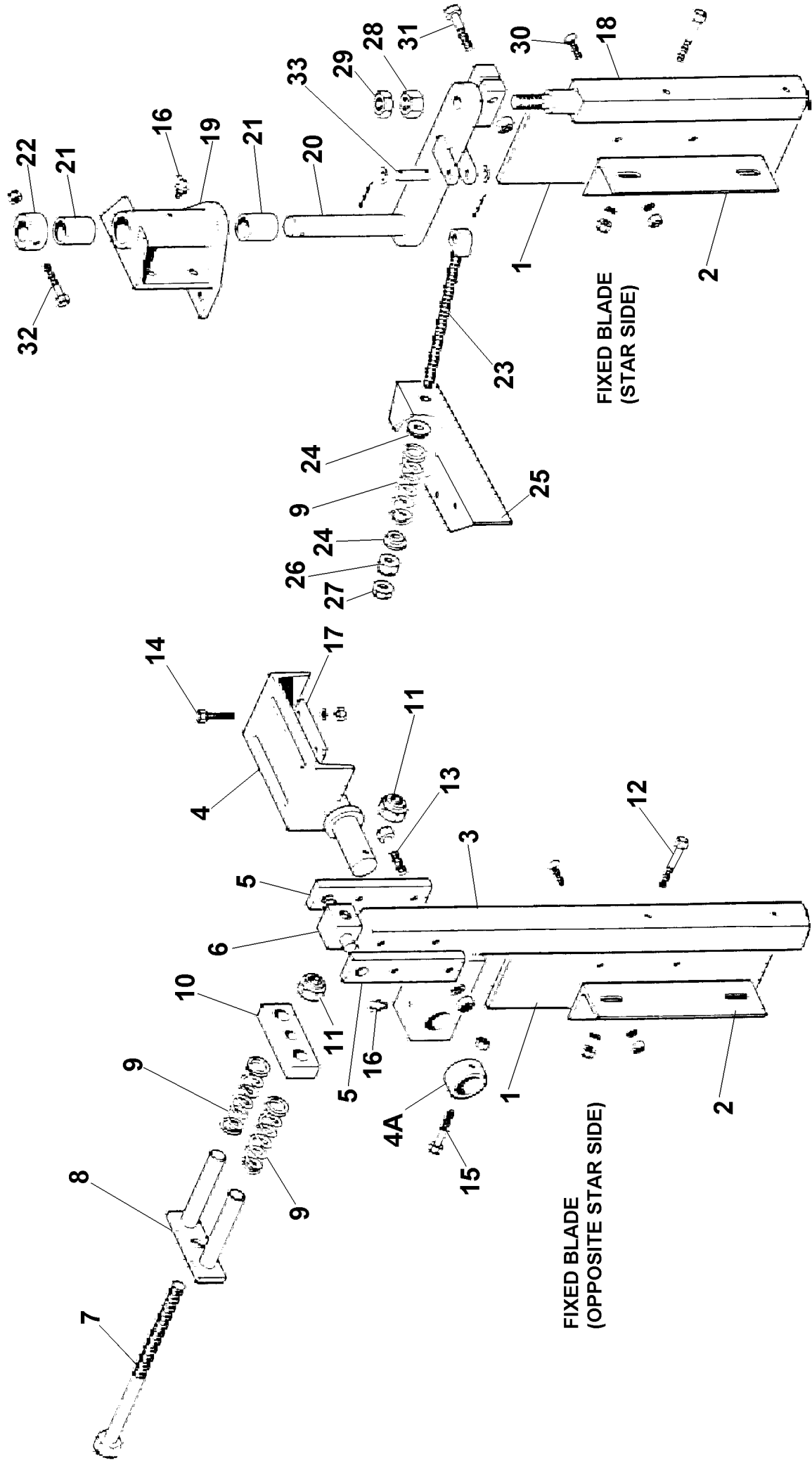
# RP3000 MIXING STAR



# RP3000 MIXING STAR

1	CR670396	Vertical Geared Motor Unit	1
2	8S07N	Bolt Motor Fixing M20 x 90	8
2A	267S10	Washer Flat M20	8
2B	61S07	Nut, Binx Self Locking M20	8
3	CR260997	Mixing Star	1
4	CR531292	Star Retaining Washer/Keep Plate M17 I/D	1
5	8S06F	Keep Plate Retaining Bolt M16 X 50	1
6	CR180066	Star Finger Bush	6
7	333601010	Nipple Grease	3
8	8S07R	Adjusting Bolt, Star Finger M20 x 120	3
8A	7S07	Nut Locking M20	3
9	CR261000	Star Finger, Long, (Mild Steel)	3
9A	CR261000SS	Star Finger, Long, (Stainless Steel)	3
10	CR261002	Star Finger, Short, (Mild Steel)	3
10A	CR261002	Star Finger, Short, (Stainless Steel)	3
11	CR21100015	Star Blade, Cast	6
11A	CR21100015SS	Star Blade, Stainless Steel	6
11B	CR219008P	Star Blade Polyurethane Standard Duty (Green)	6
11C	CR219008HP	Star Blade Polyurethane Heavy Duty (Blue)	6
12	8S06M	Bolt Star Blade Fixing M16 x 80	12
12A	267S09	Washer Flat M16	12
12B	17S08	Washer Spring M16	12
12C	7S06	Nut M16	12
13	11S05F	Screw Set M12 x 40, Star Finger Locking	6
14	CR330070	Spring, Compression	3
15	CR329002	Key, Parallel, 14 x 9 x 80, Star Finger	3
16	CR320082	Star Drive Gib Head Key 28 x 16 x 250	1

# RP3000 FIXED BLADE ASSEMBLIES



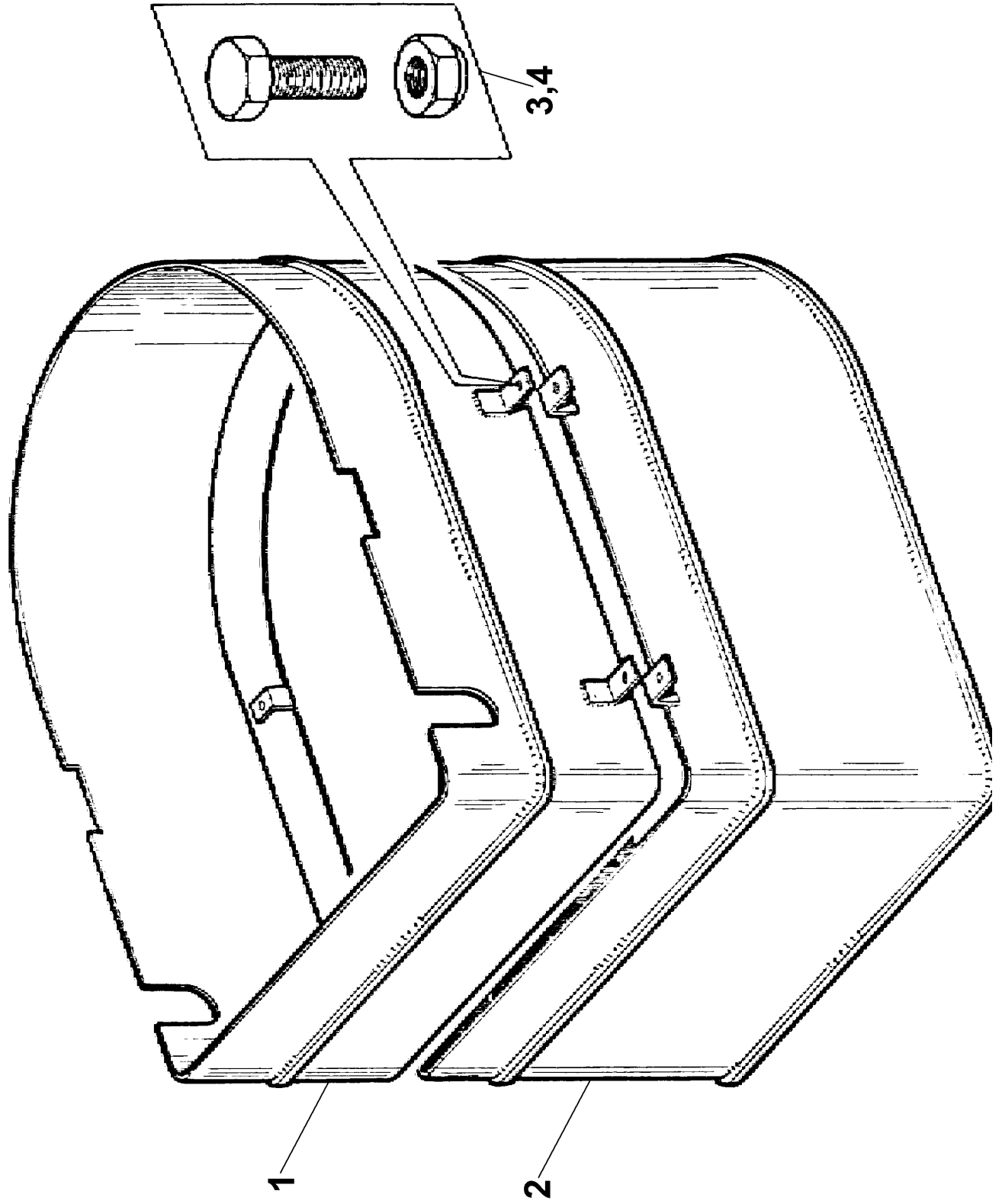
# RP3000 FIXED BLADE ASSEMBLIES

1	CR541305	Fixed Blade, Mild Steel	2
1A	CR541305H	Fixed Blade, Wear Resistant Steel	2
1B	CR541305SS	Fixed Blade, Stainless Steel	1
2	CR530035	Fixed Blade Angle, Mild Steel	2
2A	CR530035SS	Fixed Blade Angle, Stainless Steel	2
3	CR261003	Fixed Blade Finger, Mild Steel	1
3A	CR261003SS	Fixed Blade Finger, Stainless Steel	1
4	CR261004	Finger Pivot Bracket	1
4A	CR261004C	Collar, 25 x 75O/D x 50I/D	1
5	CR531296	Adjusting Rod Trunnion Plate	2
6	CR531295	Adjusting Rod Trunnion	1
7	CR539248	Adjusting Rod, Early Type 1" B.S.F thread	1
7A	CR531294	Adjusting Rod, Later Type M24 thread	1
8	CR261005	Spring Carrier	1
9	CR330066	Spring	3
10	CR531293	Spring Thrust Plate	1
11	163S09	Nut Locking, Early Type 1" B.S.F.	2
11A	59S07	Nut Locking, Later Type M24	2
12	8S05K	Bolt, Blade Angle Fixing M12 x 70	4
12A	17S06	Washer Spring M12	4
12B	7S05	Nut M12	4
13	8S06E	Bolt, Trunnion Plate M16 x 110	2
13A	17S08	Washer Spring M16	2
13B	7S06	Nut M16	2
14	8S06Q	Bolt, Finger Pivot Bolt, M16 x 45	4
14A	267S09	Washer Flat M16	8
14B	17S08	Washer Spring M16	4
14C	7S06	Nut M16	4
15	8S04N	Bolt, Collar M10 x 90	1
15A	61S04	Nut, 'Binx' Self Locking M10	1
16	333601010	Nipple Grease	2
17	CR541306	Finger Pivot Back Plate	1
18	CR531506	Fixed Blade Finger, Mild Steel, Early 1" BSW	1
18	CR531506	Fixed Blade Finger, Mild Steel, Late M24	1
18A	CR531506SS	Fixed Blade Finger, Stainless Steel, Early 1" BSW	1
18A	CR531506SS	Fixed Blade Finger, Stainless Steel, Late M24	1
19	CR531503	Fixed Blade Bracket	1
20	CR531507	Fixed Blade Finger Bracket Pivot	1
21	CR180013	Bush Oilite	2
22	CR531507A	Collar, 12 x 2.75"O/D x 1.75" I/D	1
23	CR531505	F/Blade Spring Adjusting Rod, Early 3/4" BSW	1
23	CR531505	F/Blade Spring Adjusting Rod, Late M20	1
24	CR490062	Adjusting Rod Washer 3/8 X 2" OD x M20	2
25	CR531504	Fixed Blade Angle, Mild Steel	1
25A	CR531504SS	Fixed Blade Angle, Stainless Steel	1
26	253S07	Nut, Early 3/4" BSW	1
26	7S07	Nut, Late M20	1
27	78S06	Nut, Locking, Early 3/4" BSW	1
27	56S07	Nut, Locking, Late M20	1
28	253S09	Nut, Early 1" BSW	1
28	7S08	Nut, Late M24	1
29	78S08	Nut, Locking, Early 1" BSW	1

# RP3000 FIXED BLADE ASSEMBLIES

29	56S08	Nut, Locking, Late M24	1
30	52S04N	Bolt, Countersunk M10 x 60, Blade Fixing	4
30A	17S05	Washer Spring M10	4
30B	7S04	Nut M10	4
31	8S06L	Bolt, Blade Finger Fixing, M16 x 75	1
31A	61S06	Nut, 'Binx' Self Locking M16	1
32	8S05N	Bolt Collar, M12 x 90	1
32A	61S05	Nut, 'Binx' Self Locking M12	1
33	CR539002	Adjusting Rod Pivot Pin	1
33A	267S10	Washer Flat M20	2
33B	44S16J	Pin Split M4 x 40	2

RP3000 DISCHARGE CHUTE

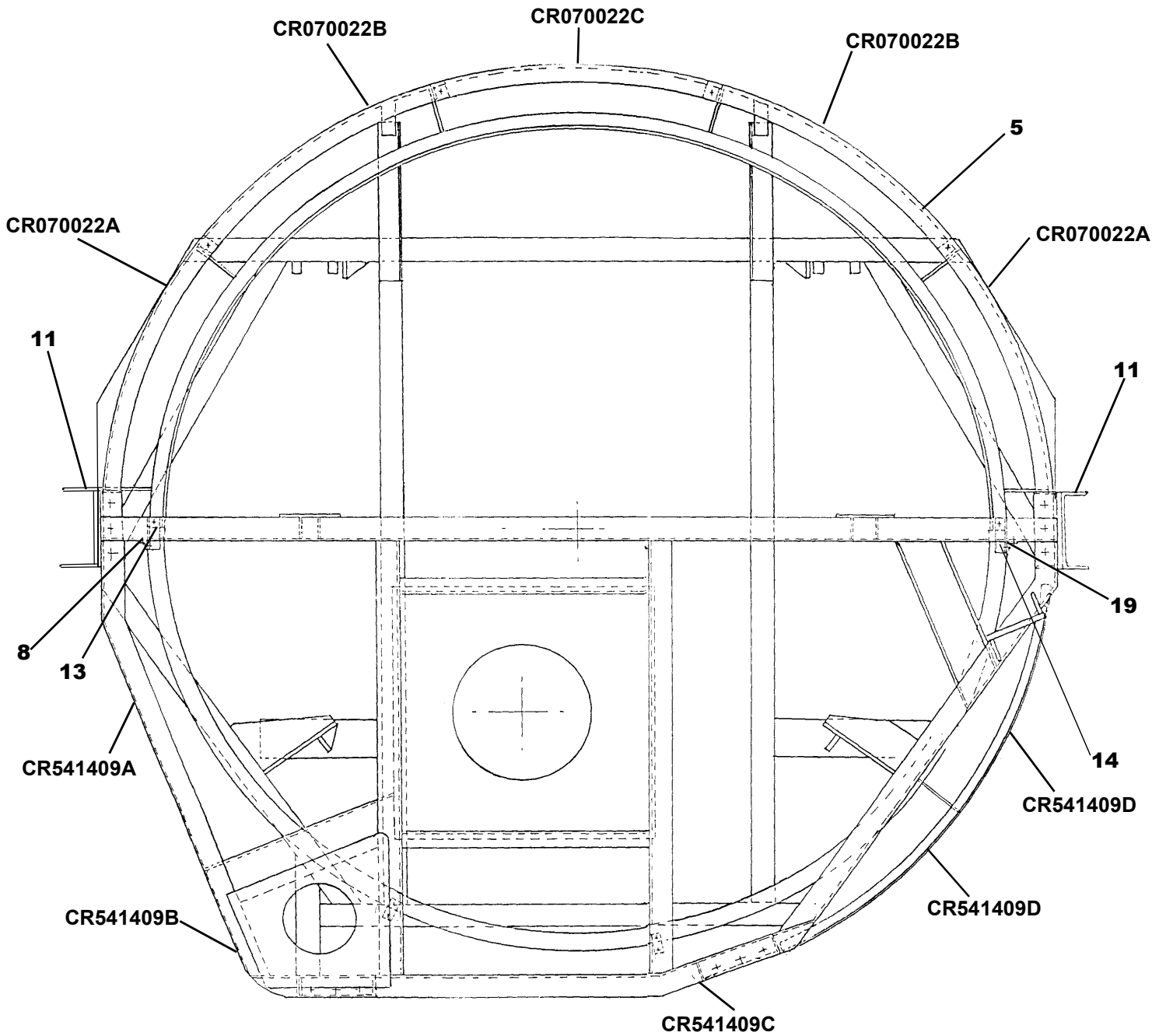
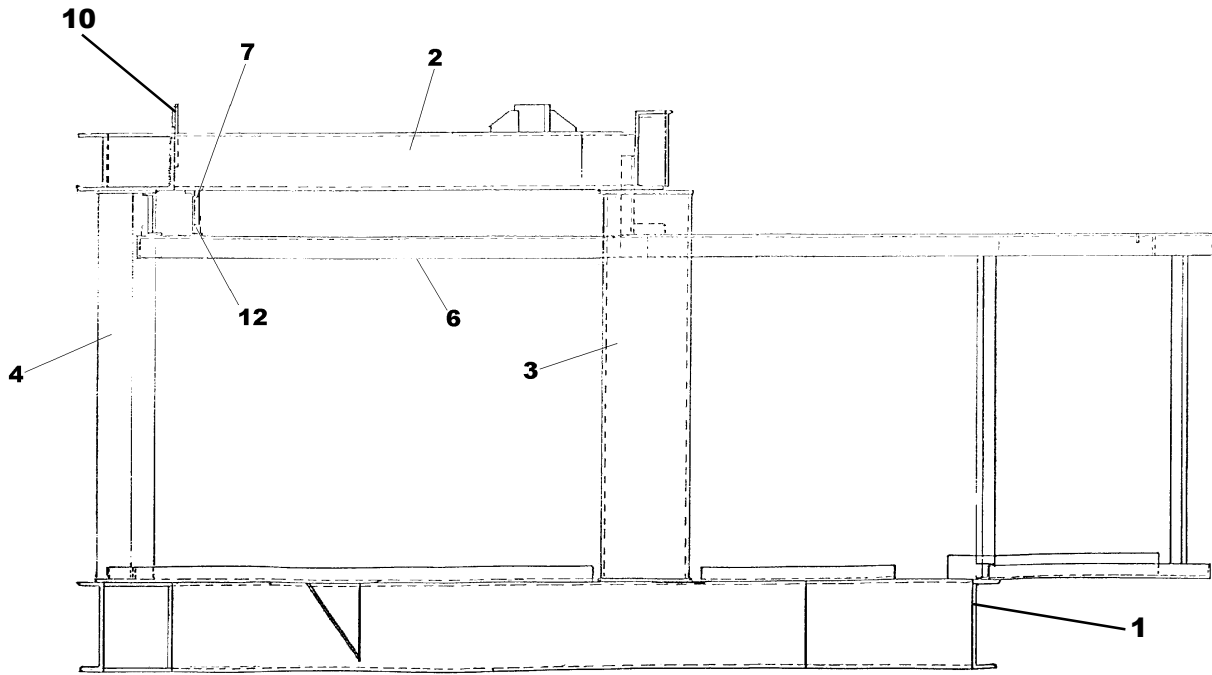




# RP3000 DISCHARGE CHUTE

1	CR541310	Chute Discharge Upper	1
2	CR541311	Chute Discharge Lower	1
3	8S06E	Bolt M16 x 45	4
3A	267S09	Washer Flat M16	8
4	59S11	Nut Nyloc M16	4

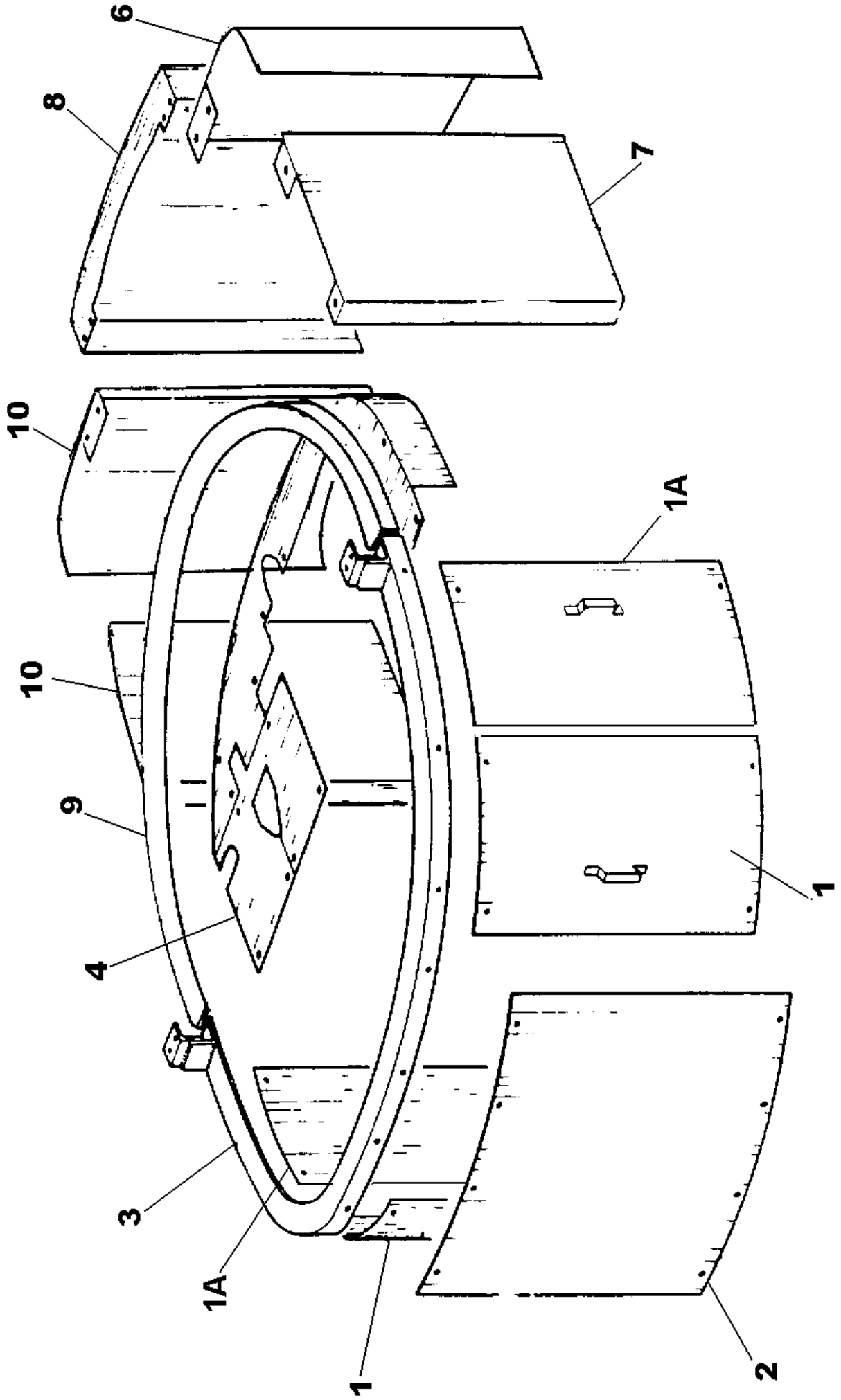
# RP3000 TOP & BOTTOM STRUCTURE



# RP3000 TOP & BOTTOM STRUCTURE

1	CR260995	Chassis, Lower	1
2	CR269245	Structure, Upper	1
3	CR261086	Top Frame Support	2
4	CR261016	Top Frame Support	2
5	CR531794	Track Rim Front	1
6	CR531792	Track Rim Rear	1
7	CR539222	Support Plate	2
8	CR539223	Support Angle	1
9	CR539224	Support Angle	1
10	CR261169	Eye Lifting Point	1
11	CR261087	Frame Lfting	2
12	CR539225	Angle Bracket	2
13	CR539226	Joining Angle	1
14	CR539227	Joining Angle	1

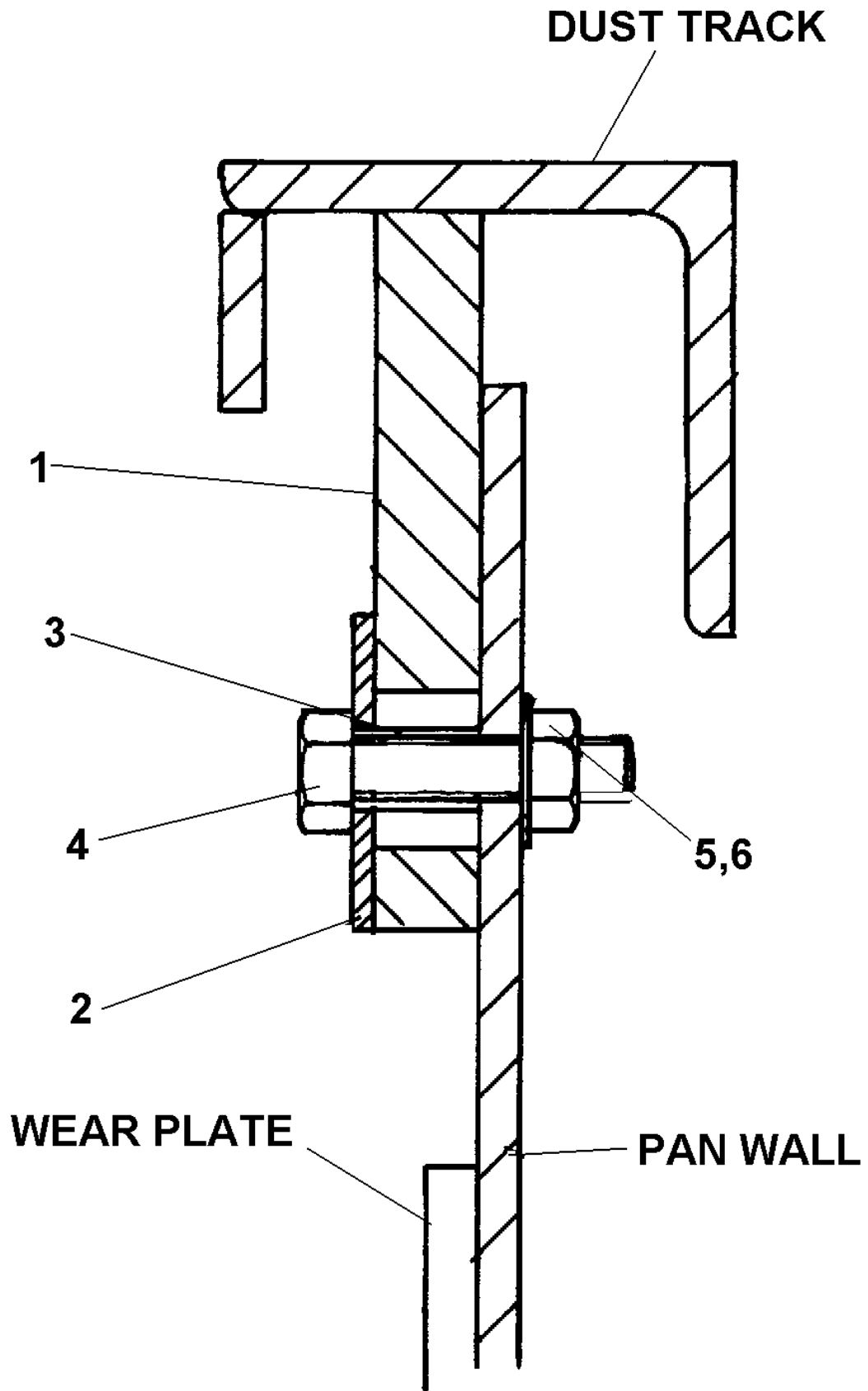
RP3000 PAN GUARDS



# RP3000 PAN GUARDS

1	CR070022B	Guard Pan, Front Intermediate	2
1A	CR070022A	Guard Pan, Front Rearmost	2
2	CR070022C	Guard Pan, Front	1
3	CR531794	Front Track Ring & Guard Support	1
4	CR549134	Splash Guards (Not Shown Individually)	1 Set
5	CR541309	Top Guard & Guard Support (Not Illustrated)	1
6	CR541409B	Guard Pan Rear (Opp Filter)	1
7	CR541409A	Guard Pan Rear Side	1
8	CR541409C	Guard Rear	1
9	CR531792	Rear Track Ring	1
10	CR541409D	Guard Pan Rear (Filter Side)	2
11	CR261006	Support Pan Guards (Not Illustrated)	1
12	CR541411	Guard, Cover Top Structure (Not Illus)	1
12A	CR541412	Guard, Cover Top Structure (Not Illus)	1
12B	CR541413	Guard, Cover Top Structure (Not Illus)	1
12C	CR541415	Guard, Fixed Blade Adjuster (Not Illus)	1
13	CR549149	Guard, Round Discharge Blade (Not Illustr)	1
14	CR541410	Guard, Air Cylinder (Not Illustrated)	1
15	CR541313	Guard, Cylinder 1 x L/H 1 x R/H (Not Illus)	1 Set
16	CR549135	Guard, Mesh, Discharge Blade (Not Illus)	1

# RP3000 PAN SEALING STRIP



# RP3000 PAN SEALING

1	CR479002	Pan Sealing Rubber	4
2	CR539122	Plate (Holding Strip) Rubber Retaining	4
3	CR529035	Spacer	28
4	11S03E	Screw Set M8 X 35	28
5	61S03	Nut 'Binx' Self Locking M8	28
6	267S05	Washer Flat M8	28

# RP3000 DECALS AND LOGOS

## 1 CROKER CUMFLOW RP3000

<b>WINGET</b>		WINGET LIMITED 100, 101 & 102, Shearwater Lane, Birch Lane, Bilsborrow, Lancashire, LA5 2JG, UK	
Model	_____		
Serial No.	_____		
Engine No.	_____		
Capacity	Mass (kg)	_____	
SRO No.	Power (kW)	_____	
Year Of Manuf.	Eng. (rpm)	Drum (rpm)	_____

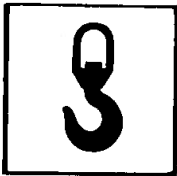
© 2008 WINGET

A CROKER GROUP COMPANY

2



4



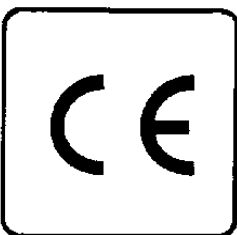
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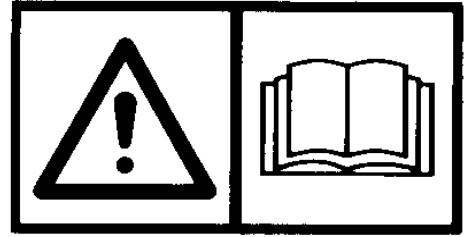
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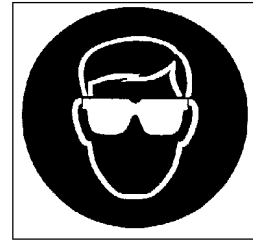
7



8



9



10

**SAFETY WARNING**

- 1 Before starting this machine the operator should be familiar with the operating instructions issued by the manufacturer
- 2 The manufacturer's rated capacity must never be exceeded
- 3 Before carrying out any maintenance servicing, or greasing, always ensure that the engine has been switched off. Never work on a machine while it is running.

W5481015x11

11

**DANGER**

DO NOT WALK, STAND OR LEAN  
UNDER RAISED HOPPER UNLESS  
IT IS SECURELY PROPPED

12

THE BATCH LOADER MUST  
BE GUARDED TO PREVENT  
ACCESS WHEN MIXER IS  
IN OPERATION.

13

THE TOP OF THE PAN  
MUST BE GUARDED TO  
PREVENT ACCESS WHEN  
MIXER IS IN OPERATION.

14



# RP3000 DECALS AND LOGOS

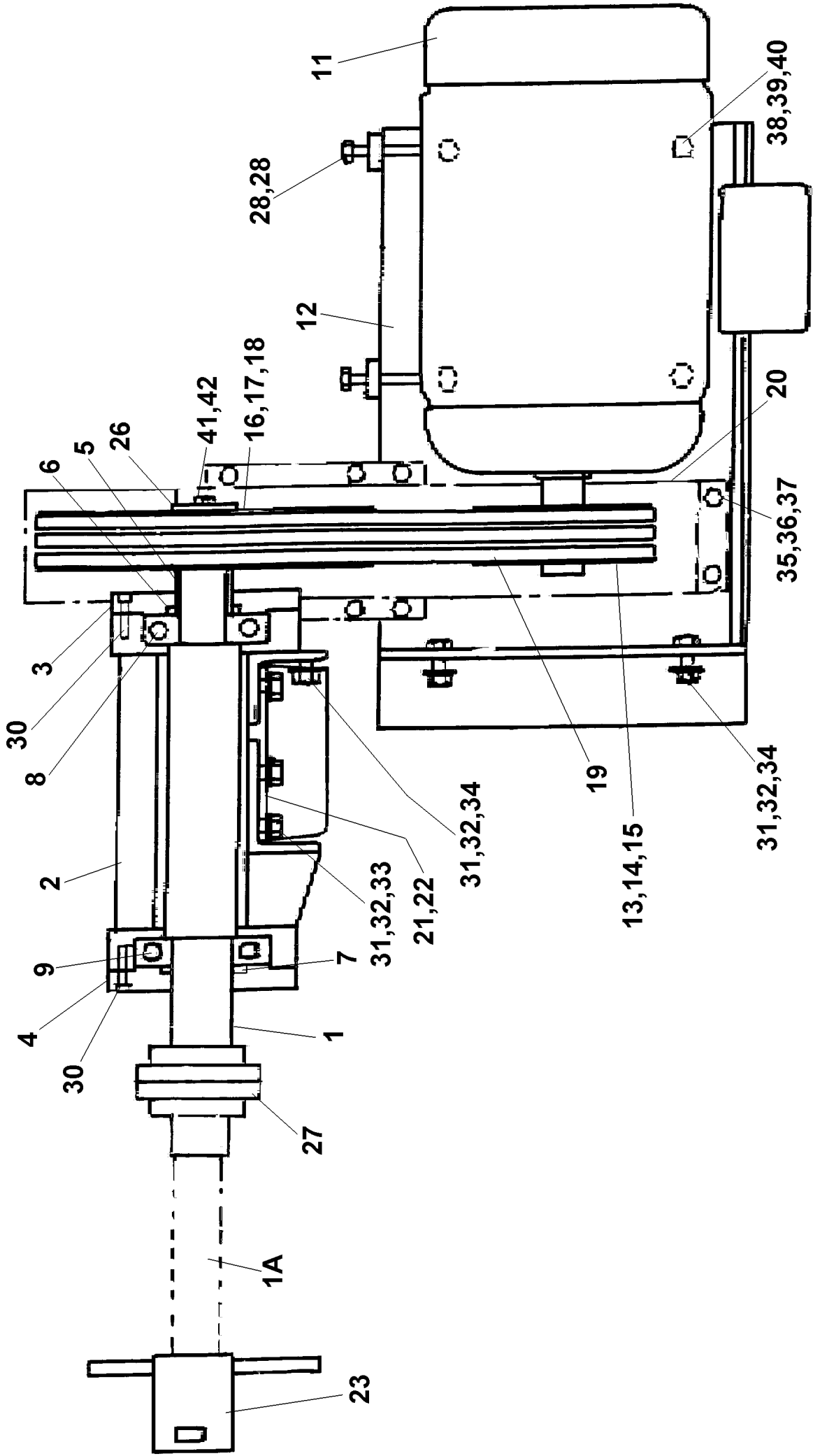
1	CR85100770	Decal RP3000	3
2	V2003037	Plate Serial Number	1
3	101S05D	Rivet Pop	4
4	V2003039	Decal 'WINGET' Medium	3
5	V2003665	Decal Sling Point	4
6	V2003598	Decal British Made	3
7	V2004307	Decal Electrical Hazard	5
8	V2004223	Decal 'CE' Mark, EC Machines Only	1
9	V2004229	Decal Operators Handbook	3
10	V2004744	Decal Eye Protection	3
11	504694600	Decal Safety	3
12	513331600	Decal Danger	8
13	CR85100771	Decal Batch Loader Guarding	2
14	CR85100772	Decal Pan Guarding	2

**OPERATING  
AND  
MAINTENANCE MANUAL**

**SECTION 5**

**ANCILLARY EQUIPMENT  
SPARE PARTS**

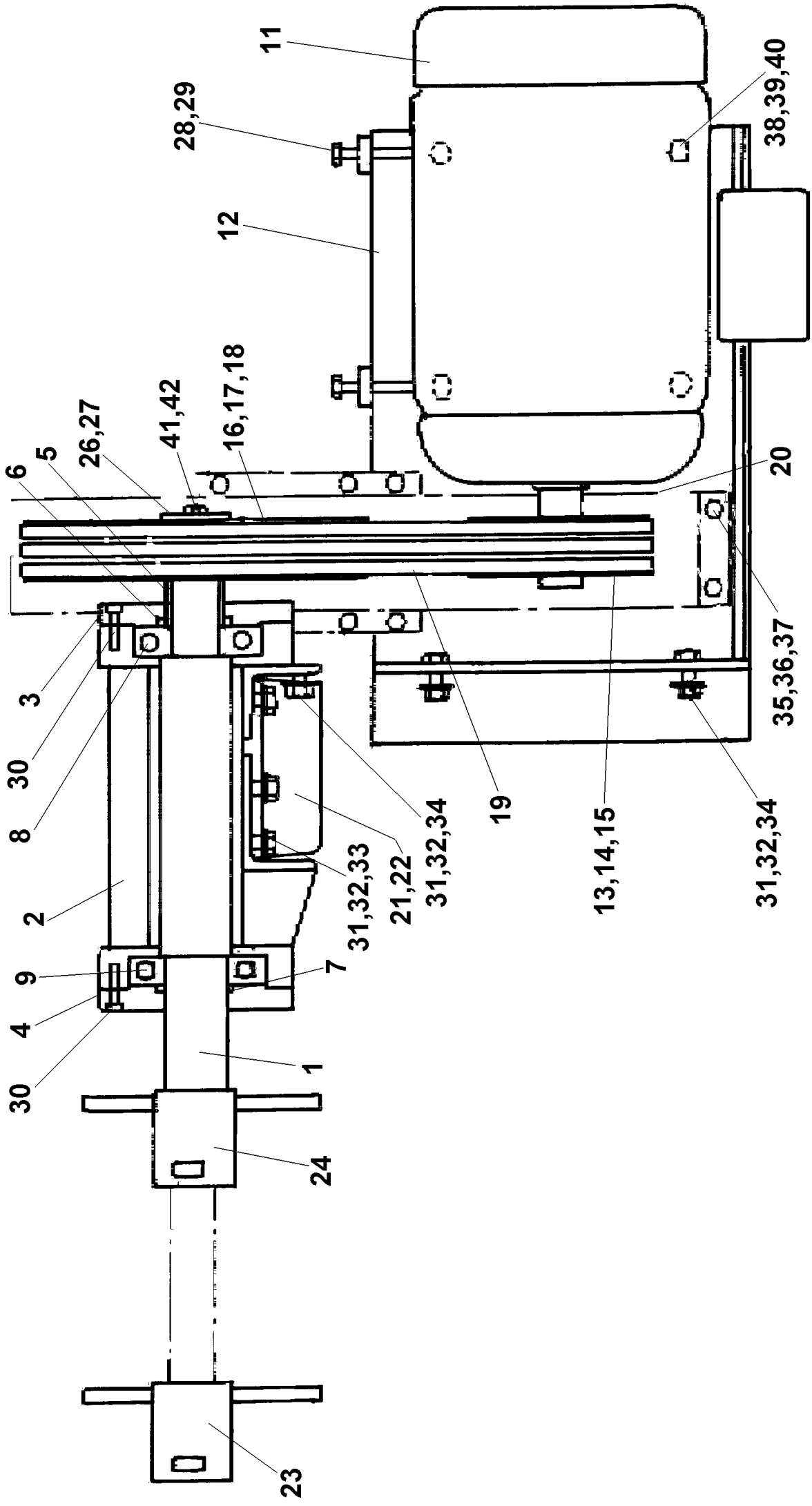
# RP3000 SPLIT SHAFT WHIRLER



# RP3000 SPLIT SHAFT WHIRLER

1	CR529152	Whirler Shaft, Top	1
1A	CR529153	Whirler Shaft, Lower	1
2	CR261471	Bearing Housing	1
3	CR532110	Bearing Cap, Upper	1
4	CR532111	Bearing Cap, Lower	1
5	CR532109	Spacer	1
6	CR569014	Lipseal, Upper	1
7	CR569016	Lipseal, Lower	1
8	CR150538	Bearing, Upper	1
9	CR150701	Bearing, Lower	1
10	131S01	Nipple, Grease 1/8" B.S.P.	2
11	CR220102	Motor, Electric 15kw 1500 rpm	1
12	CR261293	Motor Mounting Plate	1
13	CR340552	Pulley 'V' Belt, Motor	1
14	CR340546	Taper Lock Bush, 42mm Diameter Bore	1
15	CR329000	Key, Parallel, 12 x 8 x 60mm	1
16	CR340550	Pulley 'V' Belt, Whirler	1
17	CR340551	Taper Lock Bush, 60mm Diameter Bore	1
18	CR329001	Key, Parallel, 18 x 11 x 60mm	1
19	CR160060	V' Belts	3
20	CR091015	Guard Belt	1
21	CR532121	Support Plate	1
22	CR532122	Support Plate, Gusset	1
23	CR219006	Whirler Blade Cast	4
23	CR219006SS	Whirler Blade, Stainless Steel	4
23	CR219006SSA	Whirler Blade, Stainless Steel, Angled	4
23	CR219006H	Whirler Blade, Tungsten Carbide Coated	4
23	CR219006AH	Whirler Blade, Tungsten Carbide Coated Angled	4
23	CR219017	Whirler Blade, Two Blades Tungsten Carbide Coated	A/R
23B	11S05G	Screw Set M12 x 45, Blade Retaining	4
23C	7S05	Nut M12	4
25	CR531786	Bar Tie	1
26	CR539005	Washer, Retaining	1
27	CR239026	Coupling, Split Shaft (RM30)	1
27A	CR239035	Taper Lock Bush, 65mm Dia Bore (3020)	2
28	11S05M	Screw Set, M12 x 70	2
29	7S05	Nut M12	2
30	68S05G	Screw Cap Head, M10 x 40	6
31	*8S06	Bolt M16 x	12
32	59S11	Nut Nyloc M16	12
33	267S09	Washer Flat M16	4
34	105S07	Washer Tapered M16	8
35	8S04C	Bolt, M10 x 35	8
36	7S04	Nut	8
37	267S06	Washer Flat	8
38	11S05F	Screw Set, M12 x 40	4
39	59S04	Nut Nyloc M12	4
40	267S07	Washer Flat M12	4
41	11S05F	Screw Set, M12 x 40	1
42	17S05	Washer Spring M12	1

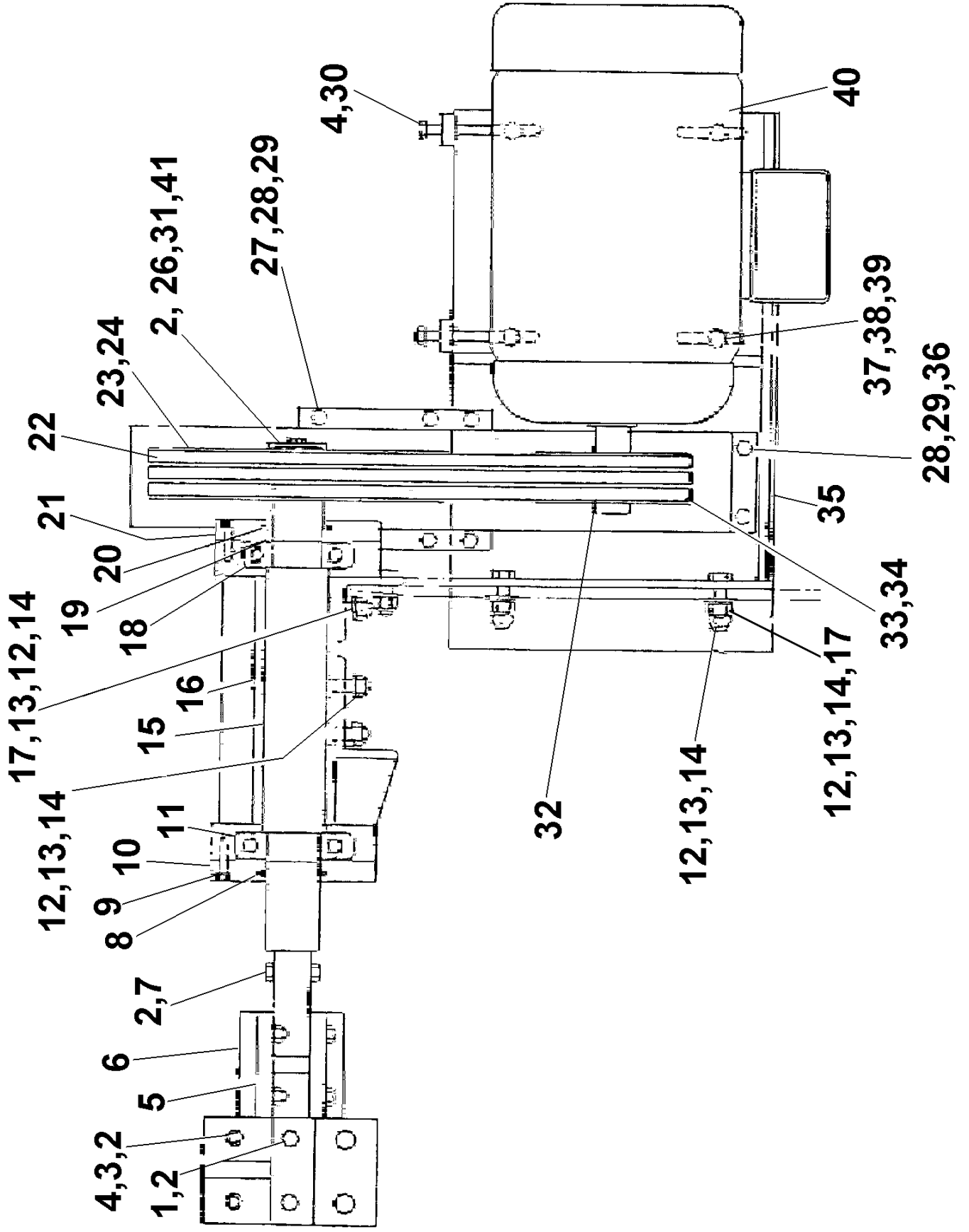
# RP3000 EARLY FIXED SHAFT WHIRLER



# RP3000 EARLY FIXED SHAFT WHIRLER

1	CR529000	Whirler Shaft	1
2	CR261471	Bearing Housing	1
3	CR532110	Bearing Cap, Upper	1
4	CR532111	Bearing Cap, Lower	1
5	CR532109	Spacer	1
6	CR569014	Lipseal, Upper	1
7	CR569016	Lipseal, Lower	1
8	CR150538	Bearing, Upper	1
9	CR150701	Bearing, Lower	1
10	131S01	Nipple, Grease 1/8" B.S.P.	2
11	CR220102	Motor, Electric 15kw 1500 rpm	1
12	CR261293	Motor Mounting Plate	1
13	CR340552	Pulley 'V' Belt, Motor	1
14	CR340546	Taper Lock Bush, 42mm Diameter Bore	1
15	CR329000	Key, Parallel, 12 x 8 x 60mm	1
16	CR340550	Pulley 'V' Belt, Whirler	1
17	CR340551	Taper Lock Bush, 60mm Diameter Bore	1
18	CR329001	Key, Parallel, 18 x 11 x 60mm	1
19	CR160060	V' Belts	3
20	CR549136	Guard Belt	1
21	CR532121	Support Plate	1
22	CR532122	Support Plate, Gusset	1
23	CR219006	Whirler Blade Cast	4
23	CR219006SS	Whirler Blade, Stainless Steel	4
23	CR219006SSA	Whirler Blade, Stainless Steel, Angled	4
23	CR219006H	Whirler Blade, Tungsten Carbide Coated	4
23	CR219006AH	Whirler Blade, Tungsten Carbide Coated Angled	4
23	CR219017	Whirler Blade, Two Blades, Tungsten Carbide Coated	A/R
23B	11S05G	Screw Set M12 x 45, Blade Retaining	4
23C	7S05	Nut M12	4
24	CR219007	Whirler Blade, Round, Cast	1
24A	CR219007SS	Whirler Blade, Round, Stainless Steel	1
24B	11S05G	Screw Set M12, Blade Retaining	4
24C	7S05	Nut M12	4
25	CR531786	Bar Tie	1
26	CR539005	Washer, Retaining	1
27	CR539152	Bracket Sensing	2
28	11S05M	Screw Set, M12 x 70	2
29	7S05	Nut M12	2
30	68S05G	Screw Cap Head, M10 x 40	6
31	*8S06	Bolt M16 x	12
32	59S11	Nut Nyloc M16	12
33	267S09	Washer Flat M16	4
34	105S07	Washer Tapered M16	8
35	8S04C	Bolt M10 x 35	8
36	7S04	Nut M10	8
37	267S06	Washer Flat M10	8
38	11S05F	Screw Set, M12 x 40	4
39	59S04	Nut Nyloc M12	4
40	267S07	Washer Flat M12	4
41	11S05F	Screw Set, M12 x 40	1
42	17S05	Washer Spring M12	1

RP3000 FIXED SHAFT WHIRLER C/W TYPE 'A' BLADES



# RP3000 FIXED SHAFT WHIRLER C/W TYPE 'A'BLADES

1	8S04R	Bolt, Blade Retaining M10 x 120	8
2	17S05	Washer Spring M10	8
3	52S05K	Bolt C/Sunk , Blade Retaining M12 x 50	8
4	7S05	Nut M12	10
5	CR261472	Blade Whirler	4
6	CR531718	Whirler Blade Wear Plate	4
7	11S05B	Screw Set M12 x 20	2
8	CR560158	Felt Seal (Blade End)	1
9	68S05G	Screw Skt Cap M10 x 40	6
10	CR532111	Bearing Cap (Blade End)	1
11	CR150701	Bearing Roller (Blade End)	1
12	8S06E	Bolt M16 x 45	12
13	59S11	Nut Nyloc M16	12
14	267S09	Washer Flat M16	4
15	CR529000	Shaft Whirler	1
16	CR261471	Bearing Housing	1
17	105S07	Washer Tapered M16	8
18	CR150358	Bearing Ball	1
19	CR532109	Spacer	1
20	CR560157	Felt Seal (Motor End)	1
21	CR532110	Bearing Cap (Motor End)	1
22	CR160060	V' Belts	3
23	CR340550	Vee Pulley (Whirler End)	1
24	CR340551	Bush Taperlock 60mm Bore x 18	1
25	CR091015	Guard Belt	1
26	CR329001	Key Parallel, 18 x 11 x 60	1
27	11S04B	Screw Set M10 x 20	1
28	7S04	Nut M10	4
29	17S05	Washer Spring M10	4
30	11S05P	Screw Set, M12 x 80	2
31	CR539005	Retaining Washer	1
32	CR329000	Parallel Key 12 x 8 x 60	1
33	CR340552	Vee Pulley (Motor End)	1
34	CR340546	Taper Lock Bush, 42mm Dia Bore (2517)	1
35	CR261293	Motor Support Plate	1
36	11S04C	Screw Set M10 x 25	4
37	11S05G	Screw Set M12 x 45	4
38	59S04	Nut Nyloc M12	4
39	267S07	Washer Flat M12	4
40	CR220102	Motor Electric 1500rpm, 15kw	1
41	11S05F	Screw Set, M12 x 40	1



## **CROKER LOADER**

### **WIRE ROPE RENEWAL PROCEDURE**

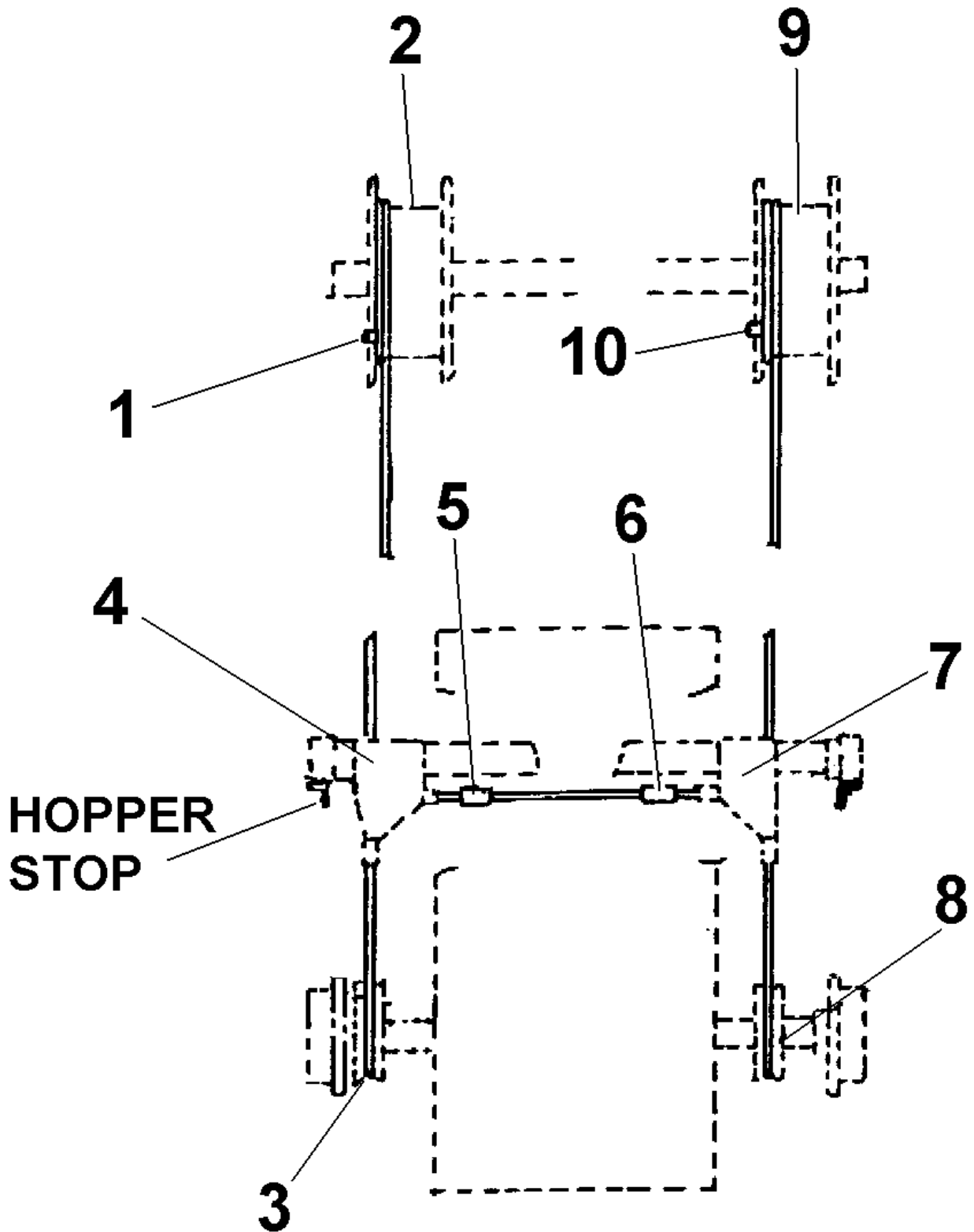
1. Place Loader Hopper onto the hopper stops. Loosen nut from rope anchor bolt, item 1, on one rope drum only, item 2.
2. Remove end of old wire rope from anchor bolt.
3. Fit end of new wire rope to anchor bolt and tighten nut.
4. Lay other end of new wire rope end to end with old wire rope removed in part 2. Bind both ends together with sticky tape (electrical or masking tape).
5. Carefully pull on the old wire rope to pull the new wire down to the bottom of the loader hopper and around the rear axle rope pulley, item 3, and up through the front axle rope guide, item 4.
6. Remove front axle rope retainer blocks, items 5 and 6, and slide onto the new rope.
7. Continue to pull the wire and thread through the second rope guide, item 7, and down around the second rope pulley, item 8, and up to the second rope drum, item 9.
8. Remove old wire from second anchor bolt, item 10, on second rope drum, item 9, and remove tape from ends of old and new wire.
9. Fit second end of new wire to second anchor bolt, item 10, on second rope drum, item 9.
10. Tighten anchor bolt nuts on both rope drums.
11. The new wire should now run over the front edges of both rope drums and down to front edges of both the lower axle rope pulleys, items 3 and 8, and up the back of the rope pulleys to the rope guides, items 4 and 7, with both rope retainer blocks, items 5 and 6, located on the section of wire rope between the two rope guides at the back of the hopper.
12. Start and stop the loader by hand, using the start and stop buttons, and take out all the slack of the wire rope in the raise direction (see important note on page 30), ensuring that the wire slots into both axle rope pulleys, item 2 and 9, and that the wire has wound evenly onto both rope drums.

Make sure the loader hopper is level and sitting on weigher track stops before positioning rope retainer blocks, items 5 and 6, approximately 2 inches (50 mm) in board of rope guides, item 4 and 7, each side and make fast retainer blocks onto wire.

13. Check that both limit switches are working correctly.
14. Make sure loader hopper clears both sides of rope drums at the top of its operation.

**NOTE:** Hopper reaches the end of its travel between the rope drums.

# RP3000 WIRE ROPE RENEWAL PROCEDURE



# **WIRE ROPES**

## **SAFETY NOTES**

### **ALWAYS**

Store and handle the wire rope correctly, wear protective gloves and eye protection.

Check the rope test certificate is still in date especially if the rope has been in storage also check that the certificate is applicable to the rope.

Remove the rope from any reel or coil correctly and without kinking.

Only use correct end terminations and rope anchors.

Ensure that the rope is correctly located and seated on the rope drum.

Ensure that the rope is correct for the application and only use good quality ropes from reputable suppliers.

Inspect the wire rope for damage, wear, corrosion or abuse at the start of each shift.

Keep the wire rope clean and maintained in accordance with the manufacturers instructions.

### **NEVER**

Try to shorten any wire rope by knotting.

Bend a wire rope over small radii.

Subject wire ropes to shock loadings.

Allow wire ropes to run over sharp edges or abrasive surfaces etc.

Subject wire ropes to extremes of temperature.

Use wire ropes with obvious signs of mechanical, corrosive or heat damage.

Use wire ropes that are worn, frayed, split or corroded.

## **STORAGE**

Store wire ropes in a clean well ventilated, dry location preferably undercover and protected from extremes of temperatures.

If site conditions are such that undercover storage is not possible cover the rope with a waterproof cover and support clear of the ground.

Rotate stored wire ropes, reels or coils regularly to prevent migration of the rope lubricant, particular in warm environments.

Be aware that subjecting wire ropes to extremes of temperature as can affect the in service performance, high storage temperatures can reduce the effective strength of the rope.

## **SAFETY**

Running wire ropes are hazardous and should be guarded or personnel should be prevented access to them whilst in motion.

Wire ropes develop broken strands during their working life which present a hazard to maintenance personnel, always wear suitable hand and eye protection when handling ropes.

Take care when unfastening a coiled rope as the inherent springiness when released may cause it to strike attendant personnel or other equipment causing damage or injury.

Take care when removing worn, damaged or failed ropes from equipment as they may be tightly coiled, grossly distorted and still retain their springiness.

## **IN SERVICE INSPECTION AND MAINTENANCE**

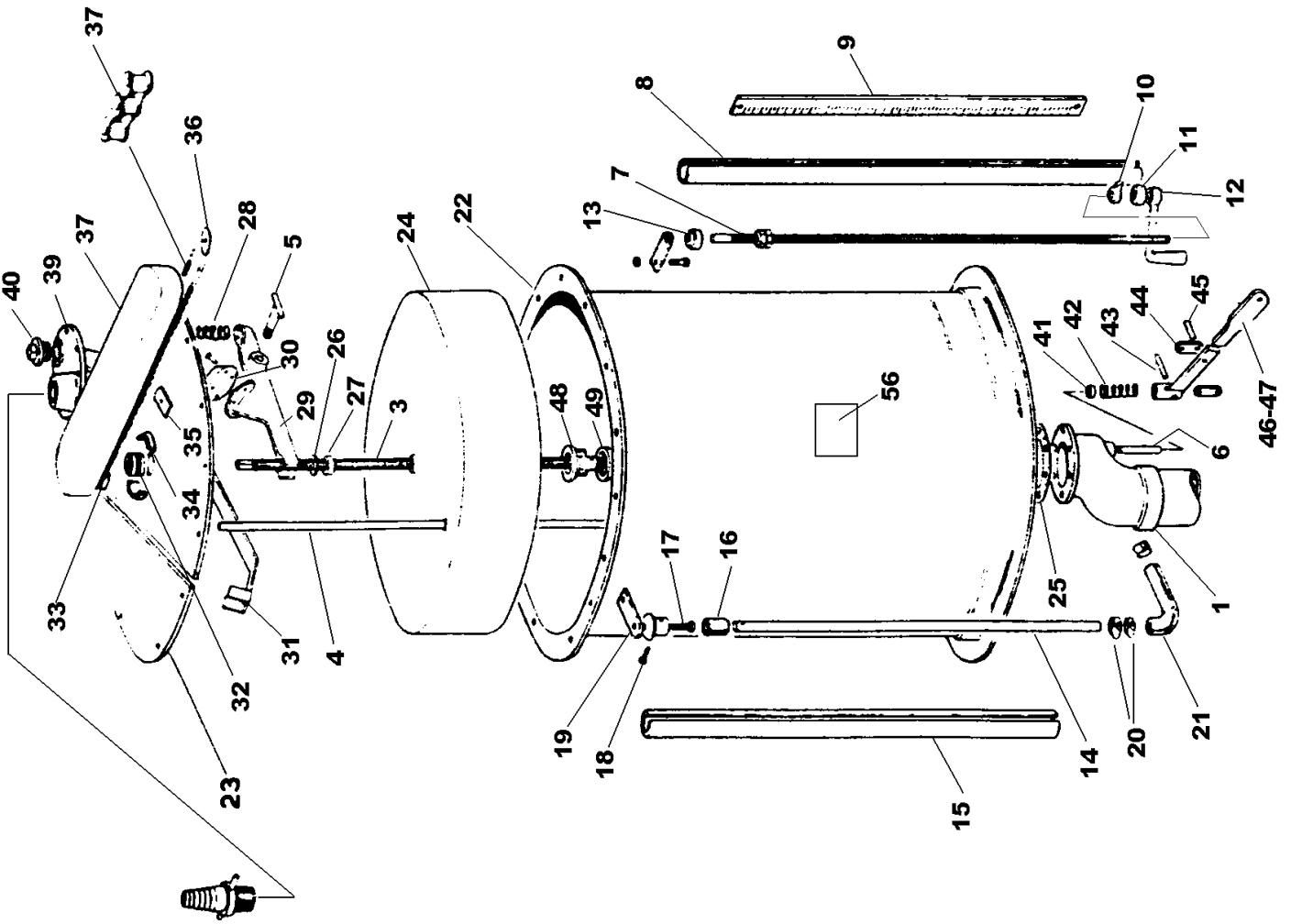
Wire ropes used for lifting operations should be regularly inspected by a competent person and inspection records kept upto date.

Inspections should not only concentrate on the rope but also extend to the condition of sheaves, drums, guides etc.

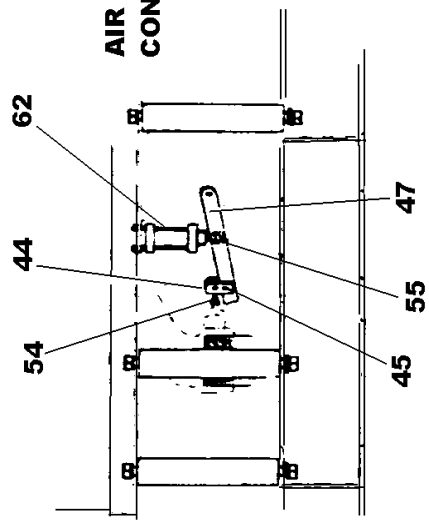
Decisions on whether a wire rope is suitable for continued service should only be made by a competent person.

**IF IN DOUBT REPLACE THE ROPE.**

# 180 LITRE WATER TANK



## AIR CONTROLS



# WATER TANK 180 LITRES

1	CR210153	OUTLET PIPE	1
3	CR520205	FLOAT CENTRE SPINDLE	1
4	CR520206	FLOAT GUIDE ROD	1
5	CR520207	FULCRUM PIN	1
6	CR520202	OUTLET VALVE SPINDLE	1
7	CR520203	INDICATOR ADJUSTING ROD	1
8	CR530545	INDICATOR GUIDE TUBE	1
9	CR479000	INDICATOR SCALE	1
*	CR530546	INDICATOR SCALE STIFFENER	1
*	CR540502	INDICATOR SCALE SUPPORT	1
10	CR210150	INDICATOR	1
11	CR660015	GUIDE TUBE BUSH	1
12	CR210149	INDICATOR ADJUSTING ROD HANDLE	1
13	CR630304	COLLAR	1
14	CR450026	GAUGE GLASS	1
15	CR540498	GAUGE GLASS GUARD	1
16	CR510475	GAUGE GLASS COVER RUBBER	1
17	CR260112	GAUGE GLASS COVER	1
18	CR240269	GAUGE GLASS GUARD BOLT	1
19	CR540141	GAUGE GLASS COVER SUPPORT	1
20	CR243005	CONNECTING CLIPS	1
21	CR510329	GAUGE GLASS CONNECTING PIPE	1
22	CR450003	TANK BODY	1
23	CR450037	TANK BODY LID	1
24	CR450038	FLOAT	1
25	CR560118	OUTLET PIPE JOINT	1
26	CR490025	WASHERS	1
27	CR630302	LOCATING COLLARS	1
28	CR330058	INLET VALVE LEVER SPRING	1
29	CR210151	INLET VALVE LEVER	1
30	CR210152	INLET VALVE	1
*	CR570015	INLET VALVE RUBBER	1
31	CR260445	LOCKING PLATE	1
32	CR210029	CENTRE BEARING	1
33	CR200009	CENTRE BEARING CHAIN PINION	1
34	CR210022	CENTRE BEARING HOUSING	1
35	CR540147	CHAIN GUIDE	1
36	CR200031	ADJUSTING ROD CHAIN PINION	1
37	CR200058	CHAIN	1
38	CR540497	CHAIN GUARD	1
39	CR210148	INLET VALVE BODY	1
40	CR450039	INLET VALVE LEVER SPRING ADJUSTER	1
41	CR560019	OUTLET VALVE SPINDLE SEAL	1
*	CR490031	OUTLET VALVE SPINDLE WASHER	1
42	CR330028	OUTLET VALVE SPRING	1
43	CR520058	OUTLET VALVE SPINDLE PIN	1
44	CR530118	LINK	1
45	CR520049	LINK PIN	1
46	CR530095	OUTLET VALVE SPINDLE END	1
47	CR450006	OPERATING HANDLE	1
48	CR210154	OUTLET VALVE	1
49	CR570016	OUTLET VALVE RUBBER	1



# WATER TANK 180 LITRES

54	CR520056	FULCRUM BOLT	1
55	CR530118	OPERATING LEVER PIVOT (AIR CONTROL)	1
56	CR629000	SERIAL NO PLATE	1
62	CR110306	AIR CYLINDER	1

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**OPERATING  
AND  
MAINTENANCE MANUAL**

**SECTION 6**

**ELECTRICAL SYSTEM**

## **ELECTRICAL INFORMATION**

1. The mixing pan and mixing star motors should be interconnected in the control to operate at the same time, as it is important that both are working before a mix is added. Ensure that suitable overloads are fitted. The mixing pan and mixing star rotate anti-clockwise when looking from the top.

**NOTE: With motors 5.5 kw and above, use Star Delta Starters. Below this, use Direct on Line Starters.**

2. When a loader is attached a direct on line reversing starter is required complete with suitable overloads. The loader winch rotates anti-clockwise looking from the rope drum end and when the raise button is pressed.

The upper and lower limit switches are positioned to break the electrical supply to the loader motor when the loading hopper is in the required position at the top and bottom of the runway.

3. The door control solenoid has to be energised when the mixer door is required in the open position.

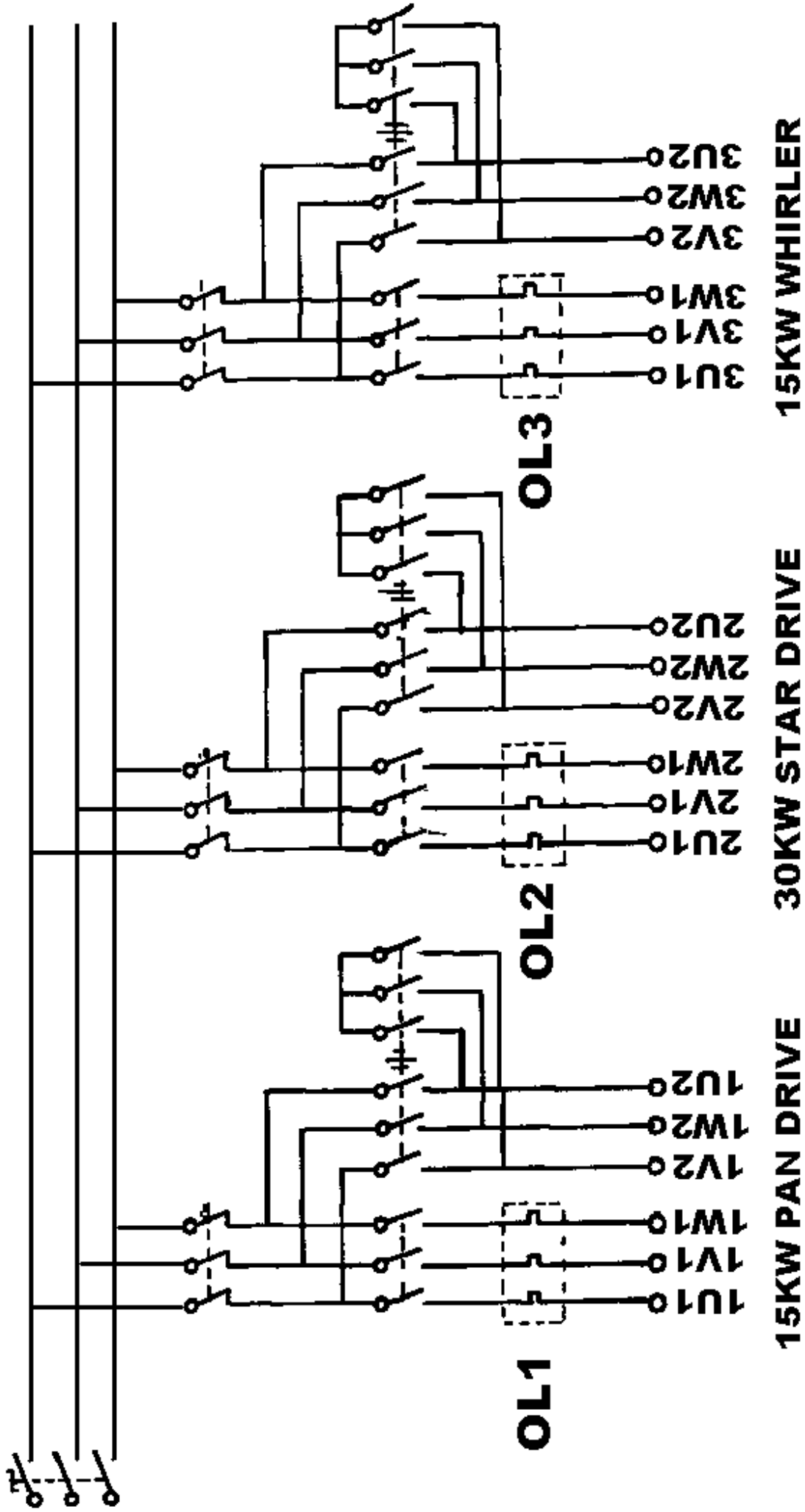
It is advisable to mount the starters away from the machine on supports free from vibration.

4. **IMPORTANT NOTICE:** All work on plant electrics including control panel circuits to be under taken by a suitably qualified and competent electrical person.

### **NOTE**

Electrical cables particularly those with copper conductors suffer from a condition known as 'relaxation' which may cause wiring to work loose over a period of time, it is recommended that the tightness of wiring connections and terminals are checked following the first month in service.

RP3000 TYPICAL LAYOUT OF STARTERS

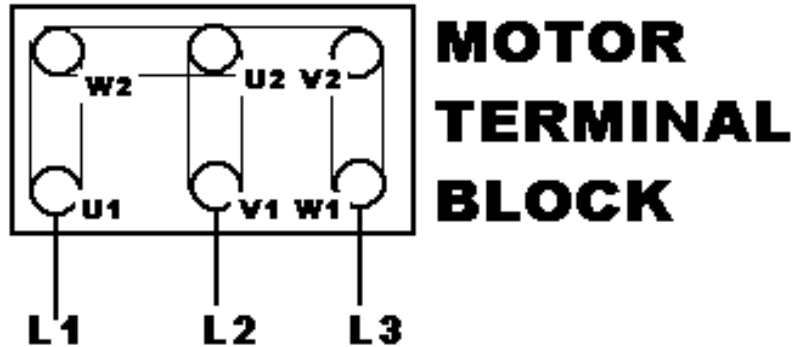


# RP3000 FLENDER MOTOR WIRING DIAGRAM

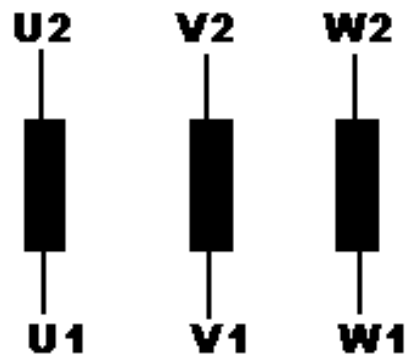
MOTORS UPTO & INCLUDING 4.0Kw

SEE SEPARATE PAGE FOR MOTORS

5.5Kw AND ABOVE



**TO REVERSE DIRECTION OF ROTATION CHANGE OVER ANY TWO SUPPLY LEADS**



<u>SUPPLY</u>	<u>METHOD OF START</u>	<u>CONNECTION STAR</u>	<u>LINK</u>
415/3/50	DIRECT ON LINE		W2-U1
380/3/50			U2-V1
			V2-W1

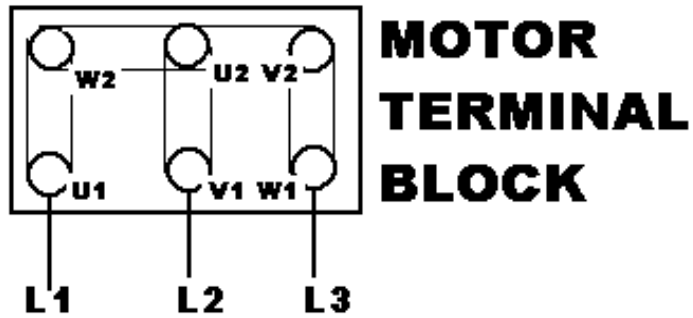
UPTO & INC 4.0Kw

# RP3000 FLENDER MOTOR WIRING DIAGRAM

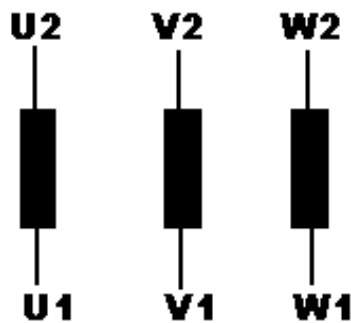
## MOTORS 5.5Kw AND ABOVE ONLY

SEE SEPARATE PAGE FOR MOTORS

4.0Kw & BELOW



**TO REVERSE DIRECTION  
OF ROTATION CHANGE  
OVER ANY TWO SUPPLY  
LEADS**



**STAR DELTA STARTING  
NO LINKING REQUIRED**

<u>SUPPLY</u>	<u>METHOD OF START</u>	<u>CONNECTION DELTA</u>	<u>LINK</u>
415/3/50 380/3/50	DIRECT ON LINE		W2-U1 U2-V1 V2-W1

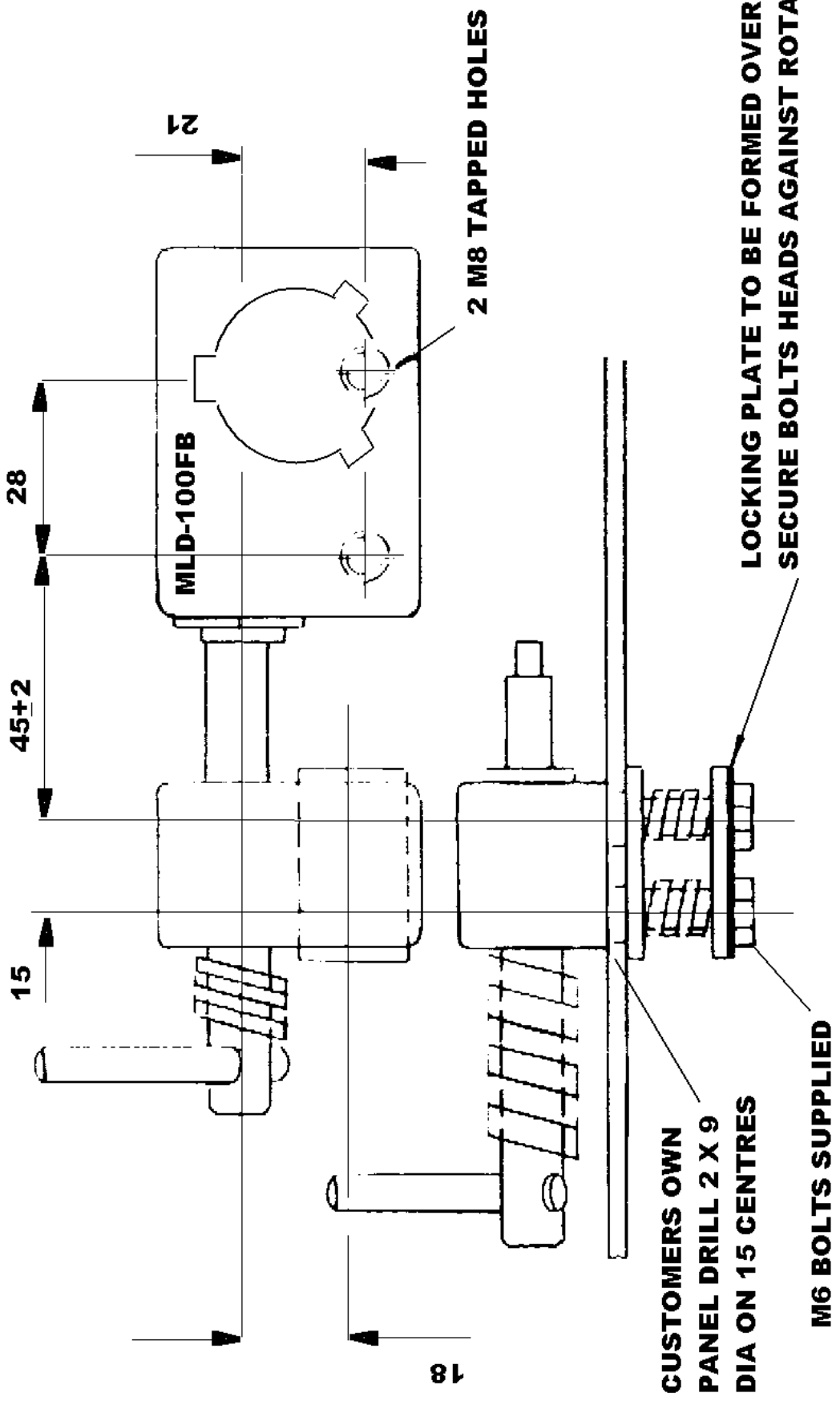
5.5Kw & ABOVE



# INTERLOCK DOOR MECHANISM

NOTE SUPPLY WITH FOLLOWING ITEMS

1. KEY STANDARD MLK100
2. DUST CAP MLM100



**CUSTOMERS OWN  
PANEL DRILL 2 X 9  
DIA ON 15 CENTRES**

**M6 BOLTS SUPPLIED**

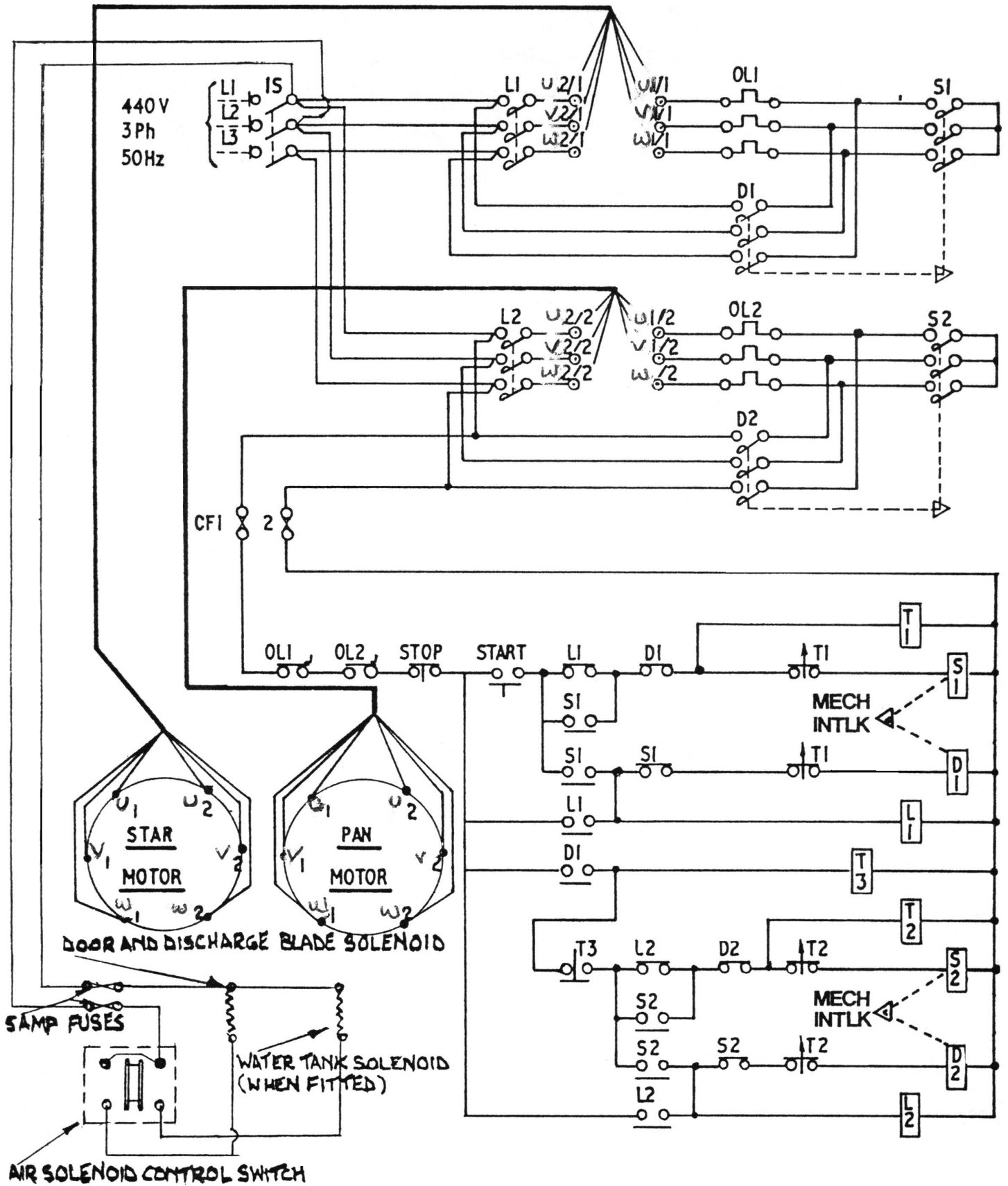
**LOCKING PLATE TO BE FORMED OVER TO  
SECURE BOLTS HEADS AGAINST ROTATION**

# MISTURA DOOR INTERLOCK MECHANISM

1	CR719072	INTERLOCK DOOR MLD100FB	A/R
2	CR229093	KEY MLK100A CODE A	A/R
2A	CR229094	KEY MLK100B CODE B	A/R
2B	CR229124	KEY MLK100C CODE C	A/R
3	CR229125	CAP DUST MLM100	A/R

WHEN ORDERING REPLACEMENT KEYS QUOTE CODE OFF INTERLOCK MECHANISM

# RP3000 TYPICAL WIRING DIAGRAM



TB	U1/2	V1/2	W1/2	U2/2	V2/2	W2/2	U1/1	V1/1	W1/1	U2/1	V2/1	W2/1
----	------	------	------	------	------	------	------	------	------	------	------	------

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**OPERATING  
AND  
MAINTENANCE MANUAL**

**SECTION 7**

**PNEUMATIC SYSTEM**

## SHUTDOWN PROCEDURE – PNEUMATICS

(This procedure to be read in conjunction with electrical procedure – see section six).

### **We Recommend**

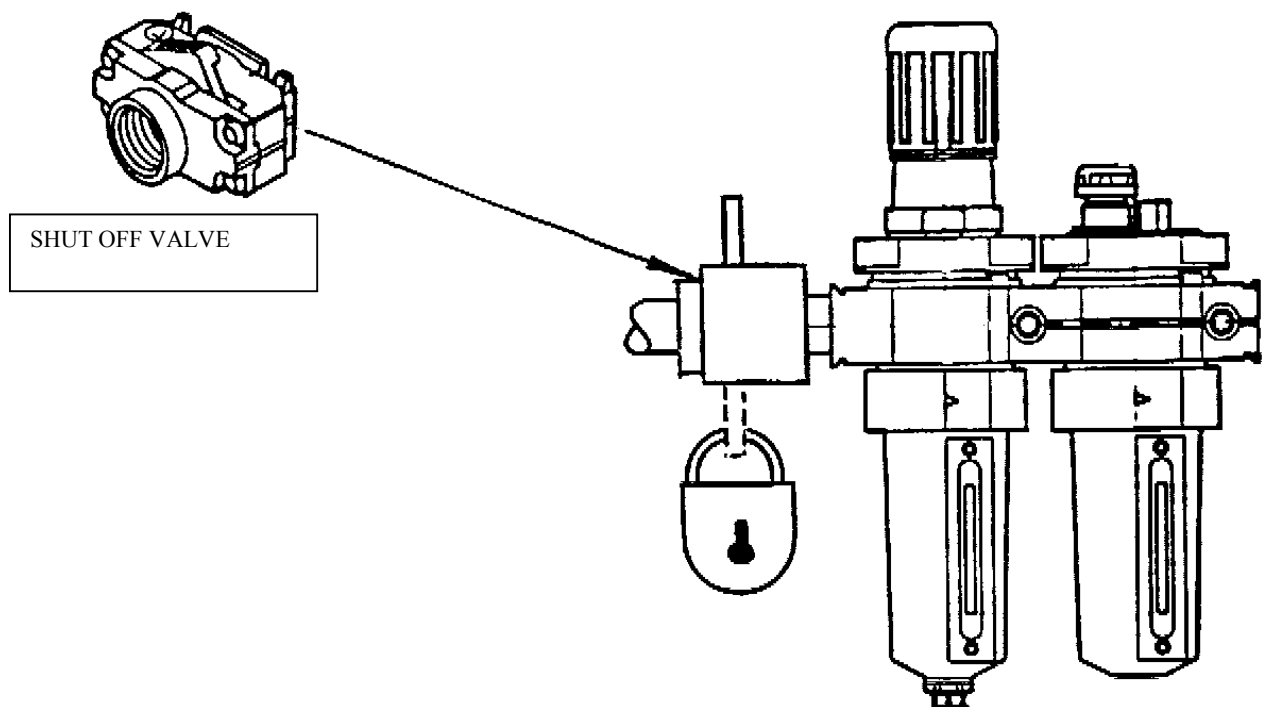
A lockable dump valve be fitted in the feed line to our mixing equipment (see drawing below).

Prior to any maintenance, the mixing equipment must be isolated using the above padlockable shut off valve. When put to the dump position, air will be allowed to vent to atmosphere removing the potential stored energy hazard. With the system in this condition, the mixer door will open and discharge blade will lower.

### **Important**

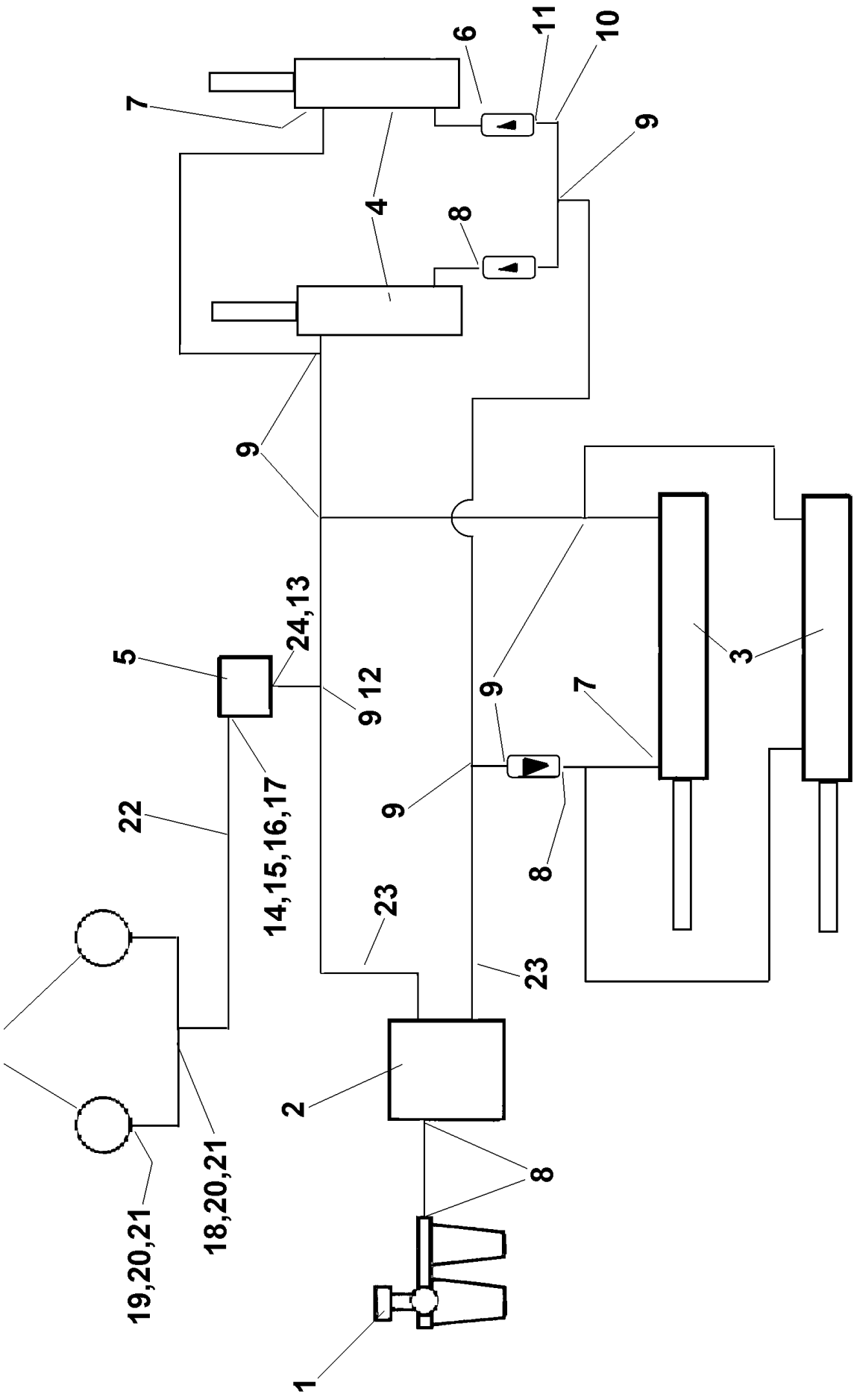
Prior to entry into mixing pan, the air supply must be exhausted and isolated as above. Check door is fully open and the discharge blade rests upon pan base before commencing maintenance/cleaning. Also check that the pressure gauge reads zero.

Should blade or door remain up or partially closed, it is imperative that the cause is investigated and dealt with prior to entering mixing pan. See maintenance section.



# RP3000 PNEUMATIC LAYOUT

DISCHARGE BLADE FINGER  
BRACKETS





# RP3000 PNEUMATIC LAYOUT

1	CR110005	Air Service Unit	1
---	----------	------------------	---

## AVAILABLE SPARES FOR AIR SERVICE UNIT ITEMISED BELOW:

1A	CR119373	Regulator Bowl (Not Illustrated)	1
1B	CR119374	Lubricator Bowl (Not Illustrated)	1
1C	CR119375	Filter Repair Kit (Not Illustrated)	1
1D	CR119376	Filter Element (Not Illustrated)	1
1E	CR119377	Lub Repair Kit (Not Illustrated)	1
1F	CR119378	Pressure Guage (Not Illustrated)	1
1G	CR119379	Bracket Mounting (Not Illustrated)	1
1H	CR119380	Knob Regulator (Not Illustrated)	1
2	CR119124	Control Box	1
3	CR110312	Air Cylinder, Standard	2
3	CR119213	Air Cylinder, Magnetic, Optional	2
3A	CR110327	Seal Kit for Item 3 Standard Cylinder	2
4	CR110313	Air Cylinder	2
4A	CR110325	Seal Kit for Item 4	2
5	CR119159	Oiler	1
6	CR110004	Air Flow Regulator	3
7	CR119120	Push In Elbow	8
8	CR119123	Push In Straight	7
9	CR119135	Push In Tee Connector	7
10	CR119215	Stemmed Elbow	2
11	CR119216	Stem Adaptor	2
12	CR119208	Reducer	1
13	CR119171	Push In Straight	1
14	CR119199	Banjo Fitting	1
15	CR119198	Reducer	1
16	CR119193	Meter Valve	1
17	CR119200	Adaptor	1
18	CR289008	Tee	1
19	CR510116	Adaptor	2
20	CR289004	Nut	6
21	CR289007	Olive	6
22	CR510415	Tube	A/R
23	CR119119	Air Line 12mm	A/R

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**OPERATING**  
**AND**  
**MAINTENANCE MANUAL**

**SECTION 8**

**MISCELLANEOUS**

## **MISCELLANEOUS**

### 8..1 NOISE DETAILS

Measured in accordance with Directive 79/113EEC at four points around the machine at 1 metre radius and at a height of 1 metre the noise did not exceed 85LPA

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**OPERATING  
AND  
MAINTENANCE MANUAL**

**SECTION 9**

**ELECTRONIC LOADCELL &  
INDICATOR/READOUT BOX**

# SPECIFICATIONS

Power Requirements:	115 VAC 60 Hz (optional 230 VAC 50/60 Hz) powering a 12 VDC 300 mA wall plug-in UL/CSA listed power supply for the Desktop enclosure. 115 VAC 60 Hz (optional 230 VAC 50/60 Hz) at 0.1A for the NEMA 4X enclosure.
Battery Operation:	12 VDC input jack for operation from an external battery 12 volt, 1.6 Ah for 8 hours operation
Enclosure Size:	Desktop: 8.65" W x 6.5" H x 3" D NEMA 4X: 9.8" W x 7.3" H x 3.2" D
Operating Temperature:	14° to 104° F or -10° to +40° C
Display:	5-digit, 0.6" high, 7-segment red LED
Sensitivity:	0.7uV/graduation (0-3.3 mV/V), Class III
Signal Input Range:	1.0mV min. to 50 mV max.
Transducer Excitation:	8.0 VDC
Number of Load Cells:	8 each, 350 OHM minimum load cells
Load Cell Cable Length:	150' max.; 30' max w/o sense lines
Resolution:	1 part in 20,000 displayed - 1 part in 80,000 internal
Capacities:	1,000 to 10,000 divisions commercial Up to 99,999 divisions noncommercial
Graduation Value:	1, 2 or 5 x 1, 0.1, 0.01 or 0.001
Sample Rate:	1 to 12 samples per second selectable
Auto Zero Range:	0.5 or 1 through 9 graduations
Weighing Units:	Pounds, kilograms, ounces, grams or pounds/kilograms
Keyboard:	Membrane type with 21 keys

## STANDARD FEATURES:

- Keyboard or Push Button Tare
- Gross, Tare, Net Conversion
- Metric Conversion
- Bi-directional Serial Interface
- Dual Preset Weight Comparator or Checkweigher with Outputs
- Auto Shut-Off Feature
- Selectable Sleep Mode
- Selectable Filtering
- Selectable Automatic Power On

## OPTIONAL FEATURES:

- NEMA 4X Enclosure
- External Relay Box for Preset Weight Comparators or Checkweigher (desktop only)
- Internal Relay Board for Preset Weight Comparators or Checkweigher (NEMA 4X only)

# INSTALLATION

The Model 708 Weight Indicating Instrument is available in either a stainless steel desktop enclosure or a stainless steel NEMA 4X wall-mount enclosure. Determine which enclosure version you have and refer to the appropriate section for installation and interconnection.

## AUTO-ON

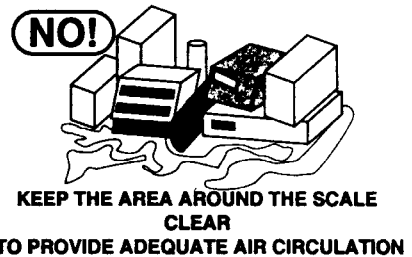
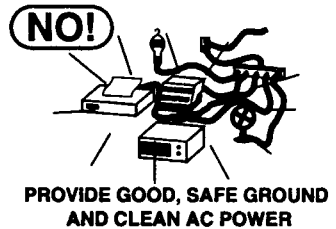
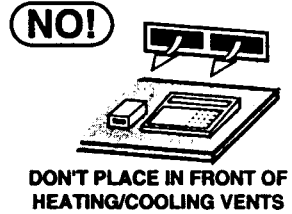
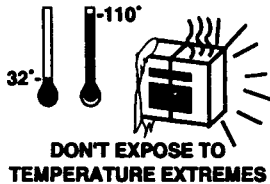
The AUTO-ON jumper J1, when connected, will cause the indicator to power on automatically whenever power is applied to the power input connector. If power is lost momentarily and then reapplied, the indicator will turn on without pressing the ON key. See Figure No. 9 for location.

## INTERNATIONAL/ DOMESTIC JUMPER (J14Intl)

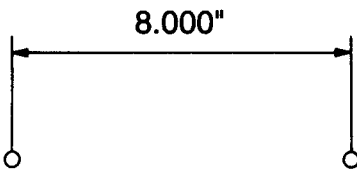
Install the International/Domestic jumper, J14, to comply with OIML requirements (see Figure No. 9). With J14 installed, the 708 will perform the following functions:

1. A "lamp test" will be performed on power-up.
2. The printout of keyboard tare will be designated as "PT."

Please note the installation precautions.



## DESKTOP ENCLOSURE



The 708 desktop enclosure may be mounted on a desktop or other smooth, flat, horizontal surface or it may be mounted on a wall. Refer to Figure No. 1 for a layout of the wall-mounting bolts. Regardless of the manner in which the 708 is installed, the location chosen should be free of temperature extremes and water. It should be in a location where the display is easily viewed and is not subject to direct sunlight. The indicator should be mounted such that it is within easy reach of the operator. If wall mounted, make certain that the structure and mounting bolts are of sufficient strength to support the 708.

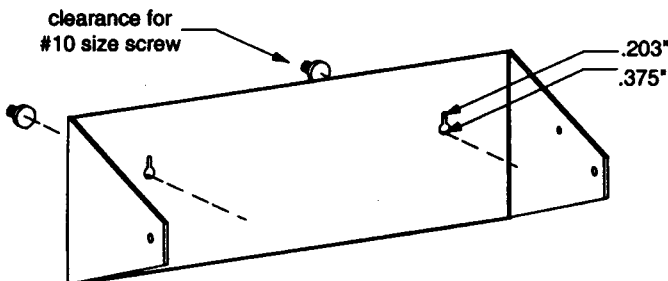


Figure No. 1

All terminations to the Model 708 Desktop Weight Indicating Instrument are made at the rear panel of the instrument. Connections for the Load Cell input, the PWC output and the Serial I/O are all made via "D" subminiature connectors while the 12VDC power is connected using a jack connector. Figure No. 2 illustrates the layout of the connector panel.

external load. When selecting the relays make certain that they are of sufficient capacity to drive the external load. A setup selection determines whether the device is on or off below the preset value. Refer to Figure No. 5 for the layout of the PWC Output connector.

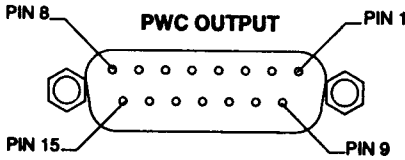


Figure No. 5

PIN NO.	FUNCTION
10	OVER/PWC1
2	UNDER/PWC2
1	ACCEPT
12	GROUND

## NEMA 4X ENCLOSURES

For desk mounting of the 708 in the NEMA 4X enclosure, it is necessary to order separately a "DESK-MOUNT" kit. Refer to Assembly Instruction for Desk-Mount Kit (8539-M097-O1) for mounting instructions.

The Model 708 in a NEMA 4X enclosure is normally mounted on the wall or some other vertical surface. The enclosure is attached to the wall with four (4) bolts. Refer to Figure No. 6 for the hole layout for the NEMA 4X enclosure.

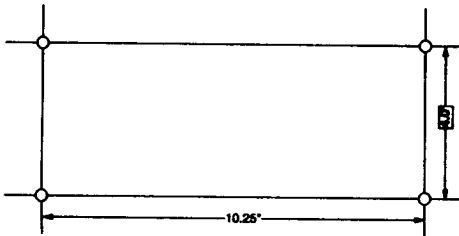
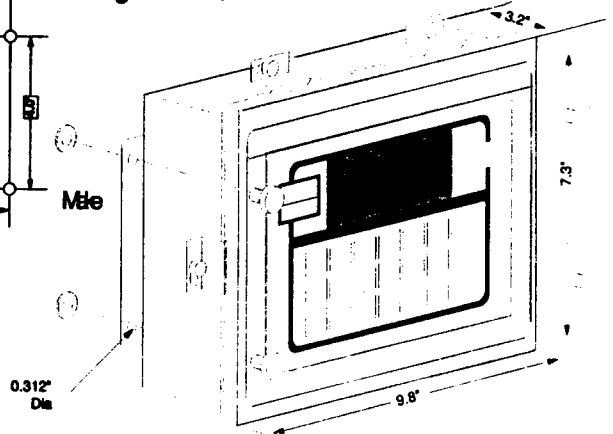


Figure No. 6



certain that the location chosen is free from sudden changes in temperature and that the mounting surface is strong enough to support the enclosure while being close enough to provide the operator with easy access to the keyboard. Carefully locate the mounting hole locations on the wall then drill and install the anchor bolts. Attached the enclosure to the wall and securely tighten the retaining bolts.

Continue installation by opening the front cover on the instrument enclosure. Loosen all four (4) retaining screws and rotate each of the clips to the side. **DO NOT REMOVE THESE SCREWS.** Fully open the front cover exposing the internal printed circuit board.

### Load Cell Connection

Loosen the cable gland connector for the load cell cable. This gland connector is located on the bottom of the enclosure on the right-hand side. Refer to Figure No. 7 for an illustration of the connector layout.

Slip the single cable from the load cell or load cell junction box through the gland connector and into the enclosure. Remove 2 inches of the outer insulation jacket then remove 1/4 inch of insulation from each of the wires (either 4 or 6). Refer to Figure No. 8 for an illustration of the proper method of preparing and then connecting wires to the terminal blocks. Once the cable has been properly prepared, connect it to terminal block P4 on the main printed circuit board. Figure No. 9 shows the location of the terminal blocks on the main printed circuit board.

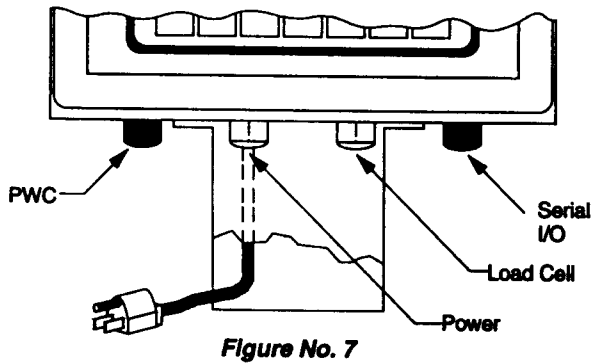


Figure No. 7

Locate the one for the load cell and connect the cable as shown. To install a wire in a terminal block, first press down on the release bar for the terminal, insert the wire into the terminal opening then release the bar locking the wire in place. Repeat this procedure until all of the wires and shield have been installed. NOTE! If the load cell cable does not contain sense leads, you must install plug-in jumpers at J2 and J3 to connect the sense inputs to the excitation leads on the PC board. If the load cell cable does contain sense leads, these jumpers must be removed and stored by placing them on one pin only.

### Printer Cable Installation

Loosen the gland connector adjacent to the power cable gland connector (see Figure No. 7). Remove 2 inches of the outer insulating jacket from the cable then remove 1/4 inch of insulation from each of the wires (see Figure No. 8). These wires are to be connected to terminal block P8 at the bottom edge of the printed circuit board. Refer to Figure No. 9 for the location of this terminal block.

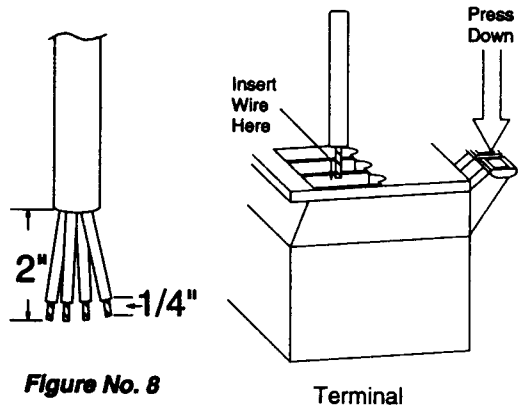


Figure No. 8

To terminate the wires, first press down on the terminal release bar then insert the wire into the terminal opening and release the bar to lock the wire in place.

### Preset Weight Comparator/Checkweigher Logic Level Output

If you so choose, you may use the logic level outputs from your 708 indicator's preset weight comparators or checkweigher to control peripheral devices used to manage the flow of material or signal when the weight is within preset limits. Note that these outputs are at logic level and cannot drive external devices directly. Solid state relays can be used to accept the logic level output from the 708 and in turn drive the external device.

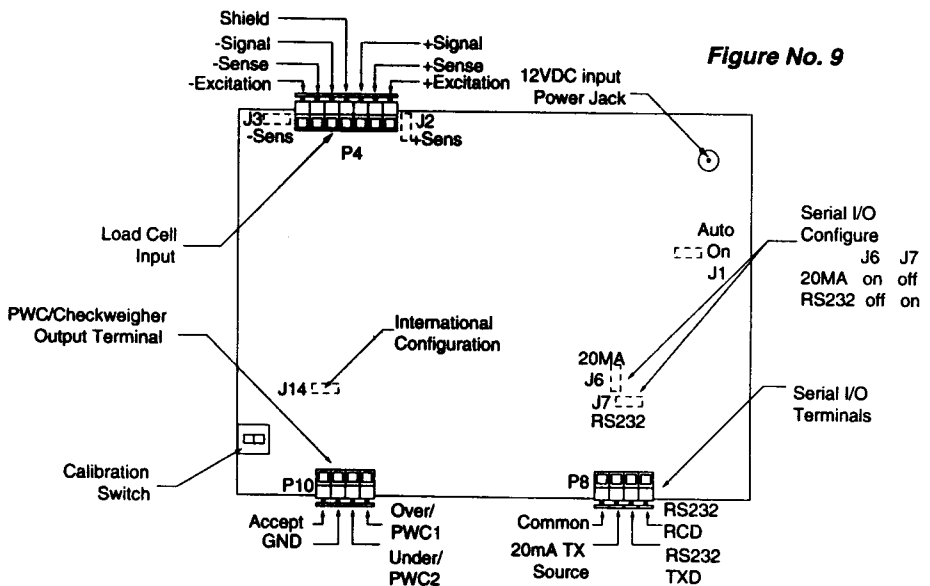



Figure No. 9

# KEYPAD FUNCTIONS

The 708 is equipped with a 21-key keypad. The keypad is used to enter commands and data. This section describes each key along with the function it performs. It will be helpful to refer either to Figure No. 12 or to the actual 708 keypad while reading this section.



The membrane keyboard is not to be operated with pointed objects (pencils, pens, fingernails, etc.). Damage to keyboard resulting from this practice will **NOT** be covered under warranty.

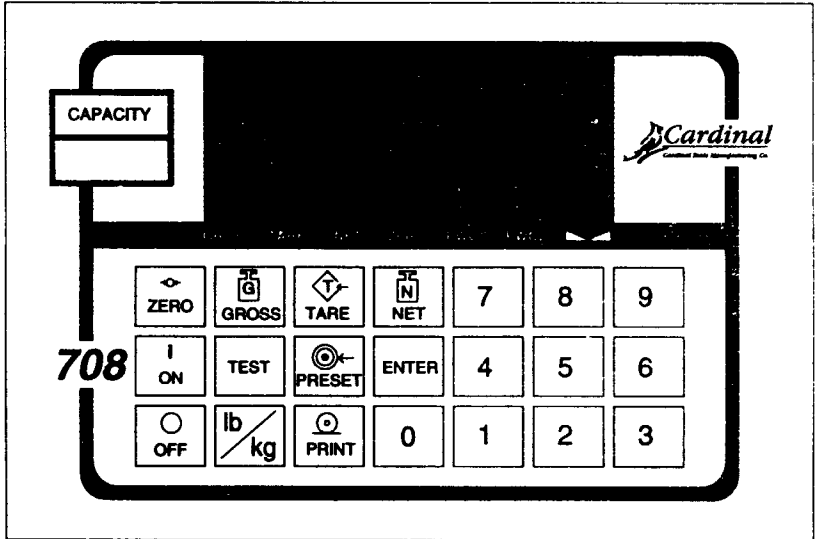


Figure No. 12

- |            |   |
|------------|---|
| I<br>ON    | <b>ON KEY</b><br>Pressing this key applies power to the 708 and turns on the display.   |
| OFF        | <b>OFF KEY</b><br>Pressing this key removes power from the 708 and turns the display off.   |
| ZERO       | <b>ZERO KEY</b><br>This key is used to reset the gross weight to zero. If the gross weight exceeds the preset limit for this key an error message will be displayed when the key is pressed. The zero limit may be set to either 4% or 100% of scale capacity during setup and calibration of the 708.  |
| G<br>GROSS | <b>GROSS KEY</b><br>This key is used to return the weight display to the Gross Weight mode. In the gross weight mode, the total of all weight placed on the scale since the display was zeroed is displayed. The GROSS annunciator beneath the display window is turned on to signal the display of gross weight.   |
| T<br>TARE  | <b>TARE KEY</b><br>This key is used to enter a tare weight of up to four (4) digits and can operate in one of two modes depending on the setup of the 708. If the push button tare feature was selected during the setup of the instrument, pressing this key will cause the 708 to enter the current gross weight as the new tare weight value and automatically enter the net weight mode. The NET annunciator will be turned on to indicate that the 708 is now displaying a net weight. If the push button tare feature was not selected, pressing the TARE key will cause the currently stored tare weight to be displayed and the TARE annunciator will be turned on. The numeric keys may be used to enter a new tare value and the ENTER key pressed to store the new value. Once the new tare value is entered the 708 will automatically enter the Net Weight mode indicated by turning on the NET annunciator. |

# ANNUNCIATORS

Note that annunciators are turned on to indicate that the display is in the mode corresponding to the annunciator label or that the status indicated by the label is active. Some annunciators are flashed on and off to signal that the 708 is waiting for an input from the keypad for use by the feature indicated by the annunciator.

## **ZERO**

The ZERO annunciator is turned on to indicate that the weight is within +/- 1/4 division of the center of zero.

## **GROSS**

The GROSS annunciator is turned on to indicate that the displayed weight is the gross weight which is the total of all weight placed on the scale platform since the display was last reset to zero.

## **TARE**

The TARE annunciator is flashed on and off to show that the 708 is in the tare weight input mode and that the new tare weight value should be entered on the numeric keys.

## **NET**

The NET annunciator is turned on to show that the displayed weight is the net weight which is the gross weight less the tare weight.

## **PWC1**

The PWC1 annunciator is turned on to indicate that the displayed weight is equal to or greater than the weight value stored as preset number 1. Note that this annunciator is active only when the Preset Weight Comparator feature has been enabled.

## **PWC2**

The PWC2 annunciator is turned on to indicate that the displayed weight is equal to or greater than the weight value stored as preset number 2. Note that this annunciator is active only when the Preset Weight Comparator feature has been enabled.

## **STABLE**

The STABLE annunciator is identified with two small triangular shapes and is turned on when the weight display is stable. This means that the change in successive weight samples is less than the motion limits selected during setup and calibration of the 708.

## **UNDER**

The UNDER annunciator is located to the left of the weight display and is used to signal that the displayed weight is less than the minimum value of acceptable weight used in the Checkweigher feature. Note that this annunciator is active only when the Checkweigher feature is enabled.

## **ACCEPT**

The ACCEPT annunciator is located just above the weight display and is used to signal that the displayed weight is within the acceptable weight limits for the Checkweigher feature. That is, it is equal to or greater than the minimum acceptable weight and equal to or less than the maximum acceptable weight. Note that this annunciator is active only when the Checkweigher feature has been enabled.

## **OVER**

The OVER annunciator is located to the right of the weight display and is used to signal that the displayed weight is equal to or greater than the minimum value of over weight used in the Checkweigher feature. Note that this annunciator is active only when the Checkweigher feature has been enabled.

## **lb**

The lb annunciator is located to the right of the weight display and is turned on to show that the displayed weight units of measure is pounds.

## **kg**

The kg annunciator is located to the right of the weight display and is used to signal that the units of measurement for the displayed weight is kilograms.

## ERROR CODES

The 708 is equipped with software that detects when an error in operation takes place. The following lists the error code displays supported by the 708 along with their meaning. Should you encounter an error display, please refer to this list for the cause and corrective action.

UnSt

Motion is present when trying to power up, print, zero or perform a push button tare function. **CORRECTIVE ACTION:** wait for a stable weight display (STABLE annunciator on) before performing these operations.

UnLd

The weight on the scale exceeds the zero range when powering up. **CORRECTIVE ACTION:** remove the excess load from the scale then press the ZERO key. If the scale has not been calibrated previously, calibration should be completed before attempting further operation.

LoAd

The scale deadload is less than the zero range when powering up. **CORRECTIVE ACTION:** replace the scale platform or items normally on the scale when it was calibrated and press the ZERO key. If the scale has not been calibrated previously, calibration should be completed before attempting further operation.

-oF-

The 708 is attempting to display a positive number greater than 5 digits in length or a negative number of more than 4 digits. **CORRECTIVE ACTION:** return to the Gross Weight mode and review the Tare value.

-oL-

The load on the scale exceeds the scale capacity plus 9 divisions. **CORRECTIVE ACTION:** remove the over capacity load from the scale platform.

Err

An invalid keypad entry was attempted:

1. PRINT key pressed with a negative weight displayed.
2. TARE key pressed to enter a push button tare value of zero or a negative value.
3. ENTER key pressed to enter a tare weight value that exceeds scale capacity.
4. ENTER key pressed to enter a tare weight value that is inconsistent with the scale's division value. (i.e. attempt to enter a tare value of 123 with scale division value of 5).
5. ZERO key pressed when the gross weight is outside the scale zero weight range.
6. lb/kg key pressed to change to kilograms when the kilogram tare weight value exceeds 4 digits in length.

**CORRECTIVE ACTION:** determine which of the reasons for the error display is applicable then take the appropriate corrective action.

ErrA

The proper load cell signal is not getting to the signal processing circuit for one or more of the following possible reasons with corrective action:

The load cell output is below the indicator minimum input of 1.0mV. Consult your scale serviceman;

Sense lead jumpers are not installed for four (4) wire load cells. Install both SENS jumpers (see Figure No. 9);

The load cell wiring is incorrect. Check load cell connector wiring;

Load cell or circuit failure. Consult your scale serviceman.



Err1

A program checksum mismatch has been detected.  
CORRECTIVE ACTION: contact your scale serviceman.

Err2

A write command to the NOVRAM was attempted while the NOVRAM was in a protected mode (loss of control by program). CORRECTIVE ACTION: contact your scale serviceman.

Err3

RAM test failure. CORRECTIVE ACTION: contact your scale serviceman.

Err4

NOVRAM failure during startup. CORRECTIVE ACTION: contact your scale serviceman.

Err5

NOVRAM response failure. CORRECTIVE ACTION: contact your scale serviceman.

## MAINTENANCE

The maintenance on the Model 708 Weight Indicating Instrument should be limited to an occasional cleaning of the outside of the instrument enclosure. There are no user-serviceable components within the enclosure. To clean the enclosure and keyboard, use a soft cloth dampened with water. If you wish to use a detergent, make certain that it is safe and then use it sparingly. Do not wash the Desktop enclosure. Only the NEMA 4X version of the 708 may be washed down.

# PERFORMANCE SPECIFICATIONS

## Parameter

Rated Output	mV/V $\pm$ 0.25%
Combined Error	%*
Non-repeatability	%*
Creep (30 minutes)	%*
Temperature Effect on Zero Balance	%* / °C
Temperature Effect on Span	%* / °C
Compensated Temperature Range	°C
Operating Temperature Range	°C
Safe Overload	%*
Ultimate Overload	%*
Zero Balance	%*
Input Resistance	$\Omega \pm 30$
Output Resistance	$\Omega \pm 1.5$
Insulation Resistance	M $\Omega$ @ 100 V
Recommended Supply Voltage	V
Maximum Supply Voltage	V

## Units

mV/V $\pm$ 0.25%
%*
%*
%*
%* / °C
%* / °C
°C
°C
%*
%*
%*
$\Omega \pm 30$
$\Omega \pm 1.5$
M $\Omega$ @ 100 V
V
V

## LOAD CELL CAPACITY

### $\leq 7500$ kg

### $\geq 10000$ kg

2	2
< $\pm$ 0.05	< $\pm$ 0.1
< $\pm$ 0.025	< $\pm$ 0.03
< $\pm$ 0.05	< $\pm$ 0.05
< $\pm$ 0.0025	< $\pm$ 0.0025
< $\pm$ 0.008	< $\pm$ 0.008
-10 to +40	-10 to +40
-40 to +80	-40 to +80
150	150
300	300
< $\pm$ 1	< $\pm$ 1
380	380
350	350
> 5000	> 5000
10	10
15	15

\* WITH RESPECT TO RATED OUTPUT

## CABLE SPECIFICATIONS

4 m - Four core screened, 6mm dia. with polyurethane outer sheath

POSITIVE EXCITATION = RED  
NEGATIVE EXCITATION = BLUE

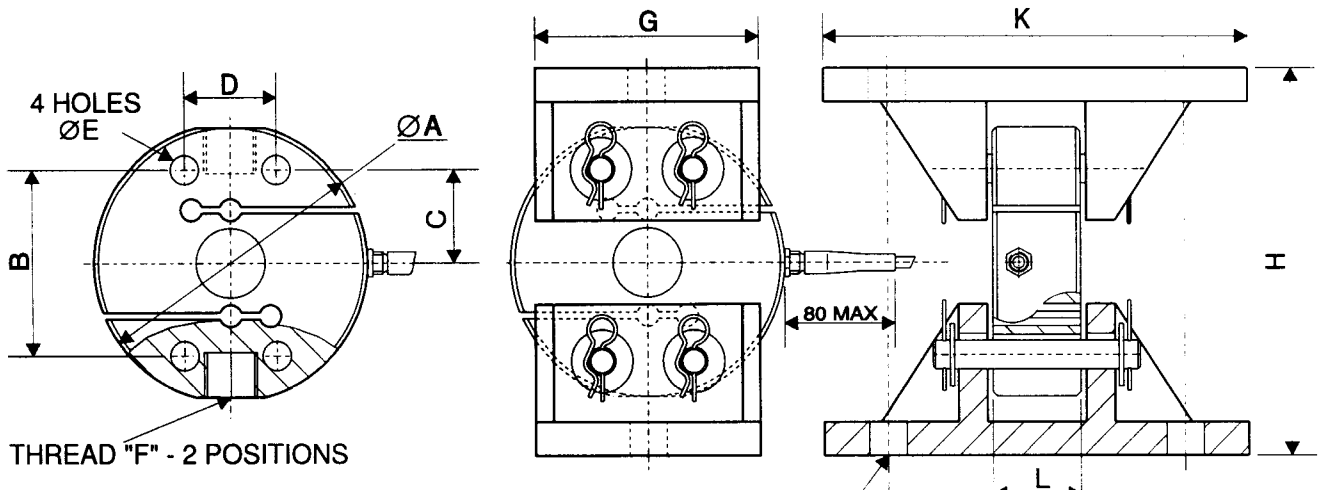
POSITIVE SIGNAL = GREEN  
NEGATIVE SIGNAL = YELLOW

## PHYSICAL DIMENSIONS (mm)

RANGE (kg)	A	B	C	D	E	F	G	H	J	K	L	M	Wt (kg)	Wt (kg)
500	125	84	42	42	13	M16 x 2	102	174	16	193	40	135	3	13.6
1000 to 7500	125	84	42	42	13	M24 x 2	102	174	16	193	40	135	3.6	13.6
10000 / 15000	175	110	55	64	21	none	148	238	21	243	48	175	8.8	22.5
20000 to 30000	175	110	55	64	27	none	148	238	21	243	50	175	9.3	23.6

(Cell)

(LA90)



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