

FORMAX[®]

FD 87 Casino Shredder

OPERATOR/MAINTENANCE/PARTS MANUAL
FIRST EDITION

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Safety Precautions

“Work safety” symbol



This symbol marks all work safety notes in this manual which can endanger the health or life of operators. Please pay attention to this symbol and exercise particular care in such cases. Please also forward all work safety notes to other users. Apart from the instructions in this manual, you should also follow generally applicable safety and accident prevention regulation.

“Attention” notes



This icon marks information in this manual which requires particular attention including guidelines, regulations, instructions and correct working procedures intended to prevent damage to the machine and/or other equipment.

Notes on work safety

The FD 87 Casino shredder has been inspected for safety. However, improper operation and misuse risk the following:

- the health or life of the operator
- the machine and other valuable equipment
- the efficient operation of the shredder.

The FD 87 Casino shredder employs state-of-the-art technology and is safe to operate. However, this machine can become hazardous if used incorrectly, by untrained staff or for purposes other than those for which it is designed.

- Keep long hair, loose clothes, ties, scarves, etc. away from the shredding chamber.
- Only one person should operate the shredder at a time.
- Always follow local safety and accident prevention regulations when operating the shredder.
- No pedestals or other raised surfaces may be placed in the vicinity of the machine if they alter the safety clearances.
- All connecting cables must be laid in such a way that they cannot be tripped over.
- Mechanical wearing parts must be inspected once a year.

The FD 87 Casino shredder is intended **only** for shredding chips, dice, cards, and tokens. The hardened, solid-steel cutting blades are designed to handle these materials.

Any other use beyond the scope described here is regarded as not being in accordance with the instructions. The manufacturer will not be held liable for damage resulting from incorrect use; the user alone is responsible.

Users must also follow the assembly, dismantling, re-assembly, operation and maintenance procedures specified by the manufacturer. The operation, maintenance and repair of the machine must be performed only by trained personnel who are aware of the potential dangers.

The relevant accident prevention regulations as well as other generally recognized rules concerning safety engineering and occupational safety must be observed.

- Each person responsible for assembling, dismantling and reassembling and maintenance (inspection, servicing, repair) of the shredder must have read and fully understood the entire operating manual, in particular the "Safety" section.
- The shredder may only be operated, serviced and repaired by authorized, trained personnel.
- The shut-down procedures specified in this manual must be followed during all assembly, dismantling and re-assembling, cleaning, and maintenance work. This type of work must be performed only when the machine is idle.
- The drive of the FD 87 Casino shredder must be secured against unintentional switching-on before performing work on the machine. Set the main switch to "Off" and unplug machine from wall outlet.
- After repair, check all protective devices to be sure they have been re-installed before operation.
- Do not perform any work which may impair your safety while operating the machine.
- Immediately report any changes which impair your safety to the person responsible. Shut the machine down until such damage has been resolved.
- Before operating the shredder, ensure that it is in perfect working condition.
- Ensure that the workplace around the FD 87 Casino shredder is always clean and safe.
- The user must not make any conversions or changes on his own initiative which impair the safety of the FD 87 Casino shredder. Protective devices must not be removed or rendered inoperative.
- All work which is not directly connected to the normal operation of the machine must always be performed when the machine is idle.
- Doors and flaps must not be opened until the machine is motionless. Observe safety labels!
- Test the safety features after installing or repairing electrical components.

Checking the safety devices

Check the safety devices:

- at the start of each work shift (when operation is sporadic)
- at least once a week in continuous operation
- after each maintenance or repair

Check the safety devices for:

- specified condition
- specified location
- safe attachment
- specified function

Correct defects before you operate the shredder.

1. Immediately shut down the shredder if defects occur during operation and make sure the defects are corrected.
2. Do not modify or remove protective devices. Do not switch off protective devices. For safety reasons, modifications of the machine are not allowed.



Danger: Defective safety devices can cause serious accidents. If safety devices are not working properly, the shredder should immediately be put out of operation.
Never reach into the cutting system while it is operating; you risk serious injury!
Only when all safety devices are operating correctly can the shredder be used again.

Operate the shredder only when these devices have been checked and are in order.

1. Check the **Emergency Stop Button (A)** on the left of the control panel:

The shredder must switch off immediately when the **Emergency Stop Button** is pressed, and the Emergency stop light must illuminate.



2. Check the **Waste Bin Door (B)**:

The shredder must stop immediately when the door is opened.



Overview & Specifications



Specifications

Cutting Style:	Cross Cut
Capacity Per Cycle*:	Up to 3 decks of cards, 20 dice, 40 casino chips (clay or plastic)
Feed Opening:	4.75" W x 6" L
Shred Size - Playing Cards:	≤ .19" x 3"
Shred Size - Dice:	≤ .5" x .5"
Shred Size - Chips/Tokens:	≤ .75" x 1.5" (1.5" Chip)
Dimensions:	24" W x 36" D x 48.5" H (plus room to open waste bin door)
Bin Capacity:	7 gal.
Weight:	948 lbs.
Motor:	2HP
Power Supply:	3-Phase, 220V, 60 Hz NEMA L15-20P plug included NEMA L15-20R receptacle required

* Capacity may vary due to variations in gaming pieces and power supply.

Installation

1. Appropriate power outlet must be available at installation site.
2. The FD 87 Casino is delivered completely assembled. During transport, be aware of the shredder's high center of gravity.
3. The shredder can be moved on its casters. If a fork-lift is used, be sure to use the designated pick-up points.
4. Install the shredder on a flat and even floor without carpeting.
5. Once the shredder is in place, lock the caster brakes, and plug in power to appropriate power source.

Start-up and Operation

Main Switch

1. On the left side of the machine, open the door leading to the electrical control panel. Push on the lever (Fig. 1) and the handle will pop out. Pull to open (Fig. 2).
2. Flip the main power switch to the UP position (Fig. 3). Close electrical control panel door.
3. Insert key into On-Off switch to right of control panel (Fig. 4). Turn key right, to the On position.



Fig. 1



Fig. 2

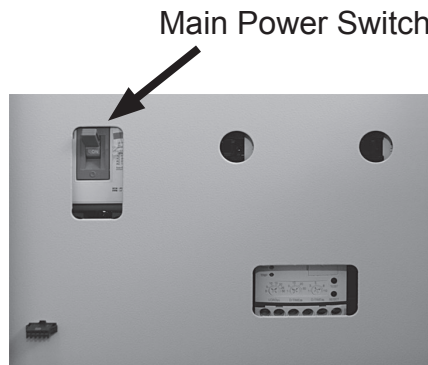
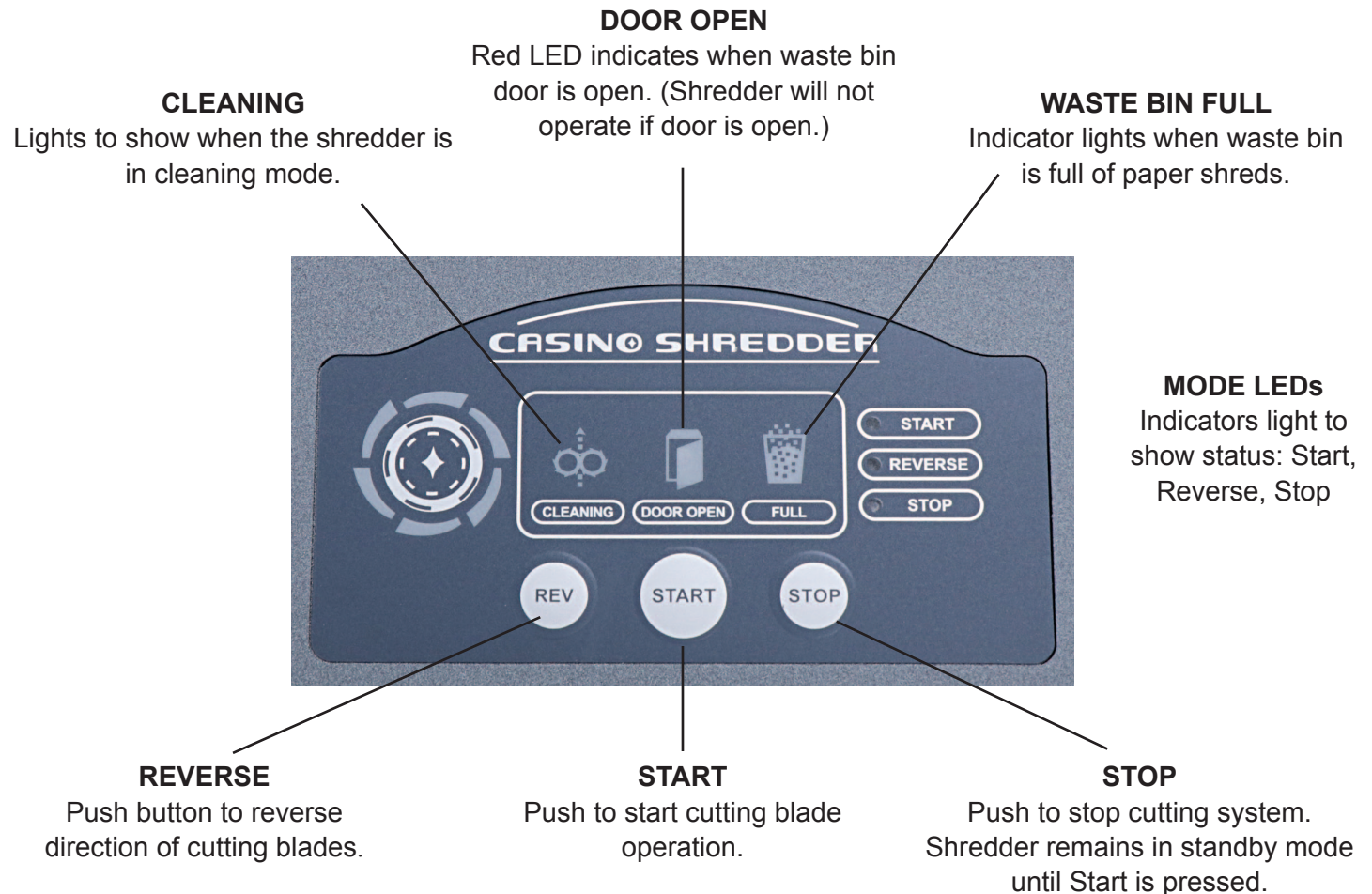


Fig. 3



Fig. 4

Control Panel



Operation

1. Set main switch to ON (Fig. 3). Turn the OFF/ON key switch on the control panel to the ON position.
2. Open the shredding chamber door. Drop in items to be shredded. Close the door.
3. Touch the START pad on the control panel. The blades will begin to move and shred the materials.

NOTE: If material is accidentally placed into the shredding chamber, DO NOT REACH FOR IT. Instead, press the Emergency Stop Button on the control panel. Turn off the key lock. Open the shredding chamber door and remove the items. To resume shredding, press the START pad.

Turning off the shredder

1. To shut down the shredder, press the STOP pad on the control panel.
2. Turn OFF/ON key switch on the control panel to the OFF position.
3. Open the electrical control panel door, and flip the main power switch DOWN to the off position.

Overloading the motor

If the shred capacity of the machine is exceeded (too many chips, cards, dice, etc.), the shredder will stop automatically. To resume shredding:

1. Push and hold the reverse pad until the chips/dice/cards back completely out of the shredder.
2. Press the red STOP pad or the SAFETY BAR on the front of the machine, then divide the materials into smaller stacks.
3. Press the START pad. The shredding mechanisms will begin to move.
4. Continue shredding, feeding fewer chips/dice/cards at a time.

Frequent Overloading

If the shredder is repeatedly overloaded, the motor can overheat, which will cause the shredder to switch off automatically. To resume shredding:

1. Allow the motor to cool down for approximately 20 - 30 minutes before using.
2. Once the motor has cooled sufficiently, resume shredding by following standard operating procedure (see Operation).



NOTE:

To maintain optimum performance and allow constant operation, avoid repeatedly overloading the shredder. This will prevent time-consuming reversing cycles, and will provide the highest possible throughput.

Emptying the Waste Bin

Shredded particles accumulate in the waste bin during normal operation. When the red “Waste Bin Full” lamp lights, empty the waste bin.

1. Switch the shredder off by pressing the STOP pad on the control panel, turn the OFF/ON key switch to the OFF position and flip the main power switch to the OFF position.
2. Open the waste bin access door. Pull out and empty the waste bin.
3. Push the waste bin back in, close the door, turn power switches back on and resume shredding.

Exterior cleaning

- Turn shredder off and unplug from wall outlet.
- Wipe the exterior surfaces with a soft cloth. If the surfaces are very dirty, use a neutral detergent, then wipe again with a soft cloth.

CAUTION:

- Never put water directly on the surface of the shredder.
- Never clean the case with benzene or thinner, since it will cause discoloration.

Maintenance and Inspection



NOTE: The maintenance procedures which follow should be performed only by authorized and trained technicians.

Removing & Reinstalling Side Covers

Each side cover is attached by ten Phillips head screws.

1. To remove a cover, insert screwdriver through access holes (Fig. 4), and remove screws.

NOTE: It is easier to remove the lower screws first, then the upper. When reinstalling the cover, install upper screws first, then lower.



Fig. 4

- **Checking the Cutting Head Chain Tension**

Check the chain tension once every week in the first month, then once a month thereafter.

1. Switch off the shredder and unplug from wall outlet.
2. Remove the right side cover.
3. The sagging of the chain (see Fig. 6) should be 9 - 14 mm, measured from the top inside of the frame to the cutting head chain.

If it is not within this range, loosen the tension screws until the sagging reaches the correct level. Retighten the tension nuts.

4. Replace the side cover, plug in the shredder.



NOTE:

Excessive tensioning of the chain can cause premature wear of the chain and bearings. The smallest allowed chain sagging in the first month of operation is 5 mm. After that, 9 mm.

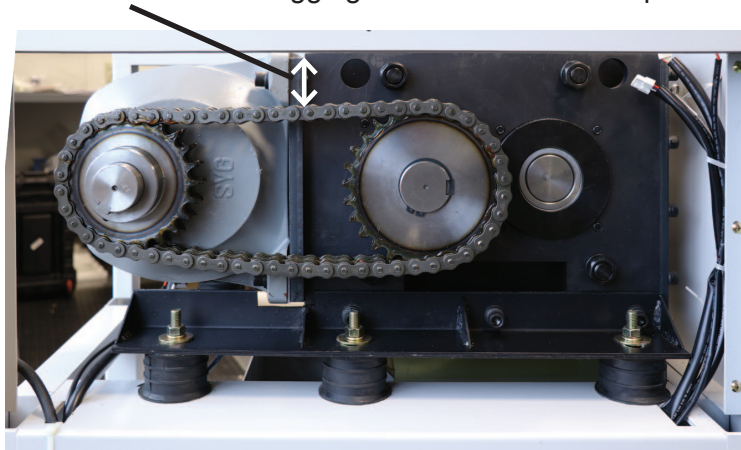
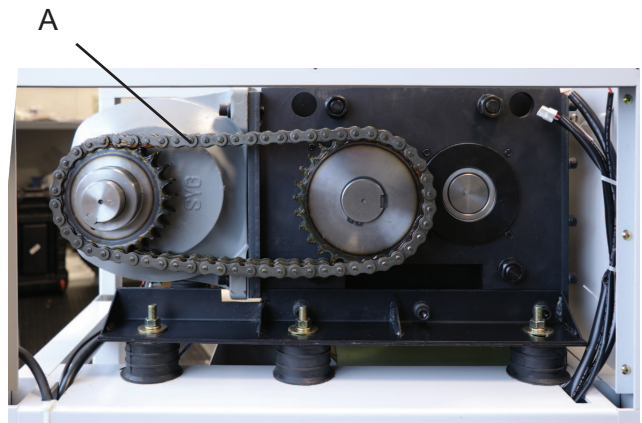


Fig. 6

- **Drive Chains:**

The drive chain should be checked during PMs, and greased as needed.

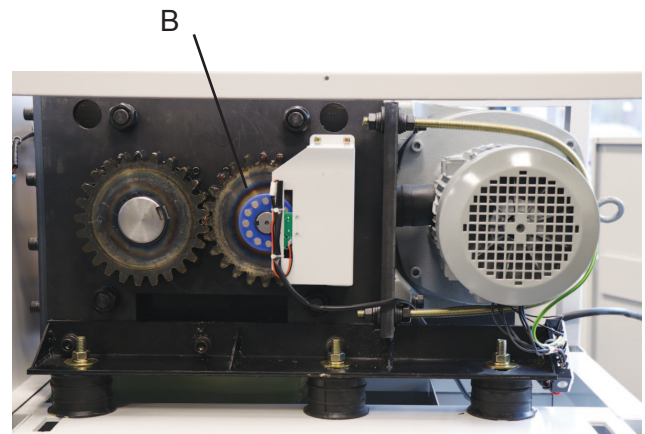
1. Switch off the shredder and unplug from wall outlet.
2. Remove both side covers.
3. Grease the the motor drive chain (A).
4. Replace side covers and plug in shredder.



Left Side

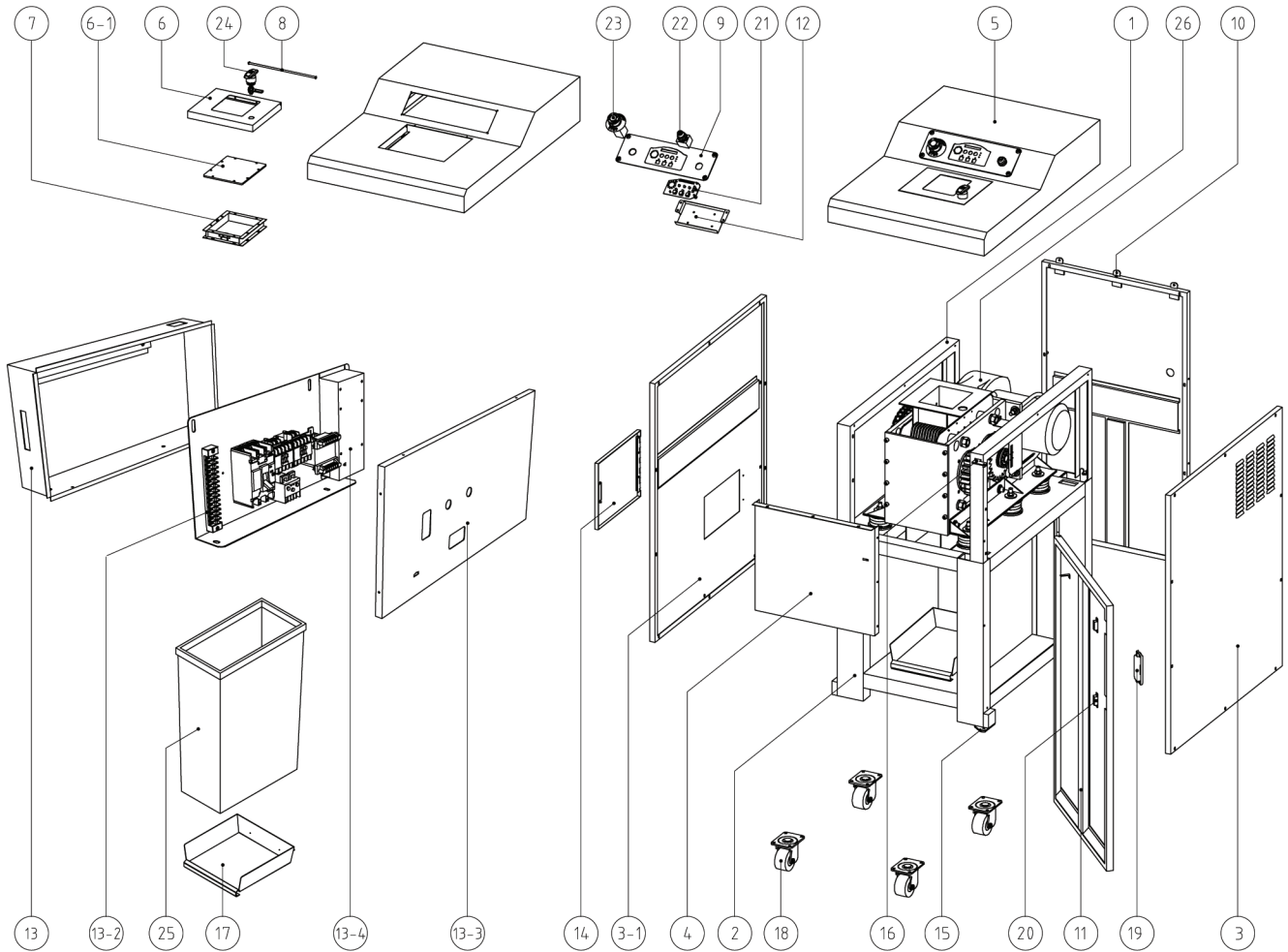
- **Synchronizing Wheels:**

1. Switch off the shredder and unplug from wall outlet.
2. Remove right side cover.
3. Grease the synchronizing toothed wheel (B).
4. Replace side cover and plug in shredder.



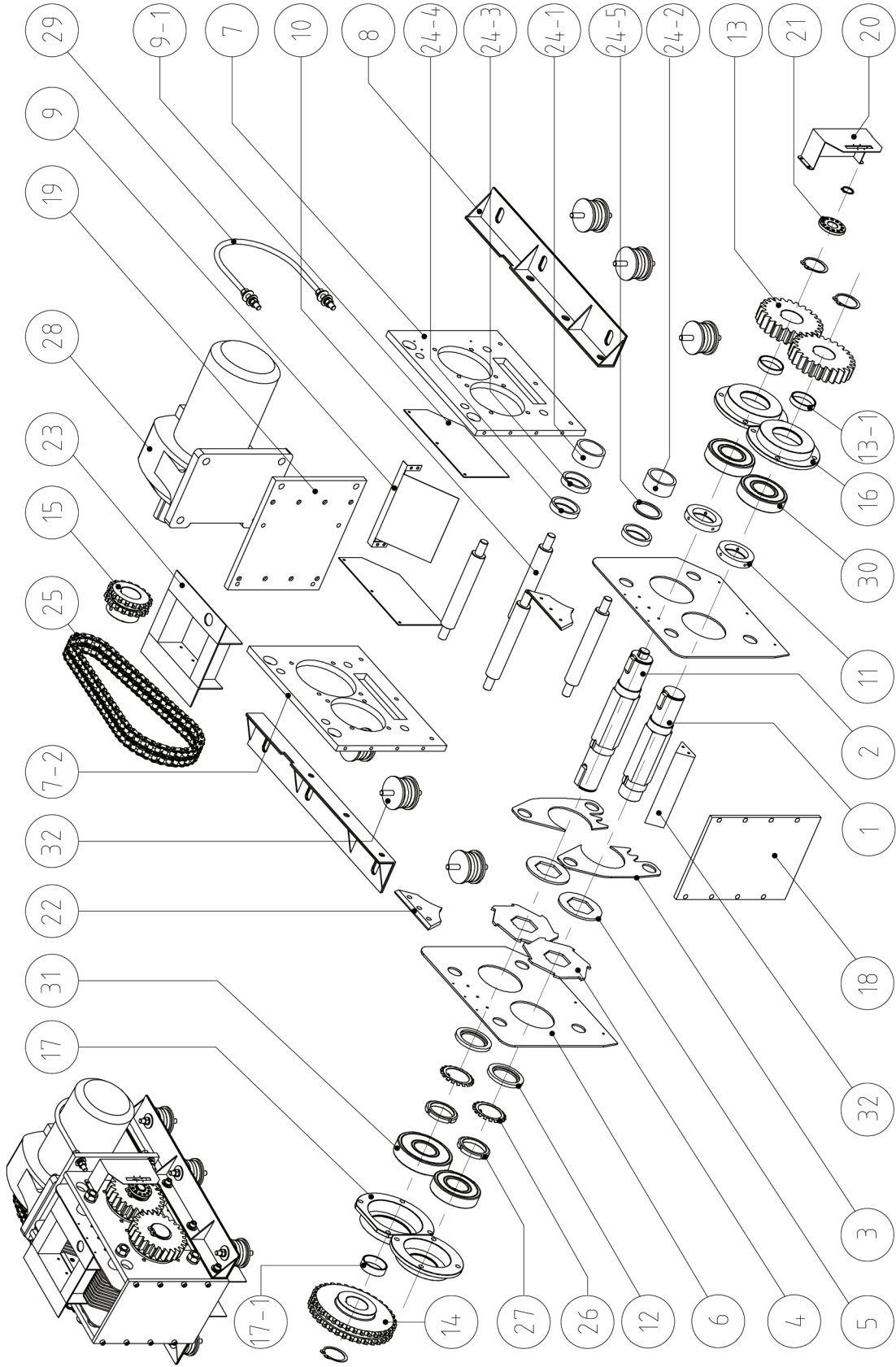
Right Side

PARTS LISTS



Item	Part #	Description	Qty
1	FD87CA A 001	UPPER FRAME (L/R)	1
2	FD87CA A 002	BOTTOM FRAME	1
3	FD87CA A 003	SIDE COVER RIGHT	1
3-2	FD87CA A 003-2	SIDE COVER LEFT	1
4	FD87CA A 004	FRONT COVER	1
5	FD87CA A 005	TOP CASE	1
6	FD87CA A 006	INFEED DOOR	1
6-1	FD87CA A 006-1	CLEAR WINDOW	1
7	FD87CA A 007	WINDOW COVER	1
8	FD87CA A 008	INFEED POST	1
9	FD87CA A 009	CONTROL PLATE	1
10	FD87CA A 010	REAR COVER	1
11	FD87CA A 011	DOOR	1
12	FD87CA A 012	KEYBOARD PCB COVER	1
13	FD87CA A 013	DISTRIBUTION BOX	1
13-2	FD87CA A 013-2	DISTRIBUTION PLATE	1
13-3	FD87CA A 013-3	DISTRIBUTION BOX PANEL	1
13-4	FD87CA A 013-4	MAIN PCB COVER	1
14	FD87CA A 014	DISTRIBUTION BOX DOOR	1
15	FD87CA A 015	BOTTOM DOOR HINGE	1
16	FD87CA A 016	UPPER DOOR HINGE	1
17	FD87CA A 017	WASTEBASKET SENSOR PLATE	1
18	FD87CA A 018	CASTER	4
19	FD87CA A 019	DOOR HANDLE	1
20	FD87CA A 020	DOOR MAGNET	1
21	FD87CA A 021	KEYBOARD PCB	1
22	FD87CA A 022	LOCKING DEVICE	1
23	FD87CA A 023	EMERGENCY SWITCH	1
24	FD87CA A 024	INFEED HANDLE	1
25	FD87CA A 025	WASTEBASKET	1

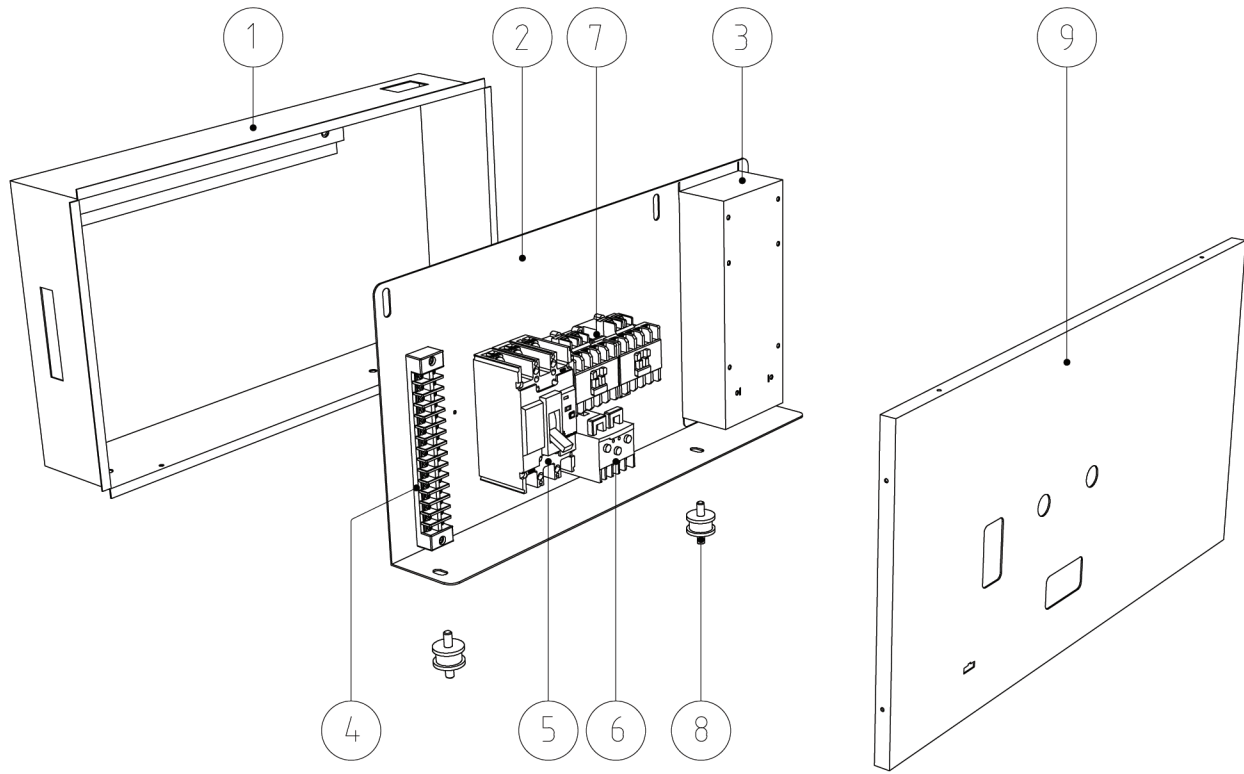
CUTTING HEAD



CUTTING HEAD

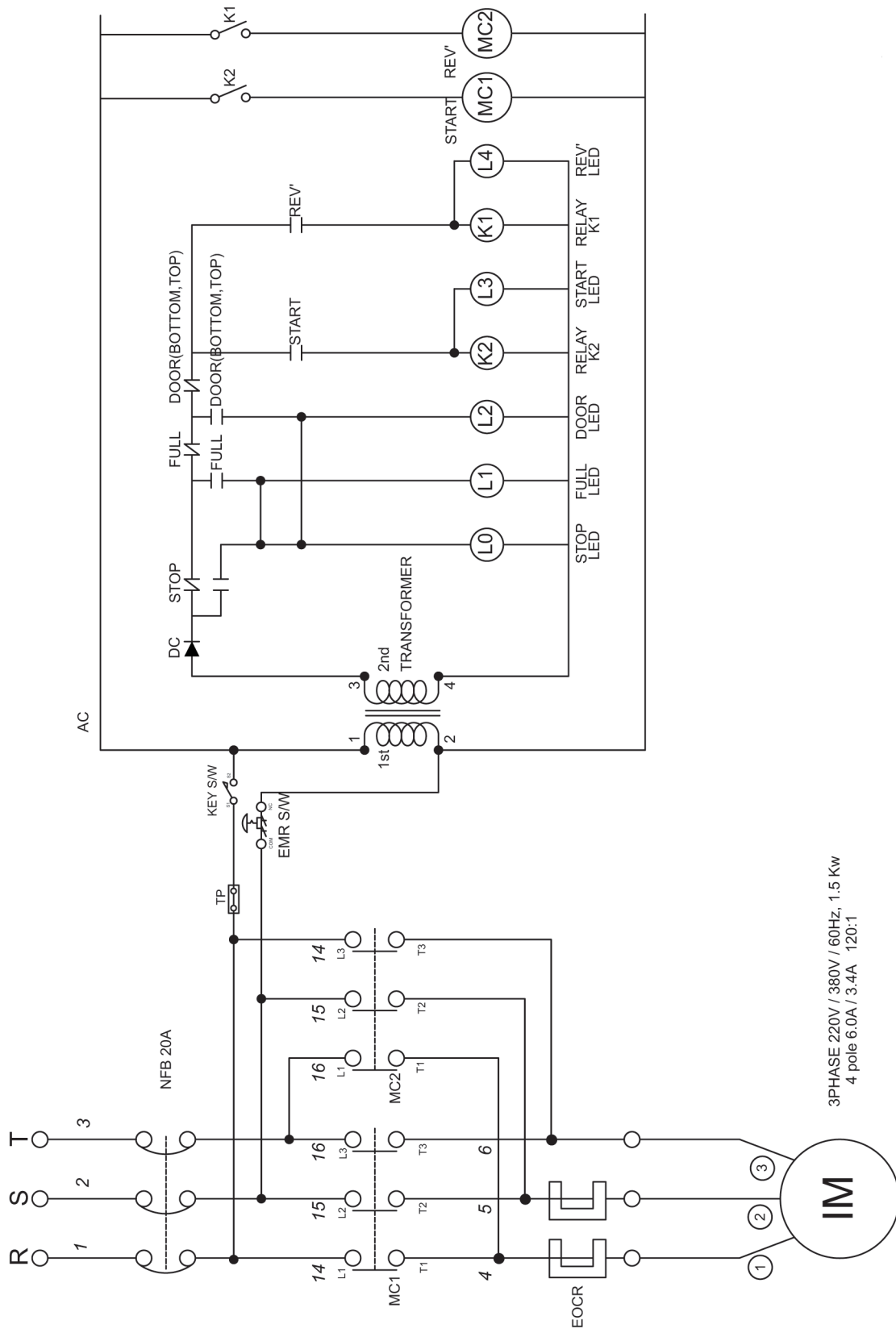
Item	Part #	Description
1	FD87CA B 001	SHAFT(S)
2	FD87CA B 002	SHAFT(L)
3	FD87CA B 003	GUIDE
4	FD87CA B 004	CUTTER
5	FD87CA B 005	RING
6	FD87CA B 006	GUIDE SUPPORT
7	FD87CA B 007	SIDE(R)
7-1	FD87CA B 007-1	SIDE(L)
8	FD87CA B 008	VIBRATION PROOF RUBBER BRACKET
9	FD87CA B 009	WASTE GUIDE (REAR)
9-1	FD87CA B 009-1	WASTE GUIDE (L/R)
10	FD87CA B 010	POST
11	FD87CA B 011	TIGHTEN NUT
12	FD87CA B 012	PRESS RING
13	FD87CA B 013	SPUR GEAR
13-1	FD87CA B 013-1	SPACE RING (GEAR)
14	FD87CA B 014	SPROKET
15	FD87CA B 015	MOTOR SPROKET
16	FD87CA B 016	BEARING HOUSING (A)
17	FD87CA B 017	BEARING HOUSING (B)
17-1	FD87CA B 017-1	SPACE RING (SPROKET)
18	FD87CA B 018	FRONT PANEL
19	FD87CA B 019	MOTOR BASE PANEL
20	FD87CA B 020	SENSOR BRACKET
21	FD87CA B 021	MAGNET BRACKET
22	FD87CA B 022	PAPER GUIDE
23	FD87CA B 023	HOPPER
24-1	FD87CA B 024-1	SPACE RING (POST)
24-2	FD87CA B 024-2	SPACE RINT (POST)
24-3	FD87CA B 024-3	SPACE RING (POST)
24-4	FD87CA B 024-4	SPACE RING (POST)
24-5	FD87CA B 024-5	SPACE RING (POST)
25	FD87CA B 025	CHAIN
26	FD87CA B 026	BEARING WASHER
27	FD87CA B 027	BEARING NUT
28	FD87CA B 028	MOTOR 1/120
29	FD87CA B 029	MOTOR BAND
30	FD87CA B 030	BEARING (A)
31	FD87CA B 031	BEARING (B)
32	FD87CA B 032	INSERT BRACKET
32-1	FD87CA B 032-1	VIBRATION PROOF RUBBER BRACKET

DISTRIBUTION BOX ASSEMBLY



Item	Part #	Description	Qty
1	FD87CA C 001	CONTROL BOX	1
2	FD87CA C 002	CONTROL PANEL	1
3	FD87CA C 003	PCB BOX	1
4	FD87CA C 004	TERMINAL BLOCK	1
5	FD87CA C 005	CIRCUIT BREAKER	1
6	FD87CA C 006	EOCR	1
7	FD87CA C 007	MC	2
8	FD87CA C 008	VIBRATION PROOF RUBBER	2
9	FD87CA C 009	COVER	1

ELECTRICAL DIAGRAM



PCB DIAGRAM

