

FORMAX[®]

FD 87HDS-R Hard Drive Shredder
With Video Recording System
Serial Number: 2210B12062 and higher

OPERATOR/MAINTENANCE/PARTS MANUAL
SECOND 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 87HDS-R Hard Drive 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 87HDS-R Hard Drive 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 87HDS-R Hard Drive Shredder is intended **only** for shredding discarded hard drives from desktop and laptop computers. 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 87HDS-R 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 87HDS-R 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 87HDS-R 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)
- after each maintenance or repair
- at least once a week in continuous operation

Check the safety devices for:

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

Correct any defects before using the shredder.

1. Immediately shut down the shredder if defects occur during operation and make sure the defects are fixed.
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 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. **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. **On/Off Power Key (B):**

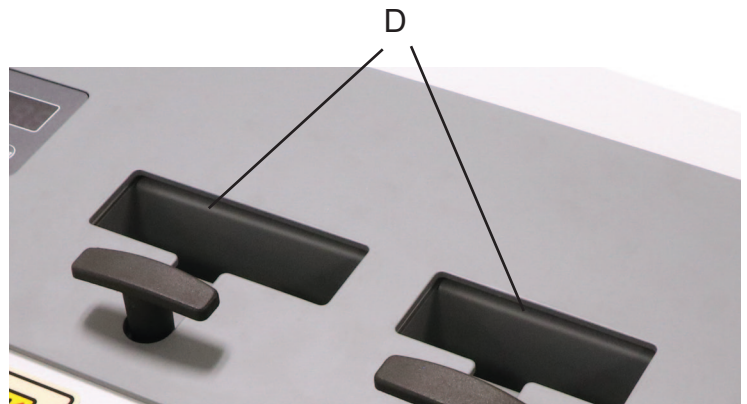
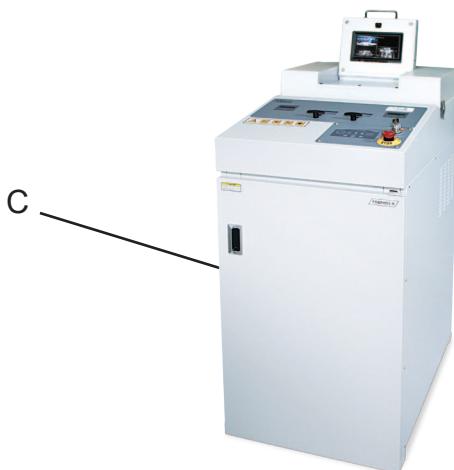
For safety and security during operation.

3. **Waste Bin Door (C):**

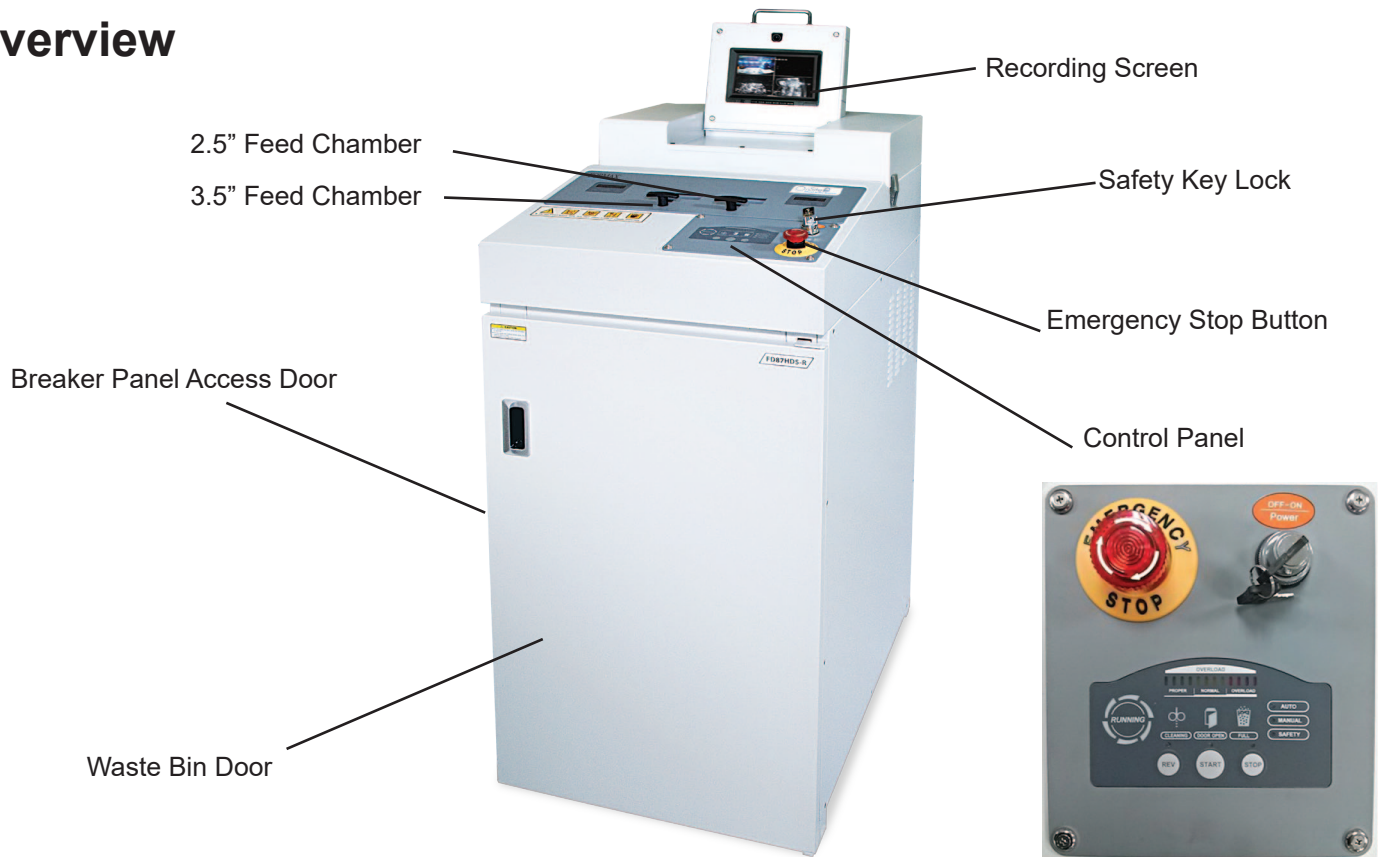
The shredder must stop immediately when the door is opened.

4. **Feeding Chamber (D):**

Insert the hard drive in the correct chamber and slide forwards to drop in the cutting head for continuous operation.



Overview



Specifications

	3.5\" Desktop Hard Drive	2.5\" Laptop Hard Drive
Feed Opening:	4.19\" x 1.25\" (106 x 31mm)	3.5\" x 1.25\" (89 x 106mm)
Shred Particle Size:	1.6\" (40mm) x random	.19\" (5mm) x random
Infeed Capacity:	Continuous operation - 1 hard drive at a time	
Speed:	3 - 4 drives per minute	3 - 4 drives per minute
Dimensions:	24.75\" W x 33.5\" D (629 x 851 mm) 63.25\" high w/screen open, 53.25 high w/screen closed	
Weight:	1,102 lbs. (500kg)	
Security Level:	H-6 (DIN 66399 standard)	
Power Supply:	3-Phase, 220V, 20Amp NEMA L15-20P plug included NEMA L15-20R receptacle required	

* Capacity may vary due to variations in power supply.

Installation

1. Appropriate power outlet must be available at installation site.
2. The FD 87HDS-R 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.

Operation

Main Switch

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

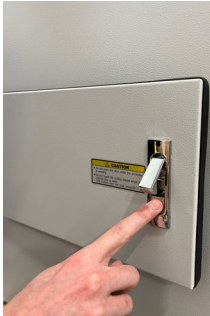


Fig. 1

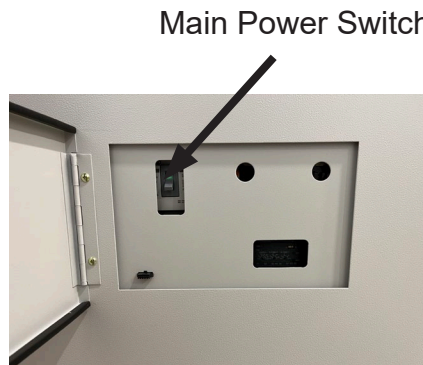
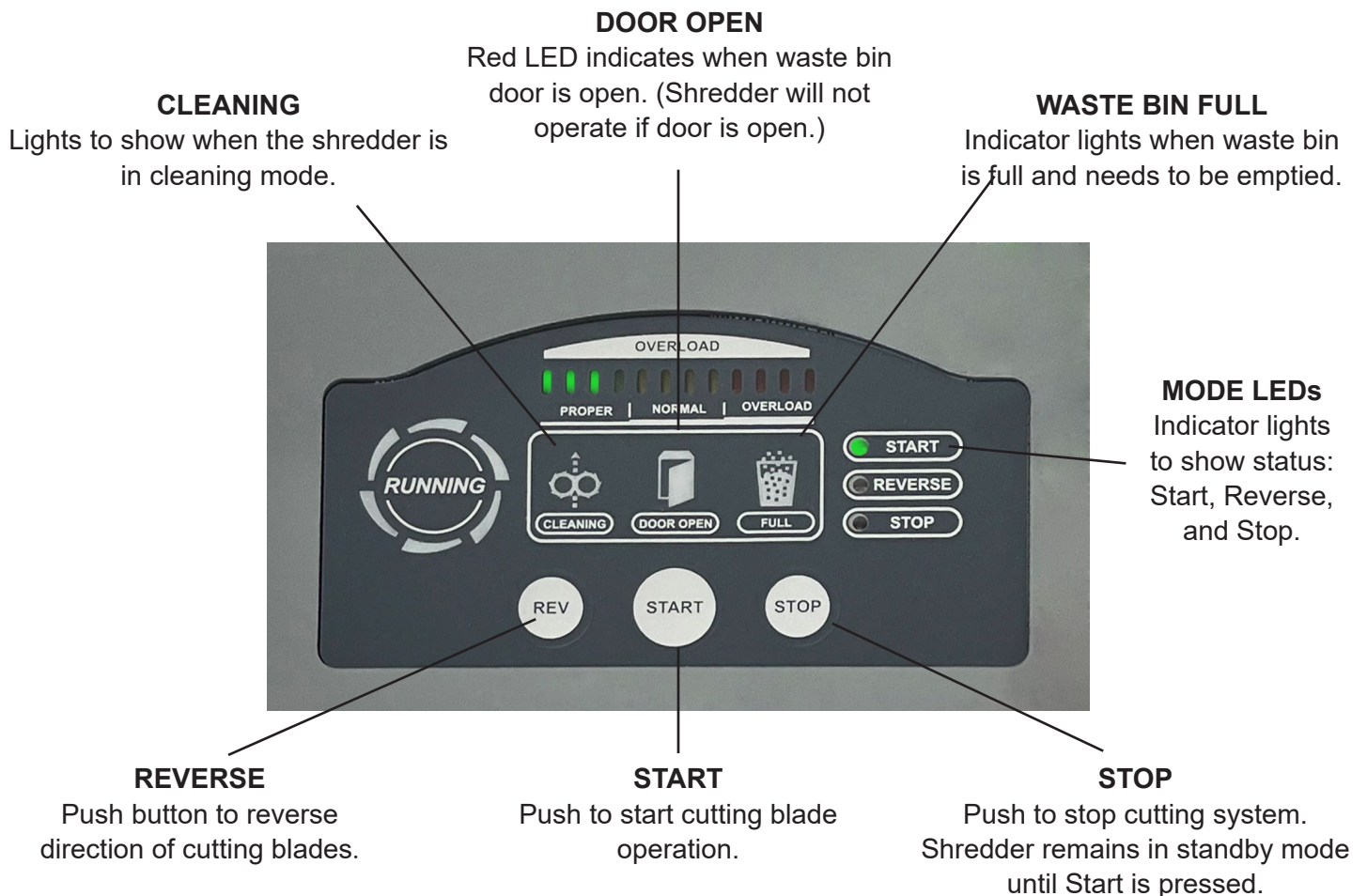


Fig. 2



Fig. 3

Control Panel



Operation

1. Set main switch to ON. Turn the OFF/ON key switch on the control panel to the ON position.



Fig. 3

2. Touch the START pad on the control panel to engage the machine.

3. Open the appropriate shredding chamber door (based on the size of the hard drive), (Fig. 5a/5b).

Drop the hard drive into the chamber. Slide the chamber forward to drop the hard drive into the shredder head and then slide the chamber door open to insert the next hard drive into the chamber.

Continue this process until all hard drives have been shredded.

The shredder will continuously run until the stop button is pressed.



Fig. 5a 3.5" Feed Chamber

4. Each shredding chamber has a separate LED counter (Fig. 6). To reset a counter, press the RESET button.



Fig. 5b 2.5" Feed Chamber

5. When shredding job is complete, press the STOP button on the control panel, and turn the key lock left to the OFF position.

Turning off the shredder

1. To shut down the shredder, press the STOP button 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.



Fig. 6 LED counter

Overloading the Motor

If the shred capacity of the machine is exceeded, the shredder will stop automatically. To resume shredding:

1. Push and hold the reverse button until the hard drive backs completely out of the shredder.
2. Press STOP on the control panel, then reinsert the hard drive.
3. Press START on the control panel. The shredding mechanisms will begin to move.
4. Continue shredding.

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:

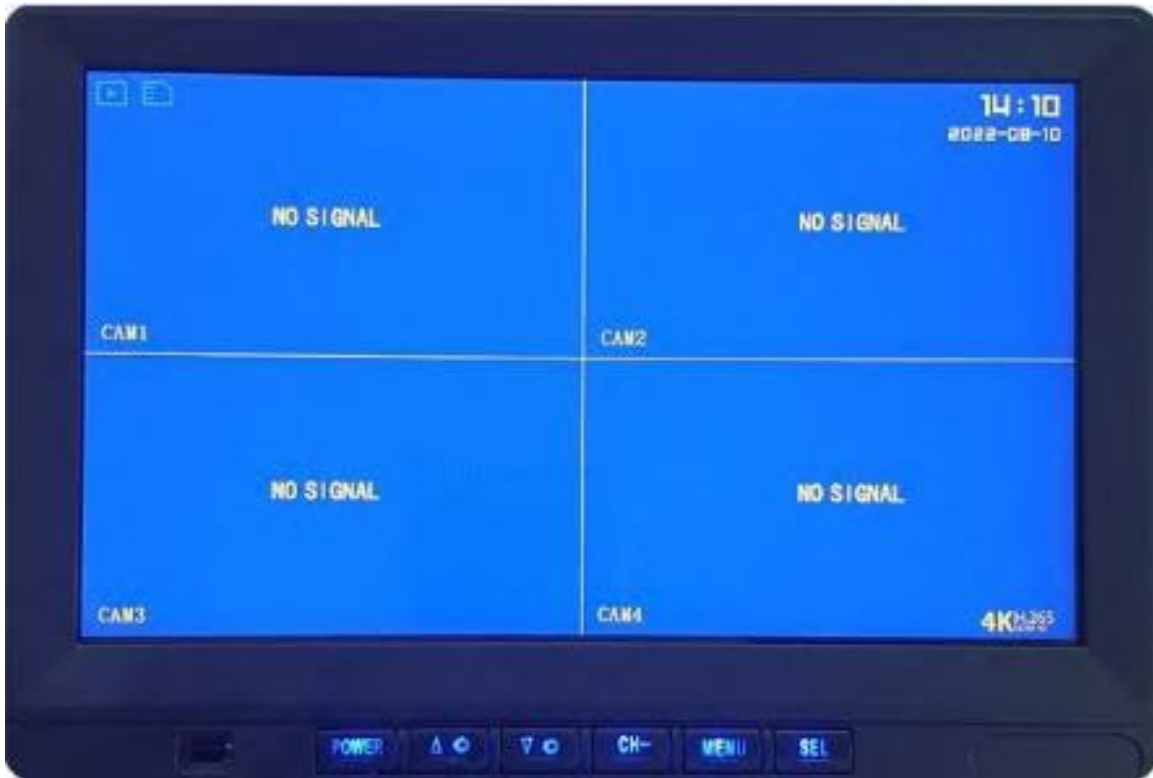
- Never put water directly on the surface of the shredder.
- Never clean the case with benzene or thinner, since it will cause discoloration.

Recording System



1.	Front Camera	Records operator shredding.
2.	Monitor	Simultaneous display of four recording channels. If you close down the monitor, both the recording system and shredder will turn off.
3.	Memory Card Lock	Security lock that protects SD memory.
4.	SD Memory Card	You can download the video files by compression and connecting them to a computer.

Recording Function



Power ON/OFF



Moving Direction (Left, Up), Increase number



Moving Direction (Right, Down), Decrease number



CAM1-CAM4 Individual or 4 division channel
Exit from play back menu (previous screen)



Enter the Menu or exit to the previous screen



Stop recording, confirm, select or change setting

Menu - System

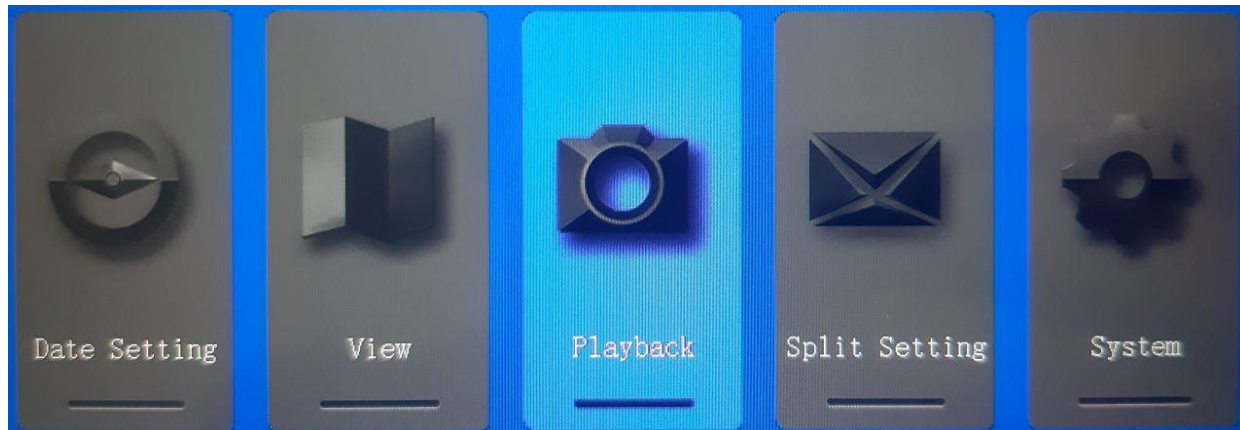


1. Memory Format - Select Format in System by using the Up and Down buttons and press the SEL button.

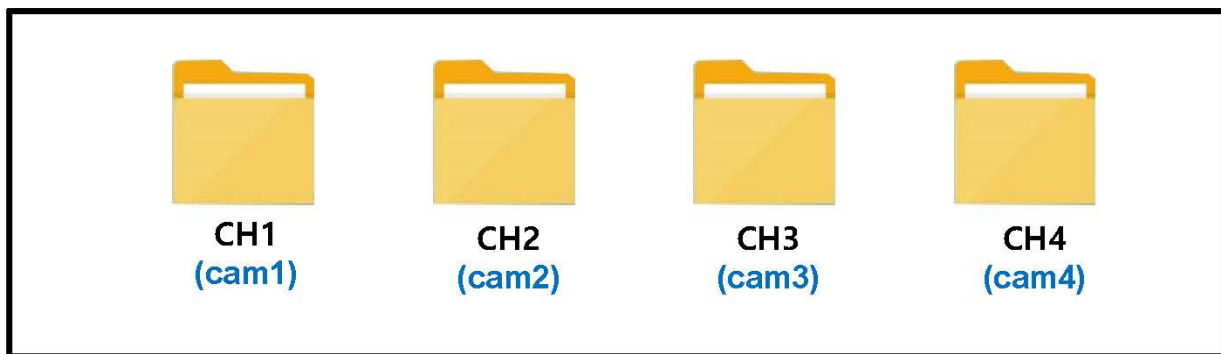


* When using a new memory card, it must be formatted on the device, and when purchasing and using it directly, it is highly recommended to purchase it in an MLC type that can save multiple times repeatedly.

Menu - Playback



2. Play recorded files -You can play videos immediately on the device



Move to the folders using Up and Down buttons.

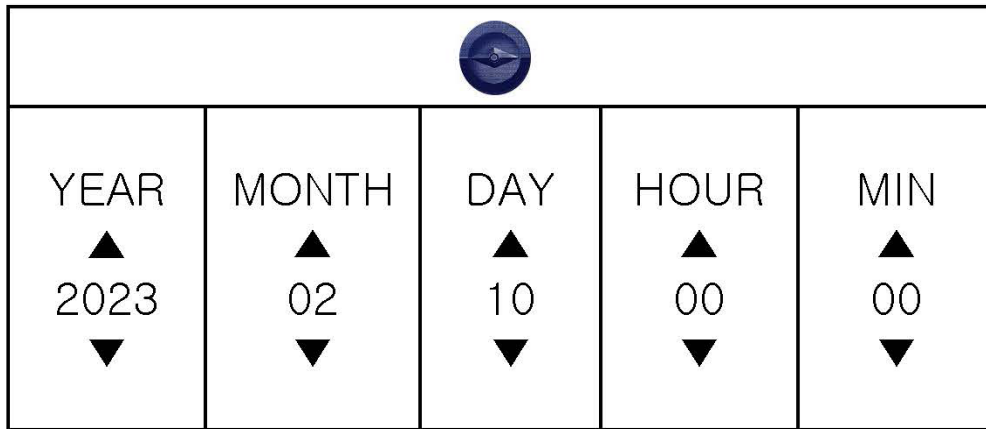
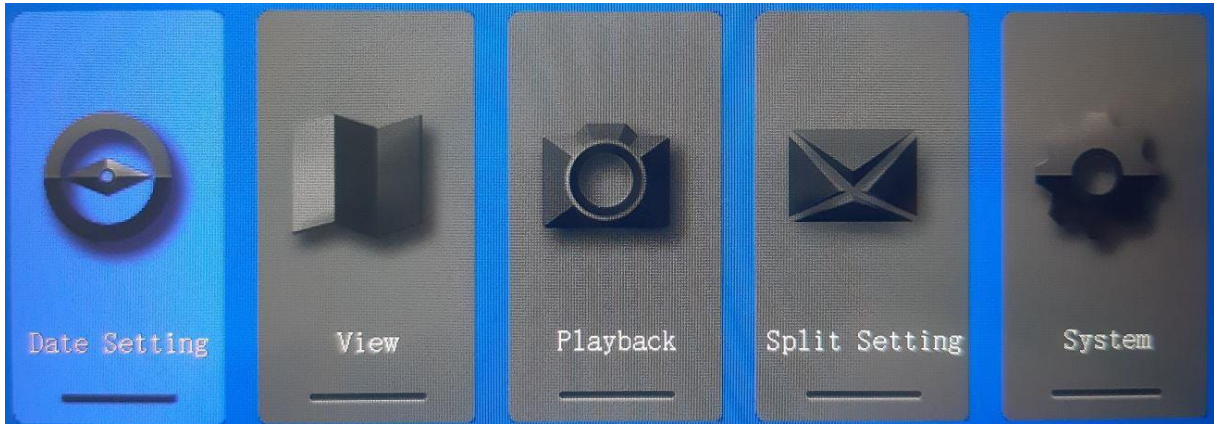


Select and play folders (files) using SEL button.



Move to previous screen.

Menu - Setting the Date & Time



3. Time setting - Set the date and time using Up and Down buttons. Move using SEL button.



Move to Menu

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. 7), 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.

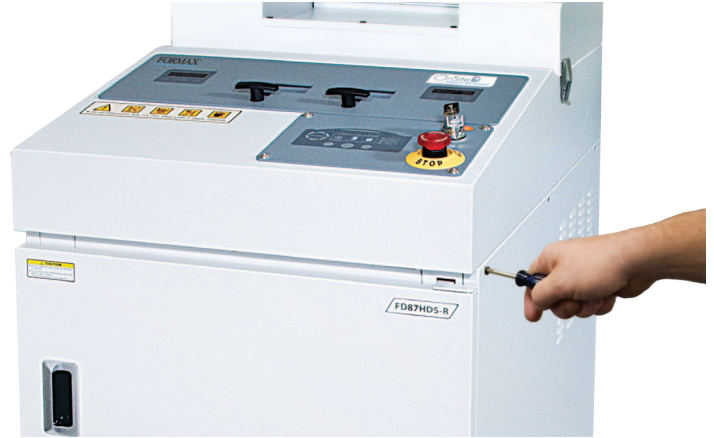


Fig. 7

- 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. 7) 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.

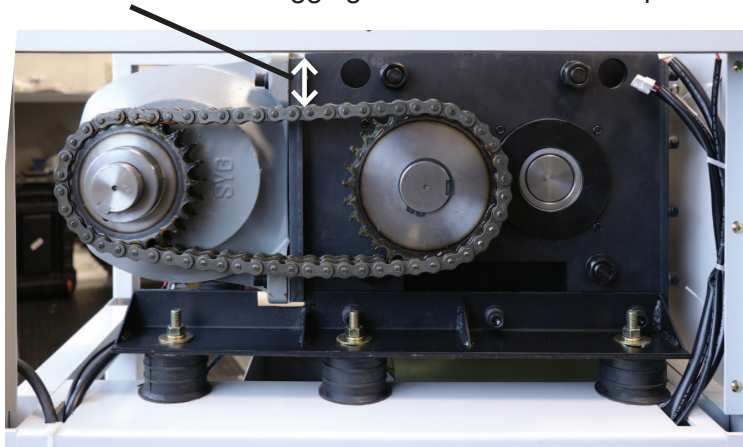


Fig. 8

Maintenance and Inspection

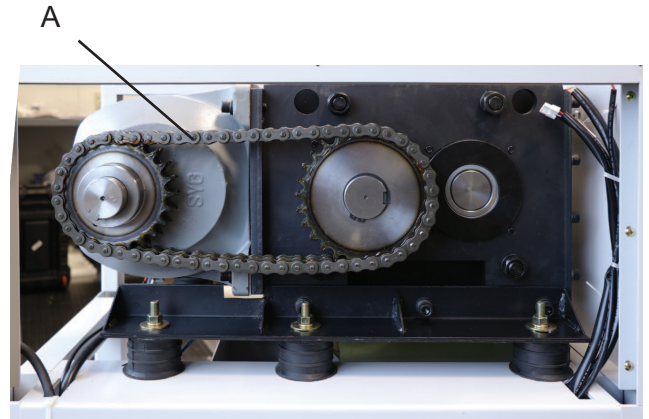


NOTE: The maintenance procedures which follow should be performed only by authorized and trained technicians.

- Drive Chains:

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

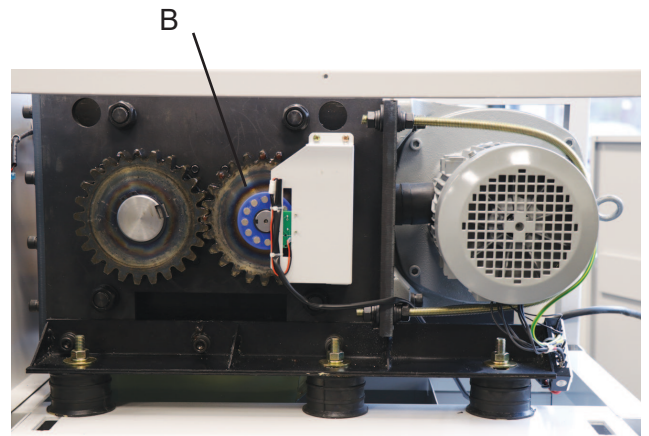
1. Switch off the shredder and unplug from wall outlet.
2. Remove both side covers.
3. Grease the motor drive chain (A).
4. Replace side covers and plug in shredder.



Left Side

- Synchronizing Wheels:

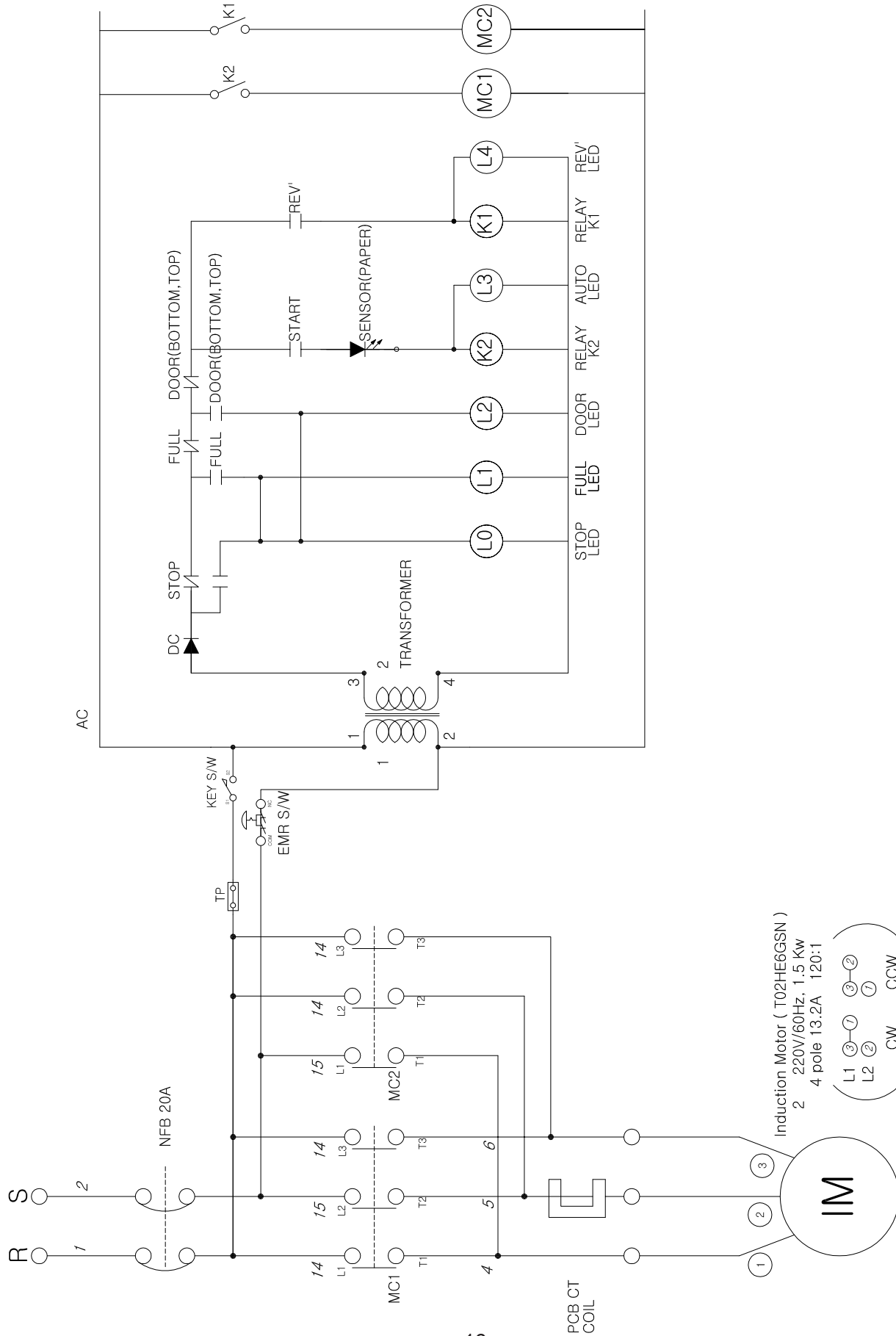
1. Switch off the shredder and unplug from wall outlet.
2. Remove right side cover.
3. Grease the synchronizing toothed wheel (B).
4. Replace side cover and plug in shredder.



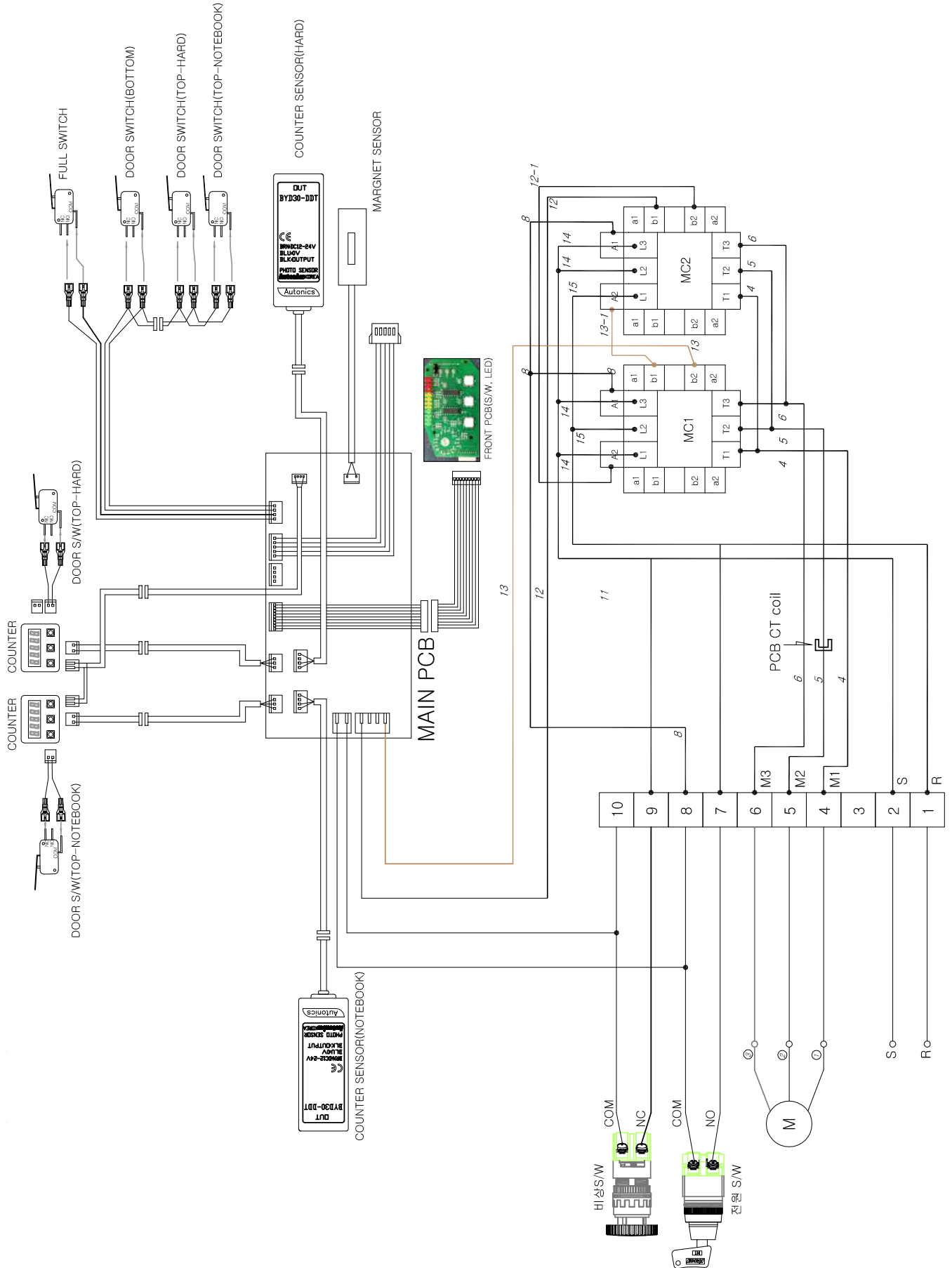
Right Side

ELECTRICAL & PARTS

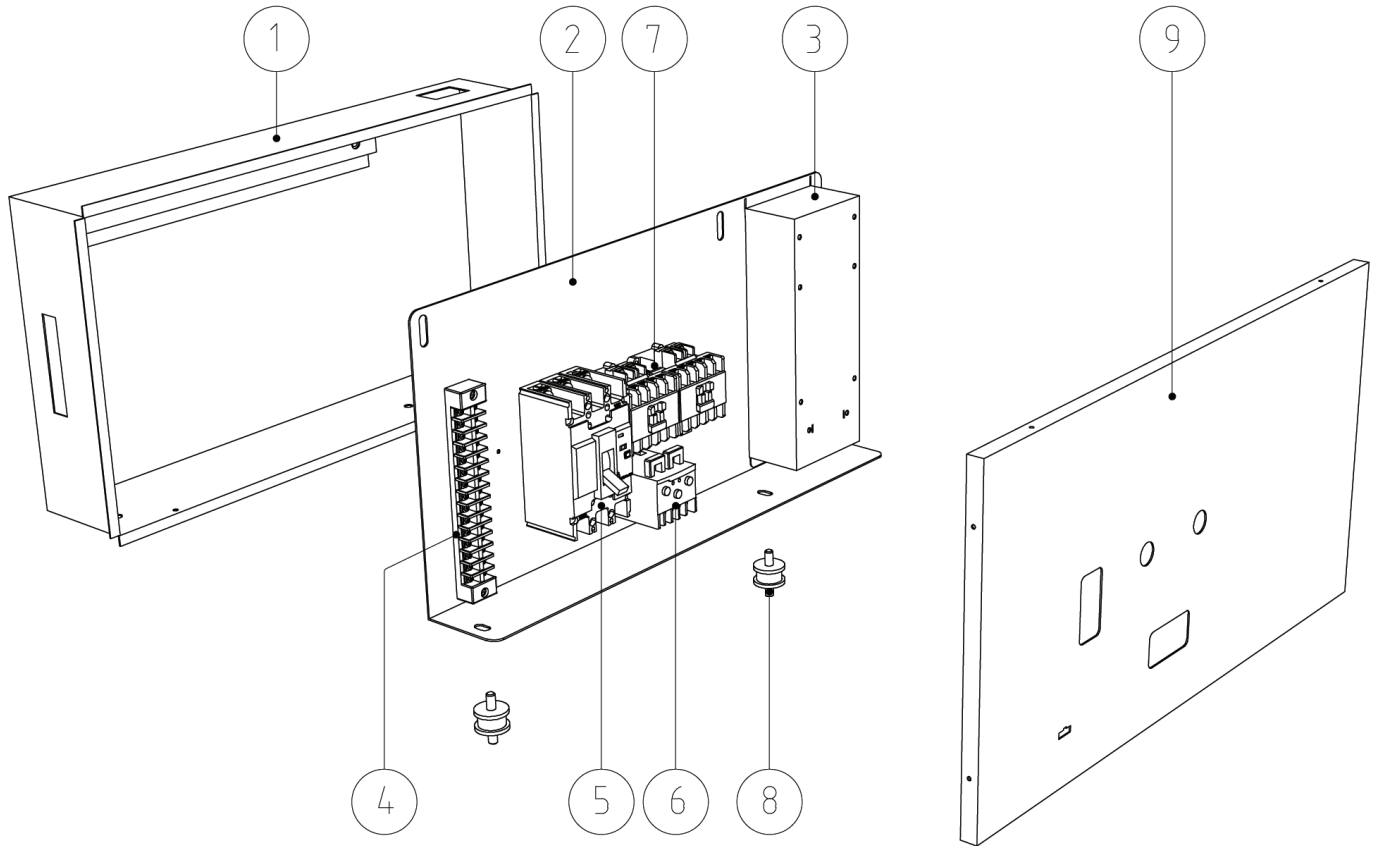
Electronic Schematic



Block Wiring Diagram

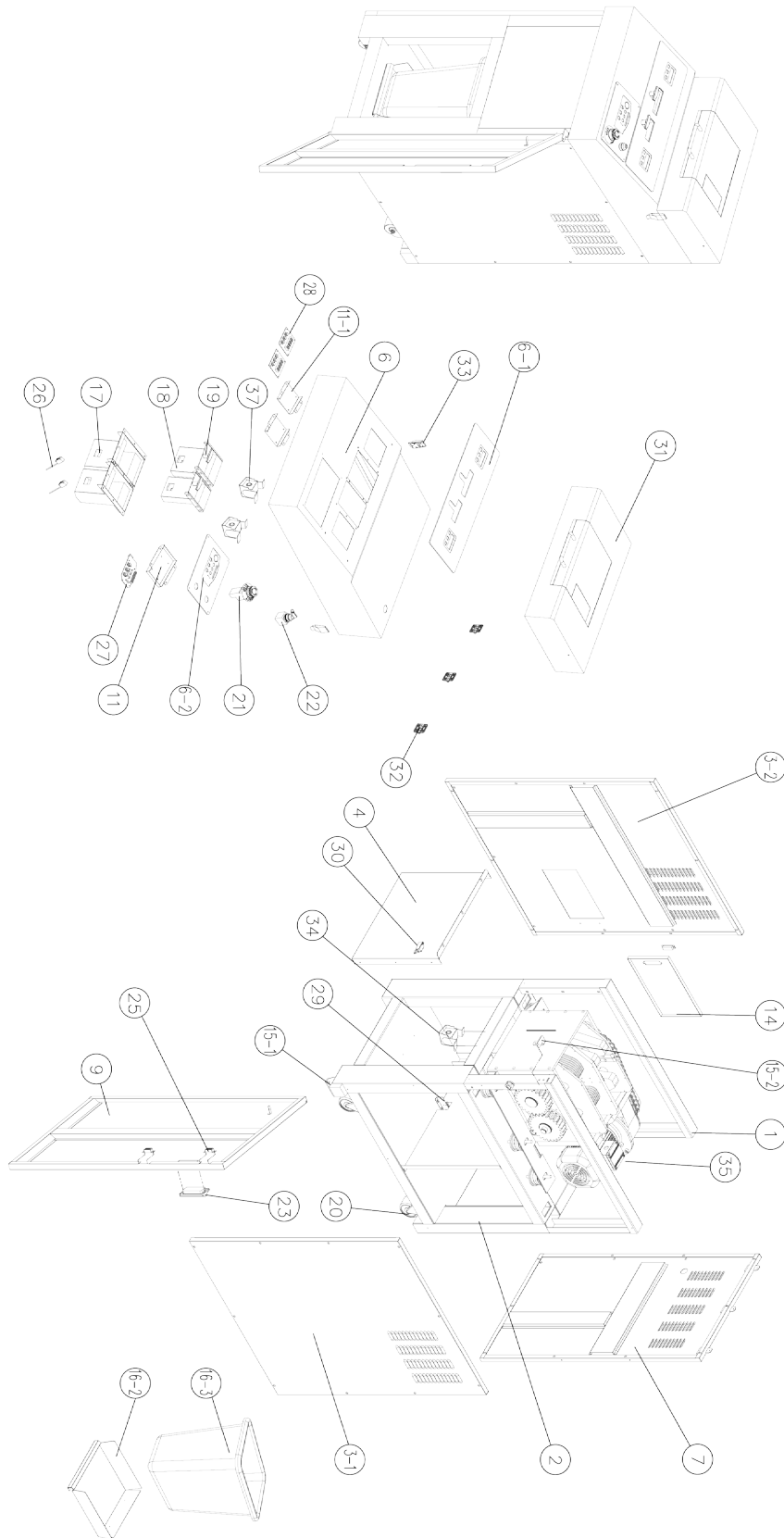


Distribution Box Diagram



Item	Part #	Description	Qty
1	FD87HDS C 001	CONTROL BOX	1
2	FD87HDS C 002	CONTROL PANEL	1
3	FD87HDS C 003	PCB BOX	1
4	FD87HDS C 004	TERMINAL BLOCK	1
5	FD87HDS C 005	CIRCUIT BREAKER	1
6	FD87HDS C 006	EOCR	1
7	FD87HDS C 007	MC	2
8	FD87HDS C 008	VIBRATION PROOF RUBBER	2
9	FD87HDS C 009	COVER	1

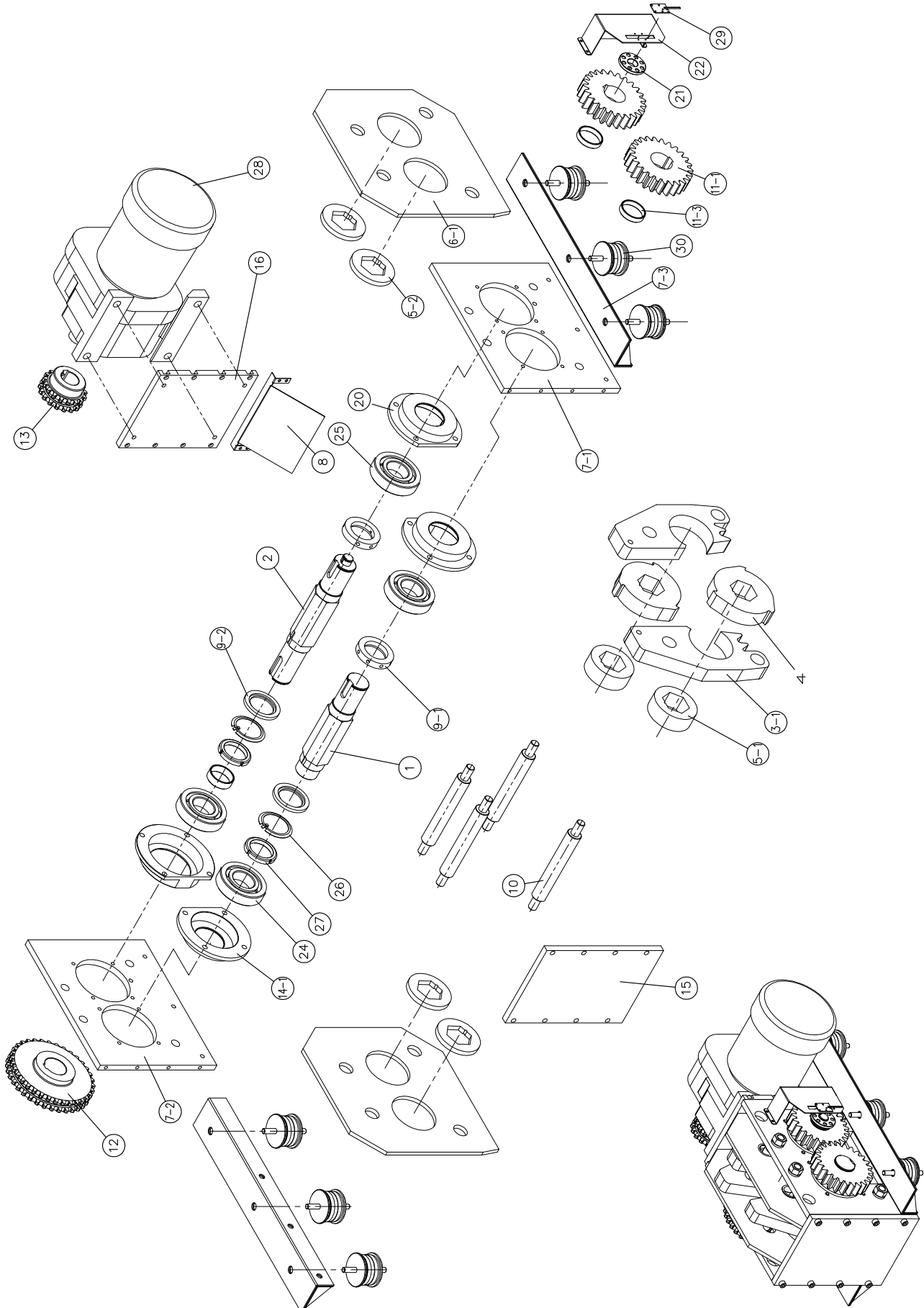
Case



Case

	Part No.	Description	Qty
1	FD87HDS-2 001	UPPER FRAME	1
2	FD87HDS-2 002	BOTTOM FRAME	1
3-1	FD87HDS-2 003	SIDE COVER RIGHT	1
3-2	FD87HDS-2 004	SIDE COVER LEFT	1
4	FD87HDS-2 005	FRONT COVER	1
6	FD87HDS-2 006	TOP CASE	1
6-1	FD87HDS-2 007	SLOT DECO A	1
6-2	FD87HDS-2 008	OPERATING PLATE	1
7	FD87HDS-2 009	REAR COVER	1
9	FD87HDS-2 010	DOOR	1
11	FD87HDS-2 011	KEYBOARD PCB COVER	1
11-1	FD87HDS-2 012	COUNTER PCB COVER	1
14	FD87HDS-2 013	PCB DOOR	1
15-1	FD87HDS-2 014	DOOR HINGE A	1
15-2	FD87HDS-2 015	DOOR HINGE B	1
16-2	FD87HDS-2 016	WASTEBASKET COVER	1
16-3	FD87HDS-2 017	HARD WASTEBASKET	1
17	FD87HDS-2 018	SLOT UNDER COVER	1
18	FD87HDS-2 019	SHARD SLOT DOOR	2
19	FD87HDS-2 020	HARD SLOT DOOR HANDLE	2
20	FD87HDS-2 021	CASTER	4
21	FD87HDS-2 022	EMERGENCY SWITCH	1
22	FD87HDS-2 023	KEY SWITCH	1
23	FD87HDS-2 024	DOOR HANDLE	1
25	FD87HDS-2 025	DORO MAGNET	2
26	FD87HDS-2 026	COUNTER SENSOR	2
27	FD87HDS-2 027	KEYBOARD PCB	1
28	FD87HDS-2 028	COUNTER PCB	1
29	FD87HDS-2 029	FULL SWITCH	1
30	FD87HDS-2 030	DOOR SWITCH	1
31	FD87HDS-2 031	BLACKBOX ASS'Y	1
32	FD87HDS-2 032	HINGE	3
33	FD87HDS-2 033	HOOK CLAMP	2
35	FD87HDS-2 034	CUTTING BLOCK	1
36	FD87HDS-2 035	CAMERA	1

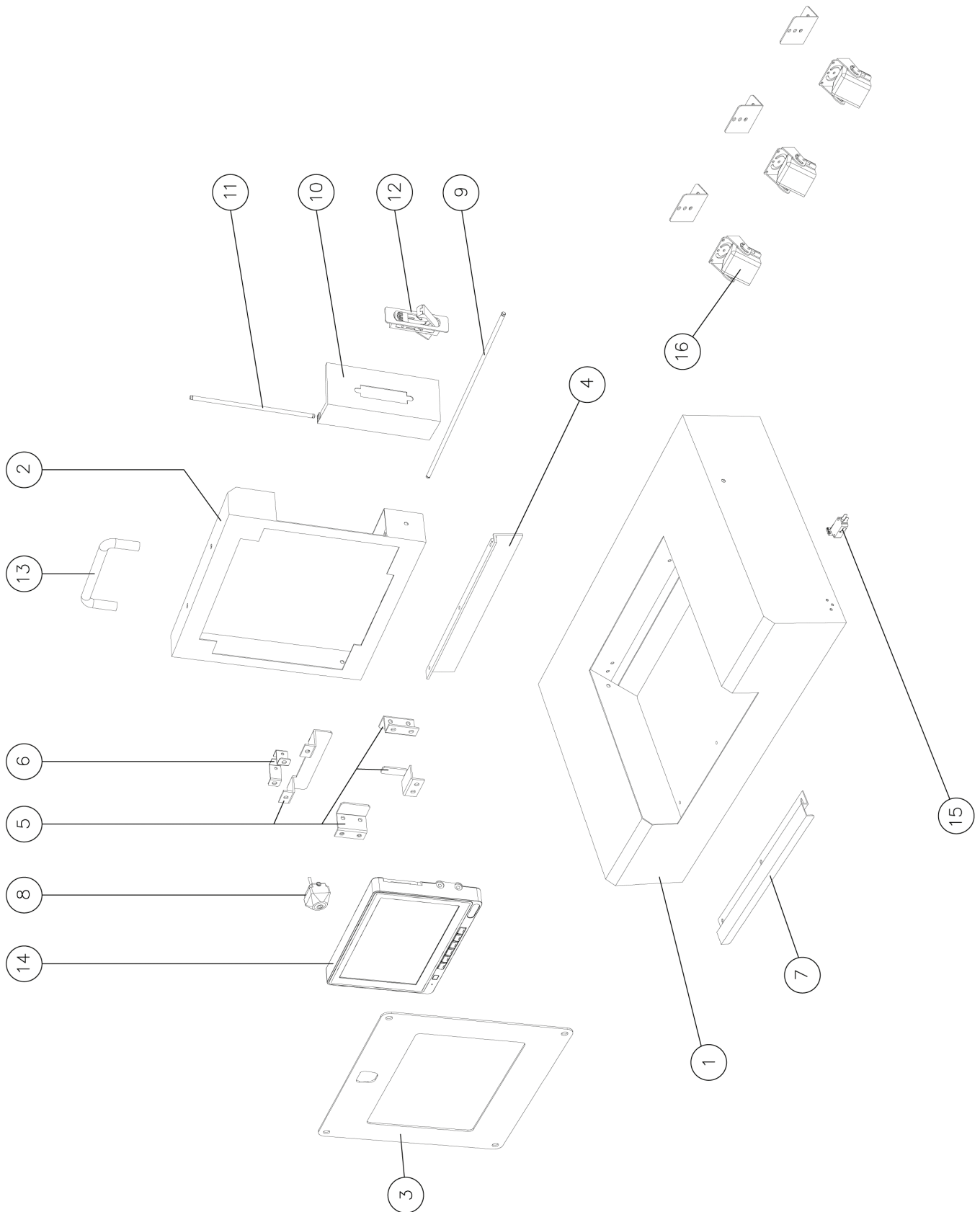
Cutting Block Diagram



Cutting Block Diagram

No.	Parts number	Description	Qty
1	13120HD-B-001	SHAFT(Short)	1
2	13120HD-B-002	SHAFT(Long)	1
3-1	13120HD-B-003	HARD DRIVE GUIDE	3
4-1	13120HD-B-004	HARD DRIVE CUTTER	3
5-1	13120HD-B-005	NOTEBOOK CUTTER	3
5-2	13120HD-B-006	GUIDE SUPPORT RING	4
6-1	13120HD-B-007	HARD GUIDE SUPPORT	2
7-1	13120HD-B-008	SIDE PLATE(R)	1
7-2	13120HD-B-009	SIDE PLATE(L)	1
7-3	13120HD-B-010	VIBRATION PROOF BRACKET	2
8	13120HD-B-011	WASTE BIN GUIDE	1
9-1	13120HD-B-012	CUTTER NUT	2
9-2	13120HD-B-013	CUTTER PUSH RING	2
10	13120HD-B-014	POST	4
11-1	13120HD-B-015	SPUR GEAR	2
11-2	13120HD-B-016	SPACE RING	2
12	13120HD-B-017	SPROCKET(SHAFT)	1
13	13120HD-B-018	SPROCKET(MOTOR)	1
14-1	13120HD-B-019	BEARING HOUSING	3
15	13120HD-B-020	FRONT COVER	1
16	13120HD-B-021	MOTOR PLATE	1
17	13120HD-B-022	FULL PLATE	1
18	13120HD-B-034	GUIDE POST RING	7
19	13120HD-B-023	BEARING HOUSING	1
20	13120HD-B-024	MAGNETIC BRACKET	1
21	13120HD-B-025	SENSOR BRACKET	1
22	13120HD-B-033	MOTOR BAND	1
23	13120HD-B-026	BEARING	3
24	13120HD-B-027	BEARING	1
25	13120HD-B-028	BEARING WASHER	2
26	13120HD-B-029	BEARING NUT	2
27	13120HD-B-030	MOTOR	1
28	13120HD-B-031	MAGNETIC SENSOR	1
29	13120HD-B-032	VIBRATION PROOF RUBBER	6

Recording System



Recording System

	No.	Description	Unit
1	FD87HDS-R 001	MEDIA BODY	1
2	FD87HDS-R 002	MONITOR BOX	1
3	FD87HDS-R 003	MONITOR COVER	1
4	FD87HDS-R 004	MONITOR BOX BRK	1
5	FD87HDS-R 005	MONITOR BRK	2
6	FD87HDS-R 006	CAMERA BRK	1
7	FD87HDS-R 007	FRONT BRK	1
8	FD87HDS-R 008	CAMERA-1	1
9	FD87HDS-R 009	MONITOR BOX POST	1
10	FD87HDS-R 010	DOOR	1
11	FD87HDS-R 011	DOOR POST	1
12	FD87HDS-R 012	CAMLOCK	1
13	FD87HDS-R 013	HANDLE	1
14	FD87HDS-R 014	MONITOR	1
15	FD87HDS-R 015	SWITCH	1
16	FD87HDS-R 016	CAMERA-2	3 SET