

- □ This course assumes that you know the AP-P1 (G133 series) colour printers. If you do not know this machine, you should either:
  - > Take a full course on the AP-P1 before you do this course
  - > Do a full course on the AP-P2.





 $\hfill\square$  Here is a view of the machine with no optional peripherals installed.



 $\hfill\square$  Here is a view of the machine with some optional peripherals installed.



□ AP-P1: Only one model







- □ The AP-P2c has the same speed as the AP-P1.
- □ For more comparisons with the AP-P1, see the 'Productivity Comparison with AP-P1' slides later in this presentation.





- □ This slide shows what you get with the base machine.
- □ USB Host interface was not a standard part of the AP-P1.
- □ The hard disk is an option for the AP-P2c.



- □ You can install the following:
  - One of the two finishers (a finisher requires the bridge unit)

The finishers also require the LCT or the two-tray paper tray unit. The one-tray paper tray unit is not tall enough to allow a finisher to be installed.

- > One of the following combinations of paper trays.
  - One-tray paper feed unit only
  - Two-tray paper feed unit only
  - LCT only
  - One-tray paper feed unit + two-tray paper feed unit
- There is no optional one-bin tray









- □ IEEE 802.11g: For Taiwan, China, Bulgaria, Croatia, Romania, and Jordan
- Out of the following units, only one can be installed: IEEE802.11, IEEE1284, Bluetooth





 $\hfill\square$  Only one of the printer interface options can be installed in this model.



□ The VM card and the PostScript card are protected by copyright.











- Details of procedures for customers are in the Security Reference Operation Manual, in the following section.
  - > 3. Ensuring Information Security, Encrypting Data on the Hard Disk



The memory chip on the controller board is sometimes called the "USB Flash memory".









Service manual, Installation, HDD Encryption Unit, Recovery from a Device Problem

- □ The service manual contains two procedures for restoring the encryption key.
  - > The first one assumes that the original encryption key has not been lost.
  - The second one is for use when the user has forgotten the encryption key and lost the printout that was made by the machine.
- The operation manual does not refer to these procedures. Instead, the user is instructed to 'update the encryption key', which actually means 'make a new one'.





The operation manual explains how to make a new encryption key, as explained on the previous slide.





		AP-P2c	AP-P2d	AP-P1d
PPM (Color / B&W )		40ppm/40ppm	50ppm/50ppm	40ppm/40ppm
First Print	Color	9sec or less	9sec or less 8sec or less 9sec or	
Speed	B/W	8sec or less	7 sec or less	8sec or less
Warm-up Time		34 sec or less	48 sec or less	60sec or less
CPU		Celeron		
		600MHz	Celeron TGHZ	Celeron 866MHZ
Memory (Std./Max.)		512MB/1024MB	512MB/1024MB	256MB/512MB
Resolution		600 x 600dpi	600 x 600dpi	600 x 600dpi
		1800 x 600dpi	1800 x 600 dpi	1200 x 600 dpi
		9000 x 600dpi	9000 x 600 dpi	1200 x 1200 dpi
		1200x1200dpi	1200x1200dpi	N/A

□ Improvements are shown in yellow-shaded cells.

## **Productivity Comparison with AP-P1**

HDD         Optional(80GB)         Standard(80GB)         Standard(40GB)           Paper weight: Standard tray         16-67lbs         16-67lbs         16-57lbs           Paper weight: Standard tray         60-256g/n1         60-256g/n1         60-216g/n1           Paper weight: Bypass         16-67lbs         16-67lbs         60-256g/n1           Paper weight: LCT         16-67lbs         16-67lbs         60-256g/n1	HDD         Optional(80GB)         Standard(80GB)         Standard(40GB)           Paper weight: Standard tray         16-67lbs         16-67lbs         16-57lbs           Paper weight: Standard tray         60-256g/m²         60-256g/m²         60-216g/m²           Paper weight: Bypass         16-67lbs         16-67lbs         16-67lbs           Paper weight: LCT         16-67lbs         16-67lbs         16-57lbs           Paper weight: LCT         16-67lbs         16-67lbs         16-57lbs	HDD         Optional(80GB)         Standard(80GB)         Standard(40GB)           Paper weight: Standard tray         16-67lbs         16-67lbs         16-57lbs           Paper weight: Bypass         16-67lbs         60-256g/m²         60-256g/m²           Paper weight: Bypass         16-67lbs         16-67lbs         16-67lbs           Paper weight: LCT         16-67lbs         60-256g/m²         60-256g/m²           Paper weight: LCT         16-67lbs         16-67lbs         16-57lbs           60-256g/m²         60-256g/m²         60-256g/m²         60-216g/m²	HDD Paper weight: Standard tray	Optional(80GB)	Standard(80GB) 16-67lbs	Standard(40GB)
Paper weight: Standard tray         16-67lbs 60-256g/m²         16-67lbs 60-256g/m²         16-67lbs 60-216g/m²           Paper weight: Bypass         16-67lbs 60-256g/m²         16-67lbs         16-67lbs           Paper weight: LCT         16-67lbs         60-256g/m²         60-256g/m²	Paper weight: Standard tray         16-67lbs         16-67lbs         16-67lbs           Baper weight: Bypass         60-256g/n²         60-256g/n²         60-216g/n²           Paper weight: Bypass         16-67lbs         16-67lbs         16-67lbs           Baper weight: LCT         16-67lbs         60-256g/n²         60-256g/n²           Baper weight: LCT         60-256g/n²         60-256g/n²         60-216g/n²	Paper weight: Standard tray         16-67lbs         16-67lbs         16-67lbs           60-256g/m²         60-256g/m²         60-216g/m²           Paper weight: Bypass         16-67lbs         16-67lbs           60-256g/m²         60-256g/m²         60-256g/m²           Paper weight: LCT         16-67lbs         16-67lbs           60-256g/m²         60-256g/m²         60-256g/m²           60-256g/m²         60-256g/m²         60-216g/m²	Paper weight: Standard tray	16-67lbs	16-67lbs	16 E7lba
Paper weight: Standard tray         60-256g/m²         60-256g/m²         60-216g/m²           Paper weight: Bypass         16-67lbs         16-67lbs         16-67lbs         16-67lbs           Paper weight: LCT         16-67lbs         60-256g/m²         60-256g/m²         60-256g/m²	Paper weight: Standard tray         60-256g/ml         60-256g/ml         60-216g/ml           Paper weight: Bypass         16-67lbs         16-67lbs         16-67lbs         60-256g/ml           Paper weight: LCT         16-67lbs         60-256g/ml         60-256g/ml         60-256g/ml           Paper weight: LCT         16-67lbs         16-67lbs         16-57lbs         16-57lbs           Paper weight: LCT         60-256g/ml         60-256g/ml         60-216g/ml	Paper weight: Standard tray         60-256g/m²         60-256g/m²         60-216g/m²           Paper weight: Bypass         16-67lbs         16-67lbs         16-67lbs           60-256g/m²         60-256g/m²         60-256g/m²         60-256g/m²           Paper weight: LCT         16-67lbs         16-67lbs         16-57lbs           60-256g/m²         60-256g/m²         60-256g/m²         60-216g/m²	Paper weight: Standard tray	00.050-1.3		10-57 IDS
Paper weight: Bypass         16-67lbs 60-256g/m²         16-67lbs 60-256g/m²         16-67lbs 60-256g/m²           Paper weight: LCT         16-67lbs         16-67lbs	Paper weight: Bypass         16-67lbs         16-67lbs         16-67lbs           60-256g/m²         60-256g/m²         60-256g/m²         60-256g/m²           Paper weight: LCT         16-67lbs         16-67lbs         16-57lbs           60-256g/m²         60-256g/m²         60-256g/m²         60-216g/m²	Paper weight: Bypass         16-67lbs 60-256g/m²         16-67lbs 60-256g/m²         16-67lbs 60-256g/m²           Paper weight: LCT         16-67lbs 60-256g/m²         16-67lbs 60-256g/m²         16-67lbs 60-256g/m²		60-256g/m	60−256g/㎡	<b>60–216g/</b> m <sup>2</sup>
Paper weight: Bypass         60-256g/m²         60-256g/m²         60-256g/m²           Paper weight: LCT         16-67lbs         16-67lbs         16-57lbs	Paper weight: Bypass         60-256g/n <sup>2</sup> 60-256g/n <sup>2</sup> Paper weight: LCT         16-67lbs         16-67lbs         16-57lbs           60-256g/n <sup>2</sup> 60-256g/n <sup>2</sup> 60-216g/n <sup>2</sup> 60-216g/n <sup>2</sup>	Paper weight: Bypass         60-256g/m²         60-256g/m²         60-256g/m²           Paper weight: LCT         16-67lbs         16-67lbs         16-57lbs           60-256g/m²         60-256g/m²         60-216g/m²         60-216g/m²	B	16-67lbs	16-67lbs	16-67lbs
Paper weight: LCT 16-67lbs 16-67lbs 16-57lbs	16-67lbs         16-67lbs         16-57lbs           Paper weight: LCT         60-256g/m²         60-256g/m²         60-216g/m²	16-67lbs         16-67lbs         16-57lbs           Paper weight: LCT         60-256g/m²         60-256g/m²         60-216g/m²	Paper weight: Bypass	60-2 <b>56g/</b> m <sup>2</sup>	<b>60</b> –2 <b>56g/</b> m <sup>2</sup>	<b>60–256g/</b> m <sup>2</sup>
Paper weight: LCT	60-256g/m <sup>2</sup> 60-256g/m <sup>2</sup> 60-216g/m <sup>2</sup>	Paper weight: LC1         60-256g/m²         60-256g/m²         60-216g/m²	Des se unights I CT	16-67lbs	16-67lbs	16-57lbs
<b>60-256g/m 60-256g/m 60-216g/</b> m	· · ·		Paper weight. LCT	<b>60-256g/</b> m <sup>2</sup>	<b>60−256g/</b> ㎡	<b>60–216g</b> /m <sup>2</sup>

 $\hfill\square$  Improvements are shown in yellow-shaded cells.





### AP-P1

- □ Unit life (3 prints per job): 3000K or 5 years
- □ Average Print Volume per month:8K
- □ Max Print Volume per month: 50K (Target Color Ratio: 70%)

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- □ The toner cartridges are not compatible with other products.
- $\hfill\square$  There is only one type of toner cartridge.
- □ The AP-P1 has two types
  - ➢ High yield cartridge: Black 20K, Color 15K
  - > Low yield cartridge: Black 10K, Color 8K



PCU: 40K prints
PcU: 40K prints
Pusing Unit: 160K prints
Used Toner Bottle: 40K prints
The used toner bottle is the same as the AP-P1.
Transfer unit: 200K prints

### Changes from AP-P1

- □ Fusing unit changed from 120k to 160k
- □ Transfer unit changed from 160k to 200k







# **Process Speeds**

Mode	Resolution (dpi)	Process speed (mm/s)	Copy speed (ppm)
Plain, Middle	All except 1200x1200	P2c: 205 P2d: 230	P2c: 40 P2d: 50
FC)	1200 x 1200	77	P2c: 17.5 P2d: 17.5
Thick 1 (B/W, FC)	All	154	25
Thick 2/3 (B/W, FC)	All	77	17.5

- □ The process speed is the feed speed from registration roller to the fusing unit.
- □ The process speed affects various machine parameters, as can be seen if you take a quick look through the SP tables.
- □ What is 'middle thick paper'? See the next slide.
#### **Paper Weights**

- □ Thin paper: 60g/m<sup>2</sup> (16lb)
- □ Normal plain paper: 60 90 g/m<sup>2</sup> (16 24 lb.)
- □ Middle Thick: 90 105 g/m<sup>2</sup> (24 28 lb.)
- □ Thick 1: 105 169 g/m<sup>2</sup> (28 45 lb.)
- □ Thick 2: 169 220 g/m<sup>2</sup> (45 58 lb.)

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□ Thick 3: 220 – 256 g/m<sup>2</sup> (58 – 67 lb.)
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□ This machine does not support thin paper.

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- 'Thin paper' is an additional paper weight setting that the user can select at the operation panel if the 'plain paper' setting causes problems.
- □ The maximum paper weight has changed to 256 g/m2.



- □ The AP-P1 had a total of seven sensors. In the AP-P2 series, the sensor in the red circle does two jobs, so one sensor was eliminated from the design.
- □ When the sensors are not used, the solenoid moves the shutter to cover the sensors. This prevents dust on the sensors.



- □ This is a view of the internal structure of the machine.
- □ Major differences from the AP-P1 are indicated with a red circle.
  - > Belts are added to the vertical transport rollers, to help feed thick paper.
  - The fusing unit does not contain a fusing belt. The IH inverter heats the roller directly.
  - > Decurler rollers are added to the paper exit.





□ The only difference is that the junction gate motor has been removed. A solenoid is used in the AP-P2.



- □ This shows a schematic of the electrical layout of the machine.
- □ The service manual has details about what the components do, and what the acronyms mean (such as EGB). The main points are on the next slide.



 $\square$  This is what you see when the controller box is closed.



 $\hfill\square$  This is a view of what is behind the IOB, FCU and G3 interface unit



 $\hfill\square$  This is what you see when the controller box is open









AP-P1

- □ VSG adjustment is always done during initial process control.
- But, at other times, it is only done if the VSG adjustment counter (SP3-510-007) is more than the value set with SP3-511-007 (default: 500) during a job or at job end.











□ The text in red shows the changes since the previous model.







- □ The red circle shows the significant changes in PCU structure.
- □ In the AP-P1, the cleaning roller is to the lower right of the charge roller, and the development unit is deeper.
- □ Lubricant application blade: The new position allows the blade to apply the lubricant coat more evenly. This reduces the occurrence of dirty stripes.



 $\hfill\square$  This slide allows you to compare the two PCUs.











□ The timing of this procedure has changed since the AP-P1.



□ The structure of the development unit is slightly different from the AP-P1, so a new diagram is needed.







□ The mechanism for black is shown as an example.



- □ This diagram shows how the augers move the toner around inside the development unit.
- □ The developer circulates as shown by the red arrow, which is in the opposite direction from the previous model.
  - > The diagram in the documentation for the previous model was incorrect.
- □ With this method, the TD sensor works better.
  - There is less turbulence in the area immediately above the sensor, which means there is less air, and a more accurate reading of toner density.









□ Modified areas are circled in red.









AT-P1: When the waste toner sensor detects the actuator, the 'near-full' condition occurs. At this time, the machine can make 500 more copies. Then the 'full' condition occurs and the machine stops.













#### Warm-up times (220V model)

- □ AP-P1c (40ppm) 60 s
- □ AP-P2c (40cpm) 34 s. AP-P2d (50cpm) 48 s

#### Why is there no lubrication in the fusing unit?

□ The toner has been changed. This new type of toner is easily removed from the heating roller. So an oil lubrication system is not necessary.



□ This slide lets you compare the new fusing unit with the old one.




□ The AP-P1 does not have this.



□ This is a different system from the AP-P1.

### Apollon-P2 Training

### **RICOH**





- □ The AP-P1 does not have a motor.
- □ This mechanism makes it easy to remove jams in the fusing unit.









 $\square$  Step 5 shows how to release the pressure.



□ Other overheat prevention limits are the same as the AP-P1.



### Fusing cleaning mode can be adjusted with the following SPs.

- □ Fusing cleaning mode ON/OFF with SP1123-001 (default: OFF)
- □ Forced fusing cleaning mode execution with SP1123-002
- Heating roller temperature during cleaning mode with SP1123-003 (default: 185°C)
- Execution time with SP1123-004 (default: 160 seconds)
- □ Execution interval with SP1123-005 (default: 500 sheets)







### Apollon-P2 Training





Do this cleaning procedure after the fusing unit has completely cooled down. Otherwise, you may get a serious burn.

Do not push the thermostat [A] on the IH coil unit. If you do, the thermostats will be opened. In that case, the IH coil unit must be replaced.























- □ This symptom disappears after 1500 pages.
- Paper dust attaches itself to the paper feed roller (this roller has a width of 23mm). This abrades the new fusing roller, causing a damaged area 23 mm in width.
- □ The area on the image that corresponds to the abraded area appears glossy when compared with other parts of the image.
- □ However after printing 1500 sheets, the fusing roller is evenly worn, and the difference in glossiness disappears.





□ Study the procedure in the service manual.

Service Manual - System Maintenance Reference - Card Save Function

- Note that there is no message on the screen to indicate that a file was copied to the SD card successfully. But there are some error messages that appear if things go wrong.
- □ If an error occurs, press "OK". The device will discard the job and return to the ready state.



 $\hfill\square$  This is a new option for this series.





### Components

- □ Paper is transferred by two transfer rollers.
- Solenoid operates junction gate, directing paper flow.
- □ Each bin has a sensor to detect when full.
  - When capacity has been reached, the print job is halted. This prevents jamming from occurring when tray has reached its capacity.

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