

C O N T E N T S

- 1.1. General, 1-3
- 1.2. Precautions on Service and Maintenance, 1-4
 - 1.2.1. General Precautions, 1-4
 - 1.2.2. Notes on Power Source, 1-4
 - 1.2.3. Static, 1-4
 - 1.2.4. Replacement Parts, 1-4
 - 1.2.5. Notes on Handling the Drum Unit, 1-5
 - 1.2.6. Toner, 1-5
 - 1.2.7. Removing the Printer, 1-5
 - 1.2.8. Storage, 1-6
- 1.3. Paper, 1-7
 - 1.3.1. Paper Availability, 1-7
 - 1.3.2. Selecting the Right Paper, 1-8
 - 1.3.3. Special Paper, 1-10
- 1.4. Maintenance Schedule, 1-14
 - 1.4.1. Supplying Toner, 1-14
- 1.5. Jigs and Tools, 1-15
- 1.6. Product information, 1-17
 - 1.6.1. Printer specifications, 1-17

1 | G E N E R A L I N F O R M A T I O N

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1.1. General

The Kyocera FS-400/A page printer combines the long life print drum, developer, and the fuser unit. Its engine has been designed to last longer than any other page printer.

It's a self-reliant, versatile machine with considerable native intelligence. Using its own micro-processor and memory, the printer tests itself and in general, looks after itself with a minimum of help.

In case of internal trouble which the user's maintenance activity should be limited, the printer tells the need for attention on its display whether it is caused of mechanism (*E* codes) or controller electronics error (*F* codes). The corrective actions to be taken to these messages are explained in Chapter 4 **Troubleshooting**.

1.2. Precautions on Service and Maintenance

Observe the precautions which follow before and during service and maintenance to prevent personal injury to the technician and damage to the printer.

1.2.1. General Precautions

Only a qualified technician should perform the service on the printer, who is familiar with fundamental safety countermeasures as dictated for all electronics technicians.

1.2.2. Notes on Power Source

- ❖ Use only the power source voltage conforming to the printer's rated power voltage. Do not use other power sources.
- ❖ Disconnect the printer from the power source before attempting removal or replacement of the electrical components and the printed-circuit board.
- ❖ The printer should not be connected to a power source until the instruction is given to do so when performing tests described in this manual.
- ❖ In connecting the printer power, exercise an extreme care in handling the power supply or any other electric parts which may give an electric shock.
- ❖ Before performing maintenance or repair, power from both the power source and the associated peripheral devices should be disconnected, unless otherwise specified.
- ❖ To avoid possible electrical shock, extreme caution must be exercised in handling the power cord and any other electrical part.

1.2.3. Static

Use antistatic (discharging) tools, e.g., an antistatic wrist belt, when handling the printed-circuit boards to discharge the human body.

1.2.4. Replacement Parts

Replace the components with only the manufacturer's recommended components. Use of non-recommended parts will void the printer's warranty. Recommended parts are listed in Chapter 5 Parts Catalog, in **bold letters**.

1.2.5. Notes on Handling the Drum Unit

- ❖ Avoid impact on the drum unit.
- ❖ To avoid scratching the drum, keep it away from hard object.
- ❖ Do not touch the surface of the drum cartridge. When the drum gets dirty, wipe it with a cloth slightly soaked in isopropyl alcohol.

1.2.6. Toner

Caution: We recommend using only proprietary Kyocera TK-11 toner kit.

- ❖ Shake the toner container well (in the horizontal direction) before use.
- ❖ The toner container should be stored in areas of low temperature and humidity.

On how to add toner in the developer, refer to the printer's USER MANUAL.

1.2.7. Removing the Printer

Observe the following precautions in removal and transportation of the printer.

- ❖ When removing the printer, remove the trays and the developer unit from the printer. To remove the developer unit, see Chapter 3 **Disassembly**.
- ❖ Be sure to repack the printer in its original carton. The repacking procedure is printed on the carton.
- ❖ Do not leave the printer, toner, and other printer modules inside a vehicle if the outdoor temperature is more than 25° C. As unexpectedly high temperature may develop inside when a vehicle is parked for a long period of time, the drum, toner, and the supplies should be removed from the vehicle. The vehicle during transportation should be parked in the shade or with the windows open to allow minimum air circulation or the adequate air conditioning should be made.
- ❖ If the printer is left in a vehicle, avoid a rapid temperature change of greater than 7°C within 30 minutes.
- ❖ Before removing the printer to a warm place, wrap it in a blanket, etc., before crating it. Allow approximately two to three hours after having moved after uncrated. Failure to observe the above may result in moisture condensation which will affect the performance of the printer.

1.2.8. Storage

The printer, drum unit, toner container, and other modules should be stored keeping the following in mind:

- ❖ Store the printer in the original carton.
- ❖ Do not stack more than six cartons. Do not stand the carton upside-down or sideways.
- ❖ Ship the earlier carton first.
- ❖ Store the printer in cool, dark, and low humidity area.
- ❖ Avoid areas where excessive dust may develop.
- ❖ Avoid areas where ammonia or organic gas may develop.

1.3. Paper

The page printer is designed to print on high-quality copier bond paper (the kind used in ordinary dry copier machines), but it can accept a variety of other types of paper as well within the limits specified below.

Note: Kyocera assume no liability for problems that occur when paper not satisfying these requirements is used with the printer.

Selection of the right paper is important. The wrong paper can result in jams, misfeeds, curl, poor print quality, and paper waste, and in extreme cases can damage the printer. The guidelines given below will increase the productivity of your office by ensuring efficient, trouble-free printing and reducing wear on the printer.

1.3.1. Paper Availability

Most types of paper are compatible with a variety of machines. Paper intended for xerographic copiers and small offset duplicators can also be used with the printer.

There are three general grades of paper: **economy**, **standard**, and **premium**. The most significant difference between grades is the ease with which they pass through the printer. This is affected by the smoothness, size, and moisture content of the paper, and the way in which the paper is cut. The higher the grade of paper you use, the less risk there will be of paper jam and other problems, and the higher the level of quality your printed output will reflect.

Differences between paper from different suppliers can also affect the printer's performance. A high-quality printer cannot produce high-quality results when the wrong paper is used. Low-priced paper is not economical in the long run if it causes printing problems.

Paper in each grade is available in a range of basis weights (defined later). The traditional standard weights are **16**, **20**, and **24** pounds.

The following table summarizes the basic paper specifications. Details are given on the following pages.

| Item | Specification |
|-----------------------|---|
| Weight | 60 to 90 g/m ² (16 to 24 lbs/ream) |
| Thickness | 0.086 to 0.110 mm (3.4 to 4.3 mils) |
| Dimensional accuracy | ± 0.7 mm (± 0.0276 inches) |
| Squareness of corners | 90 ± 0.2° |
| Moisture content | 4 to 6% |
| Direction of grain | Long grain |
| Pulp content | 80% or more |

1.3.2. Selecting the Right Paper

Printing with the page printer is a process involving LED light, electrostatic discharge, toner, and heat. In addition, as the paper passes through the printer it undergoes considerable sliding, bending, and twisting motions. A high-quality printing paper matching the printer's requirements with-stands all these stresses, enabling the printer to turn out clean, crisp printed copy consistently.

Remember that all paper is *not* the same. Some of the factors to consider when selecting paper for the printer are as follows:

Condition of the Paper

Avoid using paper that is bent at the edges, curled, dirty, torn, or contaminated with lint, clay, or paper shreds.

Use of paper in these conditions can lead to illegible printing, misfeeding, and paper jams, and can shorten the life of the printer. In particular, avoid using paper with a surface coating or other surface treatment. The paper should have as smooth and even a surface as possible.

Composition

Do not use paper that has been coated or surface-treated and contains plastic or carbon. The heat of fusing can cause such paper to give off harmful fumes.

Bond paper should contain at least 80% pulp. Not more than 20% of the total paper content should consist of cotton or other fibers.

Paper Size

The printer accepts the paper sizes listed below for automatic feed. The dimensional tolerances are ± 0.7 mm (± 0.0276 inches) for the length and width. The angle at the corners must be $90 \pm 0.2^\circ$.

| Size | Cassette |
|--------|---|
| Letter | 8.5 × 11 inches |
| Legal | 8.5 × 14 inches (The optional paper cassette must be used.) |
| JIS A4 | 21 × 29.7 cm |
| JIS B5 | 18.2 × 25.7 cm |
| JIS A5 | 14.8 × 21 cm |

Other sizes of paper can be fed manually. The minimum size of manually fed paper is 8 × 14.8 cm (3.1 × 5.8 inches), fed lengthwise. The maximum size is 21.6 × 35.6 cm (8.5 × 14 inches).

The printer recognizes paper sizes as commanded by the front panel MODE SELECT, but regards all manually fed paper as having the Legal size.

Smoothness

The paper should have a smooth, uncoated surface.

Paper with a rough or sandy surface can cause voids in the printed output. Paper that is too smooth, however, can cause multiple feeding and fogging problems. (Fogging is a gray background effect.)

Basis Weight

Basis weight is the weight of a standard quantity of paper. In the traditional system the standard quantity is a ream consisting of 500 sheets measuring 17 × 22 inches each. In the metric system the standard quantity is 1 square meter.

Paper that is too light or too heavy can cause misfeeding, jams, multiple feeds, print defects, poor toner fusing, blurring, and other print quality problems. The proper weight is: **60 to 90 g/m²** (16 to 24 lbs/ream).

Thickness (Caliper)

Thick paper is referred to as high-caliper paper and thin paper as low-caliper paper. The paper used with the printer should be neither extremely thick nor extremely thin. If you are having problems with paper jams, multiple feeds, and faint printing, the paper may be too thin. If you are having problems with paper jams and blurred printing the paper may be too thick. The proper thickness is: **0.086 to 0.110 mm (3.4 to 4.3 mils)**.

Moisture Content

Moisture content is defined as the percent ratio of moisture to the dry mass of the paper. Moisture can affect the paper's appearance, feedability, curl, electrostatic properties, and toner fusing characteristics.

The moisture content of the paper varies with the relative humidity in the room. When the relative humidity is high and the paper absorbs moisture, the paper edges expand, becoming wavy in appearance. When

the relative humidity is low and the paper loses moisture, the edges shrink and tighten, and print contrast may suffer.

Wavy or tight edges can cause misfeeding and alignment anomalies. The moisture content of the paper should be: **4% to 6%**.

To ensure the proper moisture content it is important to store the paper in a controlled environment. Some tips on moisture control are:

- ❖ Store paper in a cool, dry location.
- ❖ Keep the paper in its wrapping as long as possible. Rewrap paper that is not in use.
- ❖ Store paper in its original carton. Place a pallet etc. under the carton to separate it from the floor.
- ❖ After removing paper from storage, let it stand in the same room as the printer for 48 hours before use.
- ❖ Avoid leaving paper where it is exposed to heat, sunlight, or damp.

Paper Grain

When paper is manufactured, it is cut into sheets with the grain running parallel to the length (long grain) or parallel to the width (short grain). Short grain paper can cause feeding problems in the printer. All paper used in the printer should be long grain. Direction of grain should be **long**.

Other Paper Properties

Porosity: Refers to the density of the paper structure; that is, to how openly or compactly the fibers are bonded.

Stiffness: Limp paper can buckle inside the printer, while paper that is too stiff may bind. Either way the result is a paper jam.

Curl: Most paper has a natural tendency to curl in one direction. The paper should be loaded so that the natural curl is downward, to counteract the upward curl imparted by the printer. Printed sheets will then come out flat. Most paper also has a top and bottom surface. Loading instructions are usually given on the paper package.

Electrostatic properties: During the printing process the paper is electrostatically charged to attract the toner. The paper must be able to release this charge so that printed sheets do not cling together in the output tray.

Whiteness: The contrast of the printed page depends on the whiteness of the paper. Whiter paper provides a sharper, brighter appearance.

Quality control: Uneven sheet size, corners that are not square, ragged edges, welded (uncut) sheets, and crushed edges and corners can cause the printer to malfunction in various ways. A quality paper supplier should take considerable care to ensure that these problems do not occur.

Packaging: Paper should be packed in a sturdy carton to protect it from damage during transport. Quality paper obtained from a reputable supplier is usually properly packaged.

1.3.3. Special Paper

The following types of special paper can be used:

- ❖ Recycled paper
- ❖ Overhead projection (OHP) film
- ❖ Adhesive-backed label paper
- ❖ Envelopes
- ❖ Colored paper
- ❖ Preprinted paper

Use paper that is sold specifically for use with copiers or page printers (heat-fusing type). OHP film, label paper, and envelopes should not be placed in the cassette; they must be fed manually and stacked face up.

Since the composition and quality of special paper vary considerably, special paper is more likely than white bond paper to give trouble during printing. No liability will be assumed if moisture etc. given off in printing on special paper causes harm to the machine or operator.

Note: Before purchasing any type of special paper, test a sample on the printer and check that printing quality is satisfactory.

Specifications for each type of special paper are given below.

Recycled paper

Select recycled paper that meets the same specifications as the white bond paper except whiteness.

Overhead Projection (OHP) Film

OHP film must be able to withstand the heat of fusing during the printing process. It should satisfy the conditions provided below.

| Item | Specification |
|-----------------------|--|
| Tolerance of heat | Must tolerate at least 190° C (374° F) |
| Thickness | 0.100 to 0.110 mm (3.9 to 4.3 mils) |
| Dimensional accuracy | ± 0.7 mm (± 0.0276 in) |
| Squareness of corners | 90 ± 0.2° |

To avoid trouble, OHP film must be delivered face-down.

If OHP film jams frequently, pull the top of the sheet very gently as it leaves the printer.

1 The option envelope feeder EF-1 allows the printer to automatic feed envelopes.

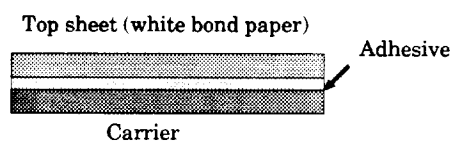
Adhesive-Backed Labels

The basic rule for printing on adhesive labels is that the adhesive must never come into contact with any part of the printer. Adhesive paper sticking to the drum or rollers will damage the printer.

Label paper must be manually fed.

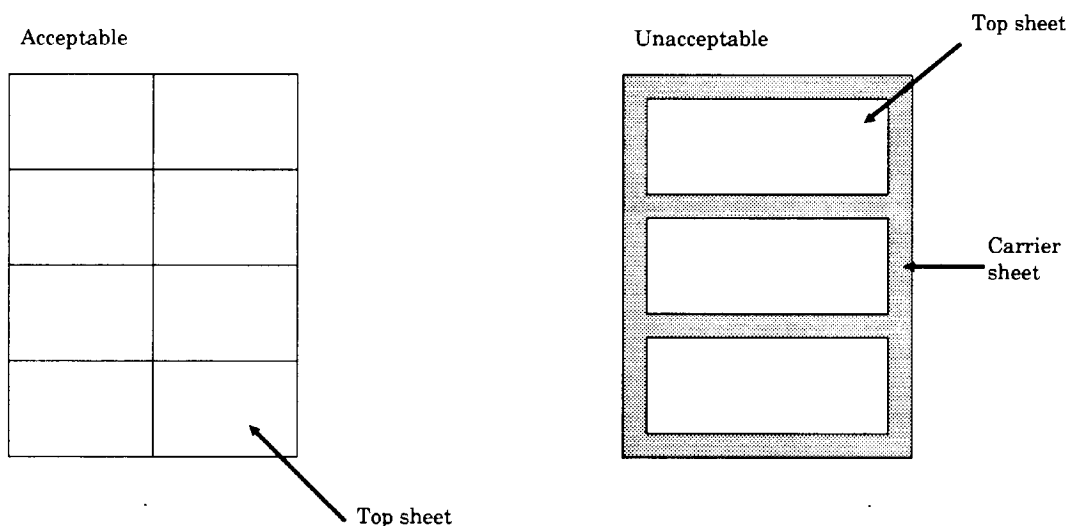
Label paper has a structure consisting of three layers, as shown in Figure 1.1. The top sheet is printed on. The adhesive layer consists of pressure-sensitive adhesives. The carrier sheet (also called the linear or backing sheet) holds the labels until use. Due to the complexity of its composition, adhesive-backed label paper is particularly likely to give trouble in printing.

Figure 1.1. Adhesive-backed Label



Adhesive label paper must be entirely covered by its top sheet, with no spaces between the individual labels. Labels with spaces in between are apt to peel off, causing serious jam problems. See Figure 1.2.

Figure 1.2. Label Arrangement



Some label paper is manufactured with an extra margin of top sheet around the edge. Do not remove the extra top sheet from the carrier sheet until after printing is finished.

The table below lists the specifications for adhesive label paper.

| Item | Specification |
|------------------------|---|
| Weight of top sheet | 44 to 74 g/m ² (12 to 20 lbs/ream) |
| Composite weight | 104 to 151 g/m ² (28 to 40 lbs/ream) |
| Thickness of top sheet | 0.086 to 0.107 mm (3.9 to 4.2 mils) |
| Composite thickness | 0.115 to 0.145 mm (4.5 to 5.7 mils) |
| Moisture content | 4% to 6% (composite) |

Envelopes

The printer can print on envelopes using paper with a basis weight of 60 to 79 g/m² (16 to 21 lbs/ream). Envelopes must be manually fed.

An envelope is a more complex object than a single sheet of paper. For this reason, it may not be possible to obtain consistent printing quality over the entire envelope surface.

Many envelopes have a diagonal grain orientation. (See **Paper Grain** above.) This orientation is more likely to wrinkle and crease on its way through the printer. Before purchasing envelopes for use with the printer, test a sample to verify the envelope's suitability.

Do not use envelopes having an encapsulated liquid adhesive.

Avoid long printing runs consisting of envelopes only. Extensive envelope printing can cause premature printer wear.

To avoid jam due to curled envelopes, do not leave more than approximately 10 printed envelopes stacked in the face-up paper tray during multiple printing the envelopes.

Colored Paper

Colored paper should satisfy the same conditions as white bond paper. In addition, the pigments used in the paper must be able to withstand the heat of fusing during the printing process (up to 190° C or 374° F).

Preprinted Paper

Preprinted paper should have a bond paper base. The preprinted ink must be able to withstand the heat of fusing during the printing process, and must not be affected by silicone oil.

Do not use paper with any kind of surface treatment, such as the type of paper commonly used for calendars.

1.4. Maintenance Schedule

Periodic replacement of the drum, developer, fuser, etc., are not needed with this printer. Only maintenance needed on schedule is to add toner when the toner supply in the developer dwindles.

1.4.1. Supplying Toner

When the printer begins to run low on toner, the message display displays *Warning Low Toner TK-12*. At the earliest convenient opportunity after this message is shown, the toner supply in the developer unit must be replenished by installing a new toner kit TK-12.

The Ecosys printer requires drum cleaning toner in order to guarantee optimum machine performance and print quality. We recommend using only proprietary Kyocera Microfine Ceramic Toner (TK-12).

To supply toner in the developer, refer to section 2.2.4.

Toner supply interval

Approximate toner supply interval is every 10,000 pages (depending on the amount of printing per page: Approximately 5%).

On the toner kit

A Kyocera Toner Kit TK-12 contains a toner container, a cap, and an instruction sheet (5 languages).

1.5. Jigs and Tools

The table on next page shows jigs and tools used for servicing of all existing printer models.

| Jig model | Applicable printer model | | | | | | | | | | | | | | | | | |
|-----------------------------------|--------------------------|--------|----------|---------|--------|-------------|---------------|----------|-------|---------------|----------|--------------|---------------|--------|-----------|-----------|-----------|-----------|
| | F-1010 | F-2010 | F-1000/A | F-1200S | F-2200 | F-3000/3010 | P-2002/Q-8010 | F-800T/A | F-820 | F-2200S/2000A | F-1800/A | F-3300/3000A | F-5000/5500/A | FS-850 | FS-1500/A | FS-3500/A | FS-1550/A | FS-1600/A |
| CO-1/Grease (Electroconductive) | • | • | • | • | • | • | | | • | • | • | • | • | • | | | | |
| CO-2/Grease for Gears | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| CO-3/Grease for Clutches | • | • | • | • | • | | • | • | • | • | • | • | • | • | | | | |
| CO-4/Cleaning Cloth (3,000 pcs.) | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| CO-5/Grease for Feed Clutch | | | | | | • | | | | | | | | | | | | |
| TO-1/Gripping Clippers | • | • | • | • | • | • | • | | | • | • | • | • | | | | | |
| TO-2/Proof Screwdriver | • | • | • | • | • | • | • | • | • | • | • | • | • | | | | | |
| TS-1/Temperature Fuse Adjuster | • | • | • | • | • | • | • | | | • | | | | | | | | |
| TS-2/Feed Roller Adjuster | • | | • | • | | | • | | | | | | | | | | | |
| TS-3/Clutch Gap Adjuster | • | • | • | • | • | • | • | | | • | • | • | | | | | | |
| TS-4/Interlock Stopper | • | • | • | • | • | • | • | | | • | • | • | | | | | | |
| TS-5/Face-down Short Pin | • | • | • | • | • | • | • | | | • | • | • | | | | | | |
| TS-6/Laser Module Short Pin | • | • | • | • | • | • | • | • | • | • | • | • | | | | | | |
| TS-7/Extension Board (Controller) | • | | | | | | | | | | | | | | | | | |
| TS-8/Extension Board (Logic) | • | | | | | | | | | | | | | | | | | |
| TS-9/Extension Cable (for TS-7) | • | | | | | | | | | | | | | | | | | |
| TS-10/Diagnostics Kit | • | | | | | | | | | | | | | | | | | |
| TS-11/Diagnostics Kit | | | • | • | • | • | | | | | | | | | | | | |
| TS-12/Diagnostics Kit | | • | | | | | | | | | | | | | | | | |
| TS-13/Extension Cable | | | • | • | | • | • | | | • | | • | | | | | | |
| TS-14/Diagnostics Kit | | | | | | | | | | | | | | | | | | |
| TS-15/Diagnostics Kit | | | | | | | | | | • | | | | | | | | |
| TS-16/Feed Unit Adjuster | • | | • | • | | | | | | | | | | | | | | |
| TS-17/Diagnostics Kit | | | | | | | | • | | | | | | | | | | |
| TS-18/Main Board Checker | | | | | | | | • | | | | | | | | | | |
| TS-19/Feed Roller Adjuster | | | | | | | | | | | • | | | | | | | |
| TS-20/Diagnostics Kit | | | | | | | | | | | • | • | | | | | | |
| TS-21/Extension Cable | | | | | | | | | | | • | | | | | | | |
| TS-22/Laser Module Short Pin | | | | | | | | | | | | | • | | | | | |
| TS-23/Diagnostics Kit | | | | | | | | | | | | | • | | | | | |
| TS-25/Diagnostics Kit | | | | | | | | | • | | | | | | | | | |
| TS-26/Extension Assembly | | | | | | | | | • | | | | | | | | | |
| TS-27/Toner Sensor Extension | | | | | | | | • | • | | • | • | • | | | | | |

| Jig model | Applicable printer model | | | | | | | | | | | | | | | | | |
|---------------------------------------|--------------------------|--------|----------|---------|--------|-------------|---------------|----------|-------|---------------|----------|--------------|---------------|--------|-----------|-----------|-----------|-----------|
| | F-1010 | F-2010 | F-1000/A | F-1200S | F-2200 | F-3000/3010 | P-2002/Q-8010 | F-800T/A | F-820 | F-2200S/2000A | F-1800/A | F-3300/3000A | F-5000/5500/A | FS-850 | FS-1500/A | FS-3500/A | FS-1550/A | FS-1600/A |
| TS-28/Density Sensor Extension | | | | | | | | ● | ● | | ● | ● | ● | | | | | |
| TS-29/Diagnostics Kit | | | | | | | | | | | | | | ● | | | | |
| TS-30/Extension Assembly | | | | | | | | | | | | | | ● | | | | |
| TS-31/Interlock Stopper | ● | | | | | | | | | | | | | | ● | | | |
| TS-32/Diagnostics Kit | | | | | | | | | | | | | | | ● | | | |
| TS-33/Expansion Assembly | | | | | | | | | | | | | | | ● | | | |
| TS-34/Diagnostics Kit | | | | | | | | | | | | | | | | ● | | |
| TS-35/Extension Board | | | | | | | | | | | | | | | | ● | | |
| TS-38/Extension Cable | | | | | | | | | | | | | | | ● | ● | ● | ● |
| TS-39/Diagnostics Kit | | | | | | | | | | | | | | | | | ● | |
| TS-40/Expansion Assembly | | | | | | | | | | | | | | | | | ● | ● |
| TS-41/Diagnostics Kit | | | | | | | | | | | | | | | | | | ● |
| ME-1/Power Meter [ML9002A/9006A] | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | |
| ME-2/Power Meter Sensor [MA912A/B] | | ● | | | | ● | | | | | | | | | | | | |
| ME-3/Digital Thermometer | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | |
| ME-4/Thermometer Probe | | ● | ● | ● | ● | | ● | ● | ● | ● | | ● | ● | | | | | |
| ME-5/Probe Holder | ● | | | | | | | | | | | | | | | | | |
| ME-6/Thermometer Probe | ● | | | | | | | | | | | | | | | | | |
| ME-7/Thermometer Probe | | | | | | ● | | ● | | | | | | | | | | |
| ME-11/Thermometer Probe | | | | | | | | | | | | | | | ● | | | |

1.6. Product information

The Kyocera FS-400 features abundant of new technologies that have never been achievable with the precedents. Also it was designed with the philosophy of cleaner global environment in mind so that the usage of this printer will not bear byproducts or wasteful resources such as a drum cartridge, process cartridge, etc. These make this remarkable printer operate continually with virtually no replacement of consumable except to supply toner.

The printer also includes the following features:

- ❖ Extraordinarily small foot space
- ❖ Long life modules—drum, developer, fuser, etc. were designed to last a ultra long life, therefore, no periodic replacement of these modules is necessary. The drum is made of durable OPC (organic photo conductor).
- ❖ Low ozone (O^3) emission—thanks to negative high potential system that prepares the drum surface for photoprocessing in negative (-) polarity, the magnitude of the emission of ozone from the printer is as subtle as the technically measurable limit. Note that the drum is thus negative-charged by a roller.
- ❖ Minimized waste that is disposable in safe—The toner container is made of a low-calory material that risks generating no harmful humes or gases when burning.
- ❖ Enough fast printing speed for small businesses—Prints a A4 page 4 pages per minute.
- ❖ Fine quality printing—The standard 300 dpi resolution qualilty is greatly smoothed with the KIR (Kyocera image refinement) system.
- ❖ Optional paper handling capability ready—The printer is ready for installing a paper feeder with full comfomity and unity to the appearance.
- ❖ 1 MB of memory installed—upgradable up to 5 MB.

1.6.1. Printer specifications

The engine, controller, and miscellaneous specifications of this printer is table below.

| | Item | Description |
|---------------|--------------------------|--|
| Engine | Printing method | Electrophotography, LED direct scan |
| | Printing speed | 4 pages/minute (A4 or letter-size paper, when printing multiple copies of the same page). |
| | Resolution | 300 dots/inch (vertical and horizontal) with KIR (Kyocera Image Refinement) |
| | First print | Approx. seconds (A4 or letter size), depends on input data. |
| | Warm-up time | seconds or less (at 20°C) |
| | Duty cycle | pages/month |
| | Drum | Organic photoconductor (OPC) |
| | Developer | Multi-component dry developer |
| | Main charger | Charged roller |
| | Transferring | Charged roller |
| | Separation | Fuser curvature separation |
| | Drum cleaning | Blade cleaner |
| | Drum discharging | Illumination by eraser LED array |
| | Fuser | Heat roller and pressure roller |
| | Paper | Plain paper. See section 1.3. |
| | Paper feed tray | A4 or letter size. Holds up to 250 sheets of weight 75g/cm ² , thickness 0.1 mm. |
| | Capacity of output trays | Face-down tray: sheets Face-up tray: sheets |
| Miscellaneous | Ambient conditions | Temperature: 10 to 32.5°C (50 to 90.5°F) Humidity: 20 to 80 % RH Optimum conditions: 20°C and 65 % RH Altitude: 2000 m Illumination: Max. 1500 lux |
| | Power requirements | 120V, 60Hz, max. A (FS-400A) 220-240V, 50/60Hz, max. A (FS-400) Max. allowable voltage fluctuation: ± 10% Max. allowable frequency fluctuation: ± 2% |
| | Power consumption | Max. W W during sleeping |
| | Noise | Max. dB (A) when printing (excl. peak values) Max. dB (A) when idling (excl. peak values) (Measured 1 m from the outside of the printer) |
| | Dimensions | 353 mm (") high 170 mm (") wide 350 mm (13.8") deep (Excl. protrusions) |
| | Weight | 7.3 kg (lbs.) |

| | Item | Description |
|------------|-----------------------------|---|
| Controller | Controllers | MC68000 (16 MHz) |
| | System ROM size | 1 MB (Mbits by) ^{*1} |
| | Font ROM size | MB (Mbits by); 16-bit bus; 13 outline fonts+79 bitmap fonts ^{*2} |
| | Option fonts | 2 IC sockets First: 2MB (16 Mbit by 1), 16-bit bus; for PK-1/2 ^{*3} Second: 4Mbit by 1 for customizing EPROM (The device type should be same as the system ROM.) |
| | Main RAM | 2 MB (4MB by 4)expandable up to 66MB |
| | Option RAM | One slot for PC SIMM: 1, 2, 4, 8, 16, 32 MB. |
| | SRAM | 64 kbits |
| | Host interface | Standard Centronics interface |
| | Front control panel config. | One LCD: 16 char. by 2 rows, 12 keys, 13 LED's, trilingual message (English, German, French) |
| | Page description language | Prescribe II |
| | Standard emulation modes | Line printer, IBM Proprinter X-24E, Diablo 630, Epson LQ-850, HP LaserJet III |
| | Optional emulation | KPDL (PostScript) |
| | Gate arrays | 16 by 16 rotation, ALU, pattern generator, print model, KIR, EcoPrint (included within the controller GA), reverse sweeping-out. |

^{*1} Mask-ROM (compatible with EPROM in consideration of firmware modification)

^{*2} Compatible with the mask-ROM for models FS-400, FS-850, FS-1500, and FS-1550.

^{*3} PK-1/2 includes 47 outline PostScript compatible fonts.