

# **240-030-920** High Definition Monitor

**Operation and Maintenance Manual** 

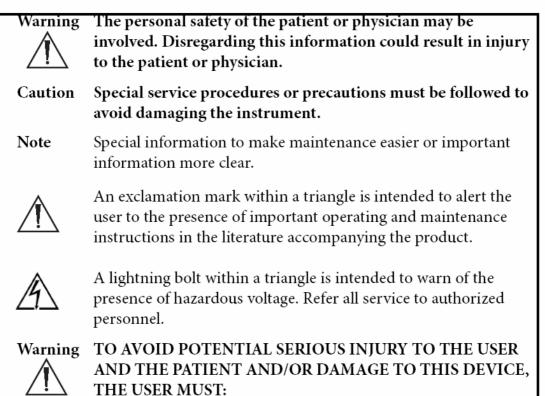


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# Warnings and Cautions

Please read this manual and follow its instructions carefully. The words **warning**, **caution**, and **note** carry special meanings and should be carefully reviewed:



#### Warranty is void if any of these warnings are disregarded.

Stryker Endoscopy accepts full responsibility for the effects on safety, reliability, and performance of the equipment only if:

- Re-adjustments, modifications, and/or repairs are carried out exclusively by Stryker Endoscopy.
- The electrical installation of the relevant operating room complies with the applicable IEC and CE requirements.

# Warning Federal law (United States of America) restricts this device to use by, or on order of a physician.

The Stryker 240-030-920 High Definition monitor has been tested under UL 60601-1 standard and UL listed for Medical application.

Stryker Endoscopy reserves the right to make improvements in the product(s) described herein. Product(s), therefore, may not agree in detail to the published design or specifications. All specifications are subject to change without notice. Please contact the local Stryker Endoscopy Distributor listed in the O ther Service section or phone your local Stryker Endoscopy sales representative or agent for information on changes and new products.

#### Warnings

- 1. Read the operating manual thoroughly and be familiar with its contents prior to using this equipment.
- 2. Carefully unpack the unit and check if any damage occurred during shipment.
- 3. Should any solid object or liquid fall into the panel, unplug the unit and have it checked by qualified personnel before operating it any further.
- 4. Unplug the unit if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.
- 5. Be a qualified physician, having complete knowledge of the use of this equipment.
- 6. Test this equipment prior to a surgical procedure. This monitor was fully tested at the factory before shipment.
- 7. Avoid removing covers on control unit to avoid electric shock.
- 8. Attempt no internal repairs or adjustments not specifically detailed in this operating manual.
- Pay close attention to the care, cleaning instructions in this manual. A deviation may cause damage (refer to the Cleaning section on page 14).
- 10. DO NOT STERILIZE MONITOR.
- 11. Read the entire instruction manual before assembling or connecting the camera.
- 12. Do not place the monitor or any other heavy object on the power cord. Damage to the cable can cause fire or electirc shock.
- 13. Monitor with power supply is suitable for use in patient environment.
- 14. DO NOT stack more than 8 boxes high

#### Cautions

- 1. The AC Adapter must be plugged into a Grounded power outlet.
- Use only the proprietary MW116KA1500F52 power supply for the 240-030-920 monitor. Make a proper connection by ensuring that the shrink tubing completely secures the connection between the DC power cord and the extension cord.
- 3. Turn power off when unit is not in use.

- Never operate the unit right after having transported from a cold location directly to a warm location.
- 5. Do not expose the monitor to moisture or directly apply liquid cleaners directly to the screen. Spray the cleaning solution into a soft cloth and clean gently.
- 6. Handle the monitor with care. Do not strike or scratch the screen.
- Do not block the monitor cooling vents. The monitor is cooled by natural convection and has no fan.
- 8. Do not force the monitor past 28 degrees of vertical when adjusting the screen position. (For monitors equipped with stands only.)
- 9. Remove the power module and connection when transporting the unit.
- 10. Save the original carton and associated packing material. They will be useful should you have to transport or ship the unit.
- 11. Allow adequate air circulation to prevent internal heat buildup.
- 12. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near sunlight, excessive dust, mechanical vibration or shock.
- 14. The unit is designed for operation in a horizontal position. Never operate the unit in a vertical position.
- Keep the unit away from equipment with strong magnets (i.e. a large loudspeaker.)
- 16. Do not expose the monitor to moisture or excessive dust.
- 17. Equipment with SIP/SOP connectors should either comply with IEC 60601-1 and/or IEC 60601-1-1 harmonized national standard or the combination should be evaluated Do not touch a patient with signal input part and signal output part.
- 18. Use only a hospital grade power supply cord.
- 19. This equipment generates, uses, and can radiate radio frequency energy. If not installed correctly and or not used in accordance with these instructions, it may cause harmful interference with other devices. This may be determined by turning the equipment off and on. The user is encouraged to try to correct the interference through one or more of the following measures:
  - Reorient or relocate the receiving device.
  - · Increase the separation distance between the equipment.
  - Connect the equipment to an outlet on a circuit different from that to which the other device(s) are connected.
  - · Consult the manufacturer or field service technican for help.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

20. Grounding reliablity can only be achieved when the EQUIPMENT is connected to an equipment receptacle marked "Hospital Only" or "Hospital Grade" For-connection-to-a-supply-not-in-the-U.S.A.-use-an-attachment-plug-adaptor-of-the-proper-configuration-for-the-power-outlet.e

#### Note

To ensure Electromagnetic compatibility (EMC), the 240-030-920 must be installed and operated according to the EMC information provided in attached document. Please refer to the attached document.

### Symbol Definitions



Dangerous: High Voltage

Direct Current

Serial Number



Top - Bottom



Fragile



Do not get wet

Consult accompanying documents.



Indicates proof of conformity to applicable European Economic Community Council directives and to harmonized standards published in the official journal of the European Communities.



Tested and certified by NEMKO in accordance with EN60601-1 and EN60601-1-2.



Indicates protective earth ground.



For indoor use only.



MEDICAL EUIPMENT WITH RESPECT TO ELECTRIC SHOCK FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL 60601-1, AND CAN/CSA C22.2 NO.601.1

: UL approval mark according to the safety standard for Medical equipment



Tested to comply with FCC Class B standards.



DC power control switch



Maximum Stacking

### **Product Description and Intended Use**

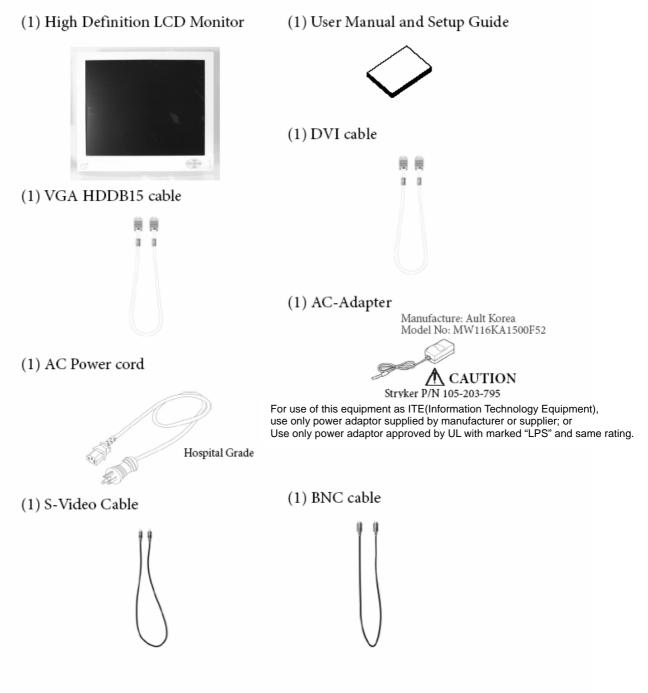
The 240-030-920 Monitor is an intelligent, microprocessor-based TFT-LCD monitor intended for use in Endoscopic surgical applications. It has an ergonomically designed display and is compatible with most analog RGB (Red, Green, Blue) display standards.

The 240-030-920 Monitor has the following features:

- Advanced Viewing Solution (AVS): Our sophisticated filter extends the viewing angle of the screen image, without sacrificing contrast ratio and brightness.
- The monitor is able to properly function even in case of upgrade video cards or software because of the wide auto-scanning compatibility range without requiring to buy a new monitor.
- The internal microprocessor digitally controls auto-scanning. For horizontal scan frequencies between 24.8 KHz and 60.2 KHz, and vertical scan frequencies between 50.0 Hz and 85.1 Hz. In each frequency mode, the microprocessor-based circuitry allows the monitor to function at the precision-of a fixed frequency.
- The resident memory allows for storing factory default settings and also additional user adjustment parameters.
- The maximum resolution achievable is SXGA (1280 x 1024), best suited for Stryker cameras.
- The monitor is compliance with VESA-DPMS power management standard. In order to save energy, the monitor must be connected to a system compliant with the standard.
- The monitor is designed to mount an accessory (i.e. camera or speaker) with a 2 lbs (max) load per hole.
- The monitor is certified by UL International in accordnace with medical standard UL 60601-1. It is also CE marked for sale in the European Community for integration or use with medical products. It is certified by NEMKO according to EN60601-1 & EN60601-1-2 for sale to the medical market.

#### **Product Description**

- 1. Carefully unpack the 240-030-920 High Definition Monitor and save the packing materials for future shipping.
- Check the monitor and its accessories for any damage that may have occured during shipping. Immediately report any damage to the shipping company.
- 3. Check the contents of the package with the following list to make sure all components have been included. In the packaging you should find:



### Setting Up the Monitor Connecting the Monitor to a Camera

Make all connections on the rear panel of the monitor. As needed, connect the camera to the monitor as demonstrated by the steps and in Figure 1 below.

- 1. Connect the VGA cable with a D-SUB 15P connector to the 15-pin connector port on the rear of the monitor.
- Connect the DC power cable to the DC power port on the rear of the monitor.
- 3. Connect one end of AC power cord into the AC Adapter, and connect the other (pronged) end to an AC power outlet.
- 4. Turn on the camera, then tur<u>n o</u>n the monitor.

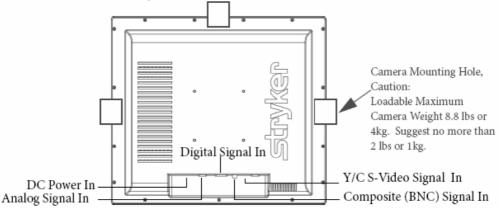


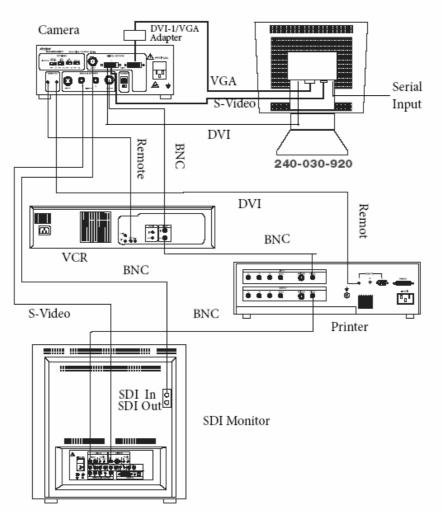
Figure 1 : Rear panel connections

#### **Connecting the Monitor to Video Equipment**

Any equipment to be connected must have either Super VHS video (S-video) ports or composite video ports.

- 1. Make sure the video equipment has a Super VHS (S-video) or a Composite video connector.
- 2. Turn off all equipment before making any connections.
- For composite video, plug one end of the composite cable into the videoout port on the video equipment. Then connect the other end to the monitor C-Video-input port.
- 4. For S-video, plug one end of the S-video cable into the Video Out port on the video equipment and the other into the monitor S-Video In port.
- 5. Connect the DC power cable to the DC power port on the monitor.
- 6. Connect one end of the AC power cord to the AC adapter and plug the other end into an AC power outlet.
- 7. Turn on the video equipment.
- 8. Turn on the monitor.

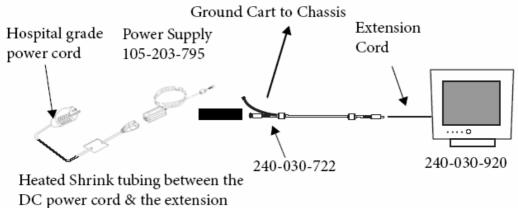
#### System Interconnection



**Equipment Used:** 

 Stryker Camera, Stryker Light Source, Stryker Printer, Stryker VCR, SDI Monitor, 240-030-920 High Definition Monitor

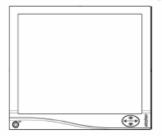
#### **Power Connection**



### **Operating the Monitor** Front Panel Controls

Operate the panel using the buttons located on the front panel. A list of the monitor controls and their functions is provided below.

- 1. Power LED: Lights up to indicate the power is turned ON.
- 2. Power Switch: Turns the power ON or OFF.
- 3. **Right (VGA)**: With the on-screen display activated, increases the value of the selected parameter. With the on-screen display deactivated, select video source to VGA.
- Left (S-V): With the on-screen display activated, decreases the value of the selected parameter. With the on-screen display deactivated, select source to composite video.
- Up (DVI): With the on-screen display activated, moves the cursor upward. With the on-screen display activated, select source to DVI.
- Down (C-V): With the on-screen display activated, moves the cursor downward. With the on-screen display deactivated, select source to S-Video.
- 7. Menu: Accesses/Select/Exit on-screen display menu.



#### Standard On-Screen Display (OSD) Operation

The monitor provides an on-screen display to help navigate through the various monitor-adjustment menus.

- 1. Press the Menu button to activate the on-screen display (OSD).
- 2. Use the Select Up or Select Down keys to move up or down through the menu. The parameter will be highlighted when selected.
- Then use Left or Right to increase or decrease the value of the parameter, or to make a selection between different options.
- 4. To quit the OSD screen at 2nd/3rd level OSD during the operation, press the Menu button then select Exit at the 1st level OSD then push Menu button to exit. If no keys are pressed for a time period, the OSD automatically disappears.

### **Stryker Camera Preset Modes**

Mode	Camera	Resolution (H x V)	Horizontal Frequency (KHz)	
201	988	1024 x 768	49.09	59.9
202	988i	1024 x 768	41.25	50
203	1088/SDC Pro2	1024 x 768	50.03	60
204	1088/SDC HD	1280 x 1024	64.02	60.1
205	1088i/SDC Pro2	1024 x 768	41.1	50
206	1088i/SDC Hd	1280 x 1024	59.99	50

### **OSD Function Description** (Under Digital Display)

Item	Function Description	Default
Brightness / Contrast		
Brightness	To increase or decrease the brightness (0-100)	50
Contrast	To increase or decrease the contrast (0-100)	70
Color Temperature		
Color Temperature (RGB adjustment is available only for Strd, Arth and Lap settings)	Choose between Default, Standard, Arthro, or Lap for color temperature	
Red	Balance red	0
Green	Balance green	0
Blue	Balance blue	0
Sharpness		
Image Sharpness	Set image sharpness from 1 to 10	5
Advance		
Auto Source Select	Adjust auto source select between on, off	OFF
Freeze frame	Enable or Disable freeze frame	N/A
Scale Mode	Choose scale mode between fill screen , aspect ration, or one to one	aspect ratio
OSD Position Control	Control OSD Menu Posistion, Background and Timeout	N/A
Recall Factory Default	Set to factory default	N/A

Actual on-screen displays may vary with updated versions of the firmware.

### **OSD Function Description** (Under VGA Display)

Item	Function Description	Default
Brightness/Contrast		
Brightness/Contrast	To increase or decrease the brightness (0-100)	50
Contrast	To increase or decrease the contrast (0-100)	70
Color Temperature		
Color Temperature	Choose between Default, Standard, Arthro, or Lap	
(RGB adjustment is available only	for color temperature	
for Strd, Arth and Lap settings)		
Red	Balance red	0
Green	Balance green	0
Blue	Balance blue	0
Sharpness		
Image Sharpness	Set image sharpness (1-10)	5
Advance		
Auto Adjust	The Auto-adjust will automatically adjust vertical	
	position, horizontal position, clock, clock phase, and	
	contrast, the whole process takes about 5 seconds.	N/A
	(Please use the test pattern file in the attached LCD	
	monitor utility disk for Auto Adjust.)	
Frequency	To adjust frequency (dot clock). (0-100)	N/A
Phase	To adjust phase (clock phase). (0-100)	N/A
Auto Source Select	Adjust auto source select between on, off	OFF
Scale Mode	Choose scale mode between fill screen , aspect ratio,	aspect
	or one to one	ratio
Position	Control the Display Screen Posistion	N/A
OSD Control	Control OSD Menu Posistion, Background and	N/A
	Timeout	IN/A
Recall Factory Default	Set to factory default	N/A

Actual on-screen displays may vary with updated versions of the firmware.

## **Cleaning the Monitor**



Do not expose the monitor to moisture or directly apply liquid cleaners directly to the screen. Spray the cleaning solution into a soft cloth and clean gently.



n Do not expose the monitor to moisture or excessive dust.

#### **Cleaning the Monitor**

No specific liquid or chemical is necessary when cleaning this LCD monitor. Use only non-abrasive cloths and cleaning solutions used in hospitals to clean similar equipment.

70% Isopropyl alcohol is recommended for the screen surface.

Warm water and a mild detergent is recommended for all other surfaces.

Other acceptable cleaning agents for bezel cleaning include:

- 6% aqueous ammonia
- Cidex (2.4% glutaraldehyde solution)
- Sodium Hypochlorite (bleach) 10%
- "Green soap" USP
- 0.5% Chlorhexidine in 70% isopropyl alcohol
- Ovation
- Formula 409
- Fantastic
- Wex Cide
- 1. Clean the panel with a dry soft cloth, or a soft cloth lightly moistened with mild detergent solution. Do not use any type of solvent, such as alcohol or benzine, which might damage the finish.
- 2. Apply alcohol to glass surfaces with soft cotton applicator to aid in cleaning and drying without leaving spots or streaks.
- 3. Dry thoroughly with soft towel or gauze surgical sponge.

## Troubleshooting

Before sending your LCD monitor for servicing, please check the troubleshooting list below to see if you can self-diagnose the problem.

Problem	Current Status	Remedy
	LED ON	Using the OSD, adjust the brightness and contrast to maximum, or reset them to their default settings
No Picture	LED OFF	Check the power switch Check if the AC power cord is properly connected to the AC adapter
	LED Blinking	Check if the video signal cable is properly connected at the back of the monitor. Check if the power to computer system is ON.
Abnormal Picture	Oversized or undersized display; missing display; center shift	Using Auto Setup button, if still display abnormal picture then adjust CLOCK, CLOCK- PHASE, H-POSITION, and V-POSITION with non-standard signals.
		Must wait for a few seconds after adjusting the size of the image before changing or disconnecting the signal or powering OFF the monitor.

# **Specifications**

LCD Monitor Panel	48 cm/19 inches (s/w TFT Active
	matrix LCD)
Synchronization	2.5 - 5.0 Vpp separated sync
Pixel Pitch	0.294 mm
Response Time	8ms
View Angle	170 (L/R) x 170 (U/D)
Display Colors	16 million colors
Native Resolution	1280 dots x 1024 dots
Input Signal	Composite video; S-video; Analog
	RGB; DVI
Maximum Pixel Clock	135 MHz x 1
Power Adapter	AC 100 - 240V; DC 15V MW116KA1500F52
Power Consumption	90W (max)
Dimensions/Weight (W x H x D)	17.5 inches x 14.25 inches x 3 inches /
	15.5lbs (power supply not included)
Operating Temperature	41° to 95° F

Operating Temperature	41° to 95° F
Storage	-4° to 140° F
Humidity	10 - 90% RH
Electrical input rating	15V d.c

This monitor is intended for use on Health Care Facilities model 240-030-920

Equipment is not suitable for use in the presence of flammable anesthetic mixture with air or with oxygen or nitrous oxide.

No user serviceable parts inside, ask qualified personnel when accessing inside.

For disposal of waste product, follow the requirement of local code.

#### Classification

Type of protection against electric shock : Class I Equipment.

Degree of protection against the ingress of water : Ordinary

Mode of operation : Continuous



This equipment is not suitable for use in the presence of a FLAMMABLE ANAESTHETIC MIXTURE WITH AIR or WITH OXYGEN OR NITROUS OXIDE

# Environmental Conditions for Transport and Storage

- Temperature range within 20°C to 60°C

- Relative humidity range 10% to 90%

Atmospheric pressure range within 500 to 1060hPa.

### Warranty

This Stryker Endoscopy product is warranted to the original purchaser to be free from defects in material and workmanship for the following times:

- One-year warranty on the angulation cables
- One-year warranty on the housing
- · 90-day warranty on the flexible shaft and its internal components

This warranty extends to all purchases and is limited to the repair or replacement of the product without charge when returned in the original shipping case to:

Stryker Endoscopy 5900 Optical Court San Jose, CA 95138

Stryker Endoscopy cannot accept responsibility for returns or replacements which have not been authorized. This warranty does not cover damages caused by misuse or by failure to follow the procedures outlined in this manual or demonstrated by Stryker Endoscopy representatives.

There are no other expressed warranties.

### **Service and Claims**

Do not attempt to service this product yourself. If service is needed either during or after the warranty period:

 Contact Stryker Endoscopy at 1-800-624-4422, or phone your local Stryker Endoscopy sales representative.

Stryker and Stryker Endoscopy are registered trademarks of Stryker Corporation.

### **Other Service**

For service in the U.S.A., call your Stryker Endoscopy representative. Outside of the U.S.A., please contact your Stryker Endoscopy distributor at one of the following locations:

Stryker Corporation 2725 Fairfield Road Kalamazoo, MI 49002 USA Phone:1-269-385-2600 Telex:224464 STRYKER KMZ Fax:1-269-385-1996

Stryker Canada 45 Innovation Drive Hamilton, Ontario, Canada L9H 7L8 Phone: (905) 690-5700 (800) 668-8323 (toll free) Fax: +1(905) 690-5698

Stryker Deutschland GmbH Gewerbeallee 18, D-45478 Mulheim an der Ruhr GERMANY Phone:49-208-999-060 Fax:49-208-999-0666

Stryker Latin America 15100 N.W. 67th Ave. Suite 210 Miami, Florida 33014 USA Phone:1-305-821-1888 Fax:1-305-826-0067

Stryker B.V. Marinus van Meelweg 17 P.O. Box 8747 5657 En Eindhoven THE NETHERLANDS Phone:31-40-2922522 Fax:31-40-2922555

Stryker Osteonics, SA 5, Chemin des Aulx 5 1228 Plan-les-Ouates Case Postale 725 1212 Grand-Lancy 1 Geneve, SWITZERLAND Phone:41-22-884-0111 Fax:41-22-884-0199 Stryker European Rep - RA/QA Manager ZAC Satolas Green Pusignan Av. De Satolas Green 69881 MEYZIEU Cedex, France Phone:33-1-48175000 Fax:33-1-48632175

Stryker India Private Limited First Floor C-5, SDA Commercial Complex New Delhi 110 017 INDIA Phone:91-11-686-6740 Fax:91-11-696-6020

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Stryker Singapore PTE/LTD 70 Bendemeer Road #03-32 Hiap Huat House SINGAPORE 339940 Phone:65-293-0119 Fax:65-293-7028

Stryker Pacific Ltd. Suite 2501, Citibank Tower Citibank Plaza 3 Garden Road, Central HONG KONG Phone:61-2-9415-5100 Fax:61-29-4294127

Stryker Mexico, S.A. de C.V. Calle Sacramento 410 Col. Insurgentes San Borja C.P. 03100 Mexico, D.F. MEXICO Phone:525-488-0890 Fax:525-488-0891 Stryker Finland PL 80 (Makelankatuz) FIN 00501 Helsinki FINLAND Phone:358 (0) 9 7744 680 Fax:358 (0) 9 7744 6820

Stryker Korea 11F Dong Sung Bldg. 154-24 Samsung-dong Kangnam-ku Seoul, KOREA 135-090 Phone:82-2-34517572 Fax:82-2-552-4156

Stryker China Limited Room 903-905, Office Tower 2 Beijing Sun Dong An Plaza 138 Wang Fu Jing Da Jie Beijing 100006, P.R. China Phone:86-10-65136183 Fax:86-10-83913571

Stryker Japan Dai Tokyo Kasai Shinjuku Bldg. 3-25-3, Yoyogi Shibuya-ku, Tokyo 151-0053 Phone:813-535-29106 Fax:813-535-21789

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