

**OLYMPUS**<sup>®</sup>

Your Vision, Our Future

**EUS**  
ENDOSCOPIC ULTRASOUND SYSTEM

ULTRASONIC PROBE

**UM-2R/3R**

**Endoscopic Ultrasound System**  
**A New Generation of Endoscopic Ultrasound**



# Transendoscopic Application During Routine Endoscopy Examination

## Broader Application by 2.4mm Diameter, 12MHz/20MHz Ultra-high Definition Scanning

Endoscopic ultrasound has come of age. The growing process has been multidimensional and application has expanded. At the same time, the system has been refined and improved.

The advent of the UM-2R and UM-3R establishes a basic system for routine examination using endoscopic ultrasound which it is anticipated will rapidly become a part of standard diagnostic procedure in more and more medical facilities.

Endoscopic ultrasound was the solution to two major problems : how to provide visual imaging of occluded parts of the body such as tortuous or stenotic sections of the common bile and pancreatic ducts which precluded use of standard endoscopy procedures and how to provide greater definition of abnormal pathological changes in deeper tissue and extraperitoneal structures than was possible with current extracorporeal ultrasonic systems.

Initially, observation and diagnosis by endoscopic ultrasound was confined to specific cases. As standard diagnostic tools, the UM-2R and the UM-3R represent the next logical stage in the developmental process by bringing routine examination with endoscopic ultrasound within the range of all patients.

Technological innovations including reduction in dimensions of the insertion tube and intensification of ultrasonic frequencies have effected major advances in the operational and ultrasonic imaging capabilities of these two models.

Maximum compatibility with existing endoscopy system was a major condition in the development of these ultrasonic probes.

Smooth insertion via the instrument channel of all OLYMPUS fiberoptic and videoscopes with an instrument channel diameter of 2.8mm or more is assured by a very slim 2.4mm exterior in both the UM-2R and the UM-3R. Higher ultrasonic frequencies of 12MHz in the UM-2R and 20MHz in the UM-3R provide greater sonographic definition than every before.

The OLYMPUS commitment to major technical innovation on all fronts in endotherapy is continually s-t-r-e-t-c-h-i-n-g the capabilities of its endoscopic ultrasound systems beyond current limits and transforming Tomorrow's potential into Today's reality.

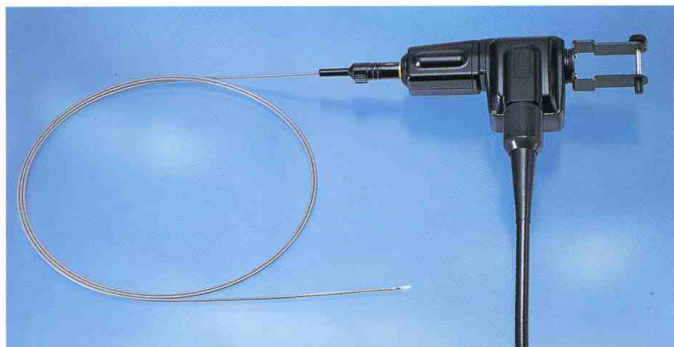
### Optimum Compatibility with All 2.8mm Channel Olympus Videoscopes & Fiberscopes

Complete compatibility with all OLYMPUS fiberoptic and videoscopes having an instrument channel of 2.8mm or more.

The very slim 2.4mm insertion tube easily penetrates even previously hard-to-reach target areas making the UM-2R and UM-3R extremely effective diagnostic tools, particularly in the detection of esophageal carcinoma and carcinoma of the large intestine as well as for monitoring subtle changes in sites of abnormal pathology in the stomach. Following routine examinations, the ultrasonic evaluation can be done in the biopsy-like manner.

### Radial Scanning

The excellent quality of the 360° sector mechanical/radial scanning effected by the transducer-generated ultrasonic beam facilitates orientation within body lumen.



### 20MHz High Definition Sonograms

The very high-definition ultrasound image provided by the 20MHz frequency in the UM-3R permit intensive examination, observation and diagnosis of the most subtle abnormal pathological changes occurring especially in the common bile and pancreatic ducts and the digestive tract.

### Complete Compatibility with the EU-M20/EU-M30 Endoscopic Ultrasound Center

Designed as a completely self-contained unit, the EU-M20/EU-M30 endoscopic ultrasound center is fully compatible with the UM-2R and the UM-3R. Used with probes and the OLYMPUS ancillary equipment of choice, EU-M20/EU-M30 provides fully integrated and comprehensive ultrasonic monitoring facilities as well as eradicating the need for uncoordinated support system.

● The UM-2R may also be used in conjunction with the EU-M3 endoscopic ultrasound center for monitoring purposes.

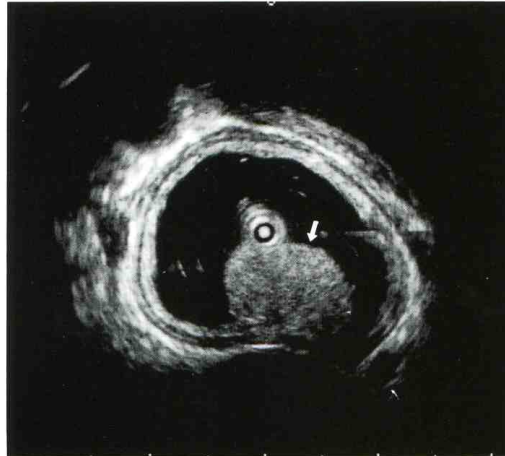
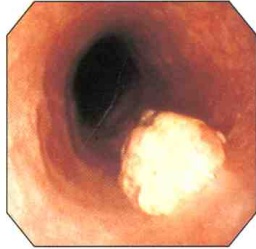
### Completely Waterproof

Caps fitted to connecting sections of the probes make them completely waterproof allowing total immersion in water, disinfectant or sterilizing fluid.

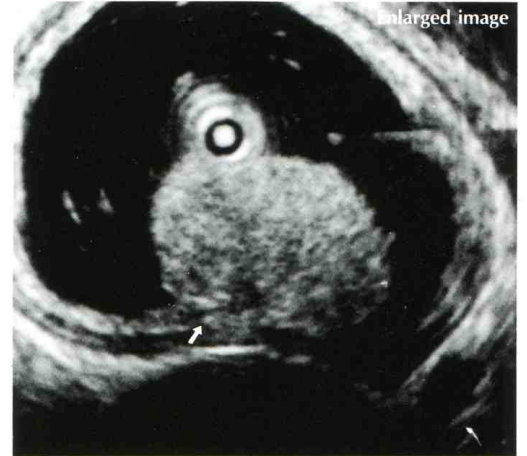


# Diseases of the Upper Digestive Tract

## Esophageal carcinoma

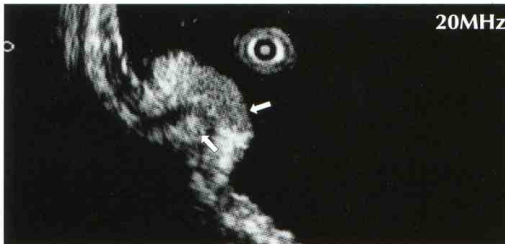


Protruded type esophageal carcinoma. Imaging was achieved using the de-aerated water immersion method. Ultrasonic probe was inserted after deaerated water was pured into the esophagus via the instrument channel. Direct observation of ultrasound sonography was used to identify the area of abnormal pathology and healthy tissue (above.)



A magnified image of the area of abnormal pathology (above.) The tumor has destroyed the third layer and reached the muscularis mucosa (arrowed.) The peripheral lymph node is not affected.

## Early stage of gastric cancer



Sonogram of the abnormal pathology obtained by de-aerated water immersion method (arrowed.)



Infiltration of abnormal pathology to submucosa accompanied by irregular pattern of the third layer submucosa (arrowed.)

## Submucosal gastric tumor



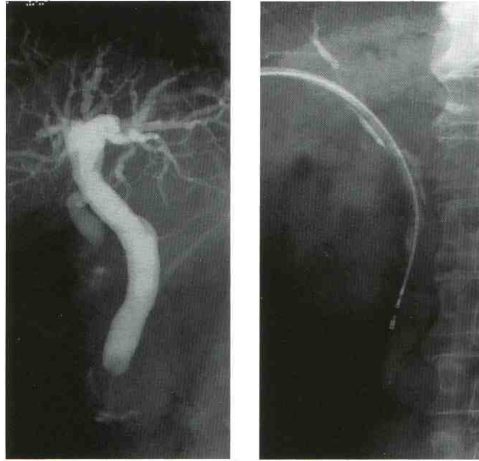
Ultrasonic observation of submusocal tumor accompanied by a depressed lesion in the central area obtained using de-aerated water immersion method.



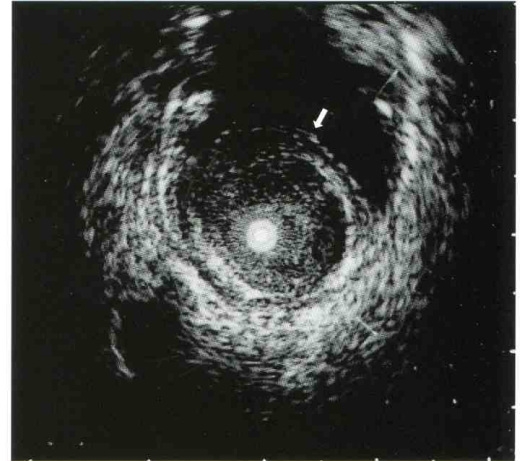
A sonogram reveals fragmentation of the submucosa in the area of the depressed lesion through localized within the submucosa. Histologically it was a malignant lymphatic tumor.

## Diseases of the Common Bile Duct and Pancreatic Duct

### Carcinoma of Papilla of Vater (Percutaneous approach)

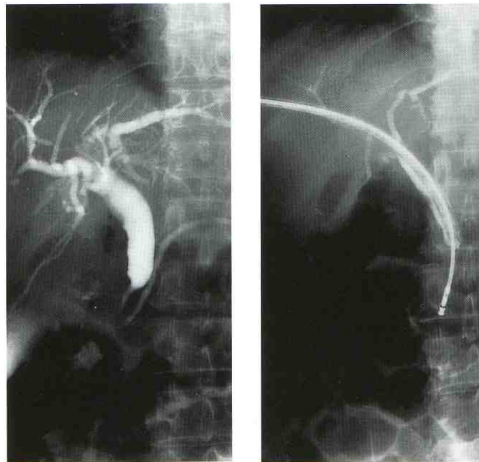


ERCP reveals a stricture at the tail of the common bile and pancreatic ducts (upper left.) Ultrasonic examination was performed after percutaneous insertion of the ultrasonic probe (upper right.)

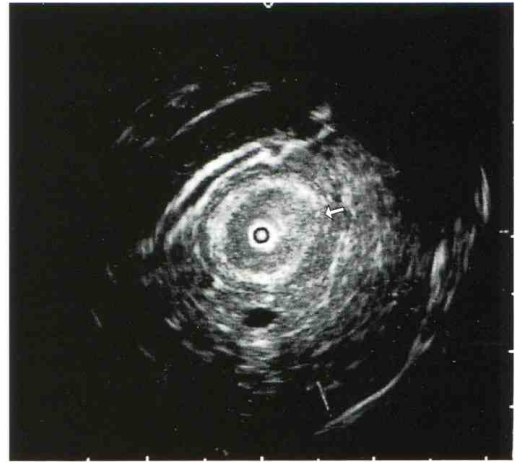


Tumor can be observed as a low echo parenchymal mass (arrowed.) Development of the tumor can be judged by comparing it with the echo structure of a healthy papilla.

### Carcinoma of the common bile duct (Percutaneous approach)

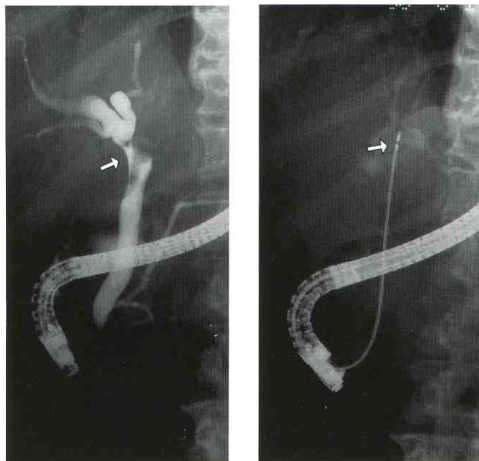


ERCP reveals a stricture of the inferior bile duct (upper left.) Ultrasonic observation was carried out following percutaneous insertion of the ultrasonic probe (upper right.)



The hypertrophied wall and the disappearance of the layered structure of abnormal pathology can be observed in the ultrasonic image (arrowed.) However, ultrasonic examination was able to confirm that the abnormal pathology was within the wall of the common bile duct.

### Carcinoma of the common bile duct (Trans-papilla approach)



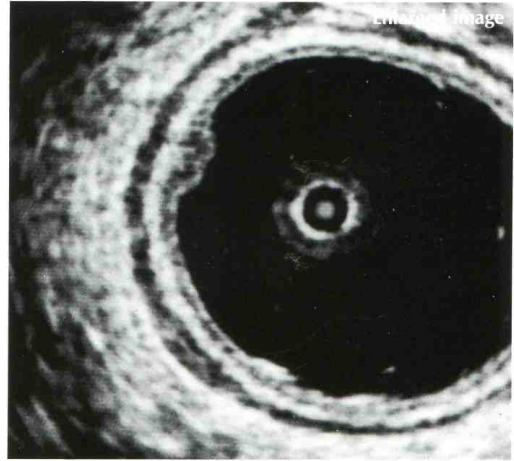
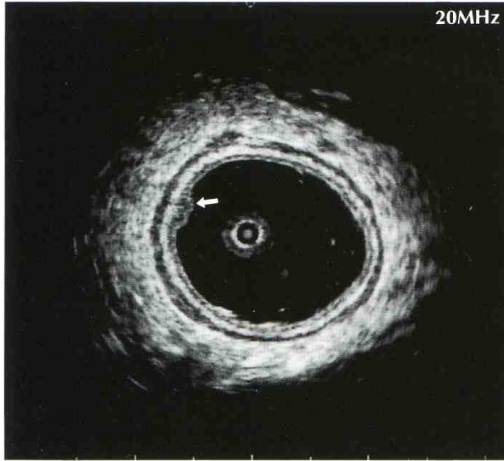
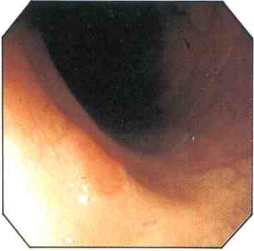
ERCP reveals a filling defect in the upper bile duct (arrowed.) Scanning was started by inserting the ultrasonic probe through papilla (arrowed.)



An area of abnormal pathology manifested as a slightly high echo during ultrasonic examination of the porta hepatis area. The image of the tumor filling the bile duct can be observed (arrowed.)

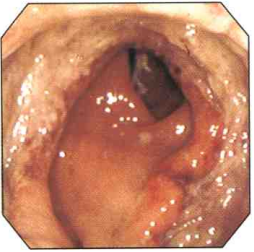
# Diseases of the Lower Digestive Tract

## Depressed lesion type adenoma (Sigmoid colon)

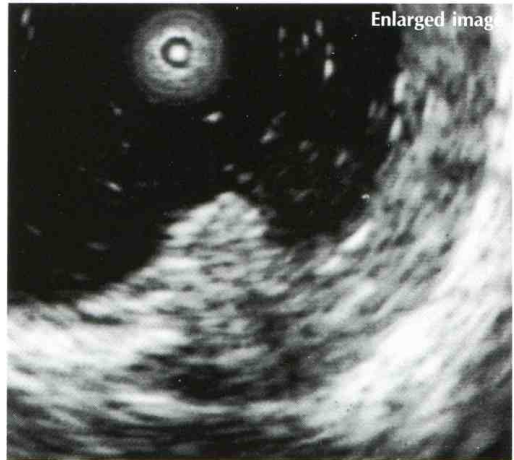
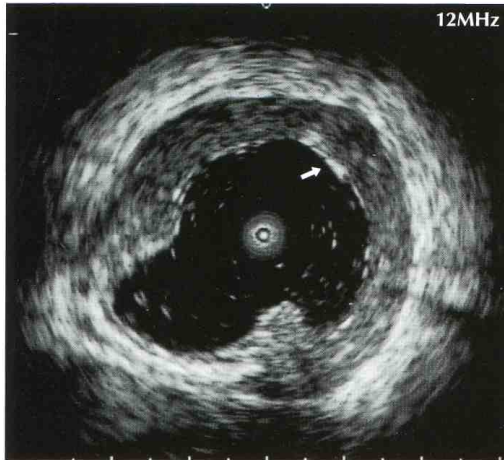


Observation by ultrasonic probe reveals abnormal pathology as hypertrophied image of thickening mucosa (first and second layers) (arrowed.)  
Following ultrasonic examination, endoscopic excision of mucosa was performed.

## Malignant lymphoma of the large intestine

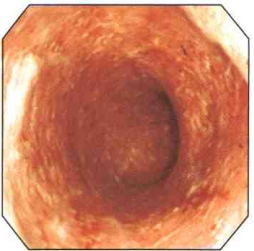


Borman III type malignant lymphatic tumor discerned in the rectum

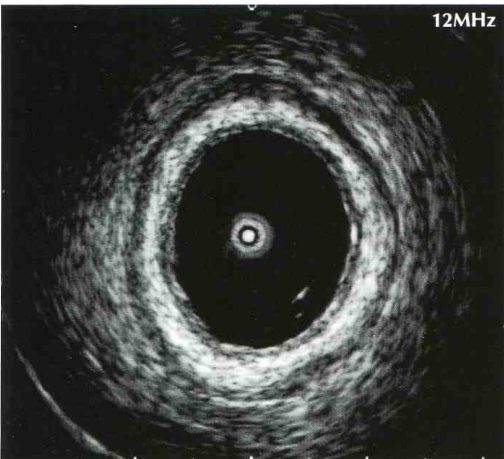


During examination with an ultrasonic probe, the abnormal pathology was revealed as a low echo tumor mass destroying the layer structure of the wall of the large intestine (arrowed.) Infiltration of the tumor has reached the adventitial coat.

## Ulcerated colitis

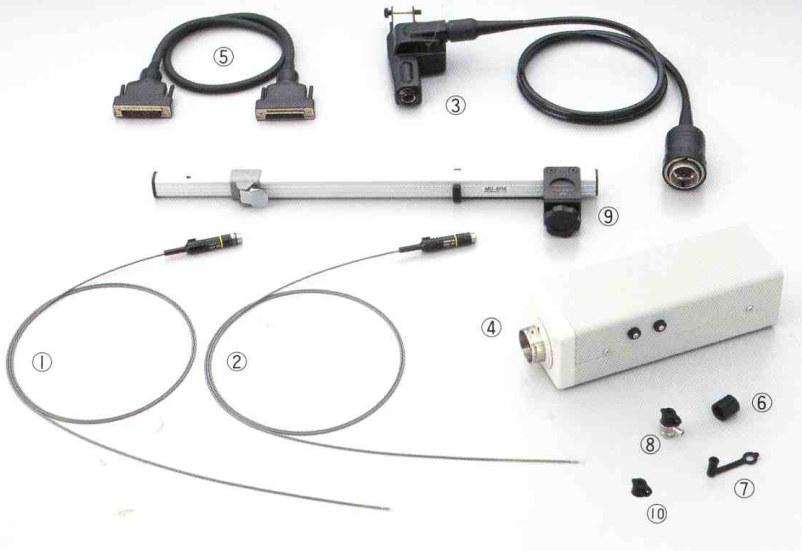


Active ulcerative colitis in the Sigmoid colon



The mucosal layer (first and second layers) and the submucosal layer (third layer) of the colon wall is revealed as a total encompassing thickening.  
Imaged in its non-active stage, the thickening is shown to have undergone remarkable betterment.

## Ultrasonic Probe Set MH-247



- ① Ultrasonic Probe UM-2R ② Ultrasonic Probe UM-3R ③ Probe Driving Unit MH-240  
 ④ Pulse Unit MH-241 ⑤ EU-M20 Cord MH-242 ⑥ Water Resistant Cap MH-244 (×2)  
 ⑦ Probe Holder MH-245 (×2) ⑧ Probe/Irrigation Plug (T-Plug) MD-807 ⑨ Supporting  
 Arm MD-808 ⑩ Semi-Disposable Biopsy Valve MB-358 (×10)

Note: Ultrasonic Probe Set MH-247 without ④ and ⑤ is available for EU-M30.

## Applicable Endoscopes

### OES Fiberscopes

GIF-Q10/Q20/Q30, GIF-XQ10/XQ20/XQ30, GIF-PQ20,  
 GIF-K10/K20, GIF-1T10/1T20/1T30, GIF-2T10/2T20, GIF-D10,  
 GF-10/20, JF-1T10/1T20/1T30, TJF-10/20/30, TJF-M20, EF-K10,  
 CF-10I/20I/30I, CF-10M/20M/30M, CF-1T10I/1T20I,  
 CF-P10I/P20I, CF-P10S/P20S, PCF-10/20

### EVIS 100 Videoscopes

GIF-100, GIF-1T100, GIF-2T100, GIF-130, GIF-1T130, JF-100,  
 TJF-100, TJF-130, JF-130, CF-100I/100S, CF-1T100I, PCF-100,  
 PCF-130I, CF-100TI, CF-130I/130S

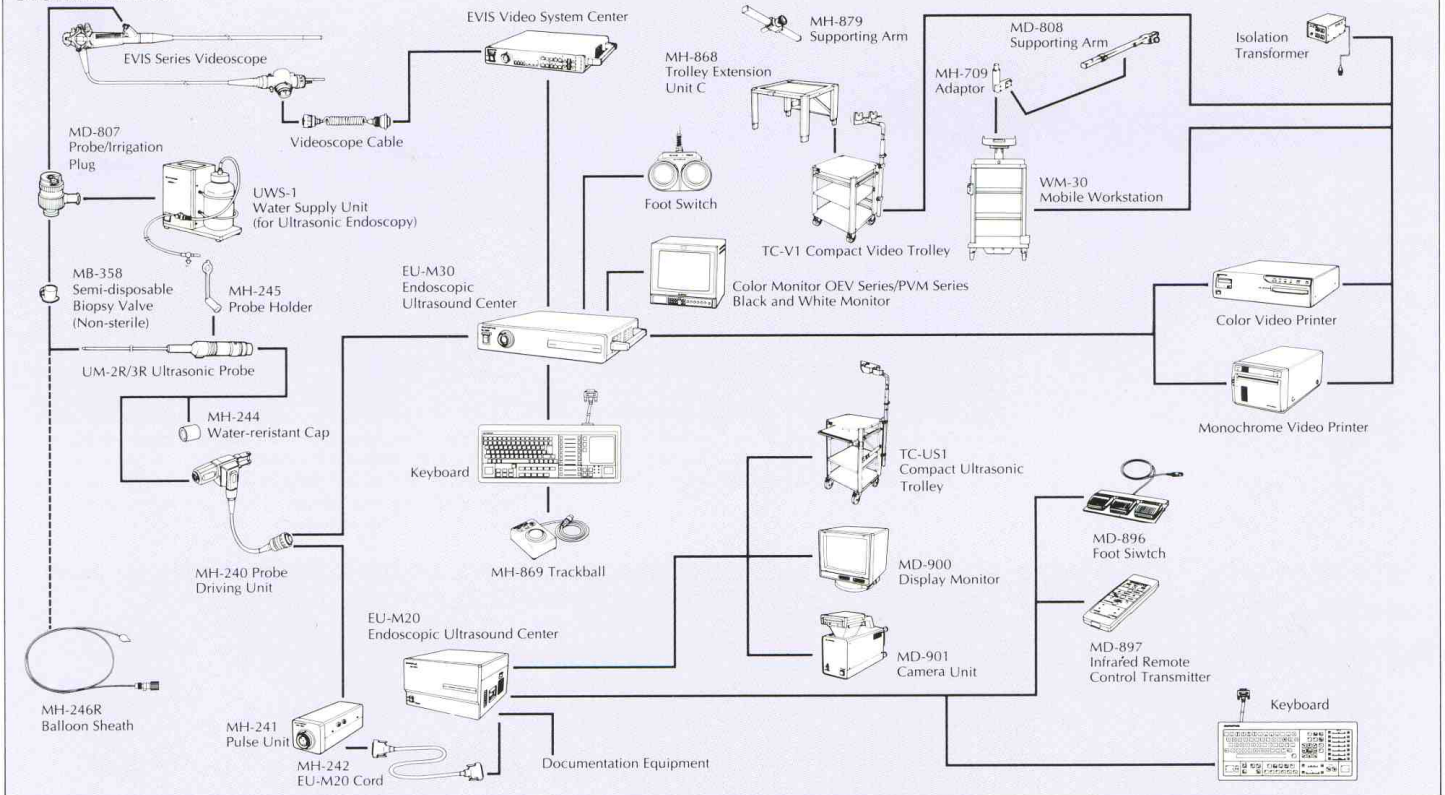
### EVIS 200 Videoscopes

GIF-Q200, GIF-Q230, GIF-XQ200, GIF-XQ230, GIF-2T200,  
 GIF-XK200, GIF-200Z, GF-200, JF-200, JF-230, TJF-200,  
 CF-200I/200S, CF-1T200I, CF-2T200, CF-200Z, CF-230I,  
 PCF-200, PCF-230

## Specifications

Display Mode	B-Mode
Scanning Method	Mechanical, Radial Scanning
Scanning Direction	90° Direction of Insertion, 360° Scanning
Frequency	12MHz (UM-2R), 20MHz (UM-3R)
Contact Method	Balloon Method/ De-aerated Water immersion Method
Working Length	2050mm
Total Length	2130mm
Insertion Tube Outer Diameter	2.4 (max 2.5)mm
Distal End Diameter	2.5mm

## SYSTEM CHART



Specifications, design and accessories are subject to change without any notice or obligation on the part of the manufacturer.

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