

FCC/MELLON

MAR 03 1999

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Medtronic, Inc
7000 Central Ave NE
Minneapolis, MN 55432

LF59767

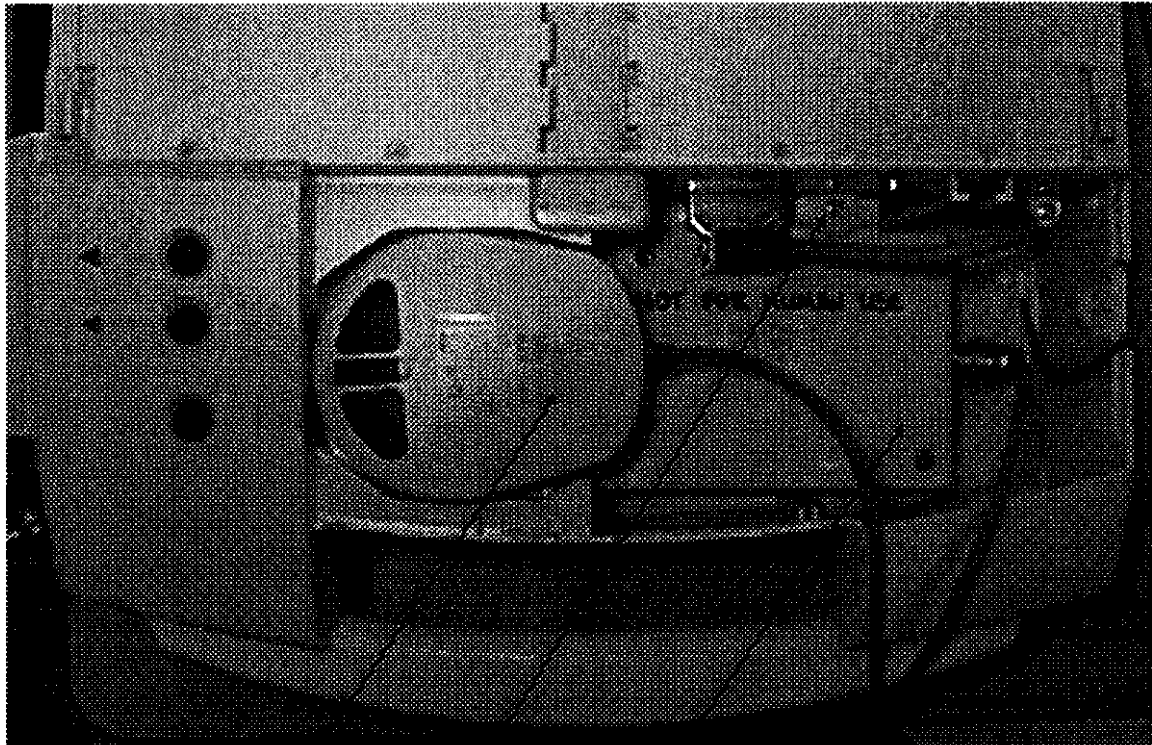
This packet contains the following items:

- photo showing the installation of the RF Head
- brief description of the circuit functions
- block diagram
- transmitter schematic
- photo of the 9790 programmer
- photo of RF Head circuit board
- photo of RF Head
- photo of antenna coil
- RF Head label showing FCC ID
- 47 CFR 15.19 labeling requirements
- brief description of peripheral equipment
- reference copy of FCC Grant for previous 9766 RF Head

Federal Communications Commission Submittal

- (3) *A copy of the installation and operating instructions to be furnished the user. A draft copy of the instructions may be submitted if the actual document is not available. The actual document shall be furnished to the FCC when it becomes available.*

Figure 1 : 9790 Programmer with open lid (RF Head and TEM attach)



(C)

(B)

(A)

- (A) = Place Telemetry Electronic Module as shown in Figure 1.
(B) = Use Metric screws (M3.5) to connect Telemetry Module with 9767 Programmer.
(C) = Place RF Head as shown in Figure 1.

- (4) *A brief description of the circuit functions of the device along with a statement describing how the device operates. This statement should contain a description of the ground system and antenna, if any, used with the device.*

- * *A brief description of the circuit functions of the device along with a statement describing how the device operates*

The 9767 Telemetry Head replaces the 9766 Telemetry Head. The 9767 Telemetry Head provides compatible functionality and additional communications formats using close proximity H-Field coupled energy.

The 9767 Telemetry Head is used to program and interrogate implanted devices such as pacemakers.

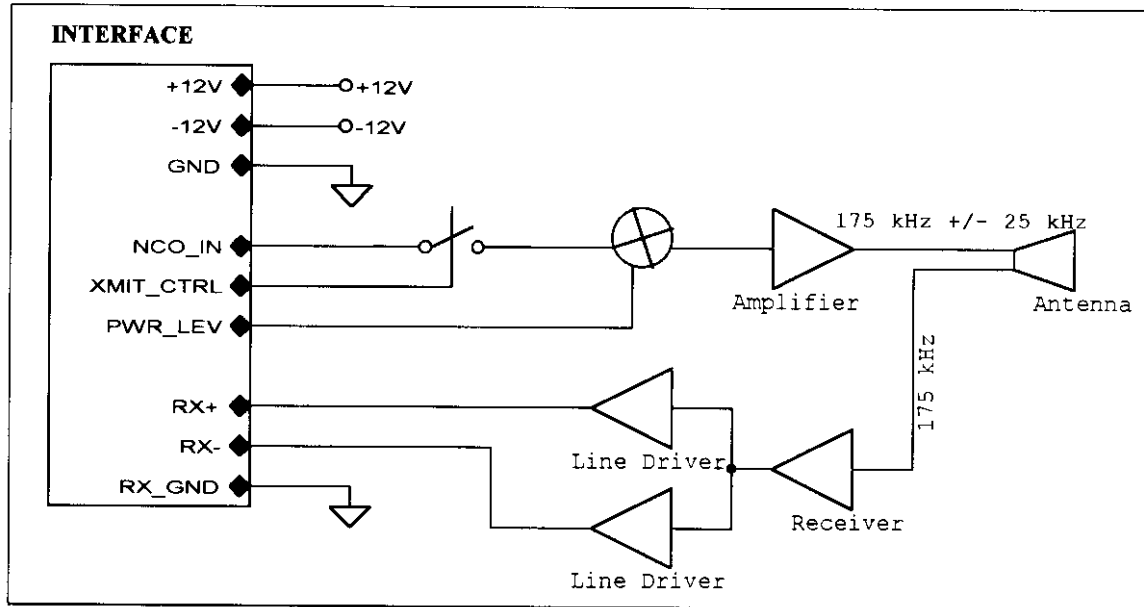
- * *This statement should contain a description of the ground system and antenna, if any, used with the device.*

The close coupled coil is shown in Figure 6. It is used to generate an H-Field for communicating to an implanted device at 175 kHz.

The close coupled coil is also used to receive the H-Field from the implanted device.

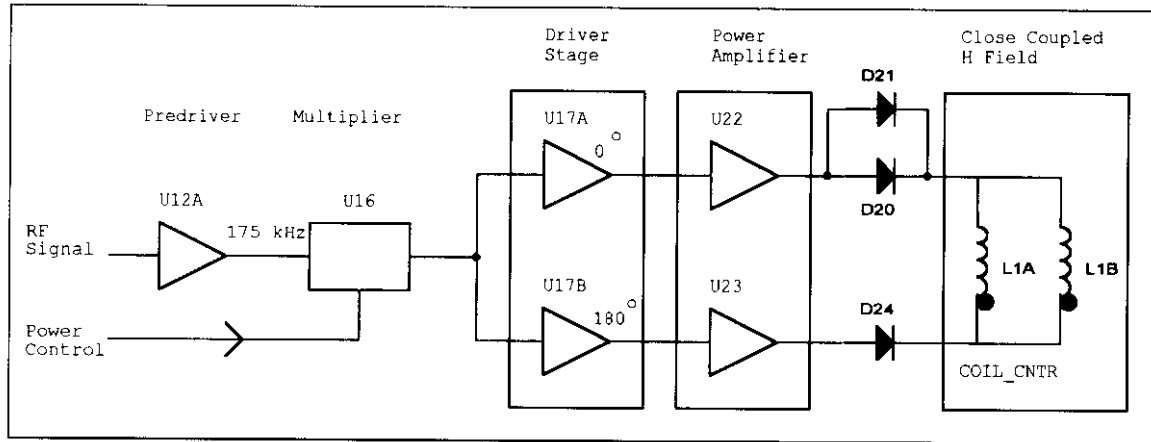
- (5) A block diagram showing the frequency of all oscillators in the device. The signal path and frequency shall be indicated at each block. The tuning range (s) and intermediate frequency (ies) shall be indicated at each block. A schematic diagram also is required for intentional radiators.

Figure 2 : Block diagram of the system



* A schematic diagram also is required for intentional radiators.

Figure 3 : Transmitter Schematic



PREDRIVER STAGE

The RF signal is routed to the input to U12-A. The input level to U12-A is nominally $\pm 1.25\text{V}$ or 2.5V peak to peak. The 2.5V peak to peak signal is amplified by U12-A by a gain of 3.95. U12-A was selected for a large signal swing with minimal idle power.

MULTIPLIER

An analog multiplier is used for power control and provides a linear means of adjusting the power. The signal PWR_CTL is a 0-4 V signal and will be used to vary the RF voltage at its output. This part has a worst case output offset of 50mV so the gain distribution of U12-A, U17-A and U17-B was considered to minimize the total output offset.

DRIVER STAGE

The driver stage U17-A and U17-B are used to provide the additional gain to drive amplifiers (U22 and U23). U17-A is an inverting amplifier and U17-B is a non inverting amplifier. They are used to drive the power amplifiers in a bridge configuration.

POWER AMPLIFIER

The power amplifier consists of U22 and U23 drivers in a bridge configuration. U22 drives the L1A and L1B coils through diodes D20 and D21. This effectively places the coil in parallel aiding mode for maximum H field. U23 drives the center of the coil through diode D24.

- (7) *A sufficient number of photographs to clearly show the exterior appearance, the construction, the component placement on the chassis, and the chassis assembly. The exterior views shall show the overall appearance, the antenna used with the device (if any), the controls available to the user, and the required identification label in sufficient detail so that the name and FCC identifier can be read. Photographs shall be of size A4 (21 cm * 29.7 cm) or 8*10 inches (20.3 cm * 25.4 cm).*

Figure 4 : 9790 Programmer

