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(54) Title (EN): ULTRASONIC PROBE AND ULTRASONIC ENDOSCOPE WITH ULTRASONIC PROBE

(54) Title (FR): SONDE ULTRASONORE ET ENDOSCOPE ULTRASONORE DOTÉ D'UNE SONDE ULTRASONORE

(54) Title (JA): 超音波探触子および超音波探触子を有する超音波内視鏡

(57) Abstract:

(EN): The diameters of an ultrasonic probe and an ultrasonic endoscope are decreased, and electrical connection in respect of a signal line extending from the ultrasonic vibrator is reliably and easily made. The ultrasonic probe comprises vibrator wiring pads (102) provided at the front end of an ultrasonic vibrator printed board (101) where signal patterns for signal transmission/reception of ultrasonic vibrators are formed, flexible printed board wiring pads (108) arranged in line along the longitudinal axis of the ultrasonic vibrator printed board (101), second signal patterns (106) connected between the vibrator wiring pads (102) and the flexible printed board wiring pads (108) and bent generally 90 degrees at intermediate portions, and a relay flexible printed board (121) connected to the flexible printed board wiring pads (108) and used to change the direction of the signal patterns to the longitudinal axis direction.

(FR): Les diamètres d'une sonde ultrasonore et d'un endoscope ultrasonore sont moindres, et un raccord électrique sur une ligne de signal s'étendant à partir du vibreur ultrasonore est effectué de façon facile et fiable. La sonde ultrasonore comprend des plots (102) de câblage de vibreur disposés à l'extrémité avant d'une plaque à circuits imprimés (101) de vibreur ultrasonore où sont formés des motifs de signaux pour une transmission/réception de signal de vibreurs ultrasonores; des plots de câblage de la plaque à circuits imprimés flexible (108) disposés en alignement le long de l'axe longitudinal de la plaque à circuits imprimés (101) de vibreur ultrasonore; des seconds motifs de signaux (106) raccordés entre les plots de câblage du vibreur (102) et les plots de câblage de la plaque à circuits imprimés flexible (108) et repliés généralement de 90 degrés à des espaces intermédiaires; et une plaque à circuits imprimés flexible de relais (121) raccordée aux plots de câblage de la plaque à circuits imprimés flexible (108) et utilisée pour changer la direction des motifs de signaux et les faire passer dans la direction de l'axe longitudinal.

(JA): 超音波探触子および超音波内視鏡の細径化を図ると共に、超音波振動子から延出する信号線に係る電気的な接続を確実に容易に行う。複数の超音波振動子の信号送受を行なう信号パターンを配した超音波振動子用プリント基板 101 の先端部に配設された振動子配線用パッド群 102 と、超音波振動子用プリント基板 101 の長手軸方向に沿って列設されたフレキシブルプリント基板配線用パッド群 108 と、振動子配線用パッド群 102 とフレキシブルプリント基板配線用パッド群 108 との間に接続され、途中で略 90 度曲折した第 2 信号パターン群 106 と、フレキシブルプリント基板配線用パッド群 108 に接続されると共に信号パターンの方向を長手軸方向に変換する中継フレキシブルプリント基板 121 とを備える。

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