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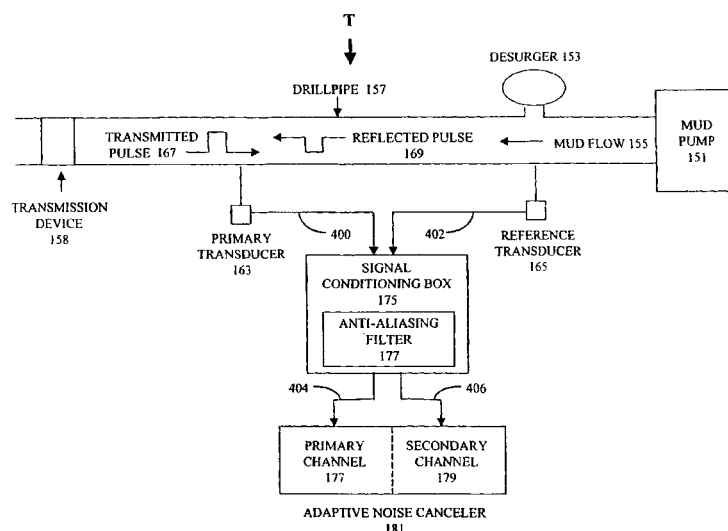
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(54) Title: TECHNIQUE FOR SIGNAL DETECTION USING ADAPTIVE FILTERING IN MUD PULSE TELEMETRY



(57) Abstract: a mud pulse telemetry adaptive noise canceller (ANC) is provided to provide information on down hole conditions during a Measurement-While-Drilling/Logging-While-Drilling (MWD/LWD) operation. The ANC (181) employs a Signal Conditioning Box (175), Anti-Aliasing Filter (177) and two transducers, each receiving a succession of signals due to a transmission device (158). A primary transducer (163), located downhole from both a mud pump (151) and a desurger, receives a primary signal. A reference transducer (165), located near the mud pump (151) and upstream from the desurger (153), receives a reference signal. The ANC linearly relates the reference signal to the primary signal by means of a recursive least squares algorithm and calculates weighting coefficients. The ANC (181) uses weighting coefficients to process a subsequent primary signal, thus enhancing transmission of MWD and/or LWD data thru a downhole drillpipe (157) via the medium of Mud Flow (155).



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.