CLAIMS

1. An ultrasonic flaw detector for irradiating a composite material formed by laminating a first material made of CFRP and a second material made of GFRP with an ultrasonic wave from the first material side of the composite material so that an interface reflected wave has a positive peak value and a negative peak when a flaw exists at an interface located between the first material and the second material,

the ultrasonic flaw detector comprising:

a section specifier configured to specify first and second sections of an RF signal of a reflected wave of the ultrasonic wave with which the composite material is irradiated, a material reflected wave being possibly generated in the first section, an interface reflected wave being possibly generated in the second section;

a material flaw determiner configured to determine whether or not a value of the RF signal exceeds a positive first threshold in the first section; and

an interface flaw determiner configured to determine whether or not the value of the RF signal falls below a negative second threshold in the second section.

2. The ultrasonic flaw detector according to claim 1, wherein an absolute value of the second threshold is larger than the first threshold.

3. An ultrasonic flaw detecting method comprising:

irradiating a composite material including a structure formed by laminating a first material made of CFRP and a second material made of GFRP with an ultrasonic wave from the first material side of the composite material so that an interface reflected wave has a positive peak value and a negative peak when a flaw exists at an interface located between the first material and the second material,

receiving an RF signal of a reflected wave of an ultrasonic wave with which the composite material is irradiated;

determining whether or not a value of the RF signal exceeds a positive first threshold in a first section of the RF signal, a material reflected wave being possibly generated in the first section; and

determining whether or not the value of the RF signal falls below a negative second threshold in a second section of the RF signal, an interface reflected wave being possibly generated in the second section.

4. The ultrasonic flaw detecting method according to claim 3, wherein:

the composite material, which includes a third material made of CFRP, is a railcar plate spring having a three-layer structure in which the third material is sandwiched between the first material and the second material.