CLAIMS

1. A vehicle including a magnetic detecting part for detecting a magnetic marker disposed in a traveling road of the vehicle, the vehicle comprising

a diagnosing part which diagnoses a state of the magnetic detecting part by using marker state information indicating a state of the magnetic marker;

wherein the marker state information is information based on a result of statistical process of a marker-detected count, which is a count of detections of each magnetic marker by any vehicle.

2. A vehicle including a magnetic detecting part for detecting a magnetic marker disposed in a traveling road of the vehicle, the vehicle comprising

a diagnosing part which diagnoses a state of the magnetic detecting part by using marker state information indicating a state of the magnetic marker; and

a history storage part which stores travel history data indicating a traveling route traveled by the vehicle and detection history data indicating a detection history of the magnetic marker, and

the diagnosing part identifies a magnetic marker on the traveling route indicated by the travel history data and performs process of comparing the magnetic marker on the traveling route and the magnetic marker included in the detection history indicated by the detection history data.

3. The vehicle in claim 2, wherein the marker state information includes information indicating a quality level of the state of the magnetic marker, and

in the process of comparing the magnetic marker on the traveling route and the magnetic marker included in the detection

history indicated by the detection history data, in accordance with the quality level of the state of the magnetic marker, the diagnosing part varies degree of reflection onto an index for use in diagnosis of the magnetic detecting part.

4~~2~~. The vehicle in any one of claims 1 to 3, further comprising an acquiring part which acquires the marker state information from an external server apparatus via wireless communication.

5~~3~~. The vehicle in any one of claims 1 ~~or~~ to 4~~2~~, wherein the diagnosing part is capable of diagnosing a change in ground clearance of the vehicle in accordance with a change in mount height of the magnetic detecting part in the vehicle.

6. The vehicle in claim 5, wherein the marker state information includes information indicating a magnetic level of the magnetic marker, and

the diagnosing part performs diagnosis of detecting the change in ground clearance of the vehicle by using an index value indicating a correlation between the magnetic level of the magnetic marker included in the marker state information and a magnetic measurement value (peak value) measured by the magnetic detecting part for the magnetic marker.

7~~4~~. The vehicle in any one of claims 1 to 6~~3~~, wherein marker identifying information for identifying a corresponding magnetic marker is linked to the marker state information,

the vehicle includes a tag reader which performs wireless communication with a wireless tag held by the magnetic marker and acquires the marker identifying information usable for identifying the corresponding magnetic marker from the wireless tag, and

the diagnosing part is configured to identify the marker state

information of the corresponding magnetic marker by using the marker identifying information acquired from a magnetic marker side.

~~5. The vehicle in any one of claims 1 to 4, wherein the marker state information is information based on a result of statistical process of a marker-detected count, which is a count of detections of each magnetic marker by any vehicle.~~

~~6. The vehicle in any one of claims 1 to 5, including a history storage part which stores travel history data indicating a traveling route traveled by the vehicle and detection history data indicating a detection history of the magnetic marker, and~~

~~the diagnosing part identifies a magnetic marker on the traveling route indicated by the travel history data and performs process of comparing the magnetic marker on the traveling route and the magnetic marker included in the detection history indicated by the detection history data.~~

~~7. The vehicle in claim 6, wherein the marker state information includes information indicating a quality level of the state of the magnetic marker, and~~

~~in the process of comparing the magnetic marker on the traveling route and the magnetic marker included in the detection history indicated by the detection history data, in accordance with the quality level of the state of the magnetic marker, the diagnosing part varies degree of reflection onto an index for use in diagnosis of the magnetic detecting part.~~

~~8. The vehicle in claim 3, wherein the marker state information includes information indicating a magnetic level of the magnetic marker, and~~

~~the diagnosing part performs diagnosis of detecting the change~~

~~in ground clearance of the vehicle by using an index value indicating a correlation between the magnetic level of the magnetic marker included in the marker state information and a magnetic measurement value (peak value) measured by the magnetic detecting part for the magnetic marker.~~

8~~9~~. A vehicular diagnostic system including a plurality of vehicles each including a magnetic detecting part for detecting a plurality of magnetic markers disposed in a traveling road of the plurality of vehicles, the system comprising:

a server apparatus which acquires detection information of the plurality of magnetic markers by each of the plurality of vehicles and, based on the detection information, generates marker state information indicating a state of each of the plurality of magnetic markers, and

the plurality of vehicles each including an acquiring part which acquires the marker state information from the server apparatus and a diagnosing part which diagnoses a state of the magnetic detecting part by using the marker state information;

wherein the marker state information is information based on a result of statistical process of a marker-detected count, which is a count of detections of the each of the plurality of magnetic markers by any of the plurality of vehicles.

9. A vehicular diagnostic system including a plurality of vehicles each including a magnetic detecting part for detecting a plurality of magnetic markers disposed in a traveling road of the plurality of vehicles, the system comprising:

a server apparatus which acquires detection information of the plurality of magnetic markers by each of the plurality of vehicles and, based on the detection information, generates marker state information indicating a state of each of the plurality of

magnetic markers, and

the plurality of vehicles each including an acquiring part which acquires the marker state information from the server apparatus and a diagnosing part which diagnoses a state of the magnetic detecting part by using the marker state information; and

a history storage part which stores travel history data indicating a traveling route traveled by the each of the plurality of vehicles and detection history data indicating a detection history of the plurality of magnetic markers, and

the diagnosing part identifies magnetic markers on the traveling route indicated by the travel history data and performs process of comparing the magnetic markers on the traveling route and the plurality of magnetic markers included in the detection history indicated by the detection history data.

10. The vehicular diagnostic system of claim 9, wherein the marker state information includes information indicating quality levels of the state of the plurality of magnetic markers, and

in the process of comparing the magnetic markers on the traveling route and the plurality of magnetic markers included in the detection history indicated by the detection history data, in accordance with the quality levels of the state of the plurality of magnetic markers, the diagnosing part varies degree of reflection onto an index for use in diagnosis of the magnetic detecting part.

11~~10~~. The vehicular diagnostic system in any one of claims ~~9~~8 to 10, wherein the detection information acquired by the server apparatus from a vehicle side includes at least marker identifying information which can uniquely identify a corresponding magnetic marker.

12~~11~~. The vehicular diagnostic system in any one of claims ~~9~~8 ~~or~~

to ~~10~~11, wherein the diagnosing part is capable of diagnosing a change in ground clearance of the each of the plurality of vehicles in accordance with a change in mount height of the magnetic detecting part.

13~~12~~. The vehicular diagnostic system in any one of claims ~~9~~8 to ~~11~~12, wherein marker identifying information for identifying a corresponding magnetic marker is linked to the marker state information,

the each of the plurality of vehicles includes a tag reader which performs wireless communication with a wireless tag held by the each of the plurality of magnetic markers and acquires the marker identifying information usable for identifying the corresponding magnetic marker from the wireless tag, and

the diagnosing part is configured to identify the marker state information of the corresponding magnetic marker by using the marker identifying information acquired from a magnetic marker side.

~~13. The vehicular diagnostic system in any one of claims 9 to 12, wherein the marker state information is information based on a result of statistical process of a marker-detected count, which is a count of detections of the each of the plurality of magnetic markers by any of the plurality of vehicles.~~

~~14. The vehicular diagnostic system in any one of claims 9 to 13, further comprising a history storage part which stores travel history data indicating a traveling route traveled by the each of the plurality of vehicles and detection history data indicating a detection history of the plurality of magnetic markers, and~~

~~the diagnosing part identifies magnetic markers on the traveling route indicated by the travel history data and performs process of comparing the magnetic markers on the traveling route~~

~~and the plurality of magnetic markers included in the detection history indicated by the detection history data.~~

~~15. The vehicular diagnostic system in claim 14, wherein the marker state information includes information indicating quality levels of the state of the plurality of magnetic markers, and~~

~~in the process of comparing the magnetic markers on the traveling route and the plurality of magnetic markers included in the detection history indicated by the detection history data, in accordance with the quality levels of the state of the plurality of magnetic markers, the diagnosing part varies degree of reflection onto an index for use in diagnosis of the magnetic detecting part.~~