

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOYOTA MOTOR CORPORATION,
Petitioner,

v.

AMERICAN VEHICULAR SCIENCES LLC,
Patent Owner.

Case IPR2013-00414
Patent 7,630,802 B2

Before JAMESON LEE, BARBARA A. PARVIS, and
GREGG I. ANDERSON, *Administrative Patent Judges*.

ANDERSON, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. BACKGROUND

A. Introduction

On July 8, 2013, Toyota Motor Corporation (“Toyota”) filed a Petition requesting an *inter partes* review of claims 1, 5–7, 11, and 13 of U.S. Patent No. 7,630,802 B2 (Ex. 1001, “the ’802 Patent”). Paper 1 (“Pet.”). We instituted trial on all challenged claims 1, 5–7, 11, and 13 of the ’802 patent on certain grounds of unpatentability alleged in the Petition. Paper 15 (“Inst. Dec.”).

After institution of trial, American Vehicular Sciences LLC (“AVS”) filed a Patent Owner Response. Paper 28 (“PO Resp.”). Toyota filed a Reply. Paper 34 (“Pet. Reply”).

A consolidated oral hearing for IPR2013-00414, IPR2013-00415, IPR2013-00416, and IPR2013-00417, each involving Petitioner and Patent Owner, was held on August 14, 2014. The transcript of the consolidated hearing has been entered into the record. Paper 44 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). This final written decision is issued pursuant to 35 U.S.C. § 318(a).

Toyota has shown by a preponderance of the evidence that claims 1, 5–7, 11, and 13 of the ’802 patent are unpatentable.

B. Related Proceedings

The ’802 Patent is involved in the following co-pending action:

American Vehicular Sciences LLC v. Toyota Motor Corp., No. 6:12-CV-405 (E.D. Tex.), filed on July 20, 2012.¹ Pet. 1.

C. The '802 Patent

The '802 patent relates to a system and method for managing and analyzing information about components of an apparatus, e.g., a vehicle, in order to monitor the apparatus and detect operational and functional problems with the apparatus. Ex. 1001, 2:6–10. The '802 patent describes determining when a failure will occur as prognostics. *Id.* at 10:52–53. The system delivers notice of abnormal operation as an output to a remote location and to the driver. *Id.* at 23:1–6.

Figure 1 of the '802 Patent is reproduced below:

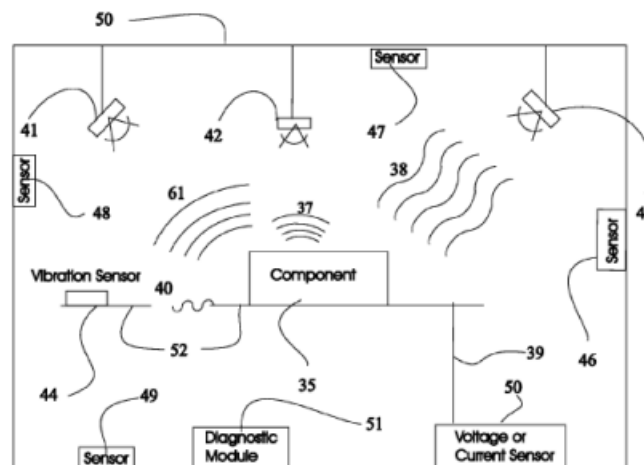


FIG. 1

Figure 1 is a schematic illustration of generalized component 50. The signals associated with component performance are sensed by a variety of sensors and analyzed by diagnostic module 51. Ex. 1001, 13:19–23.

¹ Toyota states that the '802 patent is the subject of additional proceedings pending in the Eastern District of Texas, none of which names Toyota as a defendant. Pet. 1.

Components can be designed to emit signals indicative of the start of a failure. Ex. 1001, 13:10–18. The signals are detected by the sensors shown in Figure 1. *Id.* at 13:29–33. Each of the sensors can be connected to data bus 50, which also is connected to diagnostic module 51. *Id.* at 13:37–41. Alternatively, the sensors may connect wirelessly to the diagnostic module. *Id.*

Figure 20C of the '802 Patent is reproduced below:

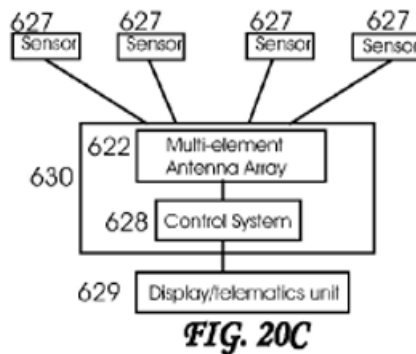


Figure 20C is a block diagram showing a general system for obtaining information about a vehicle or vehicle component. Ex. 1001, 59:66–67. Sensors 627 collect the information about the desired component. *Id.* at 60:1–5. Multi-element antenna array 622 is mounted on the vehicle and emits radio frequency signals, causing sensors 627 to generate return signals. *Id.* at 60:8–12. Control system 628 is coupled to and controls antenna array 622, which receives the return signals. *Id.* at 60:13–16. The information is directed to display/telematics/adjustment unit 629 where the information can be displayed on display 629 to the driver and sent to a remote location for analysis via a telematics unit 629. *Id.* at 60:34–39.

D. Illustrative Claims

Claims 1 and 7 are the only independent claims among all the challenged claims. They are reproduced below:

1. An information management and monitoring system for monitoring components on a vehicle during operation of the vehicle on a road, comprising:

- a monitoring system arranged on the vehicle and including a plurality of sensors for monitoring components of the vehicle during operation of the components;
- a processing module arranged on the vehicle, said module being coupled to said monitoring system and arranged to receive and process data about the monitored components from said monitoring system, said module being arranged to derive information from the data about the monitored components provided by said sensors of said monitoring system to determine whether any of the monitored components are operating in a non-optimal manner or to forecast failure of any of the monitored components;

- at least one remote entity interested in the operation or failure of any of the monitored components;

- a wireless communication system arranged on the vehicle and coupled to said module for enabling wireless communications of derived information from said module to said at least one entity during operation of the vehicle, including information about the presence and identity of any non-optimally operating component or component forecast to fail, said wireless communication system being arranged to automatically initiate the wireless communications with said at least one remote entity whenever said module determines that any of the monitored components are operating in a non-optimal manner or failure of any of the monitored components is forecast; and

- a notification system that notifies an occupant of the vehicle about the presence and identity of any non-optimally operating component or component forecast to fail.

7. A method for information management and monitoring of components on a vehicle during operation of the vehicle on a road, comprising:

arranging a monitoring system including a plurality of sensors on the vehicle to generate data about monitored components during operation of the components;
using a processor for deriving information at the site of the vehicle from the data about the monitored components provided by the sensors of the monitoring system;
using a communications system for establishing wireless communications during operation of the vehicle between the vehicle and at least one remote entity interested in the operation or failure of any of the monitored components to enable transmission of derived information between the vehicle and the at least one entity, the wireless communications with the at least one remote entity being established by the communications system automatically whenever the processor determines, based on the derived information, that any of the monitored components are operating in a non-optimal manner or failure of any of the monitored components is forecast; and
notifying an occupant of the vehicle, using a notification system, about the presence and identity of any non-optimally operating component or component forecast to fail.

E. Prior Art References Relied on by Petitioner

Reference	Description	Issue Date	Exhibit No.
Asano	US 5,157,610	Oct. 20, 1992	Ex. 1003
Gormley	US 5,513,107	Apr. 30, 1996	Ex. 1007

F. The Pending Grounds of Unpatentability

Reference[s]	Basis	Claims Challenged
Asano	§ 102(b)	1, 6, 7, 11, and 13
Asano and Gormley	§ 103(a)	5

II. ANALYSIS

A. Claim Construction

1. Principles of Law

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). The terms also are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). If an inventor acts as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998).

An extraneous limitation should not be read into the claims from the specification. *E.g.*, *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988). An extraneous limitation is one the presence of which in a claim is unnecessary for the purpose of making sense of the claim. *See, e.g.*, *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994); *Renishaw PLC*, 158 F.3d at 1249. The construction that stays true to the claim language and most naturally aligns with the inventor's description is likely the correct interpretation. *See Renishaw PLC*, 158 F.3d at 1250.

“Comprising” is a term of art used in claim language, which means that the named elements are essential, but other elements also may be included to constitute additional components within the scope of the claim. *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997).

2. “*automatically*”

The term “automatically” appears in both claims 1 and 7. Claim 1, for example, recites: “said wireless communication system being arranged to *automatically* initiate the wireless communications with said at least one remote entity” (emphasis added). Prior to institution of trial, neither party proposed a construction for “automatically.” In the Decision to Institute, we agreed with Toyota’s witness, who testified, in part, that automatically means without any human intervention. Declaration of Ralph Wilhelm, Jr. ¶ 44 (“Wilhelm Declaration” (Ex. 1011)). Dec. 13. Nonetheless, we found that “automatically” possesses its ordinary and customary meaning, as would be understood by one with ordinary skill, and does not require an express construction. *Id.*

AVS asks for additional construction of “automatically.” PO Resp. 14. While AVS agrees that “automatically” covers instances where there is no human intervention, it now proposes that the term means “without human intervention and as appropriate in response to receiving input from the processing module on the vehicle about a monitored component that is operating non-optimally or is forecast to fail.” *Id.* at 15. Toyota disagrees and argues that there is no reason to deviate from the position we took in the Decision to Institute. Pet. Reply 1–3.

AVS points to the Specification in support of its proposed construction. PO Resp. 15 (citing Ex. 1001, 115:51–116:7). We cited to the same section of the Specification in the Decision to Institute for instances where “automatically” appears. Dec. 13 (citing Ex. 1001, 115:51–56). We are not persuaded the section of the Specification cited supports AVS’s construction, which adds description from the Specification to the

construction. Indeed, as set forth above, an extraneous limitation should not be read into the claims from the Specification. *See E.I. du Pont de Nemours & Co.*, 849 F.2d at 1433.

Thus, while “automatically” includes absence of human intervention, for purposes of claim construction, “automatically” possesses its ordinary and customary meaning, as would be understood by one with ordinary skill. No express construction beyond that is necessary.

3. Other Terms

In the Decision to Institute, we construed “component” as a part or an assembly of parts, less than the whole. Dec. 11. For the purposes of this *inter partes* review, AVS does not contest our construction of “component.” PO Resp. 13. Toyota does not state a position.

In the Decision to Institute, we said the term “sensor” possesses its ordinary and customary meaning, as would be understood by one with ordinary skill, and does not require an express construction. Dec. 12. We also explained that the term “sensor” includes each of the sensors particularly identified in the specification of the ’802 patent. *Id.* For the purposes of this *inter partes* review, AVS does not contest our construction of “sensor.” PO Resp. 14. Toyota does not state a position.

For each of these claim terms, we discern no reason, based on the complete record now before us, to change our constructions thereof. Neither party raises any additional terms for construction.

B. Alleged Anticipation of Claims 1, 6, 7, 11, and 13 by Asano

Toyota contends that claims 1, 6, 7, 11, and 13 of the ’802 Patent are anticipated under 35 U.S.C. § 102(b) by Asano. Pet. 4, 20–30. We have reviewed Toyota’s anticipation argument and supporting evidence, including

Asano's disclosure, the declaration of Dr. Wilhelm (Ex. 1011 ¶¶ 54–70), and the detailed claim charts appearing on pages 24–30 of the Petition.

The evidence of Asano submitted as detailed in the claim charts shows persuasively that Asano discloses each element of claims 1, 6, 7, 11, and 13. We have reviewed AVS's Patent Owner Response, and the evidence cited therein, which we also have considered. In light of the entirety of the evidence submitted by both Toyota and AVS, we conclude that Toyota has shown, by a preponderance of the evidence, that each of claims 1, 6, 7, 11, and 13 is unpatentable as anticipated by Asano.

1. Asano

Asano discloses a vehicle-mounted computer, an embodiment of which is illustrated in Figure 2 of Asano reproduced below:

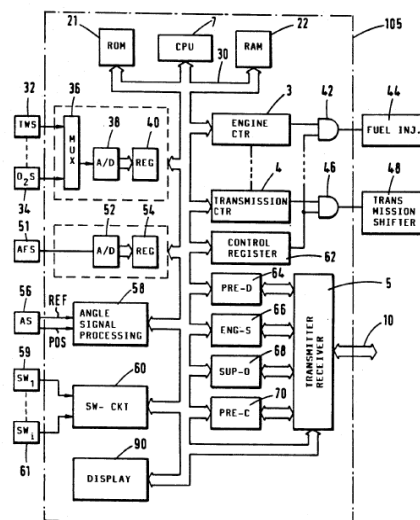


Fig.2

As shown in Figure 2, computer 105 has central processing unit (“CPU”) 7 that receives operating signals from sensors. Ex. 1003, 6:14–28. Sensors, including engine cooling water temperature sensor (“TWS”) 32 and air/fuel ratio sensor (O₂S) 34, sense the engine operating conditions. *Id.*

CPU 7 carries out computations based on the engine operating conditions. *Id.* at 6:43–47. Additionally, CPU 7 is connected to display 90 to display instructions to the driver. *Id.* at 6:67–68.

Asano provides further disclosure of failure diagnosis on a vehicle, an embodiment of which is illustrated in Figure 6 of Asano, reproduced below:

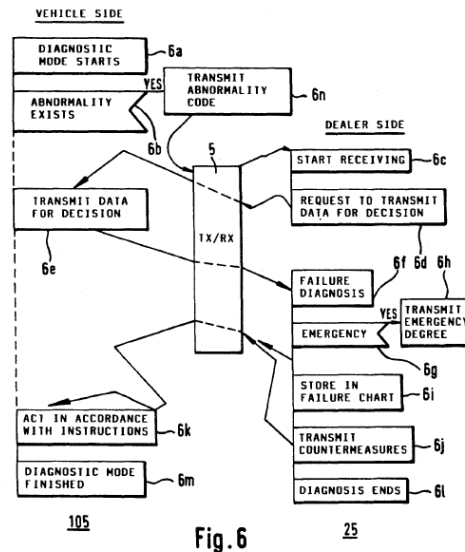


Figure 6 illustrates a functional block diagram of failure diagnosis processing. Ex. 1003, 5:23. Computations for failure diagnosis are carried out at predetermined intervals. *Id.* at 9:1–3. The period of each interval can be about 60 milliseconds. *Id.* at 9:10–13. At step 6a, shown in Figure 6, a diagnostic mode starts onboard the vehicle. *Id.* at 9:10. Next, in step 6b, a decision is made on the vehicle of whether an abnormality exists based on the results of the diagnosis. *Id.* at 9:13–14. If no abnormality exists, the process ends. *Id.* at 9:14–15. When a decision is made at step 6b, on the vehicle side, that an abnormality exists, then an abnormality code is transmitted through transmitter-receiver 5, in step 6n, to the host computer at the dealer side. *Id.* at 9:15–18, Fig. 6.

2. *Whether Asano Meets the Limitations of Claims 1, 6, 7, 11, and 13*

Toyota's claim charts show that Asano discloses each element of claims 1, 6, 7, 11, and 13. Pet. 24–30; *see also* Ex. 1011 ¶¶ 54–70.

For example, the preamble of claim 1 recites, in pertinent part, “[A]n information management and monitoring system for monitoring components on a vehicle.” Asano detects operating conditions of a vehicle. Pet. 24 (citing Ex. 1003, 2:9–14).

Claim 1 next recites, in pertinent part, “a monitoring system arranged on the vehicle and including a plurality of sensors for monitoring components of the vehicle.” Asano's system includes sensors for sensing engine operating conditions, including, among other things, water temperature and air/fuel ratio. *Id.* at 6:19–22. Toyota asserts persuasively the above-noted disclosures of Asano, along with other disclosures not discussed here, meet the “monitoring components” element. Pet. 24.

Asano's CPU 7 performs computations for purposes of controlling vehicle functions. Ex. 1003, 6:43–47. We are persuaded by Toyota's argument that claim 1's recitation of a “processing module arranged on the vehicle . . . to receive and process data about the monitored components” is met by this disclosure. Pet. 24–25.

Figure 6 of Asano shows that diagnosis starts at step 6a. *Id.* Then, at step 6b, a determination of whether an abnormality exists is made. *Id.* (citing Ex. 1003, 8:65–9:14). The computer in Asano makes a basic diagnosis followed by an advanced diagnosis based on deviations from set values or past conditions. *Id.* The above-noted disclosure from Asano, regarding diagnostic functions, meets claim 1's limitation requiring monitoring

components to determine if the components are “operating in a non-optimal manner or to forecast failure.” Pet. 25.

Asano also discloses the recited “remote entity” in wireless communication about monitored components. Asano discloses a base station coupled to host computer 18 by transmitter-receiver 5. Ex. 1003, 3:10–13, 5:46–54. Further, the disclosed operation of Asano’s transmitter-receiver meets the claim 1 limitation that the system “automatically initiates” transmission of information about a “non-optimally operating component” by transmitting an “abnormality code.” *Id.* at 9:15–18. Additionally, once it is determined that an “abnormality exists,” the abnormality code is transmitted to a dealer. Pet. 26 (citing Ex. 1003, Figs. 1 and 6).

The last element of claim 1 is the “notification system” to notify an occupant of the vehicle about non-optimal operation or components forecast to fail. Asano discloses a “vehicle mounted station,” which includes “control means” that displays vehicle operating conditions. Pet. 26 (citing Ex. 1003, 2:20–24). Asano describes “display 90” that “is used to display instructions to the driver.” Pet. 26 (citing Ex. 1003, 6:67–68). More particularly, the “vehicle mounted station” is able to “provide an indicative warning by one of a display means or an aural means.” *Id.* (citing Ex. 1003, 3:15–17).

Asano detects a deterioration amount of an injector or sensor, and is able to provide “notification . . . to the driver visually, through the display or audibly” and that “it is possible to display the deterioration amount and remaining life of the injector or sensor.” Ex. 1003, 8:40–49. We are

persuaded this disclosure meets the claim 1 requirement of notice to an occupant of “any non-optimally operating component.” Pet. 26.

We now address AVS’s argument that Asano does not fully meet every element of claim 1. First, AVS focuses on certain limitations of claim 1 related to the processing module being “arranged on the vehicle” that it contends are not disclosed in Asano. PO Resp. 21. Because Asano discloses that the vehicle-mounted computer transmits data to a host computer for detailed analysis, AVS argues the vehicle mounted computer cannot be the claimed processing module. *Id.* at 23 (citing Ex. 1003, 9:6–29).

The “vehicle mounted computer” is described in Asano as “on the vehicle,” as claim 1 requires. Ex. 1003, 6:61–7:27. As Toyota alleges, Asano discloses “the vehicle-mounted computer make[s] a basic abnormal diagnosis and transmit[s] the data to the host computer.” Pet. 25 (citing Ex. 1003, 9:4–6). Notwithstanding that the host computer is involved in more detailed vehicle diagnosis, the “basic abnormal diagnosis” is made by the vehicle-mounted computer. As we stated in the Decision to Institute, the claim does not require that all diagnosis occur on the vehicle. Dec. 23.

AVS contrasts the “vehicle-mounted computer” of Asano and its “basic abnormality diagnosis” to the “specific diagnosis” it alleges is required by the claimed processing module. PO Resp. 22. AVS argues that Asano’s “‘basic abnormal diagnosis’ and generation of an ‘abnormal code’ could be nothing more than an indication that a parameter on the vehicle is outside a preset range.” *Id.* (citing Declaration of Lawrence Kennedy ¶¶ 67–

68 (“Kennedy Declaration,” Ex. 2004²). AVS urges us to view the “abnormal code” as a fault code, which does not identify a particular component which generates the fault code. *Id.* at 25–26 (citing Ex. 2004 ¶ 68; Deposition of Ralph V. Wilhelm, 70:3–72:6 (“Wilhelm Deposition,” Ex. 2005)).

We are not persuaded that Asano’s “abnormal code” is distinguishable from an indication of “whether any of the monitored components are operating in a non-optimal manner or to forecast failure of any of the monitored components,” as recited in claim 1. Toyota is correct that “a diagnosis that an on-vehicle parameter is operating outside a preset range is a diagnosis that a component ‘is operating non-optimally’ or is ‘forecast’ to fail.” Pet. Reply 6. As such, Asano discloses the claimed limitation.

The result does not change even if we accept AVS’s argument that the diagnosis must be component specific. Toyota points to Figure 6 as an example of a failure diagnosis of the engine, transmission and suspension. Pet. 25 (citing Ex. 1003, Fig. 6). As shown in Figure 1 of Asano the vehicle computer is connected to, i.e., monitoring specific operating conditions of the engine, the transmission and the suspension. Pet. Reply 6 (citing Ex. 1003, 4:58–63, 4:66–67). The engine, transmission and suspension are “components,” as we have construed the term, in that they are “a part or an assembly of parts, less than the whole.”

AVS argues that Toyota must rely on inherency to argue Asano discloses the monitoring of non-optimally operating components limitation

² Toyota argues we should “discount” Mr. Kennedy’s opinions as misapplying the law and our claim construction. Pet. Reply 3. We give expert testimony such weight as we deem appropriate and need not specifically address Toyota’s arguments beyond that.

discussed above. PO Resp. 25, Tr. 108:1–109:14. Toyota is not relying on inherency. Tr. 8:7–11. As discussed above, we find the limitation expressly disclosed in Asano.³

We, therefore, are persuaded that Toyota has shown by a preponderance of the evidence that Asano discloses a “a processing module arranged on the vehicle . . . arranged to receive and process data about the monitored components . . . to determine whether any of the monitored components are operating in a non-optimal manner or to forecast failure of any of the monitored components,” as recited in claim 1.

Second, AVS argues Asano does not disclose that the claimed wireless transmission of information regarding “non-optimal operation” must be initiated “automatically” from the vehicle to the remote entity. PO Resp. 30–33. AVS’s arguments are based on our adoption of AVS’s proposed construction of “automatically,” which we declined to do. PO Resp. 30. AVS acknowledged at the final hearing that if the construction of “automatically” from the Decision to Institute was not changed, then the limitation is met by Asano. Tr. 117:22–118:7; *see* PO Resp. 30. Notwithstanding the preceding, AVS’s Response argues that the evidence regarding the “automatically” limitation presented by Toyota, specifically

³ In arguing Toyota must rely on inherency to meet the “processing module” limitation, AVS argues a second limitation from claim 1: “information about the presence and identity of any non-optimally operating component or component forecast to fail.” PO Resp. 25. The “presence and identity” limitation is not a part of the “processing module” limitation and is analyzed below in connection with AVS’s “notification system” limitation argument.³ See PO Resp. 33.

Figure 6 of Asano, alone is insufficient to show the “automatically” limitation. PO Resp. 31. AVS argues Figure 6 does not use the word “automatic” and it does not appear anywhere else in Asano in connection with the limitation under consideration. *Id.*

That a transmission occurs is shown in Asano’s disclosure that, when an abnormality exists, “the abnormal code is transmitted to the host computer on the dealer side through the transmitter-receivers 5 and 11.” Pet. 26 (citing Ex. 1003, 9:15–18). Figure 6 of Asano, reproduced above, shows an example of a failure diagnosis. Ex. 1003, 8:65–9:1. As Toyota points out, Figure 6 shows the transmission based on detection of an abnormality occurs “automatically.” *Id.* This conclusion is supported by the opinion of Dr. Wilhelm. Ex. 2005, 95:15–96:6.

We find Dr. Wilhelm to be a person of at least ordinary skill in the art. See Ex. 1011 ¶¶ 2–5. We credit his testimony that a person of ordinary skill would have understood Figure 6 as showing that transmission of abnormality codes occurs “automatically.”

We have reviewed the testimony of AVS’s expert Mr. Kennedy as it relates to “automatically” initiating transmission. Ex. 2004 ¶¶ 77–85. The disclosure of Figure 6 is not addressed by Mr. Kennedy and AVS has offered no evidence to contradict Dr. Wilhelm’s testimony.⁴ The evidence of what a person of ordinary skill would understand from Figure 6, i.e., that the transmission occurred “automatically,” was never rebutted.

⁴ Without mention of “automatically,” Mr. Kennedy does discuss Figure 6 in connection with the “notification system” limitation discussed below. Ex. 2004 ¶¶ 88–98.

AVS separately argues that the “automatically” limitation is not inherently disclosed. PO Resp. 32. On the evidence presented, *the transmission limitation is shown expressly* in Figure 6. That the transmission is “automatic” is present expressly based on a person of ordinary skill’s understanding of what is disclosed expressly in Figure 6 of Asano.

AVS next states that Asano discloses that the transmission can be delayed from the diagnosis of an abnormality because “communications are initiated at predetermined times” that are unrelated to the detection of a non-optimally operating component or component that is forecast to fail. PO Resp. 32. AVS argues Asano, therefore, does not disclose an “automatic” transmission because the transmission must be at the time an abnormality is detected. *Id.* AVS further argues only then can repairs be completed before a vehicle breakdown. *See* Tr. 112:11–15. Toyota responds that the transmission can be useful well after diagnosis. Pet. Reply 2. Toyota also points out that neither the construction of “automatically” we have adopted nor AVS’s proposed construction limit the time between detection of a non-optimally operating component and the “automatic” transmission. Tr. 13:15–19.

We, therefore, are persuaded that Toyota has shown by a preponderance of the evidence that Asano discloses a “wireless communication system . . . arranged to automatically initiate . . . wireless communications with said at least one remote entity whenever” the processing module “determines that any of the monitored components are operating in a non-optimal manner or

failure of any of the monitored components is forecast,” as recited in claim 1.

Third, AVS asserts there is no “notification system” in Asano, as claimed. PO. Resp. 33–39. AVS argues that the “notification” must be to the occupant about “the presence and identity of any non-optimally operating component or component forecast to fail” and that such is lacking from Asano. PO Resp. 34. AVS acknowledges that Asano discloses “some type of emergency warning is being transmitted back to the vehicle,” but asserts that Asano does not disclose that the warning includes the claimed “identity” information. *Id.* (citing Ex. 1003, 3:13–17; Fig. 6; 9:29–42). AVS contends the warning could occur without identifying the component that is operating in a non-optimal manner or that is forecast to fail. *Id.* (citing Ex. 2004 ¶ 93). AVS contends other portions of Asano’s disclosure, like a display which displays instructions to the driver, are insufficient to meet the limitation for the same reason. *Id.* at 35 (citing Ex. 1003, 6:67–68; 7:18–20). For example, AVS point to the instructions displayed to the driver range from stopping the vehicle to taking it in for service. *Id.* (citing Ex. 2004 ¶¶ 94, 96).

AVS concedes that Asano discloses an embodiment shown in Figure 5 where “it is possible to display the deterioration amount and the remaining life of the injector or sensor.” *Id.* at 36–37 (citing Ex. 1003, 7:31–8:64, Fig. 5). AVS argues, however, that the embodiment of Figure 5 is separate from the embodiment of Figure 6. *Id.* AVS also contends the calculations done regarding “deterioration amount” and “remaining life” of the injector are done by the host computer, not on the vehicle. *Id.* at 38 (citing Ex. 1003, Fig. 5; 7:31–8:64; Ex. 2004 ¶¶ 100–102; Ex. 2005, 90:9–14). AVS

concludes that: the Figure 5 embodiment does not disclose all the limitations of claim 1; and the embodiment of Figure 5 cannot be combined with other embodiments of Asano, e.g., Figure 6 (PO Resp. 36–37), to find anticipation. *Id.* at 38 (citing *Net MoneyIn, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008)). .

Asano states:

In a feature of the invention the vehicle mounted station is arranged to *detect an abnormality* and to transmit data indicative thereof to said base station, said base station evaluates said abnormality and determines whether an emergency retransmission to said vehicle mounted station is necessary to *provide an indicative warning by one of a display means or an aural means*, and in such feature if the abnormality is not of an emergency nature the data is stored in a failure chart prior to transmitting counter measures from the base station to said vehicle mounted station.

Ex. 1003, 3:10–20 (emphasis added); *see* Pet. 26.

Toyota is correct that Asano’s warning is more than generic and is “indicative” of “the diagnosed abnormality or failure.” *See* Pet. 26 (citing Ex. 1003, 3:15–17). Specifically, Asano’s display depicts indications of vehicle and, more specifically, engine operating conditions. *Id.* (citing Ex. 1003, 4:12–13). The engine operating conditions include “the engine cooling water temperature (TWS) **32** and the air/fuel ratio (O₂S) **34**.” Ex. 1003, 6:21–23. These parameters are specific to the engine and “identify” the engine as a specific component.

The display also provides instructions to the driver. Pet. 26 (citing Ex. 1003, 6:67–68); *see* Fig. 2. Such notification may include instructions or notice of a non-optimally operating component. For

example, it may include “display [of] the deterioration amount and remaining life of the injector or sensor.” *Id.* at 8:40–49. As to the injector, “notification” may occur “visually, through the display or audibly.” Ex. 1003, 8:48–49. Again, a specific component is monitored concerning how optimally it is operating. “Deterioration” is indication of a non-optimally operating specific component, an engine injector.

The sensor deterioration disclosure discussed above is a part of Asano’s written description associated with Figure 5. Ex. 1003, 7:31, 8:40–49. We disagree with AVS that Figure 5 is a separate embodiment from what is shown in Figure 6. Contrary to AVS’s assertion, Toyota did rely on the description of the Figure 5 embodiment. Pet. 26.

Figure 5 shows collection of data on the vehicle side and transmission to the dealer side of data for use in a “matching map.” Figure 6 shows collection of data for purposes of transmitting an abnormal code so a “failure diagnosis” can occur on the dealer side. The invention relates to *both* “failure diagnosis and matching by the host computer.” Ex. 1003, 11:23. Both Figures 5 and 6 are part of the same invention and are not separate embodiments. Because Figures 5 and 6 of Asano are not separate embodiments, reliance on *Net MoneyIn, Inc.*, 545 F.3d at 1371 for the proposition that separate embodiments in a single reference cannot be combined for purposes of anticipation is misplaced.⁵ See PO Resp. 36.

⁵ AVS is also incorrect if it is contending Toyota and the Board did not rely on disclosure related to Figure 5 in the Petition and Decision to Institute. PO

We, therefore, are persuaded that Toyota has shown by a preponderance of the evidence that Asano discloses “a notification system that notifies an occupant of the vehicle about the presence and identity of any non-optimally operating component or component forecast to fail,” as recited in claim 1.

Independent claim 7 is a method claim of similar scope to claim 1. Toyota presents essentially the same evidence and arguments for claim 7 as it has presented for claim 1. *See* Pet. 27-28. AVS argues that claim 7 is patentable over Asano for the same reasons it alleged claim 1 was patentable over Asano. PO Resp. 40–43.

Accordingly, and for the reasons stated in connection with claim 1, we determine that Toyota has shown, by a preponderance of the evidence, that claim 7 is unpatentable as anticipated by Asano.

Claim 6 depends from claim 1. Claims 11 and 13 depend from claim 7. Toyota’s claim charts persuasively read all elements of each of dependent claims 6, 11, and 13 onto the disclosure of Asano. Pet. 26, 28–30 (citing Ex. 1003, Fig. 7, 9:46–59, 3:10–11, 8:65–9:18, Fig. 6, 3:10–11, 6:43–47, 8:65–9:14). AVS argues that claim 6 is patentable over Asano for the same reasons it alleged claim 1 was patentable over Asano. PO Resp. 30, 33, 39. AVS argues that claims 11 and 13 are patentable over Asano for the same reasons it alleged claims 1 and 7 were patentable over Asano. PO Resp. 40–43. Accordingly, for reasons stated in connection with claims 1 and 7, we

Resp. 38. Both the Decision to Institute and the Petition cite to the disclosure from Asano that AVS says was not relied on. *See* Dec. 24, Pet. 26 (citing Ex. 1003, 8:40–49).

determine that Toyota has shown, by a preponderance of the evidence, that each of claims 6, 11, and 13 are unpatentable as anticipated by Asano.

B. Alleged Obviousness of Claim 5 over Asano and Gormley

Toyota contends that claim 5 of the '802 Patent would have been obvious under 35 U.S.C. § 103(a) over Asano and Gormley. Pet. 4, 54–56. We have reviewed Toyota's obviousness argument and supporting evidence, including the disclosures of Asano and Gormley and the declaration of Dr. Wilhelm (Ex. 1011 ¶¶ 134–142). We have also reviewed Patent Owner's Response and the evidence cited therein.

Claim 5 depends from claim 1. As discussed above, Toyota has shown by a preponderance of the evidence that Asano anticipates independent claims 1 and 7 and dependent claims 6, 11, and 13. Thus claim 1 is anticipated by Asano under 35 U.S.C. § 102(b). Toyota has shown, by a preponderance of the evidence, that claim 5 would have been obvious and is therefore unpatentable over Asano and Gormley.

1. Gormley

Gormley discloses an integrated control system including a processor-based vehicle controller 102 for controlling and configuring operating characteristics of a motor vehicle. Ex. 1007, 4:12–18. Operating characteristics of the motor vehicle are selected in response to control signals provided to the vehicle controller. *Id.* at 2:9–12.

Figure 1 of Gormley is reproduced below:

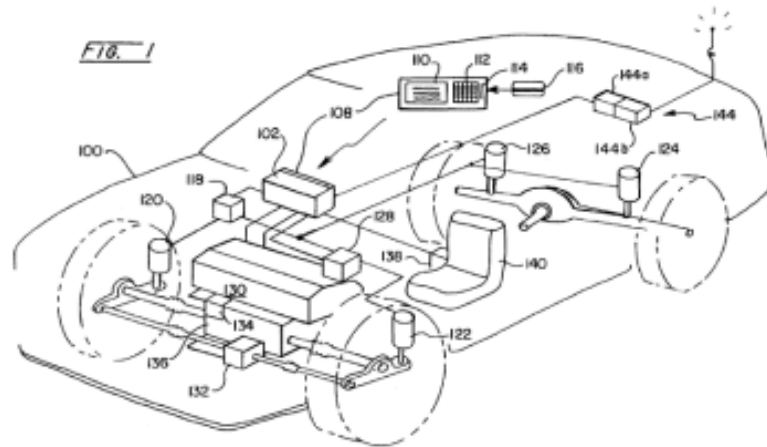


Figure 1 is a perspective view of the motor vehicle including an integrated control system. Dealer 106 may communicate with vehicle controller 102 by means of a separate connection through vehicle interface 108, shown in Figure 1. Ex. 1007, 4:23–27. Vehicle interface 108 includes display 110, through which the integrated control system communicates with a user. *Id.* at 4:28–30.

2. Alleged Obviousness of Claim 5 over Asano and Gormley

Claim 5 depends from claim 1 and further recites: “a user interactive device coupled to and controlled by said module, said user interactive device being a display on which messages relating to the monitored components are provided to the user.”

Asano discloses a “display or alarm” that allows the “vehicle-mounted computer” to “display . . . operating conditions.” Ex. 1003, 4:12–13. The display also gives the driver “instructions” in response to component failures. *Id.* at 7:18–21. Thus, Asano discloses a “display on which messages relating to the monitored components are provided to the user,” as claim 5 further requires.

Toyota acknowledges that Asano does not show a “display” that is a “user interactive coupled to and controlled by [the processing module]” as claimed. Pet. 55. Toyota relies on Gormley for the “display” element that is “user interactive” and missing from Asano. *Id.* Toyota asserts it would have been obvious to combine the teachings of the two references because both relate to monitoring and diagnostic systems for automobile. Pet. 56. Dr. Wilhelm testified one of ordinary skill in the art as of June 1995 “would have considered different types of displays, including a “user-interactive display,” to be interchangeable and would be a simple design choice. Ex. 1011 ¶¶ 129, 140.

AVS raises no argument that Gormley does not disclose the subject matter further recited in claim 5. Rather, it argues that Gormley does not teach the features of claim 1. PO Resp. 43–44. As discussed above, however, we have determined that Asano discloses all the elements of claim 1.

AVS contends that Toyota fails to provide sufficient rationale for combining Asano and Gormley and relies on impermissible hindsight. PO Resp. 44–45. However, Toyota’s expert, Dr. Wilhelm, provides sufficient explanation by stating, for example, Asano and Gormley both relate to monitoring and diagnostic systems for automobiles. Ex. 1011 ¶ 142 (citing Ex. 1003, 1:11; Ex. 1007, Fig. 1). Both references also discuss monitoring and diagnosing of an automobile’s engine, suspension, and transmission. *Id.* (citing 1003, Fig. 1; Ex.1007, Fig. 2). Further, both discuss communication between the vehicle and a remotely located dealer. *Id.* (citing Ex. 1003, 7:23–27; Ex. 1007, 4:18–21). In Dr. Wilhelm’s opinion, this shows that one of ordinary skill in the art would have recognized that the components of

Gormley's system would be well-suited for use with Asano's system. Ex. 1011 ¶ 143. The testimony is persuasive.

Despite the counter-arguments in AVS's Patent Owner Response, and the evidence cited therein, which we also have considered, Toyota has shown, by a preponderance of the evidence, that claim 5 is unpatentable, under 35 U.S.C. § 103(a), as obvious over the combination of Asano and Gormley.

III. CONCLUSION

We conclude that Toyota has demonstrated by a preponderance of the evidence that (1) claims 1, 6–7, 11, and 13 are unpatentable, under 35 U.S.C. § 102(b), as anticipated by Asano, and (2) claim 5 is unpatentable, under 35 U.S.C. § 103, as obvious over the combination of Asano and Gormley.

This is a final written decision of the Board under 35 U.S.C. § 318(a). Parties to the proceeding seeking judicial review of this decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IV. ORDER

For the reasons given, it is

ORDERED that claims 1, 5–7, 11, and 13 of U.S. Patent No. 7,630,802 are determined by a preponderance of the evidence to be unpatentable; and

FURTHER ORDERED that, because this is a final written decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2013-00414
Patent 7,630,802 B2

For PETITIONER:

A. Antony Pfeffer
Mark Berkowitz
Thomas R. Makin
KENYON & KENYON LLP
apfeffer@kenyon.com
mberkowitz@kenyon.com
tmakin@kenyon.com
ptab@kenyon.com

For PATENT OWNER:

Thomas J. Wimbiscus
Scott P. McBride
Stephanie Sanz
MCANDREWS HELD & MALLOY, LTD.
twimbiscus@mcandrews-ip.com
smcbride@mcandrews-ip.com
ssamz@mcandrews-ip.com