

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

BUNKER HILL TECHNOLOGIES, LLC,

Plaintiff,

v.

TOYOTA MOTOR CORPORATION,  
TOYOTA MOTOR NORTH AMERICA,  
INC. and TOYOTA MOTOR SALES,  
U.S.A., INC.,

Defendants.

CIVIL ACTION NO. 2:25-cv-1133

**JURY TRIAL DEMANDED**

**PLAINTIFF’S COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff Bunker Hill Technologies, LLC files this Complaint against Defendants Toyota Motor Corporation, Toyota Motor North America, Inc., and Toyota Motor Sales, U.S.A., Inc. (collectively, “Toyota”) for infringement of U.S. Patent No. 8,030,884 (“the ’884 Patent”), U.S. Patent No. 8,086,364 (“the ’364 Patent”), U.S. Patent No. 8,326,467 (“the ’467 Patent”), U.S. Patent No. 9,914,365 (“the ’365 Patent”), U.S. Patent No. 10,291,158 (“the ’158 Patent”), U.S. Patent No. 10,374,529 (“the ’529 Patent”), U.S. Patent No. 10,442,296 (“the ’296 Patent”), U.S. Patent No. 10,549,648 (“the ’648 Patent”), and U.S. Patent No. 11,374,508 (“the ’508 Patent”), (collectively, the “Asserted Patents”).

**THE PARTIES**

1. Plaintiff Bunker Hill Technologies, LLC (“BHT”) is a Texas limited liability company located in Allen, Texas.

2. Defendant Toyota Motor Corporation (“TMC”) is a corporation organized and existing under the laws of Japan with a principal place of business at 1 Toyota-cho, Toyota City, Aichi Prefecture 471-8571, Japan. On information and belief, TMC does business itself, and through its subsidiaries, affiliates, and agents, in the State of Texas and the Eastern District of Texas.

3. TMC conducts business in Texas and in the Eastern District of Texas, directly or through intermediaries, including subsidiaries, distributors, affiliates, retailers, suppliers, integrators, customers, and others.

4. TMC is engaged in making, using, selling, offering for sale, and/or importing vehicles having electric or hybrid-electric powertrain systems (“Accused Products”)<sup>1</sup> to and throughout the United States, including this District. TMC also induces its subsidiaries, distributors, affiliates, retailers, suppliers, integrators, and customers in the making, using, selling, offering for sale, and/or importing such products to and throughout the United States, including this District. To this end, TMC and its foreign and U.S.-based subsidiaries—which act together as part of TMC’s global network of sales and manufacturing emissaries—have operated as agents of, and for, one another and have otherwise acted vicariously for TMC as elements of the same business group and/or enterprise. Indeed, they work in concert and in orchestrated fashion, subject to agreements that are far nearer than arm’s length, in order implement a distribution channel of infringing products within this District and the United States.

<sup>1</sup> The Accused Products include each Toyota- or Lexus-branded vehicle having electric or hybrid-electric powertrain systems. Specific models referenced herein are examples of such vehicles.

5. TMC maintains a substantial corporate presence in the United States via at least its U.S.-based co-Defendant subsidiaries, namely Toyota Motor North America, Inc. and Defendant Toyota Motor Sales, U.S.A., Inc.

6. Alone and through at least the activities of its U.S.-based co-Defendant subsidiaries, TMC conducts business in the United States and this District, including importing, making, distributing, and selling Accused Products that infringe the Asserted Patents. *See Trois v. Apple Tree Auction Center, Inc.*, 882 F.3d 485, 490 (5th Cir. 2018) (“A defendant may be subject to personal jurisdiction because of the activities of its agent within the forum state....”); *see also Cephalon, Inc. v. Watson Pharmaceuticals, Inc.*, 629 F. Supp. 2d 338, 348 (D. Del. 2009) (“The agency theory may be applied not only to parents and subsidiaries, but also to companies that are ‘two arms of the same business group,’ operate in concert with each other, and enter into agreements with each other that are nearer than arm’s length.”).

7. Through importation, manufacture, offers to sell, sales, distributions, and related agreements to transfer ownership of TMC’s products with distributors and customers operating in and maintaining significant business presences in the United States, TMC does extensive business in the United States, this State, and this District.

8. Defendant Toyota Motor North America, Inc. (“TMNA”) is a corporation organized and existing under the laws of California, with its principal place of business in this District at 6565 Headquarters Drive, Plano, Texas 75024. On information and belief, TMNA is a wholly-owned subsidiary of TMC. TMNA may be served with process through its registered agent, CT Corporation System, located at 1999 Bryan Street, Suite 900, Dallas, Texas 75201. On information and belief, TMNA is responsible for research and development, manufacturing, sales,

offers for sale, marketing, importation, and distribution of automotive vehicles from Toyota-managed brands (e.g., Toyota and Lexus) in the United States, including this District.

9. Defendant Toyota Motor Sales, U.S.A., Inc. (“TMS”) is corporation organized and existing under the laws of California, with its principal place of business in this District at 6565 Headquarters Dr., Plano, Texas 75024. On information and belief, TMS is a wholly-owned subsidiary of TMC. TMS may be served through its registered agent, CT Corporation System, located at 1999 Bryan Street, Suite 900, Dallas, Texas 75201. On information and belief, TMS is responsible for sales, marketing, and distribution of automotive vehicles from Toyota-managed brands (e.g., Toyota and Lexus) in the United States, including this District.

### **JURISDICTION AND VENUE**

10. This is an action for patent infringement arising under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq.*, including, without limitation, 35 U.S.C. §§ 271, 281, 284, and 285. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

11. This Court has specific and general personal jurisdiction over Toyota consistent with the requirements of the Due Process Clause of the United States Constitution and the Texas Long Arm Statute because, among other things, each (i) has engaged in continuous, systematic, and substantial business in Texas, (ii) maintains a principal place of business in Texas and in this District, (iii) is registered to do business in Texas, and (iv) has committed and continues to commit, directly or through intermediaries (including subsidiaries, agents, distributors, affiliates, retailers, suppliers, integrators, customers, and others), acts of patent infringement in this State and this District. Such acts of infringement include making, using, testing, offering for sale, selling, and/or importing Accused Products (as more particularly identified and described throughout this Complaint) in this State and this District and/or inducing others to commit acts of patent

infringement in this State and District. Indeed, Toyota has purposefully and voluntarily placed, and are continuing to place, one or more Accused Products into the stream of commerce through established distribution channels (including the Internet) with the expectation and intent that such products will be sold to and purchased by consumers in the United States, this State, and this District; and with the knowledge and expectation that such products (whether in standalone form or as integrated in downstream products) will be imported into the United States, this State, and this District.

12. In addition, Toyota has derived substantial revenues from their infringing acts occurring within this State and this District. Toyota has substantial business in this State and this District, including (i) at least part of its infringing activities alleged herein and (ii) regularly doing or soliciting business, engaging in other persistent conduct, and/or deriving substantial revenue from infringing goods offered for sale, sold, and imported, and services provided to Texas residents vicariously through and/or in concert with its agents, intermediaries, distributors, importers, customers, subsidiaries, and/or consumers.

13. In addition, Toyota has knowingly induced, and continues to knowingly induce, infringements within this State and this District by advertising, marketing, offering for sale and/or selling Accused Products (as more particularly identified and described throughout this Complaint) that incorporate the fundamental technologies covered by the Asserted Patents. Such advertising, marketing, offering for sale and/or selling of Accused Products is directed to consumers, customers, manufacturers, integrators, suppliers, distributors, resellers, partners, and/or end users, and this includes providing instructions, user manuals, advertising, and/or marketing materials that facilitate, direct and encourage use of infringing functionality with Toyota's knowledge thereof.

14. Toyota has, in the multitude of ways described above, availed itself of the benefits and privileges of conducting business in this State and willingly subjected itself to the exercise of this Court's personal jurisdiction over them. Toyota also has sufficient minimum contacts with this forum through their transaction of substantial business in this State and this District and their commission of acts of patent infringement as alleged in this Complaint that are purposefully directed towards this State and District.

15. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b) because, among other things, (i) Toyota is subject to personal jurisdiction in this District, (ii) Toyota has committed acts of patent infringement in this District, and (iii) Toyota has at least one regular and established place of business in this District, including at 6565 Headquarters Dr., Plano, Texas 75024.

### **THE ASSERTED PATENTS AND TECHNOLOGY**

16. BHT is the sole and exclusive owner of all right, title, and interest in the Asserted Patents and holds the exclusive right to take all actions necessary to enforce its rights in, and to, the Asserted Patents, including the filing of this patent infringement lawsuit. Indeed, BHT owns all substantial rights in the Asserted Patents, including the right to exclude others and to recover damages for all past, present, and future infringements.

17. The '884 Patent is entitled, "Apparatus for transferring energy using onboard power electronics and method of manufacturing same." The '884 Patent lawfully issued on October 4, 2011 and stems from U.S. Patent Application No. 12/550,504, which was filed on August 31, 2009.

18. The '364 Patent is entitled, "System and method for operation of electric and hybrid vehicles." The '364 Patent lawfully issued on December 27, 2011 and stems from U.S. Patent Application No. 12/719,921, which was filed on March 9, 2010.

19. The '467 Patent is entitled, "Controller and method of controlling a power system." The '467 Patent lawfully issued on December 4, 2012 and stems from U.S. Patent Application No. 13/225,975, which was filed on September 6, 2011.

20. The '365 Patent is entitled, "Apparatus and method for rapid charging using shared power electronics." The '365 Patent lawfully issued on March 13, 2018 and stems from U.S. Patent Application No. 15/265,404, which was filed on September 14, 2016.

21. The '158 Patent is entitled, "Electric drive system and energy management method." The '158 Patent lawfully issued on May 14, 2019 and stems from U.S. Patent Application No. 15/693,976, which was filed on September 1, 2017.

22. The '529 Patent is entitled, "Electric drive system and energy management method." The '529 Patent lawfully issued on August 6, 2019 and stems from U.S. Patent Application No. 15/453,218, which was filed on March 8, 2017.

23. The '296 Patent is entitled, "Vehicle propulsion system with multi-channel DC bus and method of manufacturing same." The '296 Patent lawfully issued on October 15, 2019 and stems from U.S. Patent Application No. 15/799,045, which was filed on October 31, 2017.

24. The '648 Patent is entitled, "Vehicle propulsion system with multi-channel DC bus and method of manufacturing same." The '648 Patent lawfully issued on February 4, 2020 and stems from U.S. Patent Application No. 16/555,487, which was filed on August 29, 2019.

25. The '508 Patent is entitled, "Electric drive system and energy management method." The '508 Patent lawfully issued on June 28, 2022 and stems from U.S. Patent Application No. 16/866,028, which was filed on May 4, 2020.

26. The claims of the Asserted Patents are directed to patent-eligible subject matter under 35 U.S.C. § 101. They are not directed to an abstract idea, and the technologies covered by

the claims comprise systems and/or ordered combinations of features and functions that, at the time of invention, were not, alone or in combination, well-understood, routine, or conventional.

### **DEFENDANTS' PRE-SUIT KNOWLEDGE OF ITS INFRINGEMENT**

27. Prior to filing this Complaint, Toyota was put on notice of its infringements of the Asserted Patents by way of communication with BHT's licensing agent regarding a potential license to BHT assets as early as November 20, 2024.

28. During ongoing discussions regarding a potential license, BHT's licensing agent sent an email on August 22, 2025 to five Toyota personnel, including Kyohei Yamashita and Niky R. Bagley, notifying Toyota of claim charts in the data room previously made available to Toyota, including claim charts for the '884 Patent, the '467 Patent, the '158 Patent, the '529 Patent, the '296 Patent, and the '648 Patent that demonstrated Toyota's infringement and identified specific infringing Toyota products. These claim charts were downloaded from the data room by Toyota from an IP address located in Washington, DC on August 25, 2025.

29. On October 22, 2025, BHT's licensing agent further sent via email to Toyota a claim chart for the '365 Patent identifying Toyota infringing products and demonstrating Toyota's infringement of the '365 Patent. The October 22, 2025 email further provided a summary table that included the Asserted Patents and multiple exemplary infringing vehicles for each Asserted Patent.

30. On November 6, 2025, BHT's licensing agent further sent via email to Toyota claim charts for the '364 Patent and the '508 Patent identifying Toyota infringing products and demonstrating Toyota's infringement of the '364 Patent and the '508 Patent.

31. The accused products addressed in the Counts below include, but are not limited to, products identified in BHT's communications to Toyota. Toyota's past and continuing sales of

the accused products (i) willfully infringe the Asserted Patents, and (ii) impermissibly usurp the significant benefits of BHT's patented technologies without fair compensation.

32. To the extent necessary, BHT has complied with the requirements of 35 U.S.C. § 287, such that BHT may recover pre-suit damages.

### **COUNT I**

(INFRINGEMENT OF U.S. PATENT NO. 8,030,884)

33. BHT incorporates the preceding paragraphs herein by reference.

34. This cause of action arises under the patent laws of the United States, and, in particular, 35 U.S.C. §§ 271, *et seq.*

35. BHT is the owner of all substantial rights, title, and interest in and to the '884 Patent, including the right to exclude others and to enforce, sue, and recover damages for past, present, and future infringements.

36. The '884 Patent is valid, enforceable, and was duly and legally issued by the United States Patent and Trademark Office on October 4, 2011, after full and fair examination.

#### ***Direct Infringement (35 U.S.C. § 271(a))***

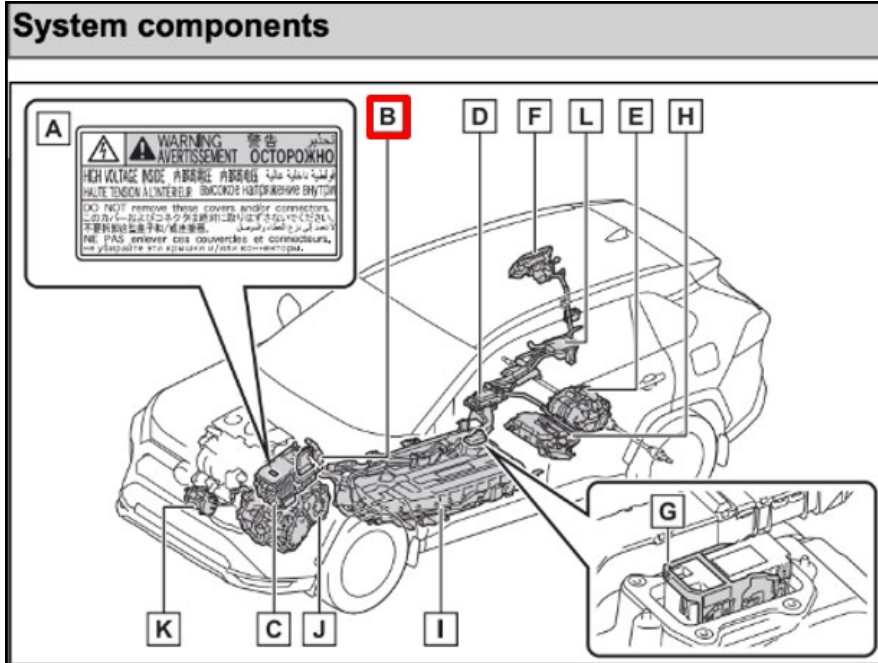
37. Toyota directly infringes one or more claims of the '884 Patent in this District and elsewhere in Texas and the United States.

38. Toyota directly infringes, either by itself or via its agent(s), at least claim 20 of the '884 Patent as set forth under 35 U.S.C. § 271(a) by making, using, selling, offering to sell, and/or importing Toyota and Lexus branded electric vehicles equipped that incorporate the fundamental technologies covered by the '884 Patent, including, but not limited to, Toyota and Lexus branded vehicles (e.g., the 2025 Toyota RAV4 Plug-in Hybrid) equipped with electric and/or hybrid-electric powertrain systems (collectively, "the '884 Accused Products").

39. By way of illustration only, Toyota's '884 Accused Products comprise each and every element of claim 20 of the '884 Patent. The '884 Accused Products comprise "[a] system comprising: a charge bus configured to receive charging energy from a voltage source." For example, the '884 Accused Products are vehicles that include high voltage cables (i.e., a charge bus) configured to receive energy from a charger (i.e., a voltage source) via a charging inlet.

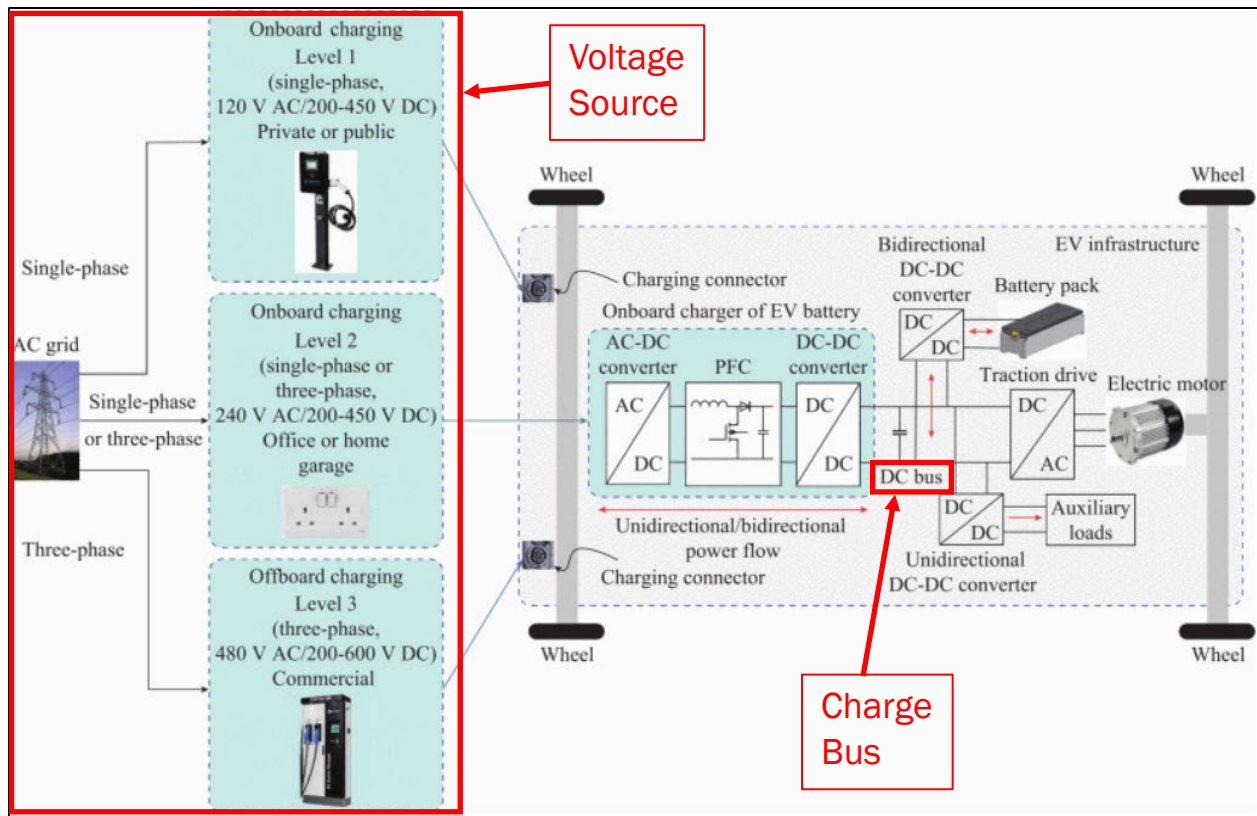


Source: <https://www.toyota.com/rav4pluginhybrid/>



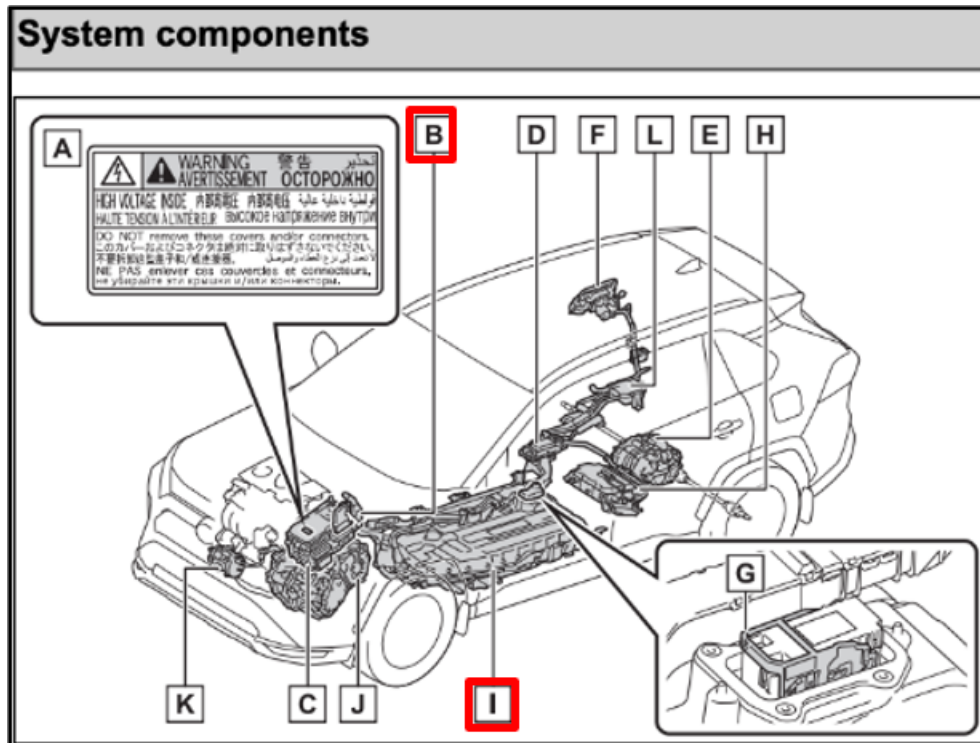
- Charge Bus** →
- A** Warning label
  - B** High voltage cables (orange)
  - C** Power control unit
  - D** DC/DC converter
  - E** Rear electric motor (traction motor)
  - F** AC charging inlet
  - G** Service plug
  - H** Onboard traction battery charger
  - I** Hybrid battery (traction battery)

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42K58U/pdf/OM42K58U.pdf>



Source: <https://ieeexplore.ieee.org/document/10215092>

40. The '884 Accused Products comprise a system comprising “an energy storage device configured to output a DC voltage and coupled to the charge bus.” For example, the '884 Accused Products include a hybrid battery (i.e., an energy storage device) configured to output a DC voltage and is coupled to the high voltage cables (i.e., charge bus).



Charge  
Bus

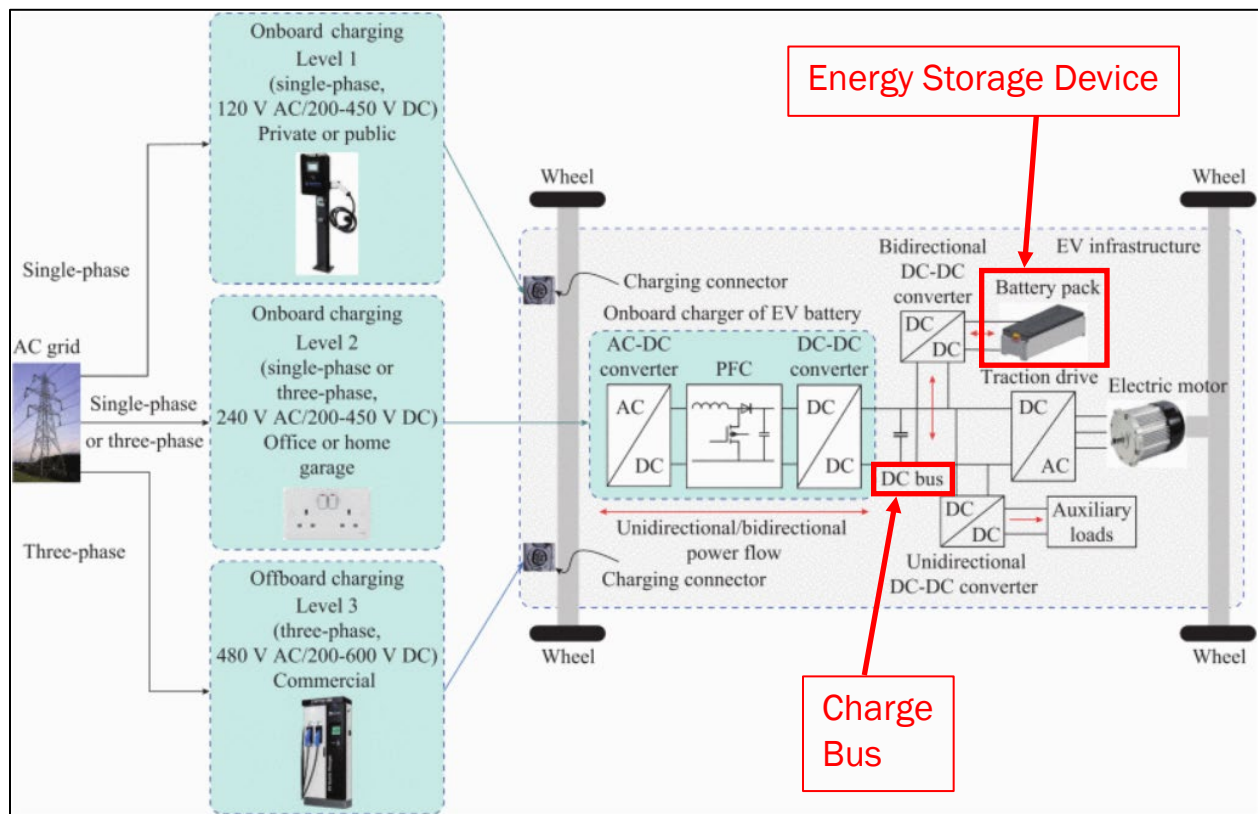
Energy Storage  
Device

- A** Warning label
- B** High voltage cables (orange)
- C Power control unit
- D DC/DC converter
- E Rear electric motor (traction motor)
- F AC charging inlet
- G Service plug
- H Onboard traction battery charger
- I** Hybrid battery (traction battery)

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42K58U/pdf/OM42K58U.pdf>

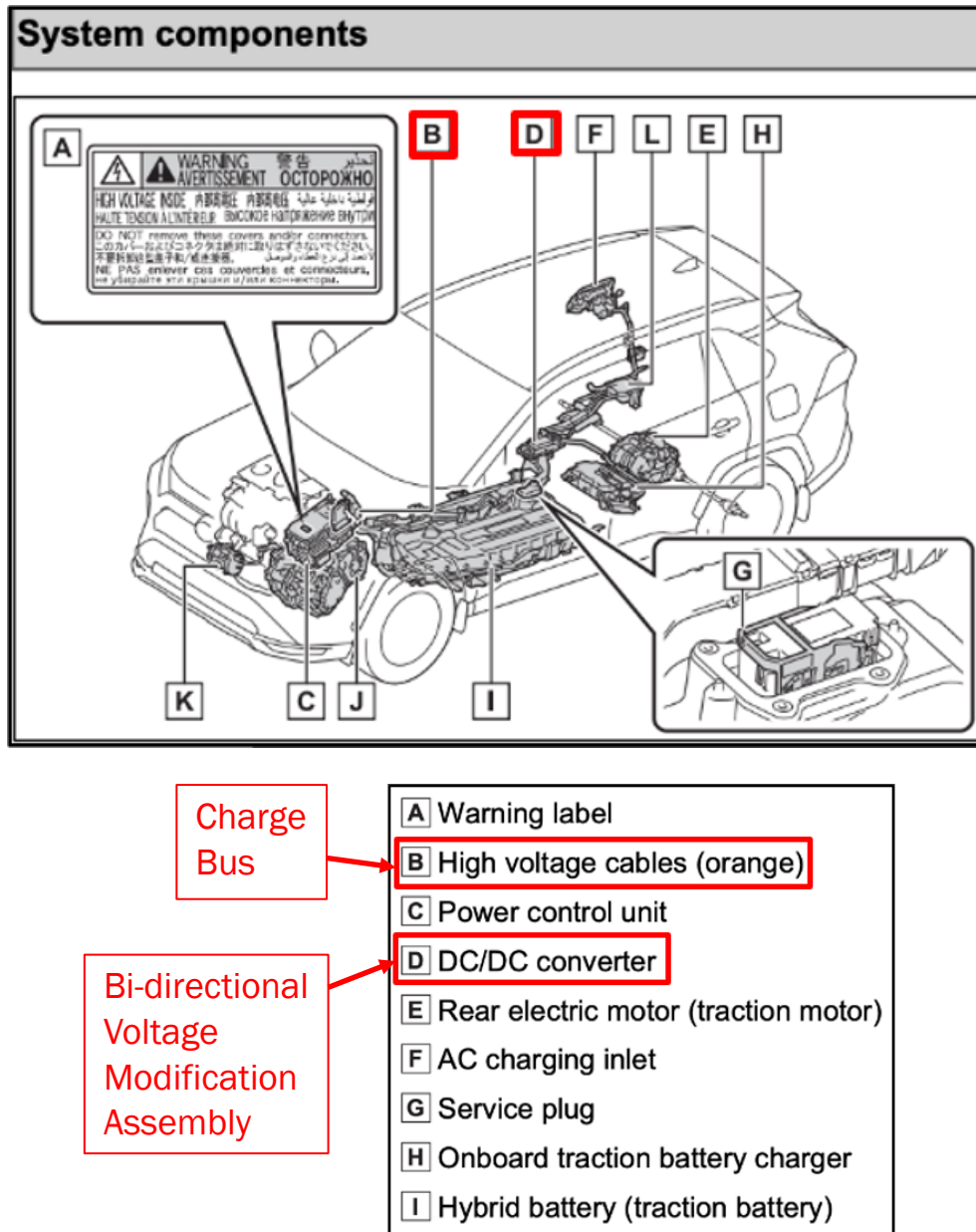
|                                         |
|-----------------------------------------|
| <b>Battery</b>                          |
| Type: Sealed Lithium-ion (Li-ion)       |
| Voltage: 355.2V (Plug-in Hybrid Li-ion) |

Source: [https://www.toyota.com/rav4pluginhybrid/2025/features/mpg\\_other\\_price/4544/4550](https://www.toyota.com/rav4pluginhybrid/2025/features/mpg_other_price/4544/4550)

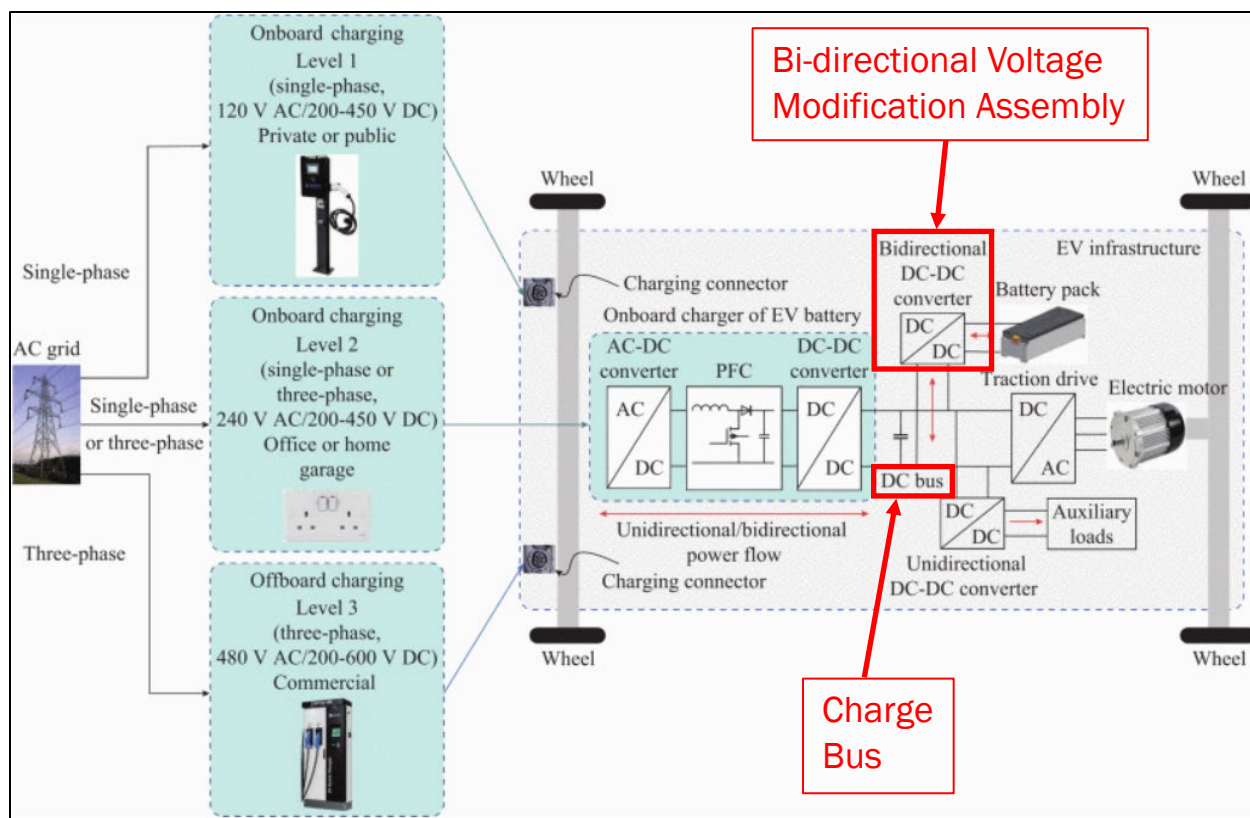


Source: <https://ieeexplore.ieee.org/document/10215092>

41. The '884 Accused Products comprise a system comprising “a first bi-directional voltage modification assembly coupled to the charge bus.” For example, the '884 Accused Products include a bi-directional DC/DC converter (i.e., a first bi-directional voltage modification assembly) coupled to the high voltage cables (i.e., charge bus).



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42K58U/pdf/OM42K58U.pdf>



Source: <https://ieeexplore.ieee.org/document/10215092>

42. The '884 Accused Products comprise a system comprising “a controller configured to: monitor a transfer of the charging energy supplied to the energy storage device; compare the monitored transfer of charging energy with a threshold comprising one of a voltage of the energy storage device and an average rectified line voltage of the charge bus; and after the threshold has been crossed, control the first bi-directional voltage modification assembly to modify one of a voltage and a current of the charging energy supplied to the first energy storage device.” For example, the '884 Accused Products include a Battery Computer Assembly (i.e., a controller) which monitors the transfer of energy to the battery. For example, when the battery reaches full charge (i.e., the voltage of the battery reaches a threshold value indicating a full charge), the controller causes the bi-directional voltage modification assembly to modify the voltage and current supplied to the battery to zero to stop charging the battery and prevent overcharging the

battery. For example, during charging, the controller causes the bi-directional voltage modification assembly to modify the voltage of the charging energy by increasing the voltage incrementally as the battery's voltage reaches incremental thresholds (e.g., battery at 300V will be charged at 302V; battery at 302V will be charged at 304V, etc.).



**About this product**

The Battery Computer Assembly (#89890-42070), a critical component in the Battery & Battery Cable system for Toyota vehicles, regulates battery power and usage. The assembly manages battery charge and discharge to optimize power performance, extending battery life. As with all auto parts, it does require periodic replacement. An aged, faulty Battery Computer Assembly

Source: <https://autoparts.toyotaofirving.com/products/product/computer-assy-batte-8989042070>

● If the hybrid battery (traction battery) is fully charged, charging will not be carried out, even if the

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42K58U/pdf/OM42K58U.pdf>

***Indirect Infringement (Inducement – 35 U.S.C. § 271(b))***

43. In addition and/or in the alternative to the direct infringements, Toyota indirectly infringes one or more claims of the '884 Patent by knowingly and intentionally inducing others, including its customers and/or other end users, to directly infringe the '884 Patent (e.g., by charging or otherwise using '884 Accused Products).

44. At a minimum, Toyota has had knowledge of the '884 Patent at least since service of this Complaint. Toyota also has knowledge of the '884 Patent since receiving detailed

correspondence from BHT prior to the filing of the Complaint, alerting Toyota to its infringements. Since receiving notice of its infringements, Toyota has actively induced, and continues to actively induce, the direct infringements of its customers and/or other end users (e.g., as illustrated above) as set forth under U.S.C. § 271(b). Such inducements have been committed with the knowledge, or with willful blindness to the fact, that the acts induced constitute infringement of the '884 Patent. Indeed, Toyota has intended to cause, continues to intend to cause, and has taken, and continues to take, affirmative steps to induce infringement by, among other things, creating and disseminating advertisements and instructive materials that promote the infringing use of the Accused Products, including marketing materials, user manuals (e.g., those available via <https://www.toyota.com/owners/warranty-owners-manuals/>), and online instructional materials (e.g., those available via <https://www.youtube.com/toyotausa>) that specifically teach and encourage customers and other end users to use the '884 Accused Products in an infringing manner, including by providing instructions on how to charge '884 Accused Products. By providing such instructions and support, Toyota knows (and has known), or should know (and should have known), that its actions have actively induced, and continue to actively induce, infringement of the '884 Patent.

### ***Damages***

45. BHT has been damaged as a result of Toyota's infringing conduct described in this Count. Toyota is, thus, liable to BHT in an amount that adequately compensates it for Toyota's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

46. Despite having knowledge of the '884 Patent and knowledge that it directly and/or indirectly infringes one or more claims of the '884 Patent, Toyota has nevertheless continued its

infringing conduct and disregarded an objectively high likelihood of infringement. Toyota's infringing activities relative to the '884 Patent have, thus, been, and continue to be, willful, wanton, and deliberate in disregard of BHT's rights with respect to the '884 Patent, justifying enhanced damages under 35 U.S.C. § 284.

## **COUNT II**

### (INFRINGEMENT OF U.S. PATENT NO. 8,086,364)

47. BHT incorporates the preceding paragraphs herein by reference.

48. This cause of action arises under the patent laws of the United States, and, in particular, 35 U.S.C. §§ 271, *et seq.*

49. BHT is the owner of all substantial rights, title, and interest in and to the '364 Patent, including the right to exclude others and to enforce, sue, and recover damages for past, present, and future infringements.

50. The '364 Patent is valid, enforceable, and was duly and legally issued by the United States Patent and Trademark Office on December 27, 2011, after full and fair examination.

#### ***Direct Infringement (35 U.S.C. § 271(a))***

51. Toyota directly infringes one or more claims of the '364 Patent in this District and elsewhere in Texas and the United States.

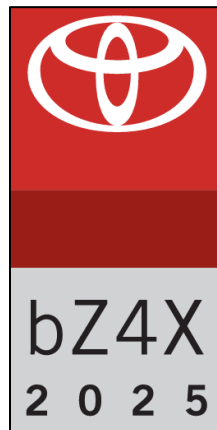
52. Toyota directly infringes, either by itself or via its agent(s), at least claim 9 of the '364 Patent as set forth under 35 U.S.C. § 271(a) by making, using (including by testing), selling, offering to sell, and/or importing Toyota and Lexus branded electric vehicles equipped that incorporate the fundamental technologies covered by the '364 Patent, including, but not limited to, Toyota and Lexus branded vehicles (e.g., the 2025 Toyota bZ4X) equipped with electric and/or hybrid-electric powertrain systems (collectively, "the '364 Accused Products").

53. By way of illustration only, Toyota's '364 Accused Products satisfy each and every element of claim 9 of the '364 Patent. Toyota performs via the '364 Accused Products "[a] method of energy management of an electric or hybrid-electric vehicle comprising: identifying a current location of a vehicle." For example, Toyota via the '364 Accused Products identifies the vehicle's current location using GPS.

2025 bZ4X



Source: <https://www.toyota.com/central/deals-incentives/no-offers/?vehicles=bz4x%2Cbz>



#### INFORMATION

- Even if the screen is turned off, the GPS will continue to track the vehicle's current location.

## ■ Notifications

Offers notifications based on user preferences, vehicle geolocation and learned behavior. Each service can be set to On/Off from the Toyota app.

### POI suggestion

Based on various information, such as the current position, driving time, etc., the navigation system may suggest destinations.

For example:

- When the battery charge level is low, charging stations are suggested as a destination.
- When approaching the destination during route guidance, parking lots near the destination will be displayed.

Source: <https://assets.sia.toyota.com/publications/en/omnav-s/OM42J59U/pdf/OM42J59U.pdf>

54. Toyota via the '364 Accused Products performs a method of energy management of an electric or hybrid-electric vehicle comprising “applying a pre-screening algorithm with respect to a link within a map and the current location, the pre-screening algorithm based on a maximum link length of a historical power-use database.” For example, Toyota via the '364 Accused Products apply a pre-screening algorithm with respect to a link within a map (e.g., road segment to a charging station) and the vehicle’s current location to identify routes to charging stations based on the vehicle’s historical power-use database (e.g., range estimate of the vehicle).

### POI suggestion

Based on various information, such as the current position, driving time, etc., the navigation system may suggest destinations.

For example:

- When the battery charge level is low, charging stations are suggested as a destination.
- When approaching the destination during route guidance, parking lots near the destination will be displayed.

## INFORMATION

- If the destination cannot be reached within the drivable distance, a notification suggesting a charging facility as a waypoint on the route will be displayed.

| Function                                 | Detail                                                                                                                                                                          | Subscription |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| POI suggestion (Navigation)              | <ul style="list-style-type: none"><li>● A POI shared through a smartphone app</li><li>● Parking suggestions near destination</li></ul>                                          | Yes          |
| Low battery charge reminder (Navigation) | <u>Automatically notifies user of low battery charge level. If applicable, provides POI list nearby (ahead) or along route</u> and allows user to select and navigate by touch. | Yes          |

Source: <https://assets.sia.toyota.com/publications/en/omnav-s/OM42J59U/pdf/OM42J59U.pdf>

## Driving range

**The driving range displayed on the multi-information display, etc., shows the reference distance that driving is possible, and the actual distance that can be driven may differ from that displayed.**

## Displayed value

A value for which a sufficient level of driving performance can be provided is estimated based on the remaining charge of the traction battery, the state of the traction battery, the outside temperature, etc., and is displayed on the multi-information display. (→P.150)

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42J55U/pdf/OM42J55U.pdf>

55. Toyota via the '364 Accused Products performs a method of energy management of an electric or hybrid-electric vehicle comprising “determining if one or more links are within a given bounds.” For example, Toyota via the '364 Accused Products determines if a link (e.g., road

segment to charging station) is within a given bounds (e.g., within the range estimate of the vehicle).

### POI suggestion

Based on various information, such as the current position, driving time, etc., the navigation system may suggest destinations.

For example:

- When the battery charge level is low, charging stations are suggested as a destination.
- When approaching the destination during route guidance, parking lots near the destination will be displayed.

- When a destination is suggested by the navigation system, touch [≡].
- Touch the suggested point.
- Touch [Go now].



A screenshot of a navigation app showing a 'Low fuel' notification with '3 nearby gas stations'. The map displays a street view with three gas station icons and price tags of '\$2.29'.



A screenshot of the 'Fuel (3)' list. It shows three gas stations: 'A ABCDE', 'B 123456', and 'C QWERT'. Each entry includes the address, opening hours, and distance. The map on the right shows the location of the selected station.



A screenshot showing the details for the selected station '123456'. It displays the address, distance, and a 'Go now' button. The map on the right shows the route to the destination.

| Function                                 | Detail                                                                                                                                                                          | Subscription |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| POI suggestion (Navigation)              | <ul style="list-style-type: none"> <li>● A POI shared through a smartphone app</li> <li>● Parking suggestions near destination</li> </ul>                                       | Yes          |
| Low battery charge reminder (Navigation) | <u>Automatically notifies user of low battery charge level. If applicable, provides POI list nearby (ahead) or along route and allows user to select and navigate by touch.</u> | Yes          |

#### INFORMATION

- If the destination cannot be reached within the drivable distance, a notification suggesting a charging facility as a waypoint on the route will be displayed.

Source: <https://assets.sia.toyota.com/publications/en/omnav-s/OM42J59U/pdf/OM42J59U.pdf>

56. Toyota via the '364 Accused Products performs a method of energy management of an electric or hybrid-electric vehicle comprising, if one or more links are within a given bounds, then “matching the current location of the vehicle to the link within the map via a subsequential matching algorithm.” For example, Toyota via the '364 Accused Products matches the vehicle’s current location and a link within the map via a subsequential matching algorithm (e.g., ranking of charging stations by distance and/or shortest charging time).

#### POI suggestion

Based on various information, such as the current position, driving time, etc., the navigation system may suggest destinations.

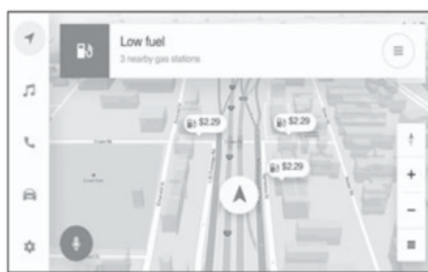
For example:

- When the battery charge level is low, charging stations are suggested as a destination.
- When approaching the destination during route guidance, parking lots near the destination will be displayed.

## Cloud navigation

The navigation system indicates your present position and assists in locating a desired destination. Navigation is now a cloud enabled service. If your vehicle has an included trial, completing the Connected Services terms of use will activate the service.

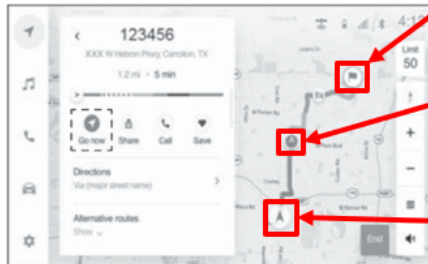
- 1 When a destination is suggested by the navigation system, touch [≡].



- 2 Touch the suggested point.



- 3 Touch [Go now].



Destination

Suggested stop

Vehicle's current location

Source: <https://assets.sia.toyota.com/publications/en/omnav-s/OM42J59U/pdf/OM42J59U.pdf>

57. Toyota via the '364 Accused Products performs a method of energy management of an electric or hybrid-electric vehicle comprising, if one or more links are within a given bounds, then “uploading power information used by the vehicle along the link and at the current location into the historical power-use database.” For example, Toyota via the '364 Accused Products uploads power information (e.g., state of charge) used by the vehicle along the link and at the current location into the historical power-use database.

| Function                                    | Detail                                                                                                                                                                          | Subscription |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| POI suggestion<br>(Navigation)              | <ul style="list-style-type: none"> <li>● A POI shared through a smartphone app</li> <li>● Parking suggestions near destination</li> </ul>                                       | Yes          |
| Low battery charge reminder<br>(Navigation) | <u>Automatically notifies user of low battery charge level.</u> If applicable, provides POI list nearby (ahead) or along route and allows user to select and navigate by touch. | Yes          |

### Cloud navigation

The navigation system indicates your present position and assists in locating a desired destination. Navigation is now a cloud enabled service. If your vehicle has an included trial, completing the Connected Services terms of use will activate the service.

Source: <https://assets.sia.toyota.com/publications/en/omnav-s/OM42J59U/pdf/OM42J59U.pdf>

### **Toyota Connected Services Privacy Notice**

Updated as of: June 4, 2025

We may modify this Privacy Notice by posting a new version at this website effective on the date of publication.

#### **Connected Services and Your Privacy**

Like all modern vehicles, your Toyota vehicle collects and transmits a range of data to Toyota, including the vehicle's location, driving data (such as acceleration, braking and engine sensor readings) and vehicle health information (such as odometer readings, oil life, and information from the onboard diagnostic system).

Toyota uses this data to provide you with your Connected Services, as well as to improve quality, support research and development, and assist with warranty or product recall issues.

Toyota's Connected Services are built for you—to provide personalized convenience and peace of mind. This suite of technology enhancements includes:\*

- **Safety Connect®** for reassurance when the unexpected occurs, like the SOS button, Automatic Collision Notification and Stolen Vehicle Locator.
- **Drive Connect** for cloud-based navigation features like real-time traffic and "Hey, Toyota" voice commands.
- **Remote Connect** to access certain vehicle features using a compatible smart device.
- **Service Connect** to receive personalized maintenance updates and vehicle health reports.

**Your vehicle's precise location (within 1,850 feet) is required for Toyota to provide you with Connected Services. We will not use your vehicle's precise location without your consent.**

Source: <https://www.toyota.com/privacyvts/>

#### ***Indirect Infringement (Inducement – 35 U.S.C. § 271(b))***

58. In addition and/or in the alternative to the direct infringements, Toyota indirectly infringes one or more claims of the '364 Patent by knowingly and intentionally inducing others, including its customers and/or other end users, to directly infringe the '364 Patent (e.g., by using navigation or otherwise using '364 Accused Products).

59. At a minimum, Toyota has had knowledge of the '364 Patent at least since service of this Complaint. Toyota also has knowledge of the '364 Patent since receiving detailed correspondence from BHT prior to the filing of the Complaint, alerting Toyota to its infringements. Since receiving notice of its infringements, Toyota has actively induced, and continues to actively induce, the direct infringements of its customers and/or other end users (e.g., as illustrated above) as set forth under U.S.C. § 271(b). Such inducements have been committed with the knowledge, or with willful blindness to the fact, that the acts induced constitute infringement of the '364 Patent. Indeed, Toyota has intended to cause, continues to intend to cause, and has taken, and continues to take, affirmative steps to induce infringement by, among other things, creating and disseminating advertisements and instructive materials that promote the infringing use of the Accused Products, including marketing materials, user manuals (e.g., those available via <https://www.toyota.com/owners/warranty-owners-manuals/>), and online instructional materials (e.g., those available via <https://www.youtube.com/toyotausa>) that specifically teach and encourage customers and other end users to use the '364 Accused Products in an infringing manner, including by providing instructions on how to use navigation for '364 Accused Products. By providing such instructions and support, Toyota knows (and has known), or should know (and should have known), that its actions have actively induced, and continue to actively induce, infringement of the '364 Patent.

### ***Damages***

60. BHT has been damaged as a result of Toyota's infringing conduct described in this Count. Toyota is, thus, liable to BHT in an amount that adequately compensates it for Toyota's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

61. Despite having knowledge of the '364 Patent and knowledge that it directly and/or indirectly infringes one or more claims of the '364 Patent, Toyota has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Toyota's infringing activities relative to the '364 Patent have, thus, been, and continue to be, willful, wanton, and deliberate in disregard of BHT's rights with respect to the '364 Patent, justifying enhanced damages under 35 U.S.C. § 284.

### **COUNT III**

#### **(INFRINGEMENT OF U.S. PATENT NO. 8,326,467)**

62. BHT incorporates the preceding paragraphs herein by reference.

63. This cause of action arises under the patent laws of the United States, and, in particular, 35 U.S.C. §§ 271, *et seq.*

64. BHT is the owner of all substantial rights, title, and interest in and to the '467 Patent, including the right to exclude others and to enforce, sue, and recover damages for past, present, and future infringements.

65. The '467 Patent is valid, enforceable, and was duly and legally issued by the United States Patent and Trademark Office on December 4, 2012, after full and fair examination.

#### ***Direct Infringement (35 U.S.C. § 271(a))***

66. Toyota directly infringes one or more claims of the '467 Patent in this District and elsewhere in Texas and the United States.

67. Toyota directly infringes, either by itself or via its agent(s), at least claim 9 of the '467 Patent as set forth under 35 U.S.C. § 271(a) by making, using (including by testing), selling, offering to sell, and/or importing Toyota and Lexus branded electric vehicles equipped that incorporate the fundamental technologies covered by the '467 Patent, including, but not limited to, Toyota and Lexus branded vehicles (e.g., the 2025 Toyota RAV4 Plug-in Hybrid) equipped

with electric and/or hybrid-electric powertrain systems (collectively, “the ’467 Accused Products”).

68. By way of illustration only, Toyota’s ’467 Accused Products comprise each and every element of claim 9 of the ’467 Patent. The ’467 Accused Products comprise “[a]t least one non-transitory computer-readable storage medium having computer-executable instructions embodied therein.” For example, The ’467 Accused Products comprise a non-transitory computer-readable storage medium having computer-executable instructions embodied therein, e.g., in a power control module, battery computer assembly, computer, control module, electronic control module (ECM), and/or electronic control unit (ECU), that controls a power system through a charge later charging feature.



Source: <https://www.toyota.com/rav4pluginhybrid/>

## Using the charging schedule function

Charging can be carried out at the desired time by registering the charging schedule. Also, it is possible to set the charging schedule to one's preferences, such as having charging completed by a certain departure time or be carried out at the same time on certain days.

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42K58U/pdf/OM42K58U.pdf>

✓ Exact Fit for your 2025 RAV4 PLUG-IN HYBRID

## Battery Computer Assembly

### About this product

The Battery Computer Assembly (#89890-42070), a critical component in the Battery & Battery Cable system for Toyota vehicles, regulates battery power and usage. The assembly manages battery charge and discharge to optimize power performance, extending battery life. As with all auto parts, it does require periodic replacement. An aged, faulty Battery Computer Assembly

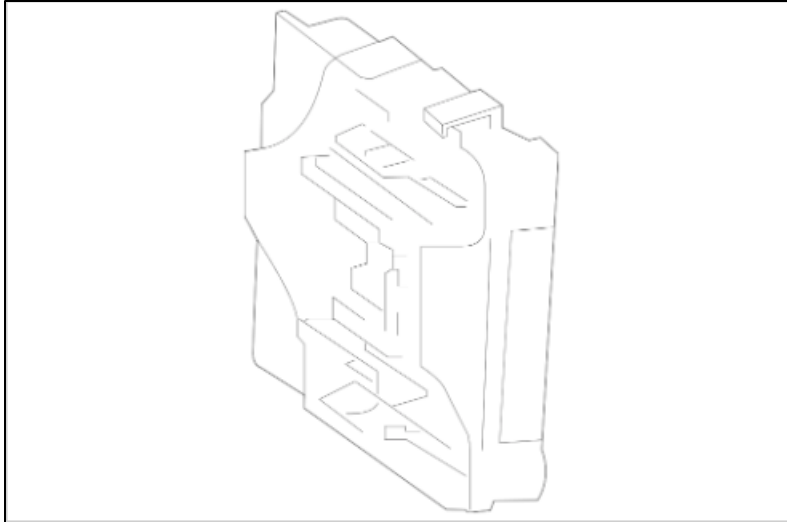
Source: <https://autoparts.toyotaofirving.com/products/product/computer-assy-batte-8989042070>

✓ This part fits your 2025 Toyota RAV4

[Change vehicle >](#)

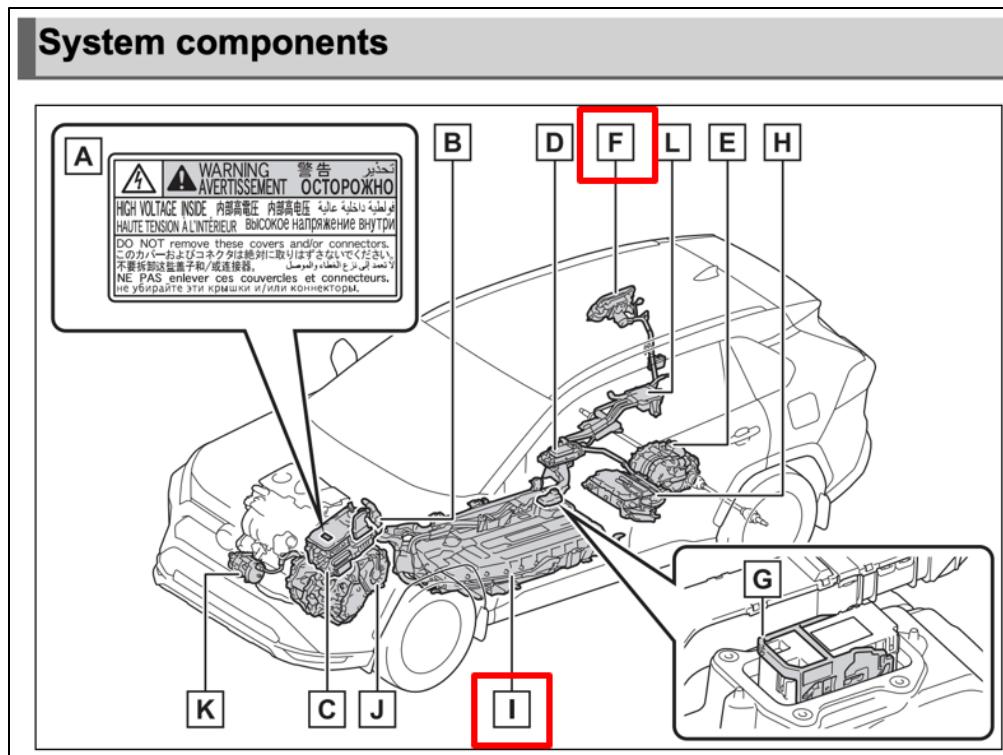
## Control Module - Toyota (89340-0R210)

2023-2025 Toyota - 893400r210



Source: <https://toyotaparts.lakelandtoyota.com/oem-parts/toyota-control-module-893400r210>

69. The '467 Accused Products' storage medium having instructions comprise “wherein, when executed by a processor, the computer-executable instructions cause the processor to: determine an operating condition of at least one first power system component and at least one second power system component of a plurality of power system components within a power system, wherein the at least one second power system component includes a power storage device switchable between a power storage mode of operation and a power supply mode of operation.” For example, when executed by a processor, the instructions stored on the '467 Accused Products' storage medium (discussed above) cause a processor to determine a charging condition (e.g., an operating condition) of the charging system (i.e., first power system component) and the high voltage battery (i.e., second power system component), wherein the high voltage battery stores power and is switchable between a charging mode (i.e., a power storage mode of operation) and a driving mode (i.e., a power supply mode).



- A** Warning label
- B** High voltage cables (orange)
- C** Power control unit
- D** DC/DC converter
- E** Rear electric motor (traction motor)
- F** AC charging inlet
- G** Service plug
- H** Onboard traction battery charger
- I** Hybrid battery (traction battery)

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42K58U/pdf/OM42K58U.pdf>

70. When executed by a processor, the computer-executable instructions stored the '467 Accused Products' storage medium cause the processor to “identify a predetermined time for completing a charging operation of the power storage device.” For example, when executed by a processor, the instructions stored on the '467 Accused Products' storage medium (discussed

above) cause a processor to identify a predetermined time for completing a charging operation of the high voltage battery.

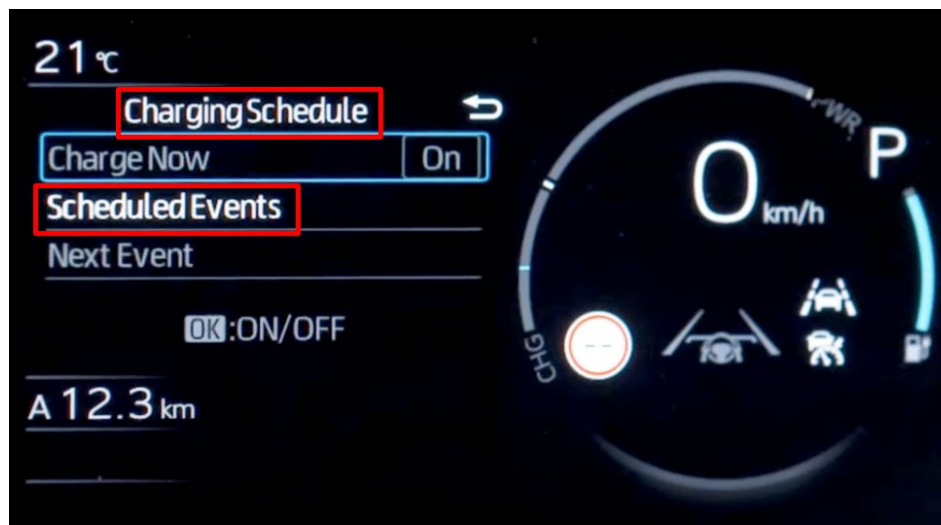
► “Start” or “Start at set time”

Starts charging at the set time<sup>\*1, 2</sup> and finishes charging when fully charged.

► “Departure” or “Departure time”

Starts charging to finish at the set time.<sup>\*3, 4</sup>

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42K58U/pdf/OM42K58U.pdf>



Source: <https://www.youtube.com/watch?v=WU0mpWjGong>

71. When executed by a processor, the computer-executable instructions stored the '467 Accused Products' storage medium cause the processor to “determine whether a switching of the power storage device from the power storage mode of operation to the power supply mode of operation will prevent the charging operation from completing within the predetermined time.”

For example, when executed by a processor, the instructions stored on the '467 Accused Products' storage medium (discussed above) cause a processor to determine whether a switching of the high voltage battery from the charging mode to the driving mode of operation at the departure time will prevent the charging operation from completing within the predetermined time.

► “Start” or “Start at set time”

Starts charging at the set time<sup>\*1</sup>,  
<sup>2</sup> and finishes charging when  
fully charged.

► “Departure” or “Departure  
time”

Starts charging to finish at the  
set time.<sup>\*3</sup> <sup>4</sup>

<sup>\*3</sup>: If the system determines that  
charging cannot be completed  
by the set departure time, it will  
start charging. Check the  
charging schedule.

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42K58U/pdf/OM42K58U.pdf>

72. When executed by a processor, the computer-executable instructions stored the '467 Accused Products' storage medium cause the processor to “determine whether a predetermined condition is met based on at least one operating condition.” For example, when executed by a processor, the instructions stored on the '467 Accused Products' storage medium (discussed above) cause a processor to determine whether a predetermined condition (e.g.,

approaching departure) is met based on at least one operating condition (e.g., how much charging time is left and the charging state of the battery).

► “Start” or “Start at set time”

Starts charging at the set time<sup>\*1, 2</sup> and finishes charging when fully charged.

► “Departure” or “Departure time”

Starts charging to finish at the set time.<sup>\*3, 4</sup>

<sup>\*3</sup>: If the system determines that charging cannot be completed by the set departure time, it will start charging. Check the charging schedule.

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42K58U/pdf/OM42K58U.pdf>

73. When executed by a processor, the computer-executable instructions stored the '467 Accused Products' storage medium cause the processor to “transmit a command to at least one controller to at least one of electrically couple the at least one first power system component to the at least one second power system component and electrically decouple the at least one first power system component from the at least one second power system component based on whether the predetermined condition is met.” For example, when executed by a processor, the instructions stored on the '467 Accused Products' storage medium (discussed above) cause a processor to

transmit a command to a controller, e.g., a power control module, battery computer assembly, computer, control module, electronic control module (ECM), electronic control unit (ECU), and/or dedicated battery switch/contacter/relay controller, to decouple the battery from the charging mechanism based on whether the predetermined condition (e.g., reaching the departure time) is met.

► “Start” or “Start at set time”

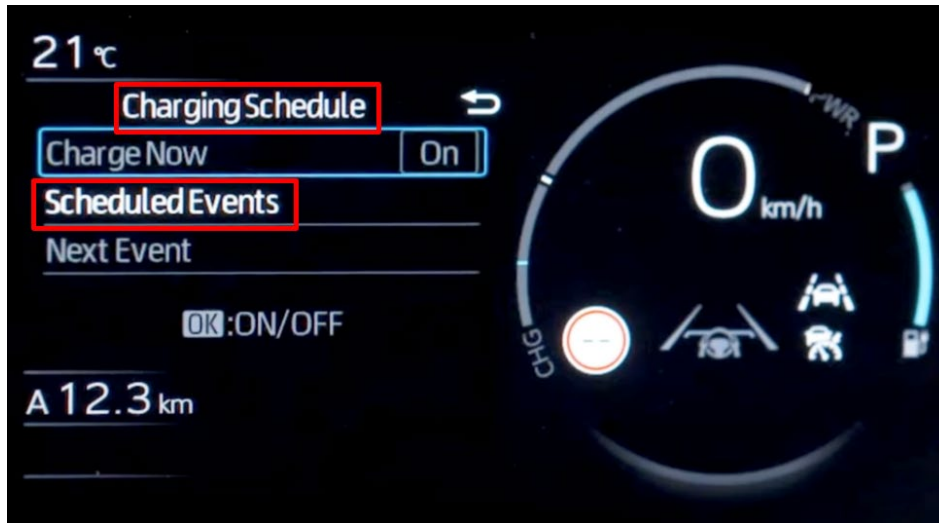
Starts charging at the set time <sup>\*1</sup>,  
<sup>2</sup> and finishes charging when  
fully charged.

► “Departure” or “Departure  
time”

Starts charging to finish at the  
set time. <sup>\*3</sup> <sup>4</sup>

<sup>\*3</sup>: If the system determines that  
charging cannot be completed  
by the set departure time, it will  
start charging. Check the  
charging schedule.

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42K58U/pdf/OM42K58U.pdf>



Source: <https://www.youtube.com/watch?v=WU0mpWjGong>

***Indirect Infringement (Inducement – 35 U.S.C. § 271(b))***

74. In addition and/or in the alternative to the direct infringements, Toyota indirectly infringes one or more claims of the '467 Patent by knowingly and intentionally inducing others, including its customers and/or other end users, to directly infringe the '467 Patent (e.g., by using the charge scheduling feature).

75. At a minimum, Toyota has had knowledge of the '467 Patent at least since service of this Complaint. Toyota also has knowledge of the '467 Patent since receiving detailed correspondence from BHT prior to the filing of the Complaint, alerting Toyota to its infringements. Since receiving notice of its infringements, Toyota has actively induced, and continues to actively induce, the direct infringements of its customers and/or other end users (e.g., as illustrated above) as set forth under U.S.C. § 271(b). Such inducements have been committed with the knowledge, or with willful blindness to the fact, that the acts induced constitute infringement of the '467 Patent. Indeed, Toyota has intended to cause, continues to intend to cause, and has taken, and continues to take, affirmative steps to induce infringement by, among other things, creating and disseminating advertisements and instructive materials that promote the infringing use of the

Accused Products, including marketing materials, user manuals (e.g., those available via <https://www.toyota.com/owners/warranty-owners-manuals/>), and online instructional materials (e.g., those available via <https://www.youtube.com/toyotausa>) that specifically teach and encourage customers and other end users to use the '467 Accused Products in an infringing manner, including the charge scheduling feature. By providing such instructions and support, Toyota knows (and has known), or should know (and should have known), that its actions have actively induced, and continue to actively induce, infringement of the '467 Patent.

### ***Damages***

76. BHT has been damaged as a result of Toyota's infringing conduct described in this Count. Toyota is, thus, liable to BHT in an amount that adequately compensates it for Toyota's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

77. Despite having knowledge of the '467 Patent and knowledge that it directly and/or indirectly infringes one or more claims of the '467 Patent, Toyota has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Toyota's infringing activities relative to the '467 Patent have, thus, been, and continue to be, willful, wanton, and deliberate in disregard of BHT's rights with respect to the '467 Patent, justifying enhanced damages under 35 U.S.C. § 284.

### **COUNT IV**

(INFRINGEMENT OF U.S. PATENT NO. 9,914,365)

78. BHT incorporates the preceding paragraphs herein by reference.

79. This cause of action arises under the patent laws of the United States, and, in particular, 35 U.S.C. §§ 271, *et seq.*

80. BHT is the owner of all substantial rights, title, and interest in and to the '365 Patent, including the right to exclude others and to enforce, sue, and recover damages for past, present, and future infringements.

81. The '365 Patent is valid, enforceable, and was duly and legally issued by the United States Patent and Trademark Office on March 13, 2018, after full and fair examination.

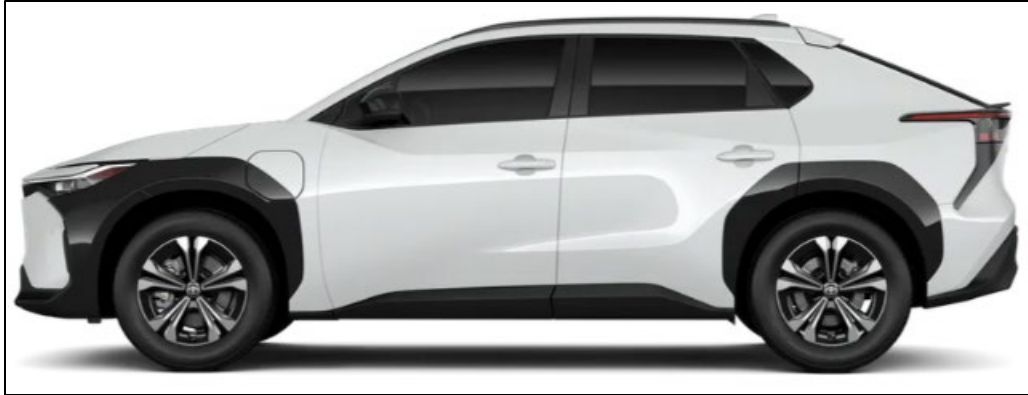
***Direct Infringement (35 U.S.C. § 271(a))***

82. Toyota directly infringes one or more claims of the '365 Patent in this District and elsewhere in Texas and the United States.

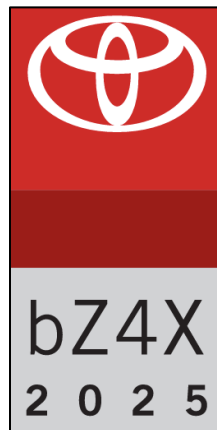
83. Toyota directly infringes, either by itself or via its agent(s), at least claim 5 of the '365 Patent as set forth under 35 U.S.C. § 271(a) by making, using, selling, offering to sell, and/or importing Toyota and Lexus branded electric vehicles equipped that incorporate the fundamental technologies covered by the '365 Patent, including, but not limited to, Toyota and Lexus branded vehicles (e.g., the 2025 Toyota bZ4X) equipped with electric and/or hybrid-electric powertrain systems with DC Fast Charging capabilities (collectively, “the '365 Accused Products”).

84. By way of illustration only, Toyota’s '365 Accused Products comprise each and every element of claim 5 of the '365 Patent. The '365 Accused Products comprise “[a] vehicle comprising: a connection system coupleable to an external charging source, the connection system configured to utilize a DC connection and an AC connection.” For example, the '365 Accused Products are vehicles that include a connection system coupleable to an external charging source using a connection to a DC charging input and a connection to an AC charging input.

**2025 bZ4X**



Source: <https://www.toyota.com/central/deals-incentives/no-offers/?vehicles=bz4x%2Cbz>

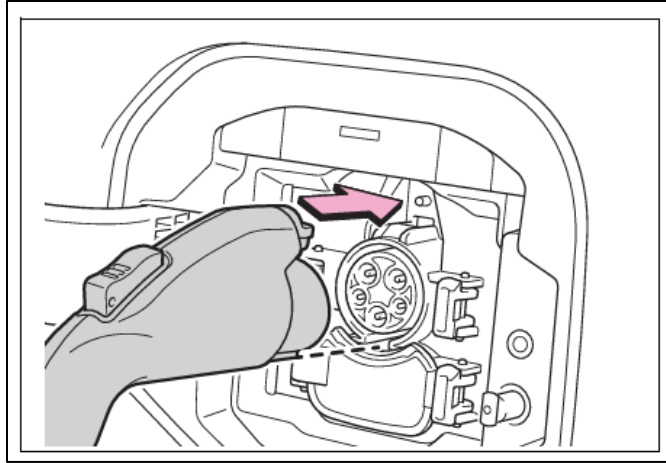


### **How to use AC charging**

**This section explains the procedure for charging the traction battery with charging cable.**

**When using an AC charger, make sure to check the operation instructions on the AC charger.**

- 6** Insert the charging connector into the AC charging inlet.

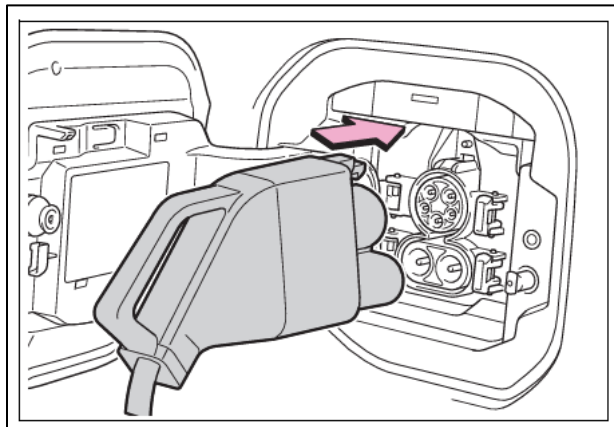


### **How to use DC charging**

**This section explains the DC charging procedure for the traction battery.**

**When using a DC charger, make sure to check the operation instructions of the DC charger.**

- 4** Insert DC charging connector firmly and fully into the charging inlet.



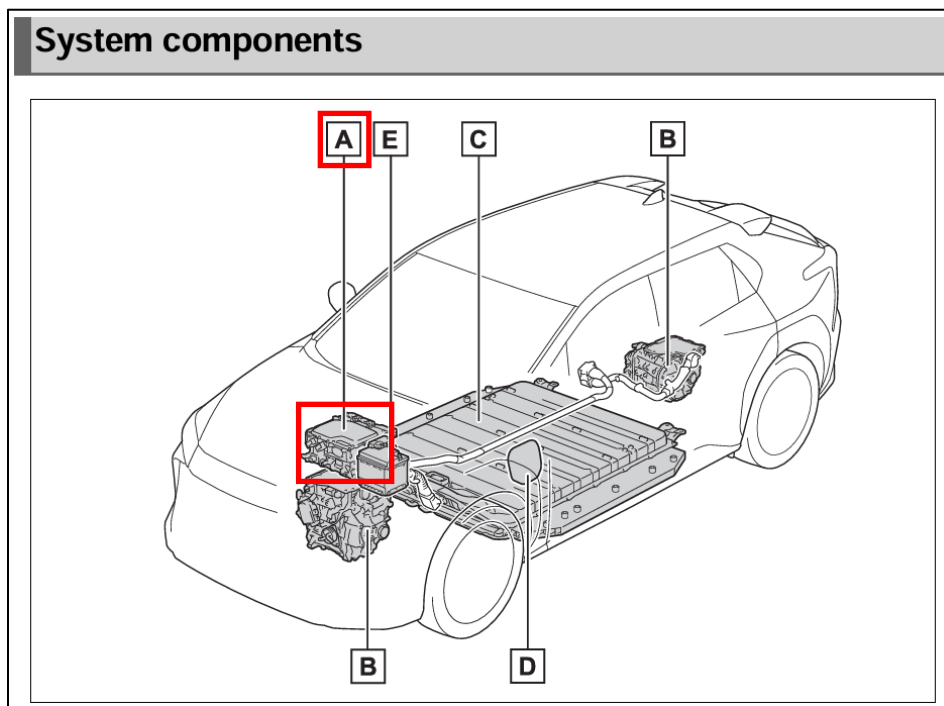
Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42J55U/pdf/OM42J55U.pdf>

85. The '365 Accused Products comprise a vehicle comprising “an AC/DC converter coupleable to the AC connection.” For example, the '365 Accused Products include a rectifier (i.e., AC/DC converter) that converts the AC charging input into DC.

A rectifier is a key component in electrical conversion systems and is often the first conversion stage in any On-Board Charger (OBC) configuration in electric vehicles. Its main function is to convert electrical energy from an initial form, usually in the form of alternating voltage (AC), to a usable form, namely direct voltage (DC).

Source: <https://www.mdpi.com/2079-9292/12/20/4295>

86. The '365 Accused Products comprise a vehicle comprising “a plurality of DC converters coupleable to the AC/DC converter, the plurality of DC converters configured to operate in combination to step up and step down an input voltage derived from the AC connection.” For example, the '365 Accused Products include boost and buck DC converters coupleable to the rectifier that are configured to operate in combination to step up and step down a DC voltage derived from the AC charging input.



- A** ESU: Electricity Supply Unit (built in onboard traction battery charger **DC-DC converter**)
- B** Electric motor (traction motor)/Inverter (front/rear \*)
- C** Traction battery  
Provides electricity to the electric motor.
- D** Charging port
- E** 12-volt battery

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42J55U/pdf/OM42J55U.pdf>

### Architecture of an Onboard Charger

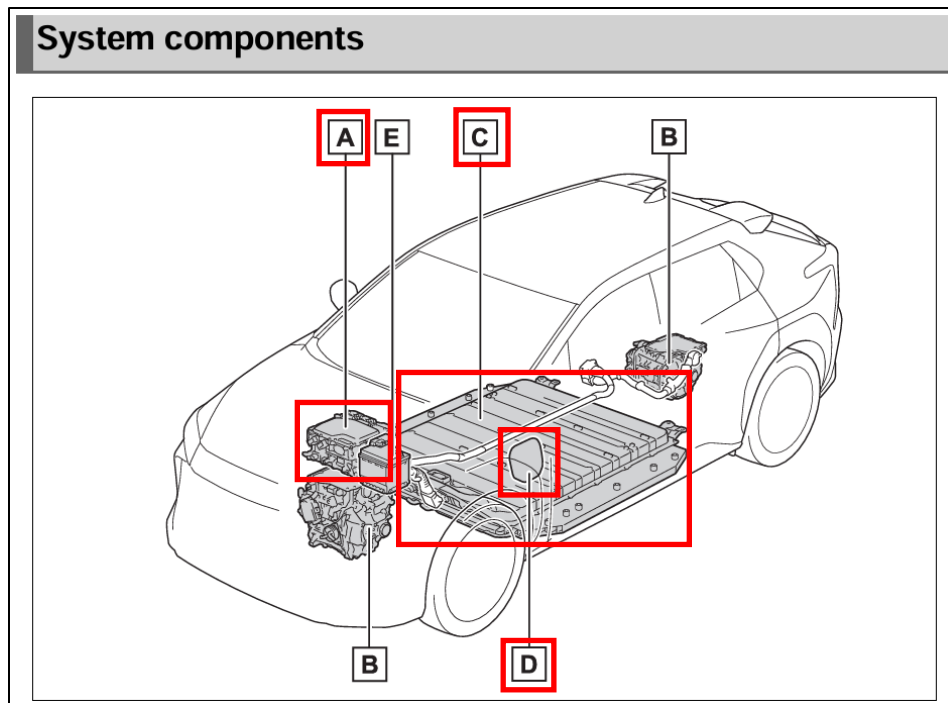
An **onboard charger** is comprised of several stages to convert the AC power to DC power.

The first stage is the one-phase to three-phase power factor correction (PFC) stage, which converts the AC voltage from the grid into an intermediate DC voltage between 400V and 800V, depending on the vehicle battery's voltage (note that battery voltages have been increasing to allow for higher efficiency, faster charging times, and lighter cabling within a vehicle). Though the PFC architecture can range from one phase to three phases, three phases has become more popular as power levels increase.

The second stage is the isolated DC/DC stage that converts the intermediate DC voltage to the target voltage. The target voltage is specific to the battery being charged, and it can vary between 200V and 800V, depending on whether a PHEV or BEV is being charged. For the DC/DC stage, it is common to use LLC and phase-shift, full-bridge converter topologies.

Source: <https://www.monolithicpower.com/learning/resources/designing-onboard-chargers-for-high-performance-and-power-density>

87. The '365 Accused Products comprise a vehicle comprising “an energy storage device coupleable to: at least one of the plurality of DC converters; and the DC connection.” For example, the '365 Accused Products include a high voltage traction battery (i.e., an energy storage device) coupleable to the AC charging subsystem having the DC converters and the DC charging subsystem.

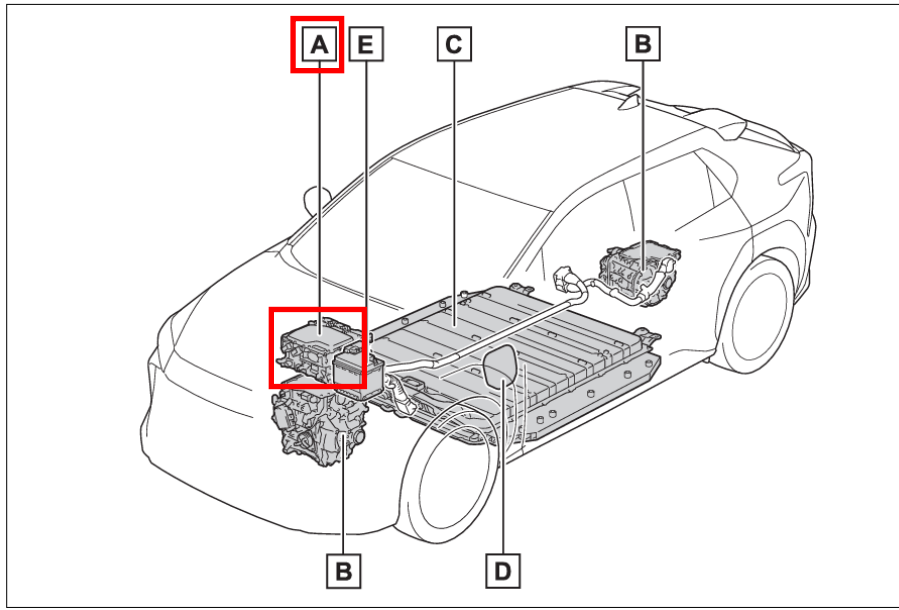


- A** ESU: Electricity Supply Unit (built in onboard traction battery charger **DC-DC converter**)
- B** Electric motor (traction motor)/Inverter (front/rear\*)
- C** Traction battery  
Provides electricity to the electric motor.
- D** Charging port
- E** 12-volt battery

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42J55U/pdf/OM42J55U.pdf>

88. The '365 Accused Products comprise a vehicle comprising “a controller.” For example, as evidenced below (*see* paragraphs 89-91), the '365 Accused Products include hardware and/or software configured to control charging of the battery, such as an Electricity Supply Unit and/or Computer.

## System components



**A** ESU: Electricity Supply Unit (built in onboard traction battery charger/DC-DC converter)

**B** Electric motor (traction motor)/Inverter (front/rear\*)

**C** Traction battery  
Provides electricity to the electric motor.

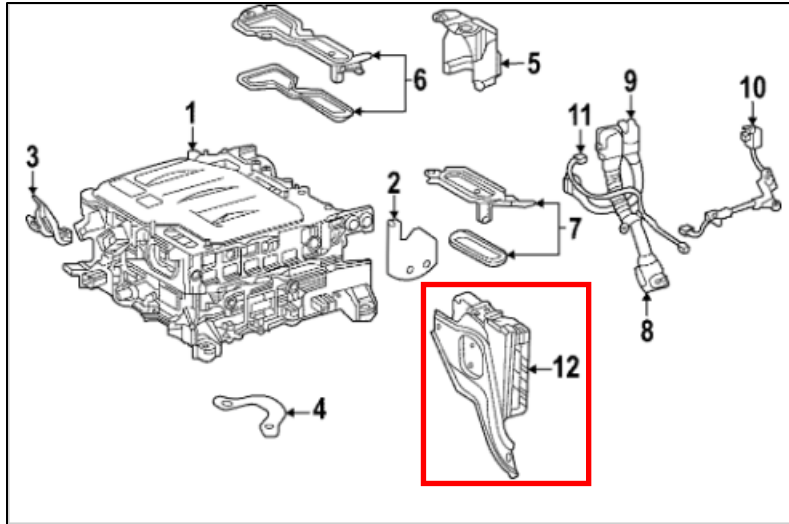
**D** Charging port

**E** 12-volt battery

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42J55U/pdf/OM42J55U.pdf>

**Computer** - Toyota (89980-42C00)

2024-2025 Toyota bZ4X - 8998042c00



Source: <https://parts.americantoyota.com/oem-parts/toyota-computer-8998042c00>

89. The '365 Accused Products comprise a controller programmed to “charge the energy storage device at a first charging rate when the energy storage device is coupled to the DC connection.” For example, the '365 Accused Products include a controller programmed to charge the vehicle’s battery at a faster charging rate when receiving DC charging input.

## Charging & Efficiency

The bZ4X is designed for convenience and efficiency through two charging options. Using a 240V Level 2 charger, the bZ4X can be fully charged in about 9.5 hours, adding approximately 20 miles of range per hour of charging. Choose DC Fast Charging to get an 80% charge in approximately 30 minutes under ideal conditions. Additionally, all models come with a dual-voltage charging cable for both Level 1 and Level 2 charging, and a one-year complimentary charging membership with EVgo is included.

Source: <https://www.toyotaoffortworth.com/2025-toyota-bz4x>

90. The '365 Accused Products comprise a controller programmed to “charge the energy storage device at a second charging rate when the energy storage device is coupled to the AC connection.” For example, the '365 Accused Products include a controller programmed to charge the vehicle’s battery at a slower charging rate when receiving AC charging input.

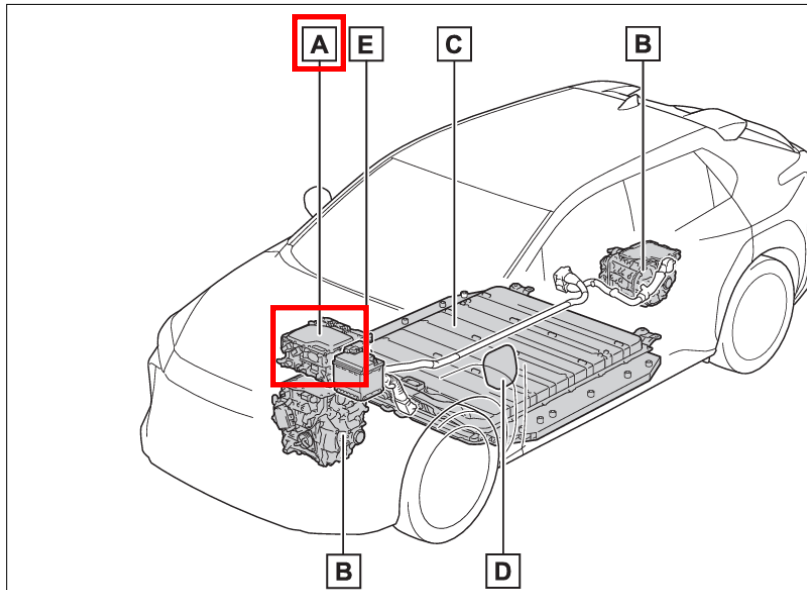
## Charging & Efficiency

The bZ4X is designed for convenience and efficiency through two charging options. Using a 240V Level 2 charger, the bZ4X can be fully charged in about 9.5 hours, adding approximately 20 miles of range per hour of charging. Choose DC Fast Charging to get an 80% charge in approximately 30 minutes under ideal conditions. Additionally, all models come with a dual-voltage charging cable for both Level 1 and Level 2 charging, and a one-year complimentary charging membership with EVgo is included.

Source: <https://www.toyotaoffortworth.com/2025-toyota-bz4x>

91. The '365 Accused Products comprise a controller programmed to “operate the plurality of DC converters when charging the energy storage device via the AC connection by: operating a first DC converter to boost the input voltage to an intermediate voltage; and operating a second DC converter to buck the intermediate voltage to an output voltage to charge the energy storage device.” For example, the '365 Accused Products include a controller programmed to operate a boost DC voltage converter in the AC charging subsystem to boost, i.e., increase, the input voltage to an intermediate voltage and a buck DC converter to buck, i.e., decrease, the voltage for charging the high voltage battery.

## System components



**A** ESU: Electricity Supply Unit (built in onboard traction battery charger/DC-DC converter)

**B** Electric motor (traction motor)/Inverter (front/rear\*)

**C** Traction battery

Provides electricity to the electric motor.

**D** Charging port

**E** 12-volt battery

Source: <https://assets.sia.toyota.com/publications/en/om-s/OM42J55U/pdf/OM42J55U.pdf>

## Architecture of an Onboard Charger

An **onboard charger** is comprised of several stages to convert the AC power to DC power.

The first stage is the one-phase to three-phase power factor correction (PFC) stage, which converts the AC voltage from the grid into an intermediate DC voltage between 400V and 800V, depending on the vehicle battery's voltage (note that battery voltages have been increasing to allow for higher efficiency, faster charging times, and lighter cabling within a vehicle). Though the PFC architecture can range from one phase to three phases, three phases has become more popular as power levels increase.

The second stage is the isolated DC/DC stage that converts the intermediate DC voltage to the target voltage. The target voltage is specific to the battery being charged, and it can vary between 200V and 800V, depending on whether a PHEV or BEV is being charged. For the DC/DC stage, it is common to use LLC and phase-shift, full-bridge converter topologies.

Source: <https://www.monolithicpower.com/learning/resources/designing-onboard-chargers-for-high-performance-and-power-density>

***Indirect Infringement (Inducement – 35 U.S.C. § 271(b))***

92. In addition and/or in the alternative to the direct infringements, Toyota indirectly infringes one or more claims of the '365 Patent by knowingly and intentionally inducing others, including its customers and/or other end users, to directly infringe the '365 Patent (e.g., by charging or otherwise using '365 Accused Products).

93. At a minimum, Toyota has had knowledge of the '365 Patent at least since service of this Complaint. Toyota also has knowledge of the '365 Patent since receiving detailed correspondence from BHT prior to the filing of the Complaint, alerting Toyota to its infringements. Since receiving notice of its infringements, Toyota has actively induced, and continues to actively induce, the direct infringements of its customers and/or other end users (e.g., as illustrated above) as set forth under U.S.C. § 271(b). Such inducements have been committed with the knowledge, or with willful blindness to the fact, that the acts induced constitute infringement of the '365 Patent. Indeed, Toyota has intended to cause, continues to intend to cause, and has taken, and continues to take, affirmative steps to induce infringement by, among other things, creating and disseminating advertisements and instructive materials that promote the infringing use of the Accused Products, including marketing materials, user manuals (e.g., those available via <https://www.toyota.com/owners/warranty-owners-manuals/>), and online instructional materials (e.g., those available via <https://www.youtube.com/toyotausa>) that specifically teach and encourage customers and other end users to use the '365 Accused Products in an infringing manner, including by providing instructions on how to charge '365 Accused Products. By providing such instructions and support, Toyota knows (and has known), or should know (and should have known), that its actions have actively induced, and continue to actively induce, infringement of the '365 Patent.

### ***Damages***

94. BHT has been damaged as a result of Toyota's infringing conduct described in this Count. Toyota is, thus, liable to BHT in an amount that adequately compensates it for Toyota's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

95. Despite having knowledge of the '365 Patent and knowledge that it directly and/or indirectly infringes one or more claims of the '365 Patent, Toyota has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Toyota's infringing activities relative to the '365 Patent have, thus, been, and continue to be, willful, wanton, and deliberate in disregard of BHT's rights with respect to the '365 Patent, justifying enhanced damages under 35 U.S.C. § 284.

### **COUNT V**

(INFRINGEMENT OF U.S. PATENT NO. 10,291,158)

96. BHT incorporates the preceding paragraphs herein by reference.

97. This cause of action arises under the patent laws of the United States, and, in particular, 35 U.S.C. §§ 271, *et seq.*

98. BHT is the owner of all substantial rights, title, and interest in and to the '158 Patent, including the right to exclude others and to enforce, sue, and recover damages for past, present, and future infringements.

99. The '158 Patent is valid, enforceable, and was duly and legally issued by the United States Patent and Trademark Office on May 14, 2019, after full and fair examination.

### ***Direct Infringement (35 U.S.C. § 271(a))***

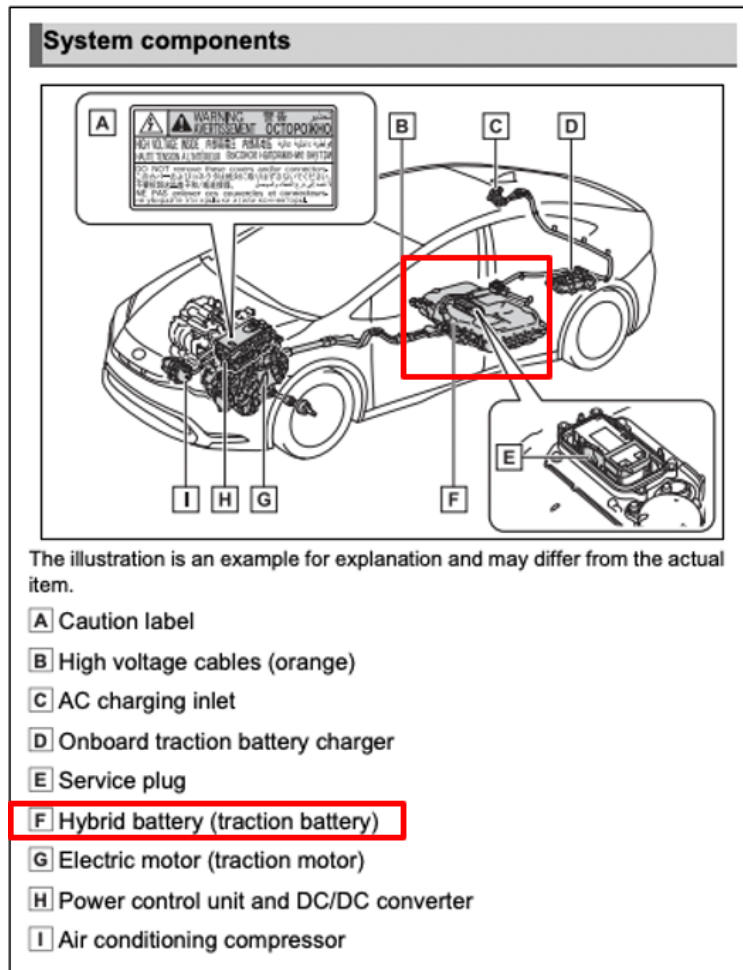
100. Toyota directly infringes one or more claims of the '158 Patent in this District and elsewhere in Texas and the United States.

101. Toyota directly infringes, either by itself or via its agent(s), at least claim 22 of the '158 Patent as set forth under 35 U.S.C. § 271(a) by making, using, selling, offering to sell, and/or importing Toyota and Lexus branded electric vehicles equipped that incorporate the fundamental technologies covered by the '158 Patent, including, but not limited to, Toyota and Lexus branded vehicles (e.g., the 2025 Toyota Prius Plug-In Hybrid) equipped with hybrid-electric powertrain systems (collectively, “the '158 Accused Products”).

102. By way of illustration only, Toyota’s '158 Accused Products comprise each and every element of claim 22 of the '158 Patent. The '158 Accused Products comprise “[a]n electric drive system for a vehicle, comprising: an energy storage system (ESS).” For example, the '158 Accused Products are vehicles that include an electric drive system comprising an energy storage system (ESS) which includes a hybrid battery.

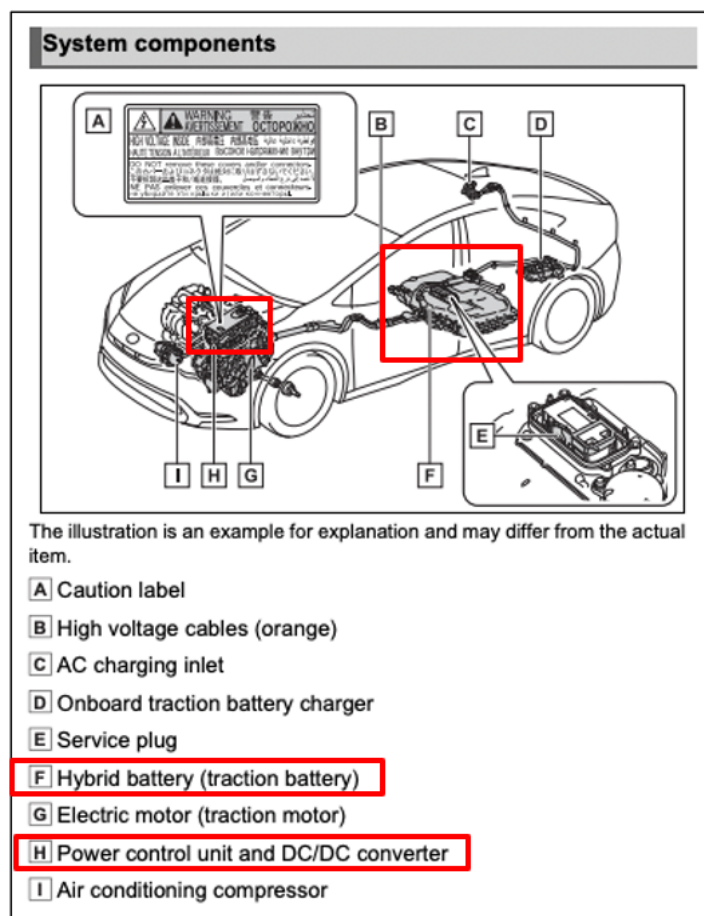


Source: <https://www.toyota.com/priuspluginhybrid/2025/>



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>

103. The '158 Accused Products comprise an electric drive system for a vehicle comprising “a power conversion system coupled to the ESS.” For example, the '158 Accused Products include a power control unit (e.g., power conversion system) coupled to the hybrid battery.



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>

## Power Control Unit (PCU)

The PCU manages power flow between the engine, electric motor, and battery, ensuring seamless transitions and maximum efficiency.

Source: <https://www.kalispelltoyota.com/blog/understanding-toyotas-innovative-hybrid-technology/>

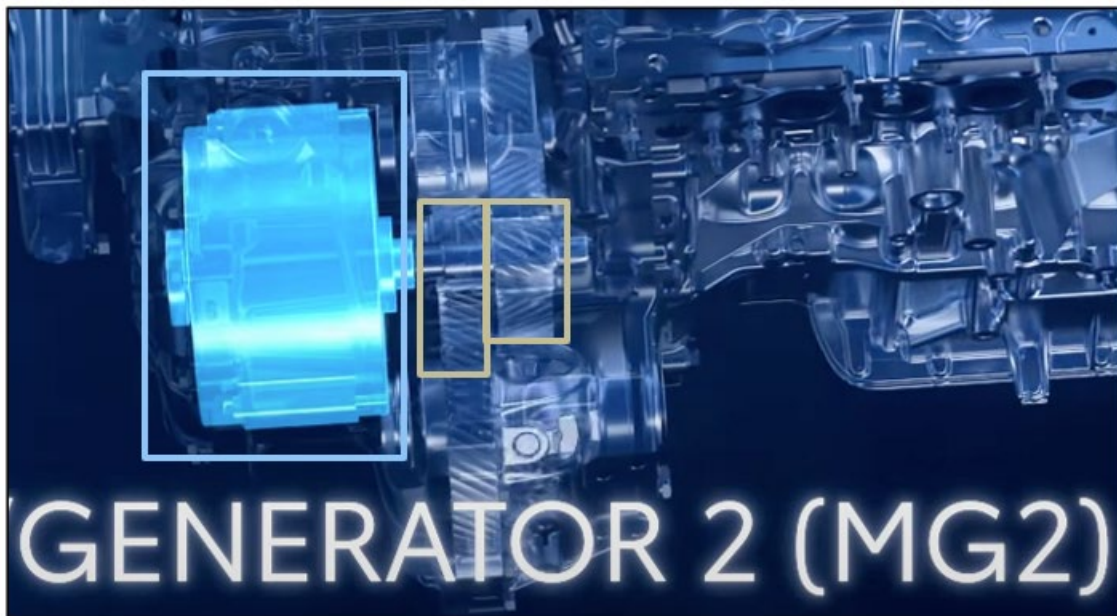
104. The '158 Accused Products comprise an electric drive system for a vehicle comprising “a first AC motor coupled to the power conversion system; [and] a second AC motor coupled to the power conversion system.” For example, the '158 Accused Products include a MG2 (i.e., first AC motor) and a MG1 (i.e., second AC motor) each coupled to the power control unit.

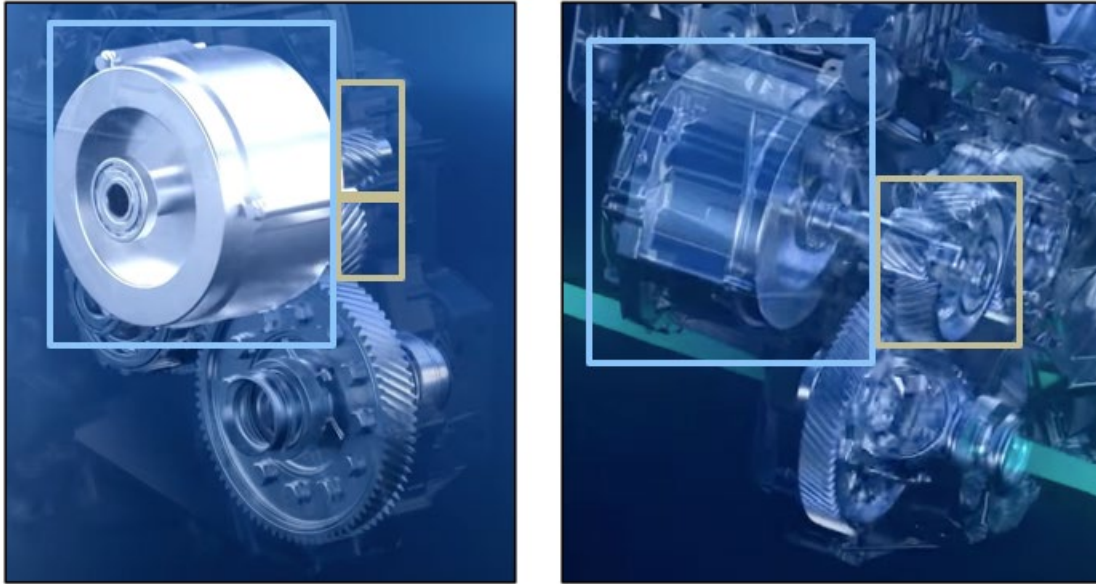




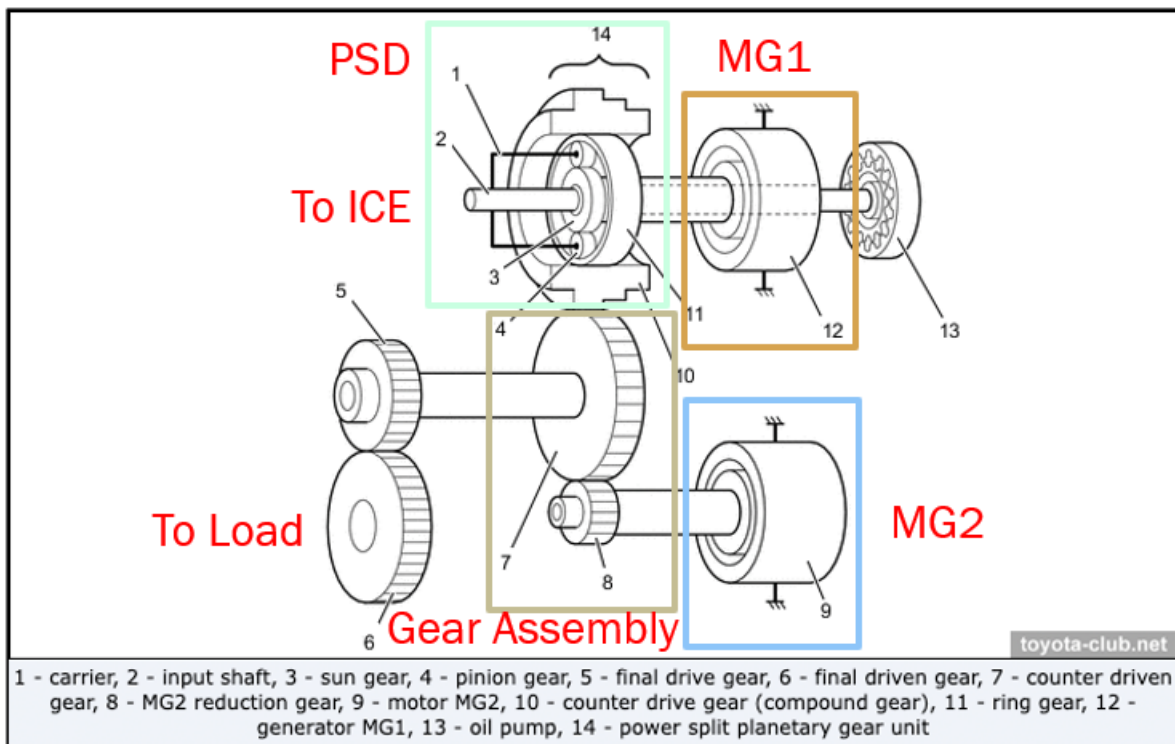
Source: <https://www.youtube.com/watch?v=1OjZ4zW9gg8>

105. The '158 Accused Products comprise an electric drive system for a vehicle comprising “a transmission device coupled to the first AC motor for processing mechanical torque.” For example, the '158 Accused Products include a gear assembly (i.e., a transmission device) coupled to the MG2 (i.e., first AC motor) for processing mechanical torque.



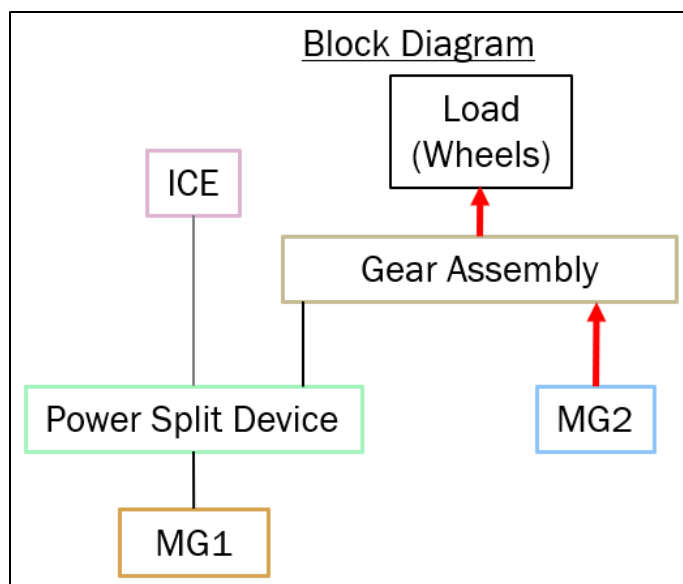


Source: <https://www.youtube.com/watch?v=hRYWqdiUl6A>



Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>2</sup>

<sup>2</sup> Note this screenshot is provided as a visual representation of approximate location of the gear assembly and MG2 in Toyota's hybrid-electric system.

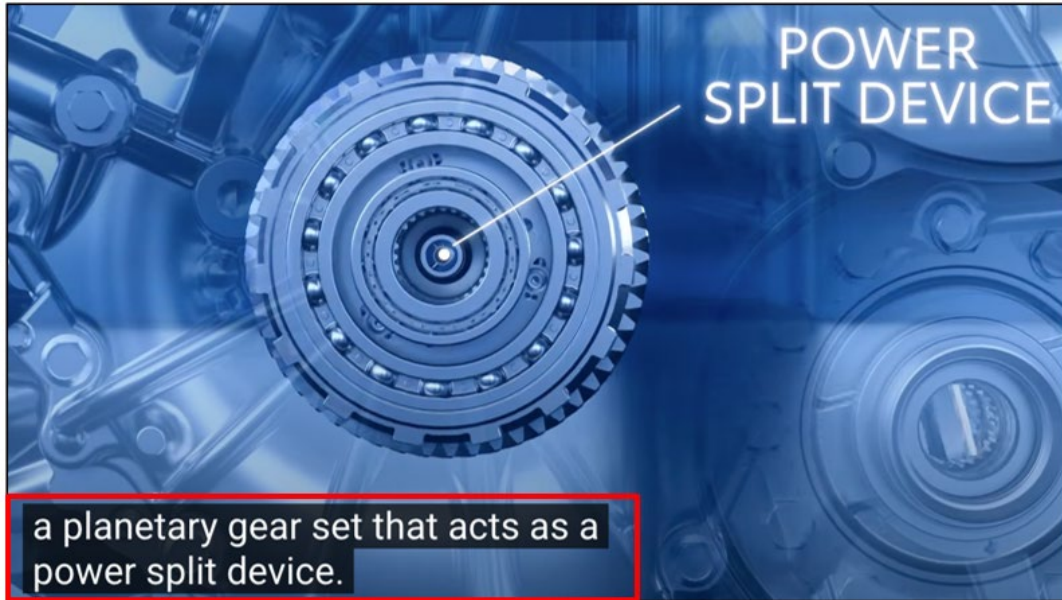


106. The '158 Accused Products comprise an electric drive system for a vehicle comprising “a power split device coupled between the transmission device and second AC motor, the power split device comprising an arrangement of gears for processing mechanical torque.” For example, the '158 Accused Products include a power split device coupled between the gear assembly (i.e., the transmission device) and MG1 (i.e., the second AC motor) comprising a planetary gear set (i.e., an arrangement of gears) for processing mechanical torque.

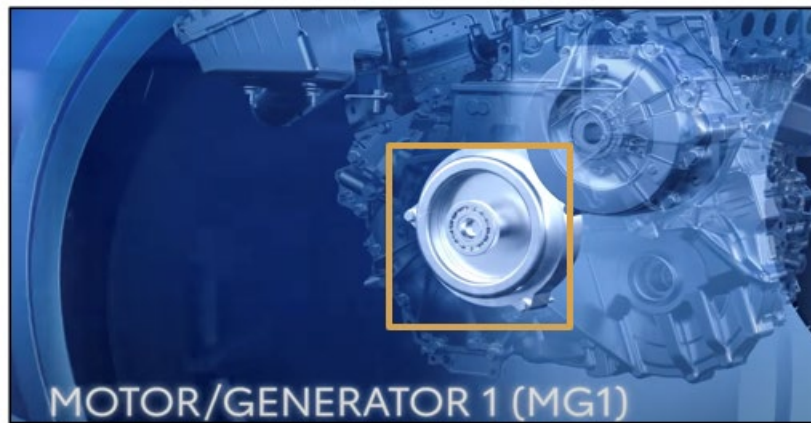
#### Dynamic and Efficient

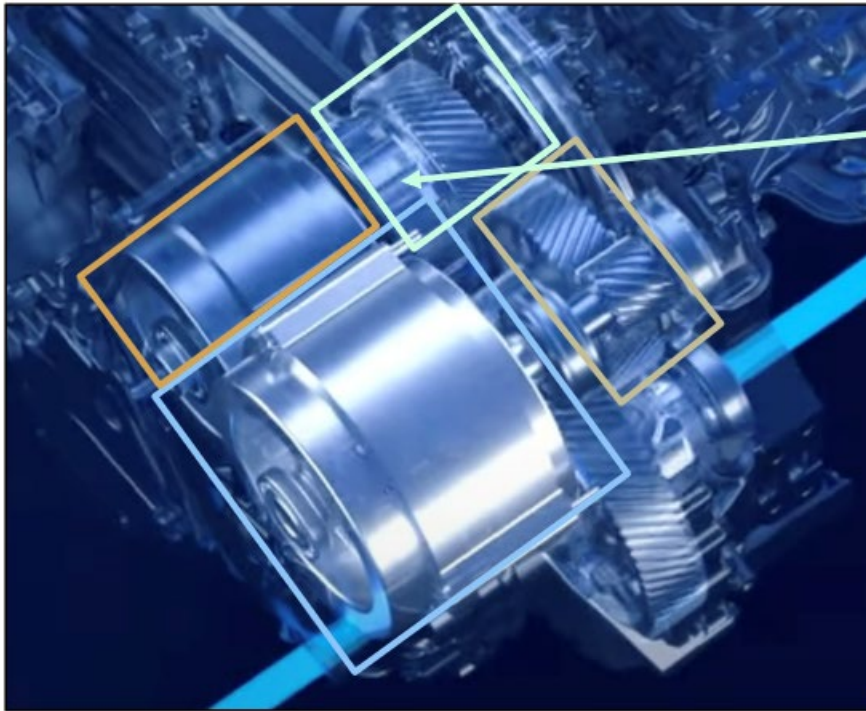
Under the hood of the 2025 Prius Plug-in Hybrid is Toyota's Fifth generation Toyota Hybrid System, which pairs the M20A-FXS inline four-cylinder 2.0L gas engine with two motor-generators (MG1 and MG2) through a planetary-type continuously variable transmission. The engine, working in tandem with the electric motor (MG2), assures responsive performance, while exemplary energy efficiency is achieved by using both electric motors (MG1 and MG2) to charge a lithium-ion battery.

Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>



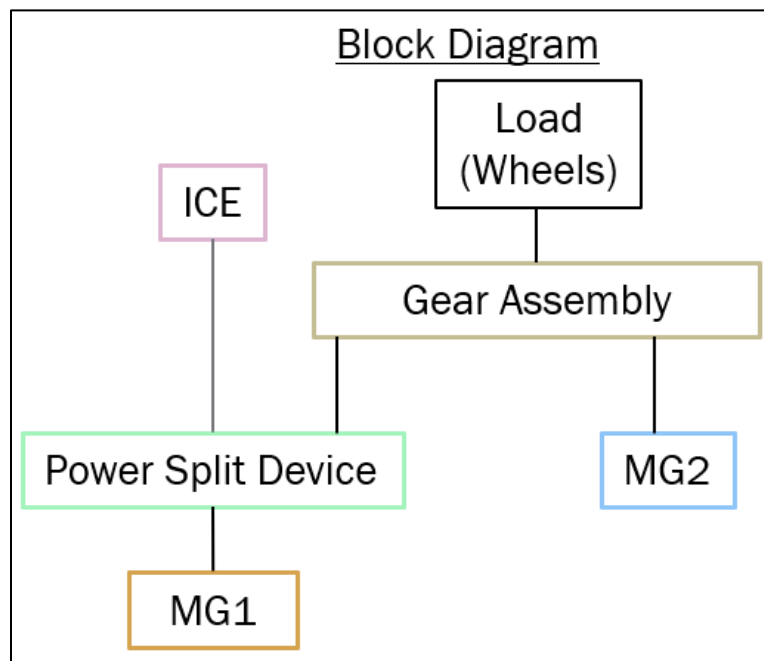
Source: <https://www.youtube.com/watch?v=hRYWqdiUlba>





Planetary  
gear set in  
power split  
device

Source: <https://www.youtube.com/watch?v=1OjZ4zW9gq8> (showing, e.g., MG1 connects to the power split device, and the center gear in the gear assembly rotates with a gear of the power split device, thereby coupling the power split device between the gear assembly and MG1.)



107. The '158 Accused Products comprise an electric drive system for a vehicle comprising “an energy management system (EMS) configured to selectively: enable both the first

and second AC motors to provide a first mechanical torque to a load through the transmission device and power split device to drive the vehicle during a first mode of operation.” For example, the ’158 Accused Products include a vehicle control system including multiple electronic control units (ECUs) (i.e., energy management system (EMS)) configured to selectively enable MG2 (i.e., the first AC motor) to provide torque through the gear assembly (i.e., the transmission device) and MG1 (i.e., the second AC motor) to provide torque through the power split device. Combined, MG2 and MG1 provide a combined torque (i.e., a first mechanical torque) to a load to drive the vehicle during EV Mode.

The Prius Prime was the first Toyota hybrid to use a dual motor drive, which helps improve acceleration in EV Mode for spirited driving. The system engages both the generator (MG1) and electric drive motor (MG2) for drive torque via an innovative one-way clutch. This is the first deployment of MG1 for that purpose. In other Prius models, MG1 provides only battery charging while MG2 provides drive torque and charging.

Source: <https://pressroom.toyota.com/the-2021-toyota-prius-prime-adds-safety-and-tech-while-continuing-to-combine-the-best-of-both-worlds/>

### **Prius Prime Changes its Name to Prius Plug-in Hybrid for Model Year 2025**

Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>

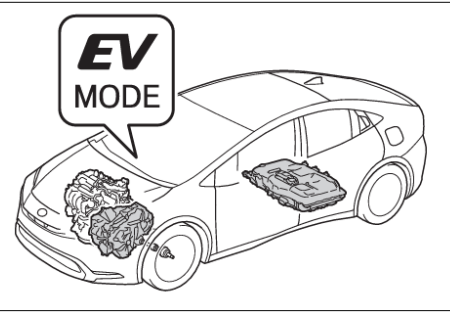
Prius Plug-in Hybrid’s Hybrid Synergy Drive® system helps maximize output from both the gas engine and electric motors, generating up to 220 horsepower for you to enjoy.

Source: <https://www.toyotaofglendale.com/2025-priuspluginhybrid/>

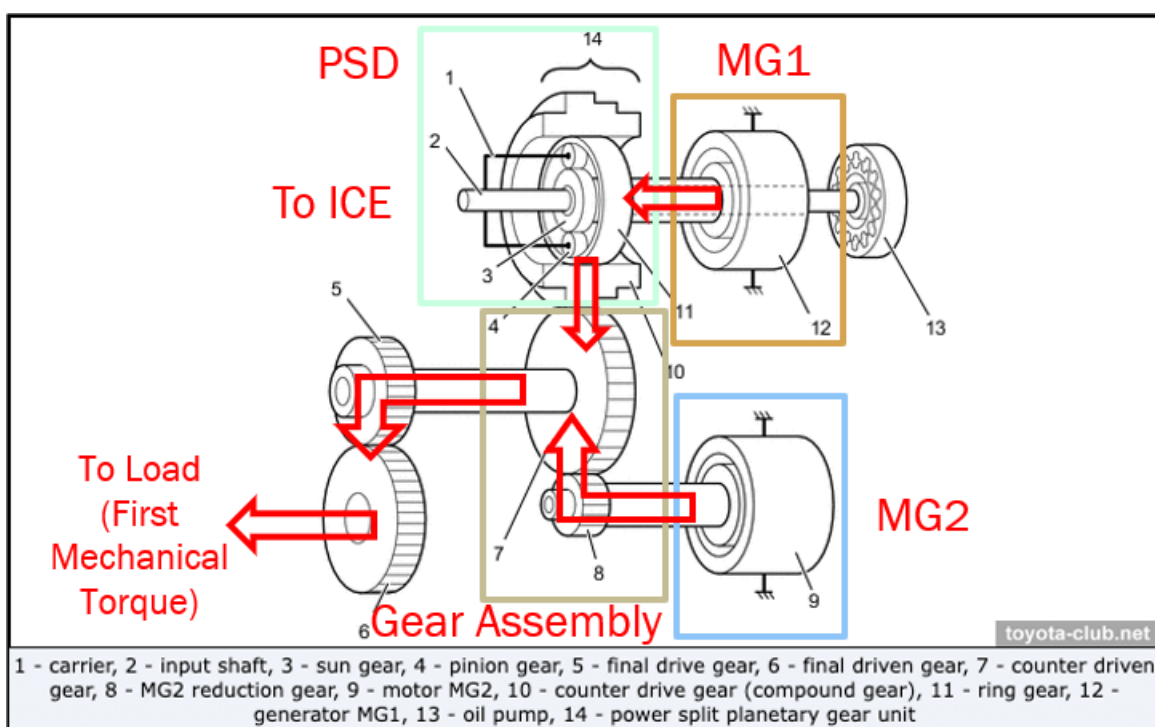
**EV mode**

When a sufficient amount of electricity is remaining after charging, EV driving is performed using electricity stored in the hybrid battery (traction battery).

When in EV mode, the EV drive mode indicator illuminates.

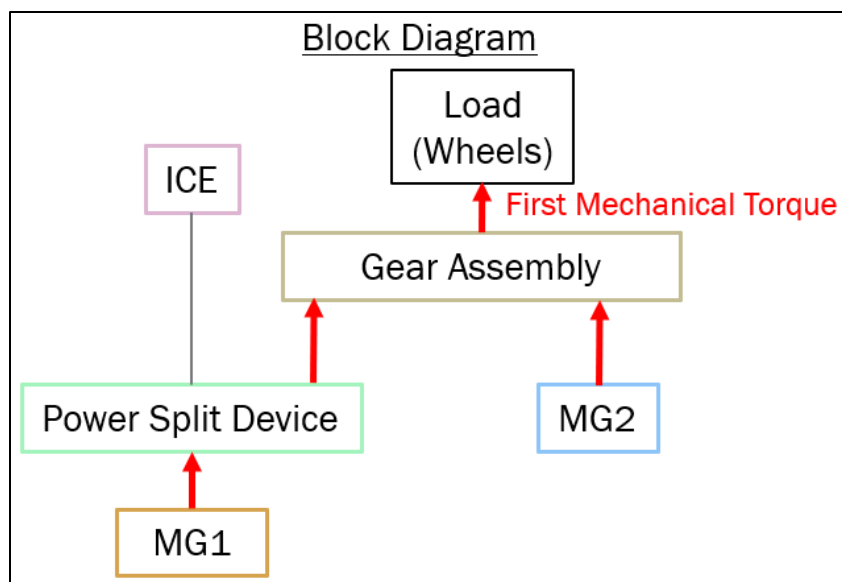


Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F60U/pdf/OM47F60U.pdf>



Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>3</sup>

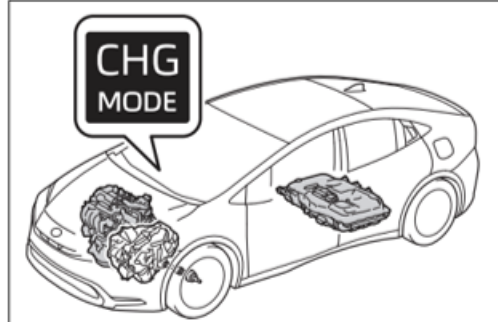
<sup>3</sup> Note this screenshot is provided as a visual representation of approximate location of the power split device, gear assembly, and electric motors in Toyota's hybrid-electric system.



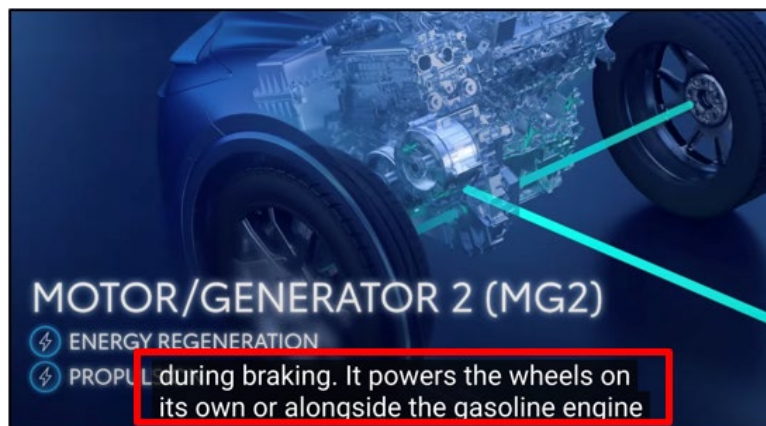
108. The '158 Accused Products comprise an energy management system (EMS) configured to selectively “enable the first AC motor to provide a second mechanical torque to the load through the transmission device to drive the vehicle and enable the second AC motor to operate as a generator to receive a third mechanical torque from the power split device to generate electrical power during a second mode of operation.” For example, the '158 Accused Products include a vehicle control system including multiple electronic control units (ECUs) (i.e., energy management system (EMS)) configured to selectively enable MG2 (i.e., the first AC motor) to provide a second mechanical torque to the load through the gear assembly (i.e., transmission device) to drive the vehicle and enable MG1 (i.e., the second AC motor) to operate as a generator to receive a third mechanical torque from the power split device to generate electrical power during charge mode (i.e., a second mode of operation).

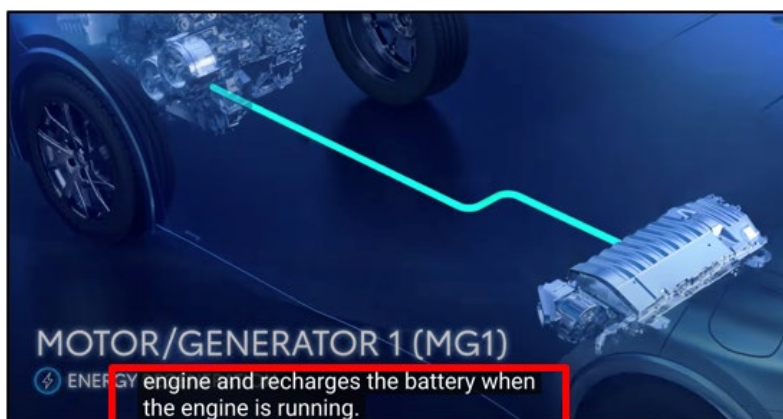
■ **Hybrid battery (traction battery) charge mode**

Electricity generated by the gasoline engine can be used to charge the hybrid battery (traction battery) by switching to the hybrid battery (traction battery) charge mode when electricity needed for EV driving is not remaining.

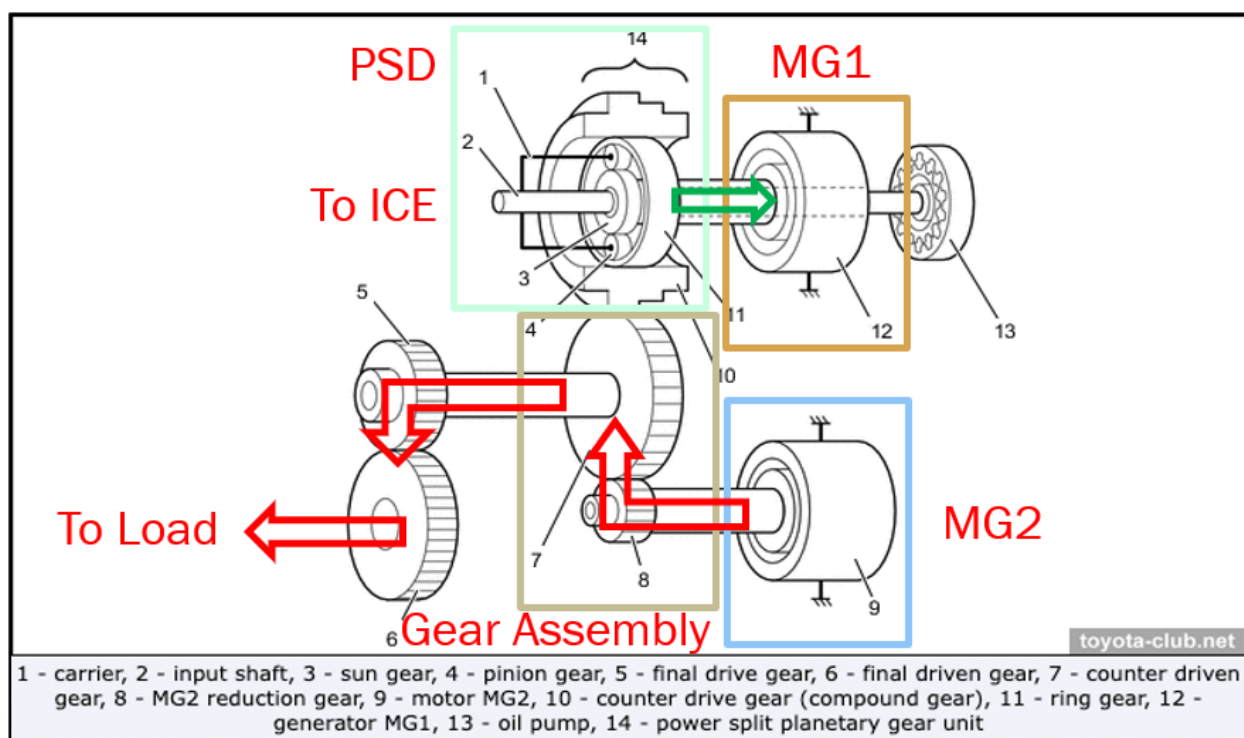


Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F60U/pdf/OM47F60U.pdf>



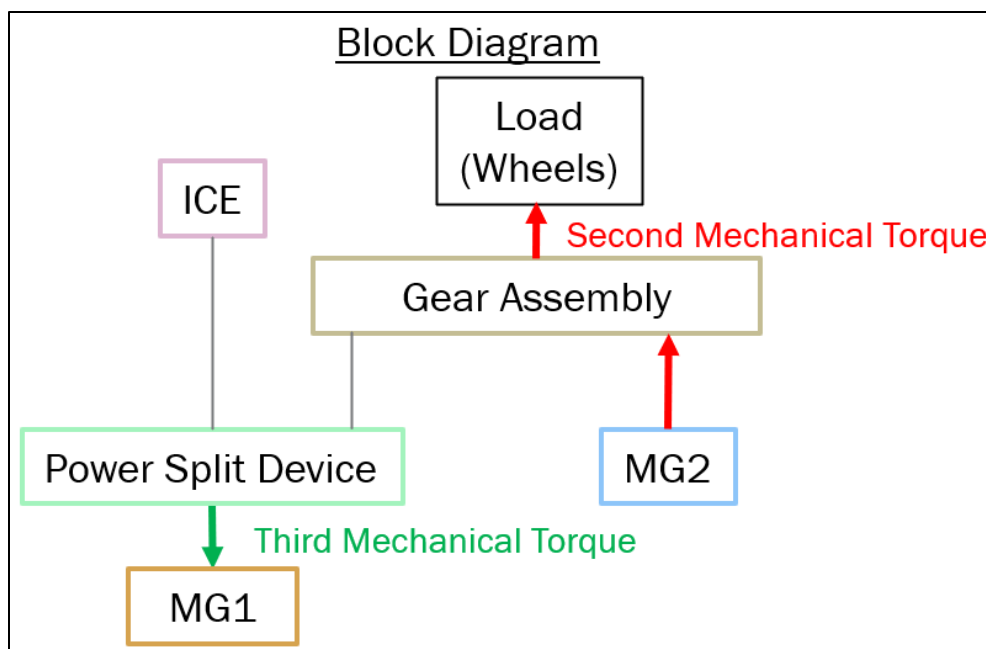


Source: <https://www.youtube.com/watch?v=1OjZ4zW9gq8>



Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>4</sup>

<sup>4</sup> Note this screenshot is provided as a visual representation of approximate location of the power split device, gear assembly, and electric motors in Toyota's hybrid-electric system.



***Indirect Infringement (Inducement – 35 U.S.C. § 271(b))***

109. In addition and/or in the alternative to the direct infringements, Toyota indirectly infringes one or more claims of the '158 Patent by knowingly and intentionally inducing others, including its customers and/or other end users, to directly infringe the '158 Patent (e.g., by operating a '158 Accused Product).

110. At a minimum, Toyota has had knowledge of the '158 Patent at least since service of this Complaint. Toyota also has knowledge of the '158 Patent since receiving detailed correspondence from BHT prior to the filing of the Complaint, alerting Toyota to its infringements. Since receiving notice of its infringements, Toyota has actively induced, and continues to actively induce, the direct infringements of its customers and/or other end users (e.g., as illustrated above) as set forth under U.S.C. § 271(b). Such inducements have been committed with the knowledge, or with willful blindness to the fact, that the acts induced constitute infringement of the '158 Patent. Indeed, Toyota has intended to cause, continues to intend to cause, and has taken, and continues to take, affirmative steps to induce infringement by, among other things, creating and

disseminating advertisements and instructive materials that promote the infringing use of the Accused Products, including marketing materials, user manuals (e.g., those available via <https://www.toyota.com/owners/warranty-owners-manuals/>), and online instructional materials (e.g., those available via <https://www.youtube.com/toyotausa>) that specifically teach and encourage customers and other end users to use the '158 Accused Products in an infringing manner, including by operating a '158 Accused Product. By providing such instructions and support, Toyota knows (and has known), or should know (and should have known), that its actions have actively induced, and continue to actively induce, infringement of the '158 Patent.

### ***Damages***

111. BHT has been damaged as a result of Toyota's infringing conduct described in this Count. Toyota is, thus, liable to BHT in an amount that adequately compensates it for Toyota's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

112. Despite having knowledge of the '158 Patent and knowledge that it directly and/or indirectly infringes one or more claims of the '158 Patent, Toyota has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Toyota's infringing activities relative to the '158 Patent have, thus, been, and continue to be, willful, wanton, and deliberate in disregard of BHT's rights with respect to the '158 Patent, justifying enhanced damages under 35 U.S.C. § 284.

## **COUNT VI**

(INFRINGEMENT OF U.S. PATENT NO. 10,374,529)

113. BHT incorporates the preceding paragraphs herein by reference.

114. This cause of action arises under the patent laws of the United States, and, in particular, 35 U.S.C. §§ 271, *et seq.*

115. BHT is the owner of all substantial rights, title, and interest in and to the '529 Patent, including the right to exclude others and to enforce, sue, and recover damages for past, present, and future infringements.

116. The '529 Patent is valid, enforceable, and was duly and legally issued by the United States Patent and Trademark Office on August 6, 2019, after full and fair examination.

***Direct Infringement (35 U.S.C. § 271(a))***

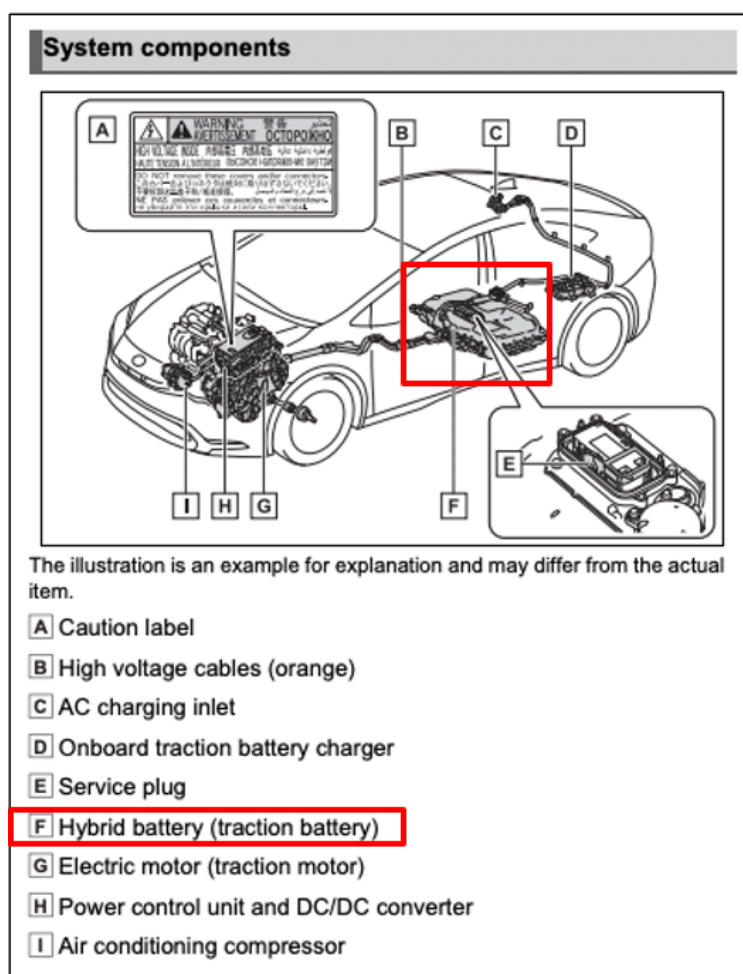
117. Toyota directly infringes one or more claims of the '529 Patent in this District and elsewhere in Texas and the United States.

118. Toyota directly infringes, either by itself or via its agent(s), at least claim 1 of the '529 Patent as set forth under 35 U.S.C. § 271(a) by making, using, selling, offering to sell, and/or importing Toyota and Lexus branded electric vehicles equipped that incorporate the fundamental technologies covered by the '529 Patent, including, but not limited to, Toyota and Lexus branded vehicles (e.g., the 2025 Toyota Prius Plug-In Hybrid) equipped with hybrid-electric powertrain systems (collectively, “the '529 Accused Products”).

119. By way of illustration only, Toyota's '529 Accused Products comprise each and every element of claim 1 of the '529 Patent. The '529 Accused Products comprise “[a] drive system for a vehicle, comprising: an energy storage system (ESS).” For example, the '529 Accused Products are vehicles that include a drive system comprising an energy storage system (ESS) which includes a hybrid battery.



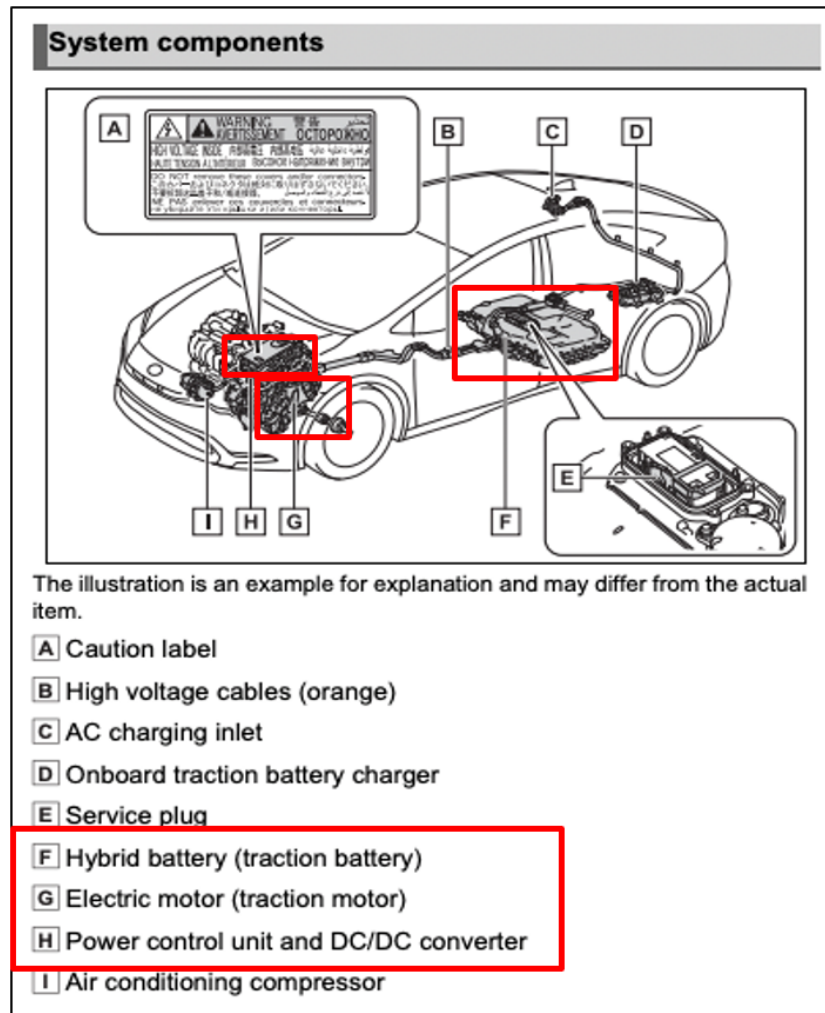
Source: <https://www.toyota.com/priuspluginhybrid/2025/>



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>

120. The '529 Accused Products comprise a drive system for a vehicle comprising “a first electric motor/generator coupled to the ESS; [and] a second electric motor/generator coupled

to the ESS.” For example, the ’529 Accused Products include an MG2 (i.e., first electric motor/generator) and an MG1 (i.e., second electric motor/generator) both coupled to the hybrid battery through the power control unit.



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>

#### Dynamic and Efficient

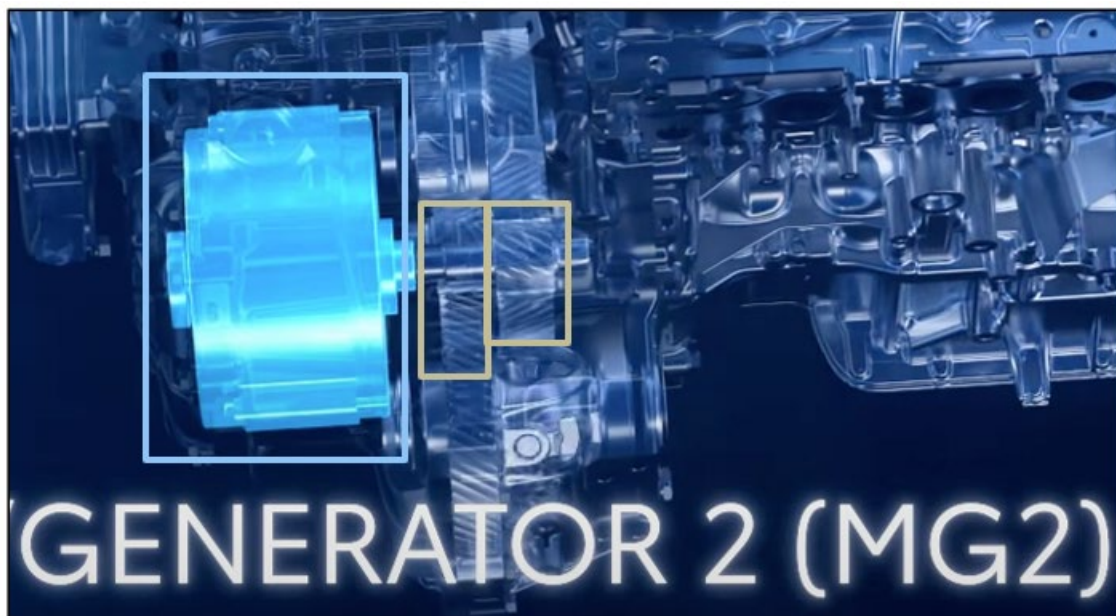
Under the hood of the 2025 Prius Plug-in Hybrid is Toyota's Fifth generation Toyota Hybrid System, which pairs the M20A-FXS inline four-cylinder 2.0L gas engine with two motor-generators (MG1 and MG2) through a planetary-type continuously variable transmission. The engine, working in tandem with the electric motor (MG2), assures responsive performance, while exemplary energy efficiency is achieved by using both electric motors (MG1 and MG2) to charge a lithium-ion battery.

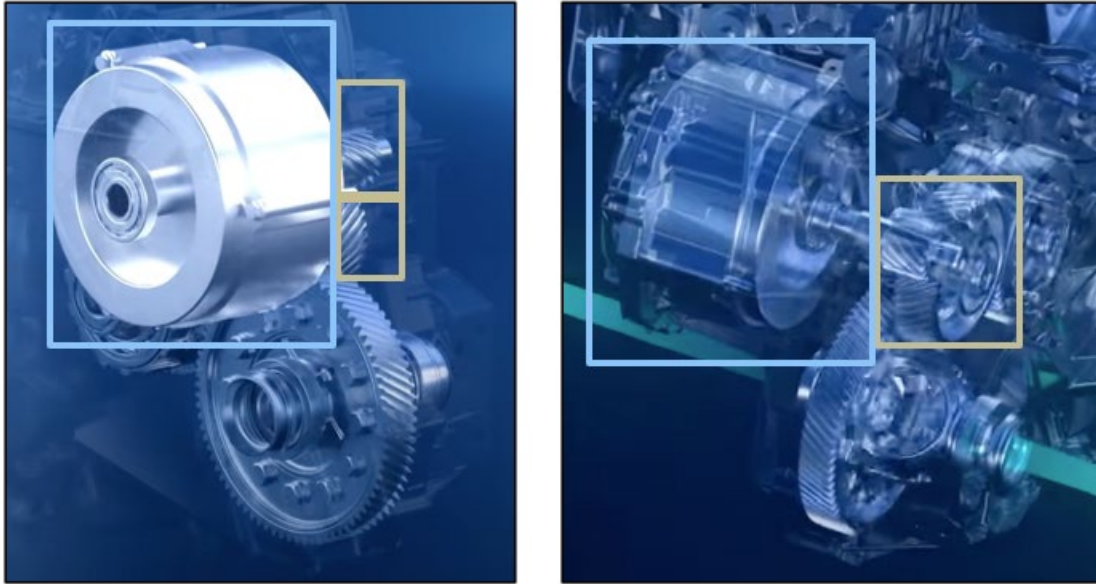
Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>



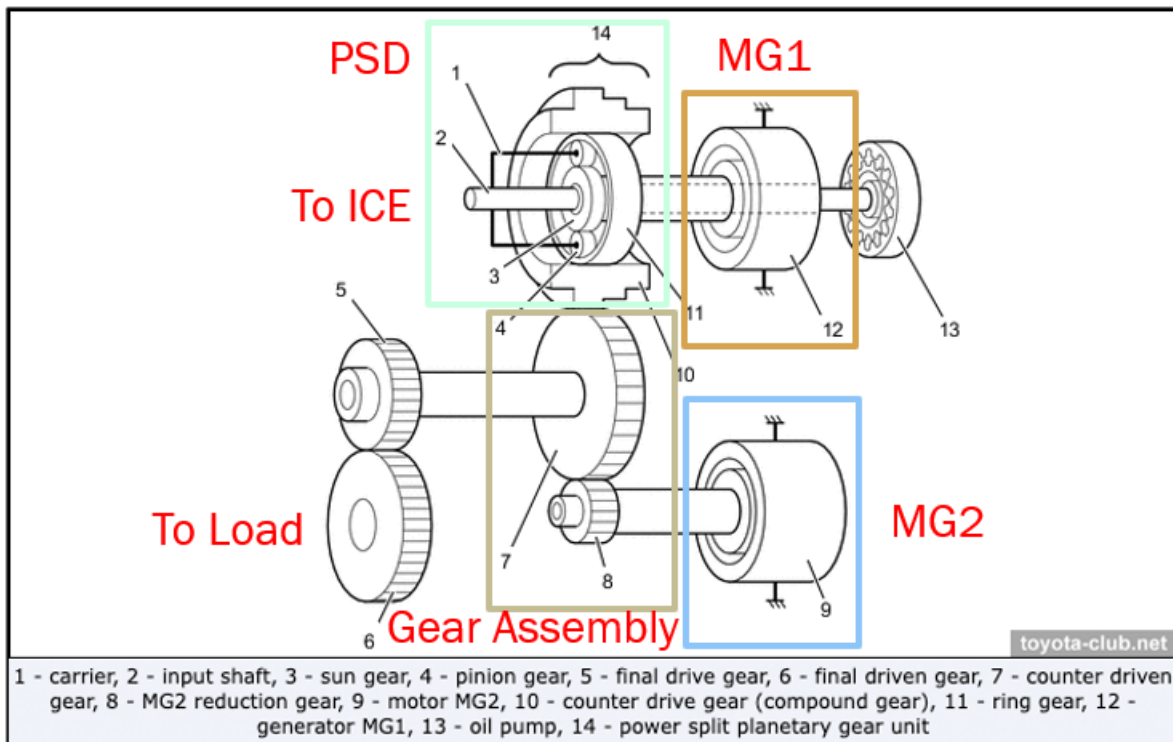
Source: <https://www.youtube.com/watch?v=1OjZ4zW9gq8>

121. The '529 Accused Products comprise a drive system for a vehicle comprising “a transmission device coupled to the first electric motor/generator.” For example, the '529 Accused Products include a gear assembly (i.e., a transmission device) coupled to MG2 (i.e., the first electric motor/generator).



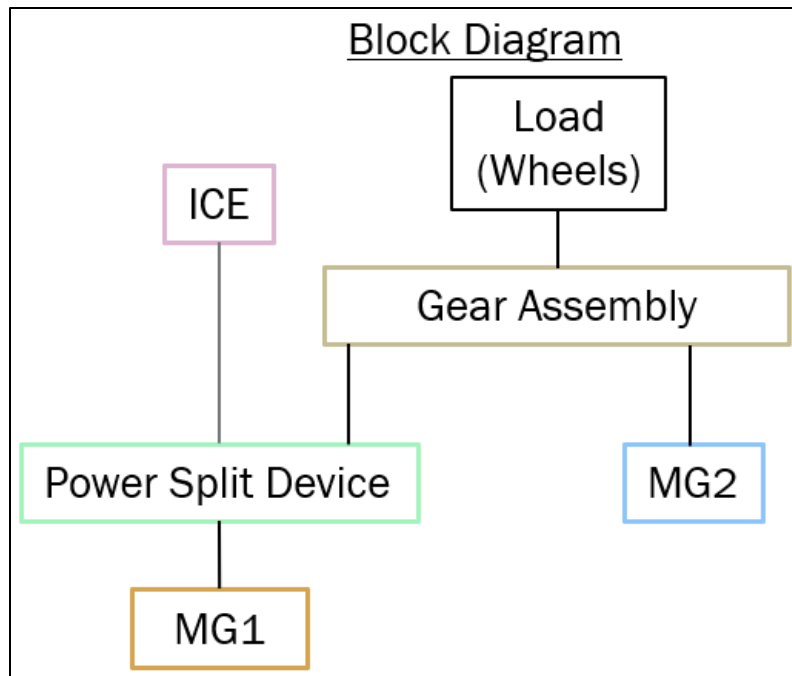


Source: <https://www.youtube.com/watch?v=hRYWqdiUl6A>



Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>5</sup>

<sup>5</sup> Note this screenshot is provided as a visual representation of approximate location of the gear assembly and MG2 in Toyota's hybrid-electric system.

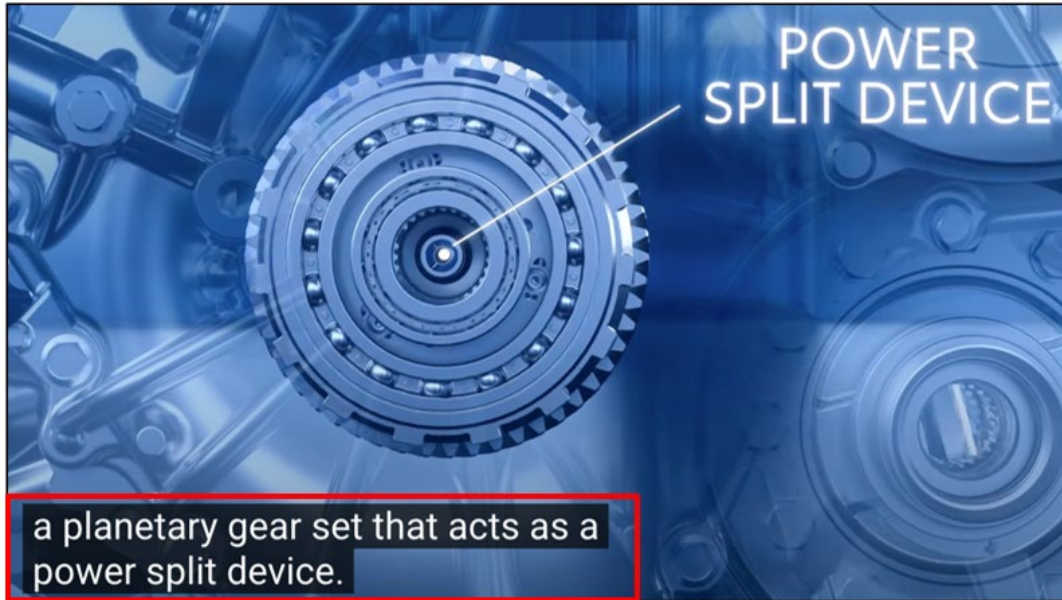


122. The '529 Accused Products comprise a drive system for a vehicle comprising “a power split device coupled to the transmission device and the second electric motor/generator, the power split device comprising one or more planetary sets.” For example, the '529 Accused Products include a power split device coupled to the gear assembly (i.e., the transmission device) and MG1 (i.e., the second electric motor/generator) comprising a planetary gear set.

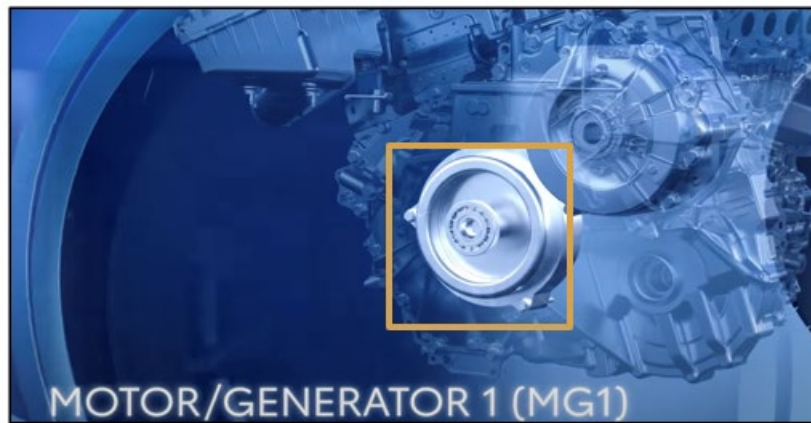
#### Dynamic and Efficient

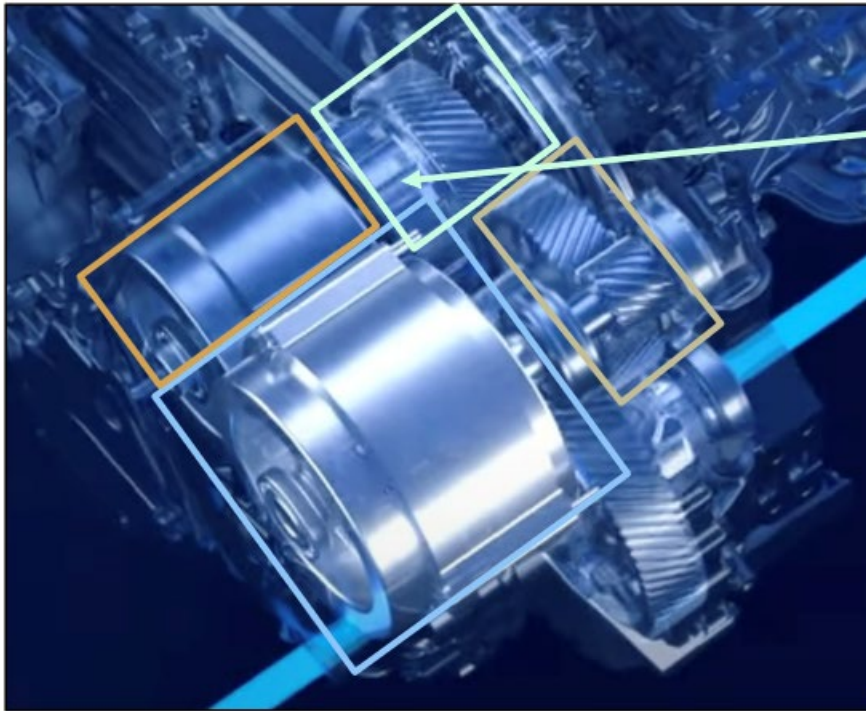
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Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>



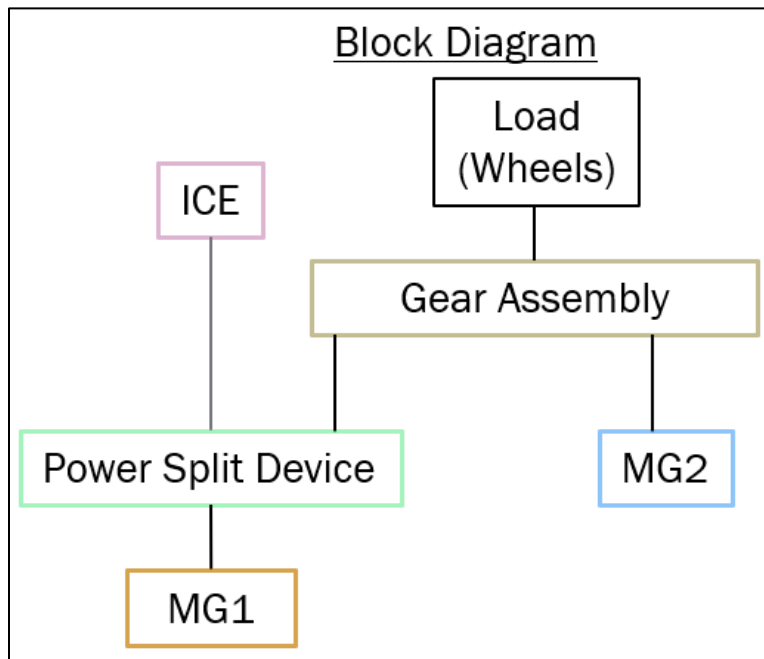
Source: <https://www.youtube.com/watch?v=hRYWqdiUlba>





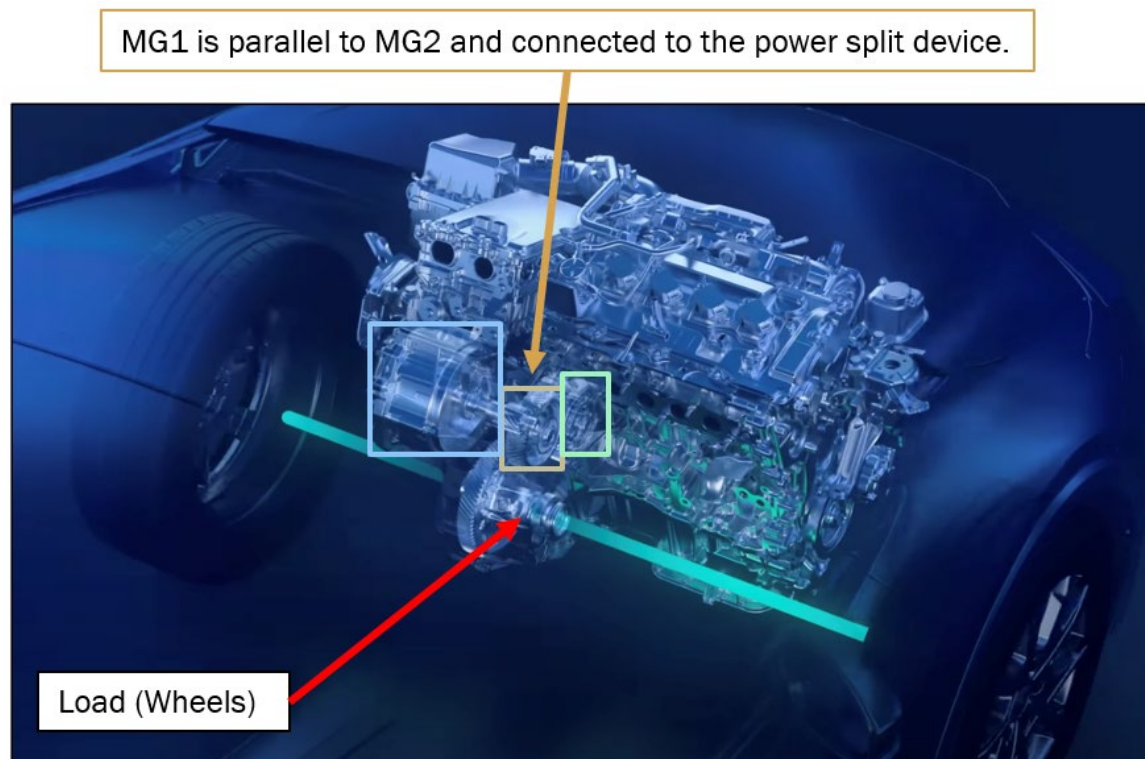
Planetary gear set in power split device

Source: <https://www.youtube.com/watch?v=1OjZ4zW9gq8> (showing, e.g., MG1 connects to the power split device, and the center gear in the gear assembly rotates with a gear of the power split device, thereby coupling the power split device between the gear assembly and MG1.)

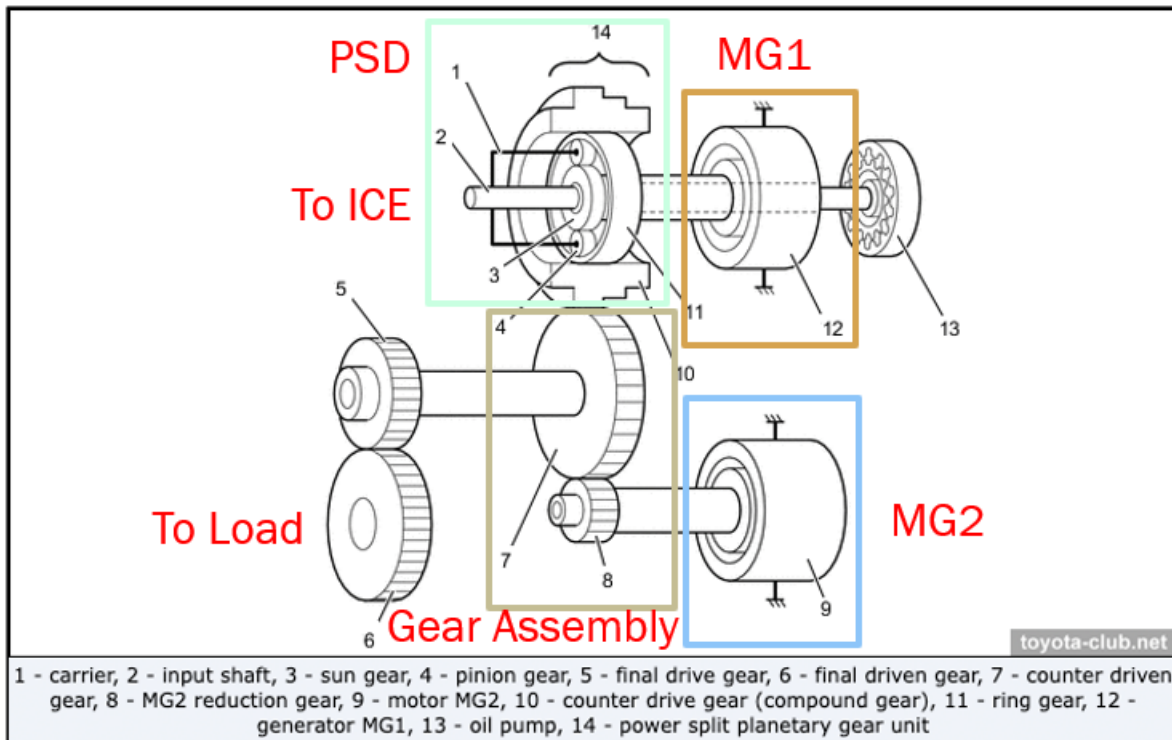


123. The '529 Accused Products comprise a drive system for a vehicle comprising “a load coupled to the first motor/generator via the transmission device and coupled to the second

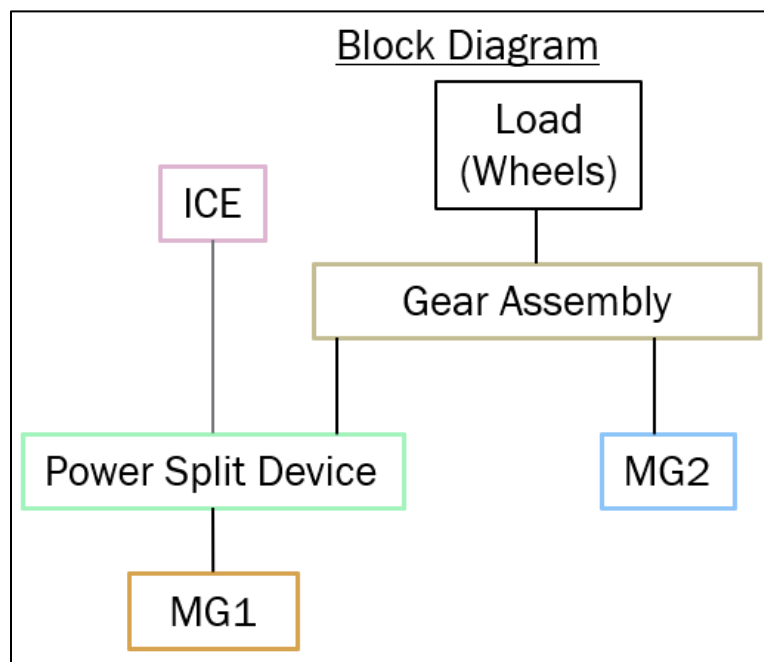
motor/generator via the power split device.” For example, the ’529 Accused Products include a load which is coupled to MG2 (i.e., the first electric motor/generator) via the gear assembly (i.e., the transmission device) and coupled to MG1 (i.e., the second electric motor/generator) via the power split device.



Source: <https://www.youtube.com/watch?v=hRYWqdiUlbA> (showing, e.g., the wheels are coupled to a differential which is coupled to the gear assembly which is coupled to MG2 and the power split device, which is coupled to MG1.)

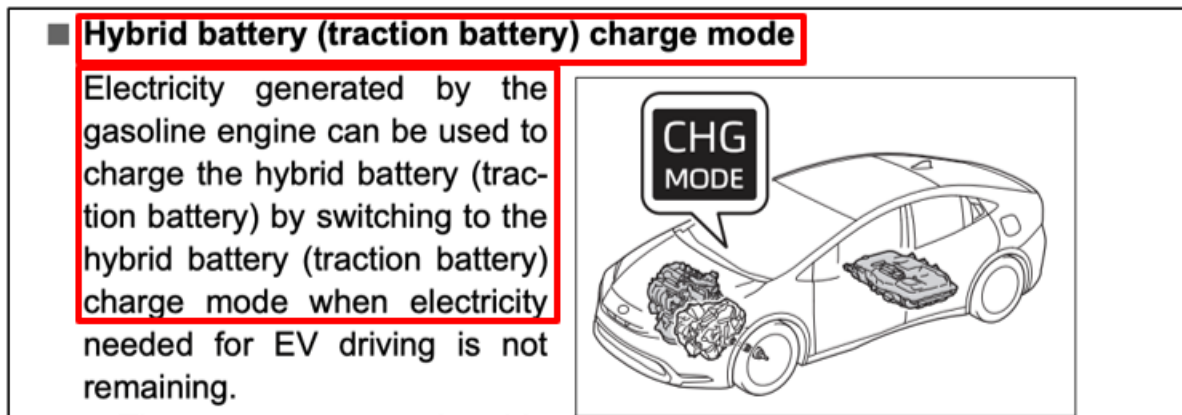


Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>6</sup>

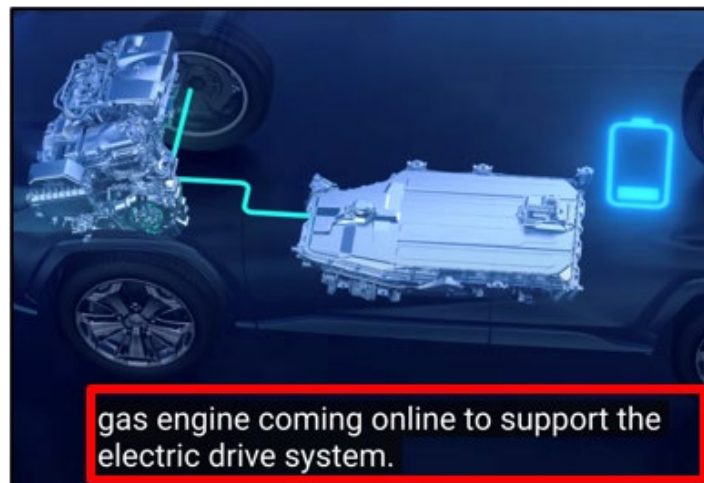


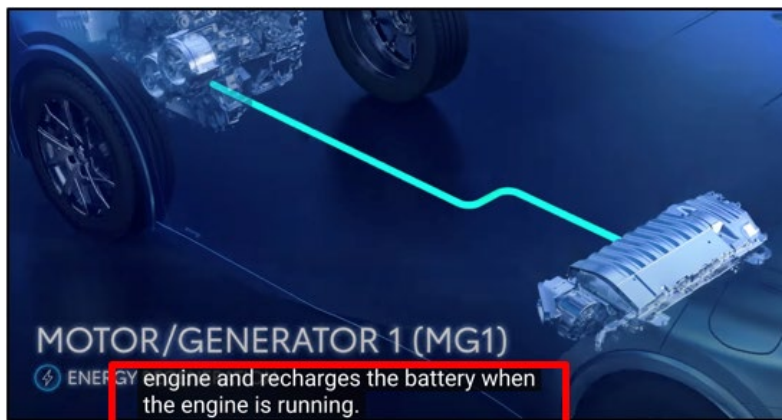
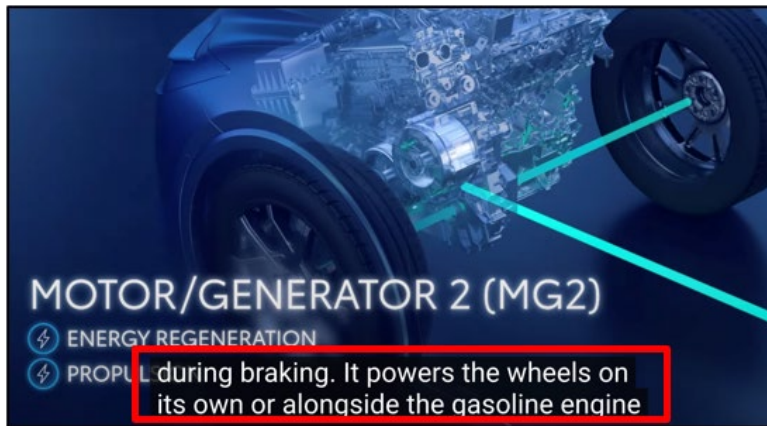
<sup>6</sup> Note this screenshot is provided as a visual representation of approximate location of the power split device, gear assembly, electric motors, and load in Toyota's hybrid-electric system.

124. The '529 Accused Products comprise a drive system for a vehicle comprising “wherein: in a first mode of operation only the first motor/generator of the first and second motor/generators is operated as a motor to drive the vehicle; ... the first mode of operation being selected when the vehicle is cruising.” For example, in the '529 Accused Products, when the vehicle is cruising (i.e., a first mode of operation), only MG2 (i.e., the first motor/generator) is operated as a motor to drive the vehicle.

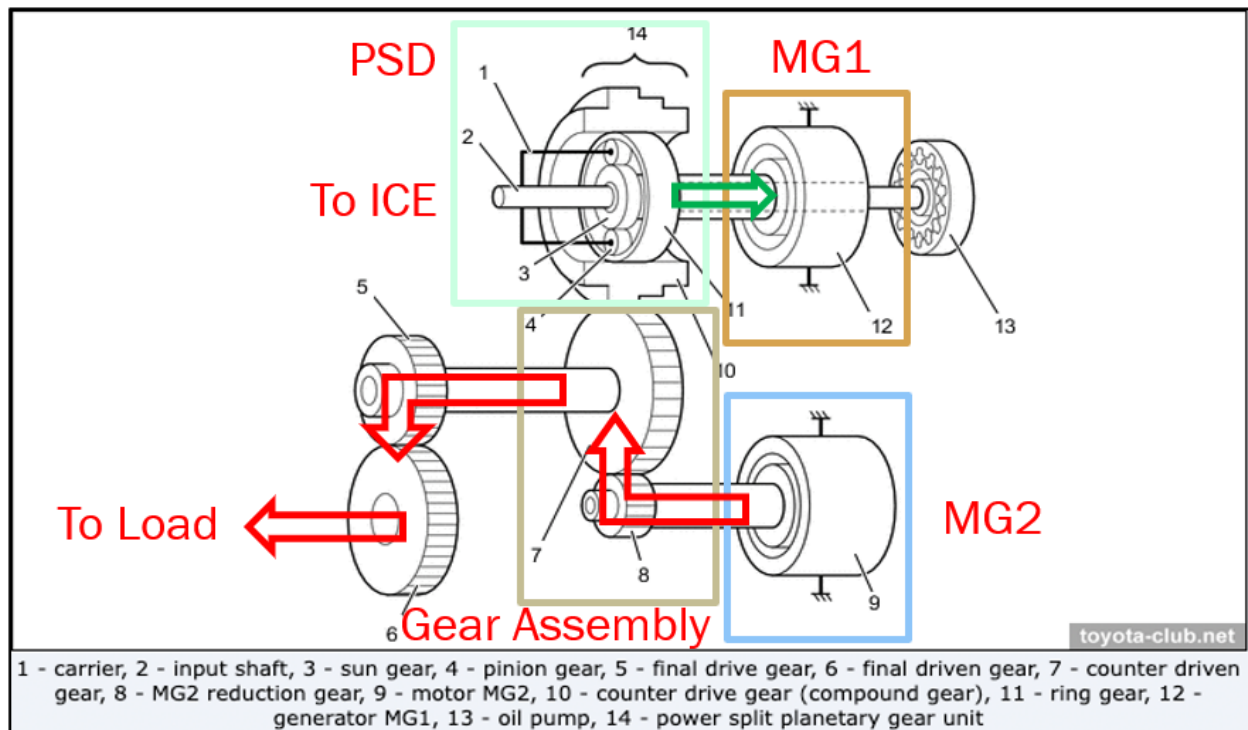


Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F60U/pdf/OM47F60U.pdf>

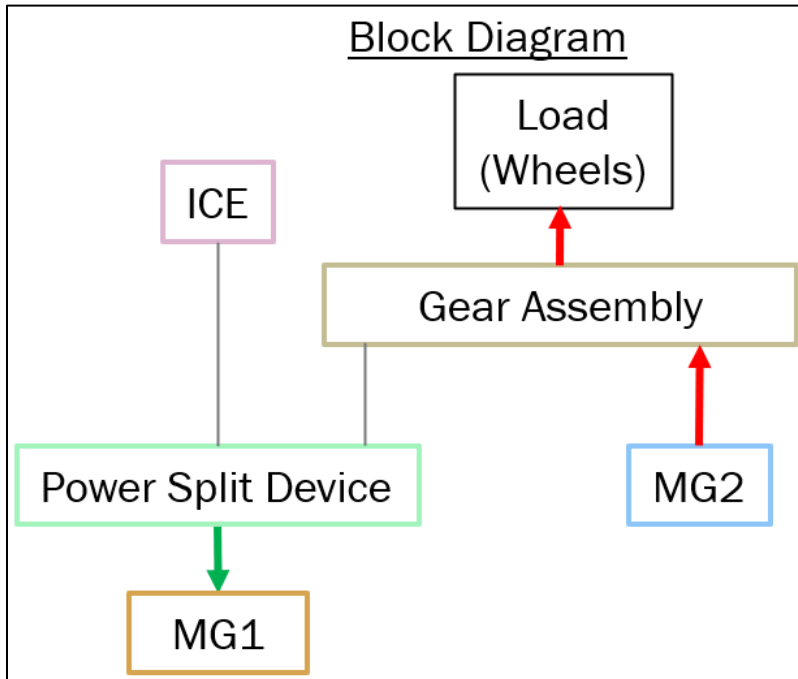




Source: <https://www.youtube.com/watch?v=1OjZ4zW9gq8>



Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>7</sup>



125. The '529 Accused Products comprise a drive system for a vehicle comprising wherein “in a second mode of operation both the first and second motor/generators are operated as motors to drive the vehicle; ... the second mode of operation being selected when the vehicle is accelerating.” For example, in the '529 Accused Products, when the vehicle is accelerating in EV mode (i.e., a second mode of operation), both MG2 (i.e., the first electric motor/generator) and MG1 (i.e., the second electric motor/generator) are operated as motors to drive the vehicle.

<sup>7</sup> Note this screenshot is provided as a visual representation of approximate location of the power split device, gear assembly, and electric motors in Toyota’s hybrid-electric system.

The Prius Prime was the first Toyota hybrid to use a dual motor drive, which helps improve acceleration in EV Mode for spirited driving. The system engages both the generator (MG1) and electric drive motor (MG2) for drive torque via an innovative one-way clutch. This is the first deployment of MG1 for that purpose. In other Prius models, MG1 provides only battery charging while MG2 provides drive torque and charging.

Source: <https://pressroom.toyota.com/the-2021-toyota-prius-prime-adds-safety-and-tech-while-continuing-to-combine-the-best-of-both-worlds/>

## **Prius Prime Changes its Name to Prius Plug-in Hybrid for Model Year 2025**

Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>

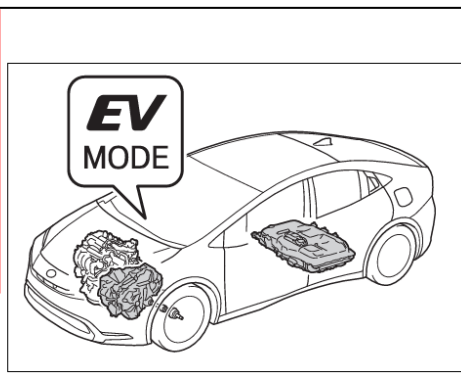
Prius Plug-in Hybrid's Hybrid Synergy Drive® system helps maximize output from both the gas engine and electric motors, generating up to 220 horsepower for you to enjoy.

Source: <https://www.toyotaofglendale.com/2025-priuspluginhybrid/>

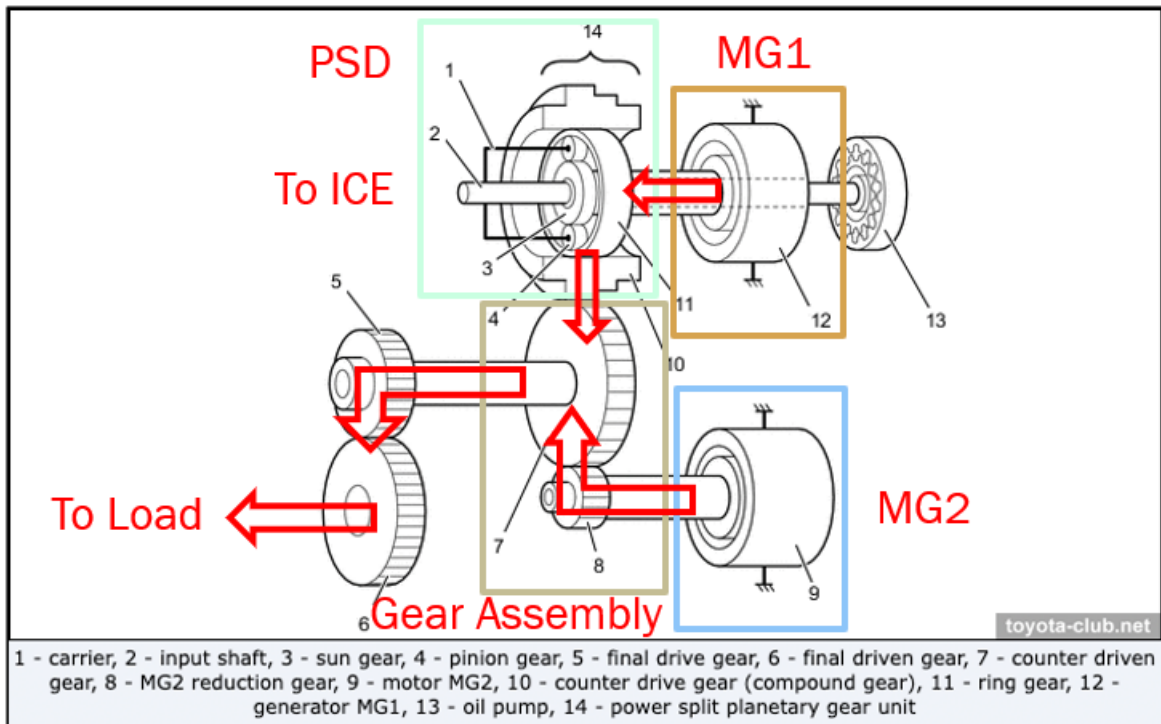
### **■ EV mode**

When a sufficient amount of electricity is remaining after charging, EV driving is performed using electricity stored in the hybrid battery (traction battery).

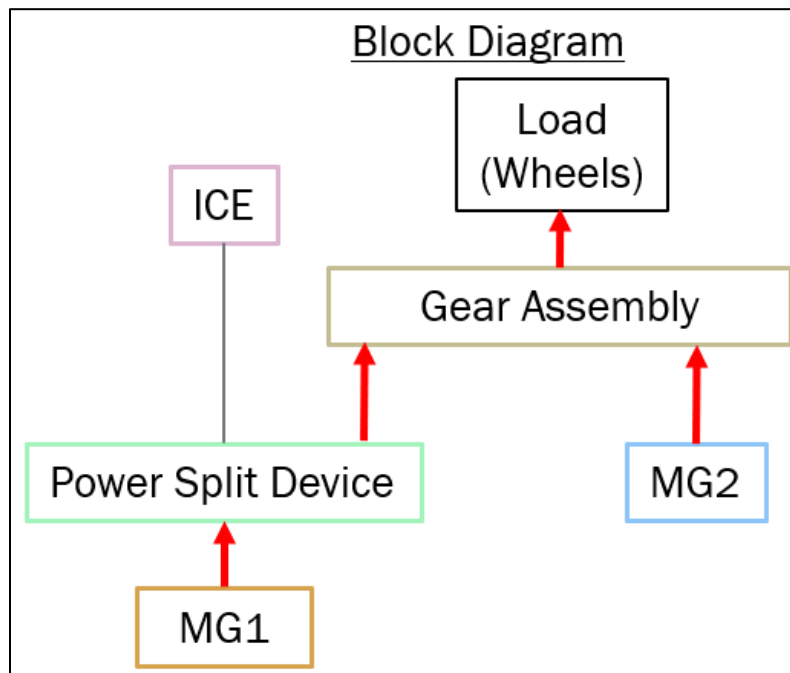
When in EV mode, the EV drive mode indicator illuminates.



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F60U/pdf/OM47F60U.pdf>



Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>8</sup>



<sup>8</sup> Note this screenshot is provided as a visual representation of approximate location of the power split device, gear assembly, and electric motors in Toyota's hybrid-electric system.

***Indirect Infringement (Inducement – 35 U.S.C. § 271(b))***

126. In addition and/or in the alternative to the direct infringements, Toyota indirectly infringes one or more claims of the '529 Patent by knowingly and intentionally inducing others, including its customers and/or other end users, to directly infringe the '529 Patent (e.g., by operating a '529 Accused Product).

127. At a minimum, Toyota has had knowledge of the '529 Patent at least since service of this Complaint. Toyota also has knowledge of the '529 Patent since receiving detailed correspondence from BHT prior to the filing of the Complaint, alerting Toyota to its infringements. Since receiving notice of its infringements, Toyota has actively induced, and continues to actively induce, the direct infringements of its customers and/or other end users (e.g., as illustrated above) as set forth under U.S.C. § 271(b). Such inducements have been committed with the knowledge, or with willful blindness to the fact, that the acts induced constitute infringement of the '529 Patent. Indeed, Toyota has intended to cause, continues to intend to cause, and has taken, and continues to take, affirmative steps to induce infringement by, among other things, creating and disseminating advertisements and instructive materials that promote the infringing use of the Accused Products, including marketing materials, user manuals (e.g., those available via <https://www.toyota.com/owners/warranty-owners-manuals/>), and online instructional materials (e.g., those available via <https://www.youtube.com/toyotausa>) that specifically teach and encourage customers and other end users to use the '529 Accused Products in an infringing manner, including by operating a '529 Accused Product. By providing such instructions and support, Toyota knows (and has known), or should know (and should have known), that its actions have actively induced, and continue to actively induce, infringement of the '529 Patent.

***Damages***

128. BHT has been damaged as a result of Toyota's infringing conduct described in this Count. Toyota is, thus, liable to BHT in an amount that adequately compensates it for Toyota's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

129. Despite having knowledge of the '529 Patent and knowledge that it directly and/or indirectly infringes one or more claims of the '529 Patent, Toyota has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Toyota's infringing activities relative to the '529 Patent have, thus, been, and continue to be, willful, wanton, and deliberate in disregard of BHT's rights with respect to the '529 Patent, justifying enhanced damages under 35 U.S.C. § 284.

## **COUNT VII**

(INFRINGEMENT OF U.S. PATENT NO. 10,442,296)

130. BHT incorporates the preceding paragraphs herein by reference.

131. This cause of action arises under the patent laws of the United States, and, in particular, 35 U.S.C. §§ 271, *et seq.*

132. BHT is the owner of all substantial rights, title, and interest in and to the '296 Patent, including the right to exclude others and to enforce, sue, and recover damages for past, present, and future infringements.

133. The '296 Patent is valid, enforceable, and was duly and legally issued by the United States Patent and Trademark Office on October 15, 2019, after full and fair examination.

### ***Direct Infringement (35 U.S.C. § 271(a))***

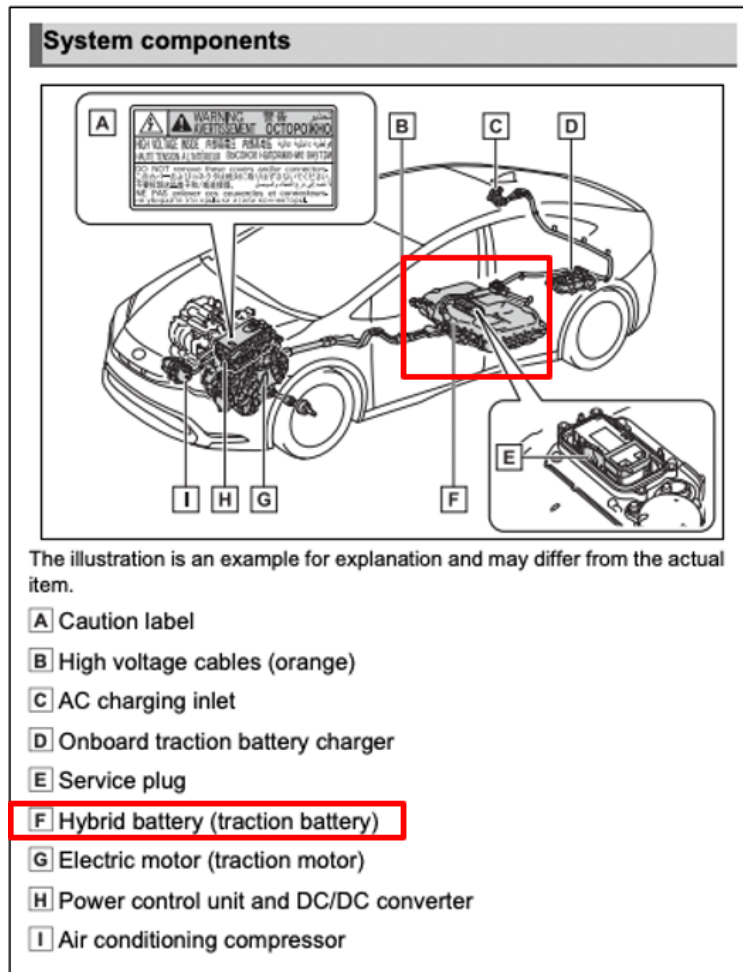
134. Toyota directly infringes one or more claims of the '296 Patent in this District and elsewhere in Texas and the United States.

135. Toyota directly infringes, either by itself or via its agent(s), at least claim 1 of the '296 Patent as set forth under 35 U.S.C. § 271(a) by making, using, selling, offering to sell, and/or importing Toyota and Lexus branded electric vehicles equipped that incorporate the fundamental technologies covered by the '296 Patent, including, but not limited to, Toyota and Lexus branded vehicles (e.g., the 2025 Toyota Prius Plug-In Hybrid) equipped with hybrid-electric powertrain systems (collectively, “the '296 Accused Products”).

136. By way of illustration only, Toyota’s '296 Accused Products comprise each and every element of claim 1 of the '296 Patent. The '296 Accused Products comprise “[a] system for a hybrid electric vehicle, comprising: an energy storage system.” For example, the '296 Accused Products include a hybrid electric vehicle having a hybrid battery (i.e., an energy storage system).

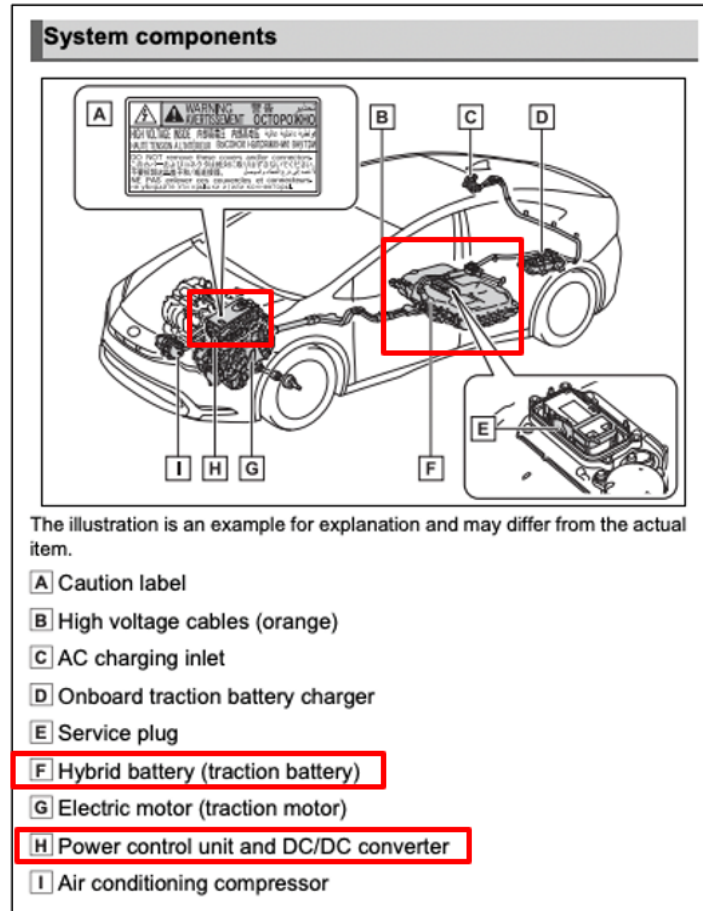


Source: <https://www.toyota.com/priuspluginhybrid/2025/>



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>

137. The '296 Accused Products comprise a system for a hybrid electric vehicle comprising “a bi-directional DC/DC converter coupled to the energy storage system.” For example, the '296 Accused Products include a bi-directional DC/DC converter coupled to the hybrid battery.

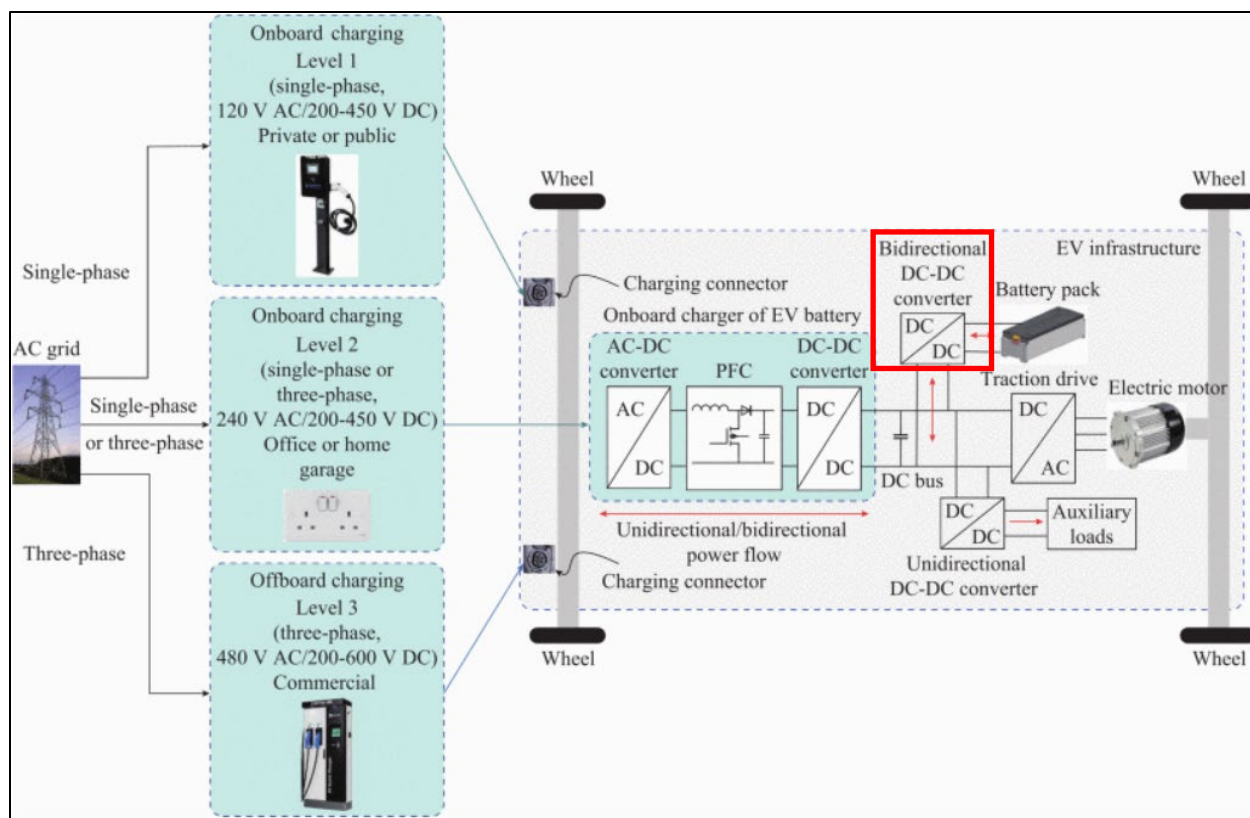


Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>

## Power Control Unit (PCU)

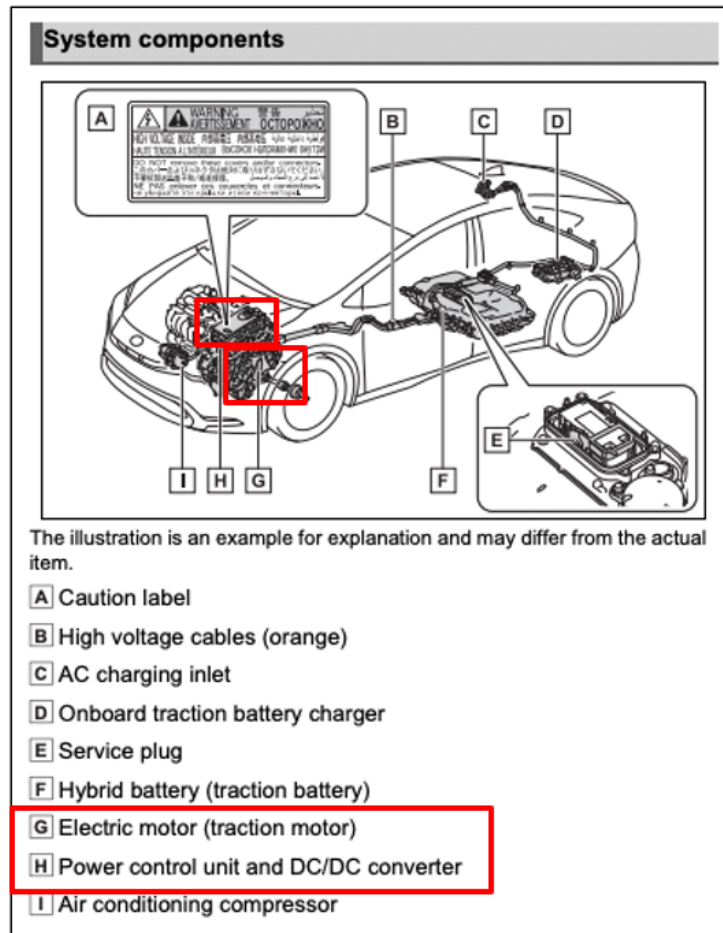
The PCU manages power flow between the engine, electric motor, and battery, ensuring seamless transitions and maximum efficiency.

Source: <https://www.kalispelltoyota.com/blog/understanding-toyotas-innovative-hybrid-technology/>



Source: <https://ieeexplore.ieee.org/document/10215092>

138. The '296 Accused Products comprise a system for a hybrid electric vehicle comprising “a first traction motor coupled to the bi-directional DC/DC converter; [and] a second traction motor coupled to the bi-directional DC/DC converter.” For example, the '296 Accused Products include an MG1 motor (i.e., a first traction motor) and an MG2 motor (i.e., a second traction motor) coupled to the bi-directional DC/DC converter.



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>

**Dynamic and Efficient**

Under the hood of the 2025 Prius Plug-in Hybrid is Toyota's Fifth generation Toyota Hybrid System, which pairs the M20A-FXS inline four-cylinder 2.0L gas engine with two motor-generators (MG1 and MG2) through a planetary-type continuously variable transmission. The engine, working in tandem with the electric motor (MG2), assures responsive performance, while exemplary energy efficiency is achieved by using both electric motors (MG1 and MG2) to charge a lithium-ion battery.

Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>



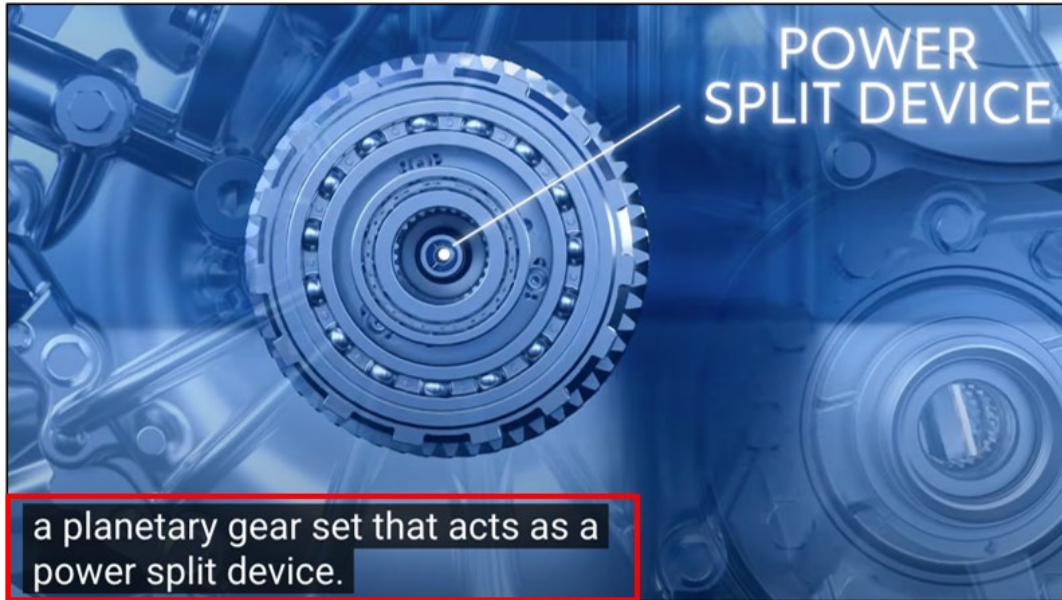
Source: <https://www.youtube.com/watch?v=1OjZ4zW9gq8>

139. The '296 Accused Products comprise a system for a hybrid electric vehicle comprising “a transmission device coupled to the first traction motor, the transmission device configured as an electrically variable transmission (EVT) that comprises an arrangement of planetary gears.” For example, the '296 Accused Products include an electrically variable transmission (EVT) with a power split device (i.e., a transmission device) coupled to MG1 (i.e., first traction motor), which comprises a planetary gear set (i.e., an arrangement of planetary gears).

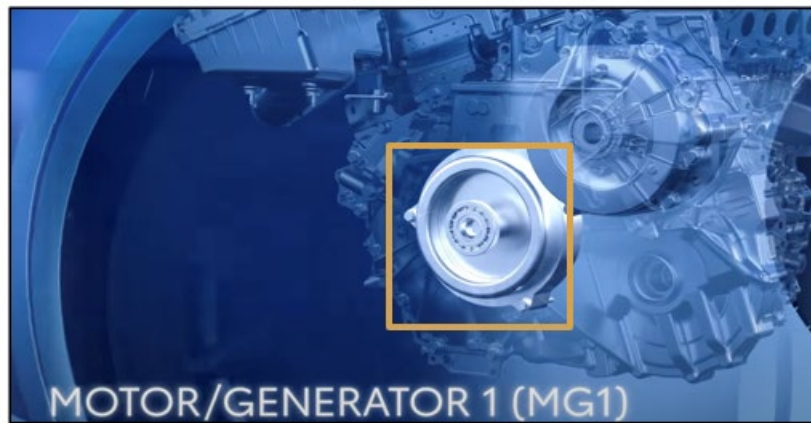
#### Dynamic and Efficient

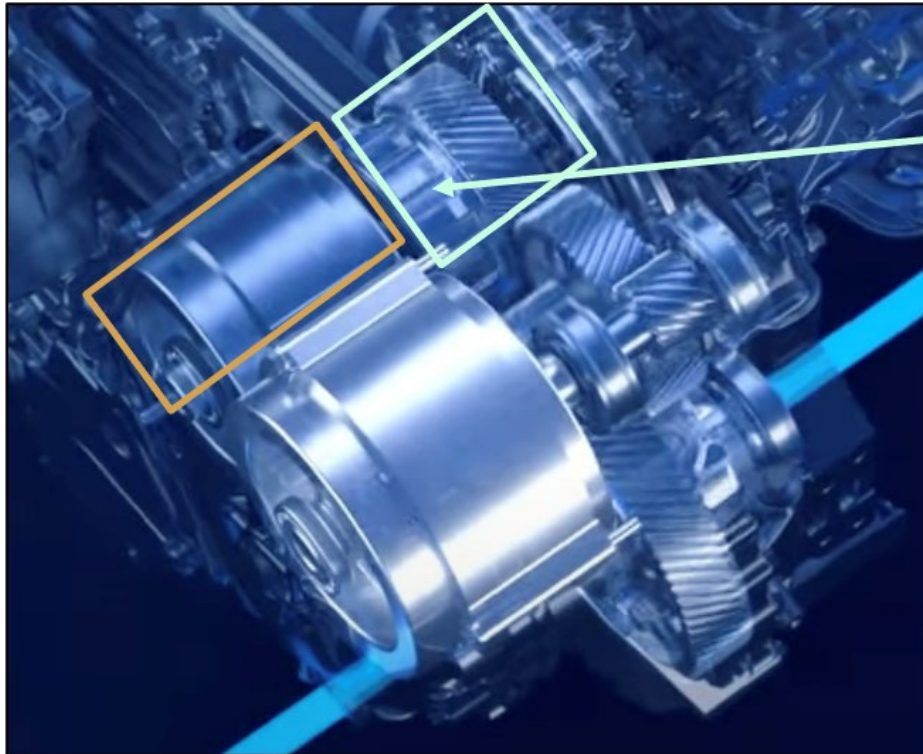
Under the hood of the 2025 Prius Plug-in Hybrid is Toyota's Fifth generation Toyota Hybrid System, which pairs the M20A-FXS inline four-cylinder 2.0L gas engine with two motor-generators (MG1 and MG2) through a planetary-type continuously variable transmission. The engine, working in tandem with the electric motor (MG2), assures responsive performance, while exemplary energy efficiency is achieved by using both electric motors (MG1 and MG2) to charge a lithium-ion battery.

Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>



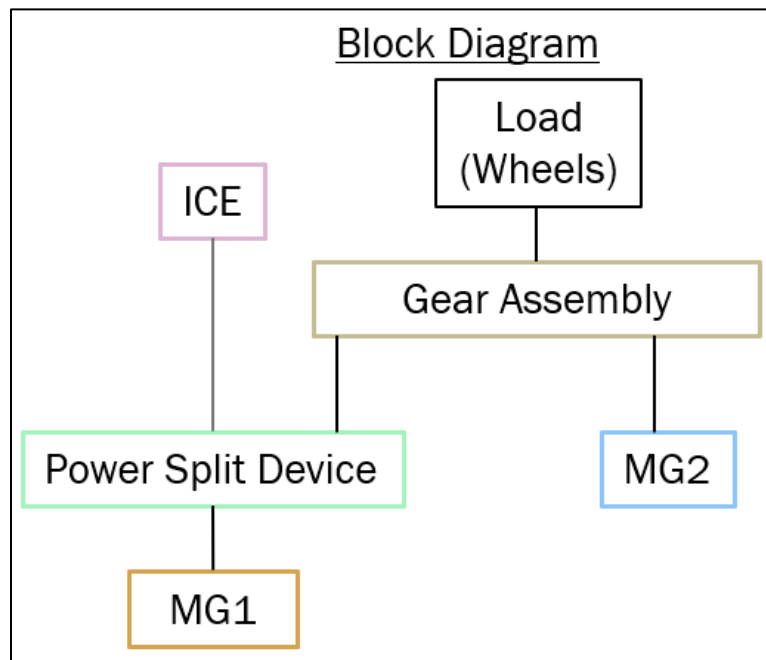
Source: <https://www.youtube.com/watch?v=hRYWqdiUlba>





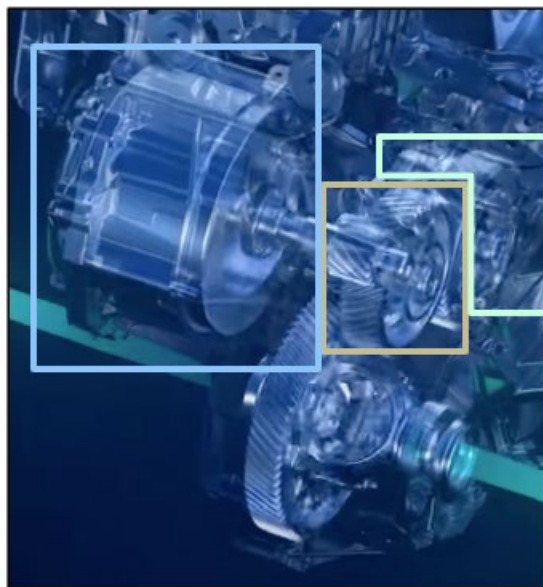
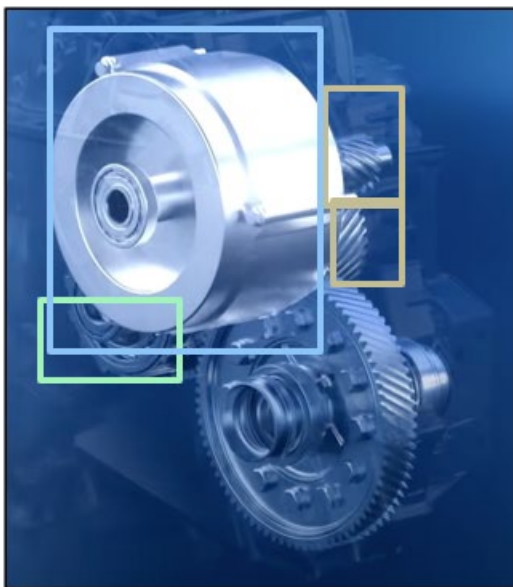
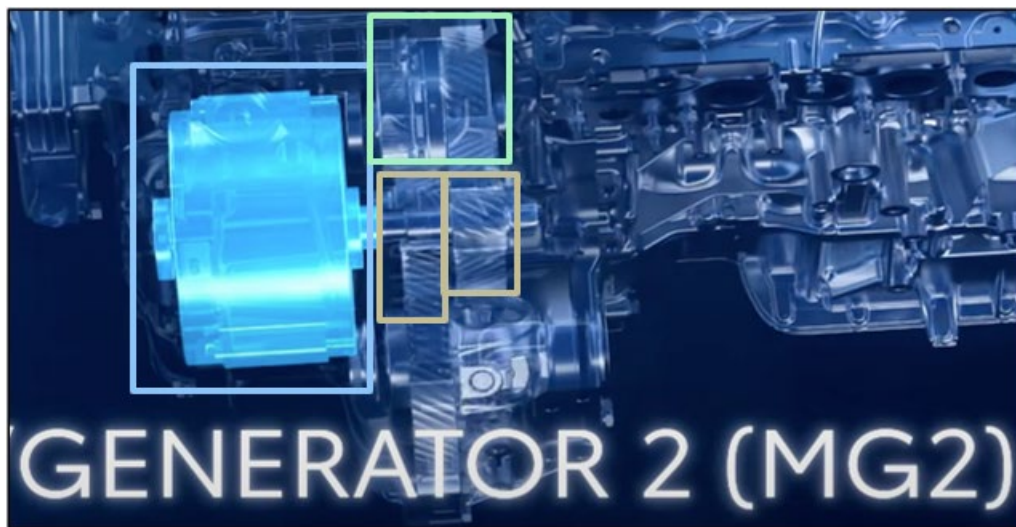
Planetary gear set in power split device

Source: <https://www.youtube.com/watch?v=1OjZ4zW9gq8>

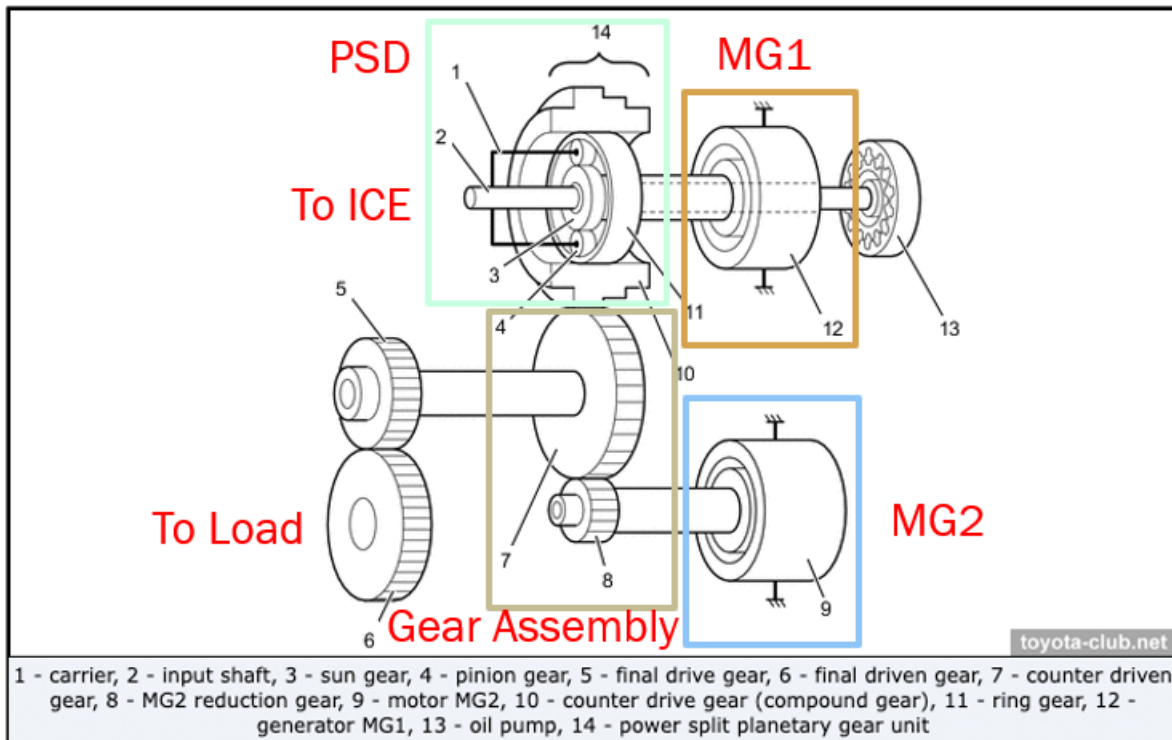


140. The '296 Accused Products comprise a system for a hybrid electric vehicle comprising "a gear assembly coupled between the second traction motor and the transmission

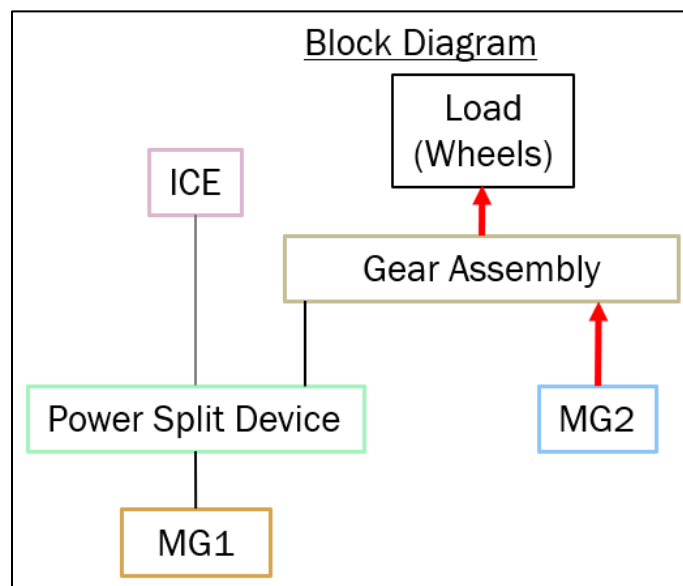
device such that the output of the second traction motor bypasses the transmission device.” For example, the ’296 Accused Products include a gear assembly coupled between MG2 (i.e., the second traction motor) and the power split device (i.e., transmission device) such that the output of MG2 bypasses the power split device.



Source: <https://www.youtube.com/watch?v=hRYWqdiUlba>

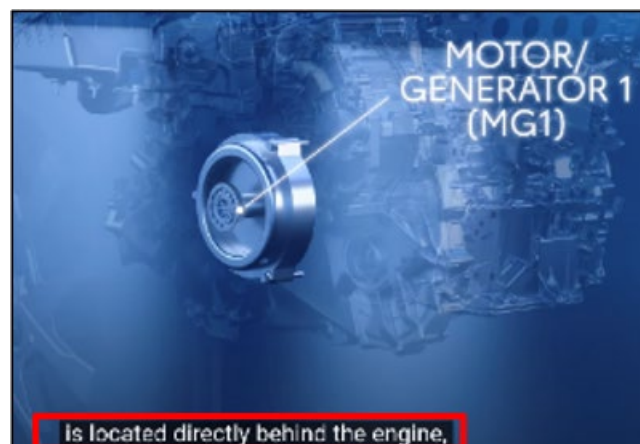
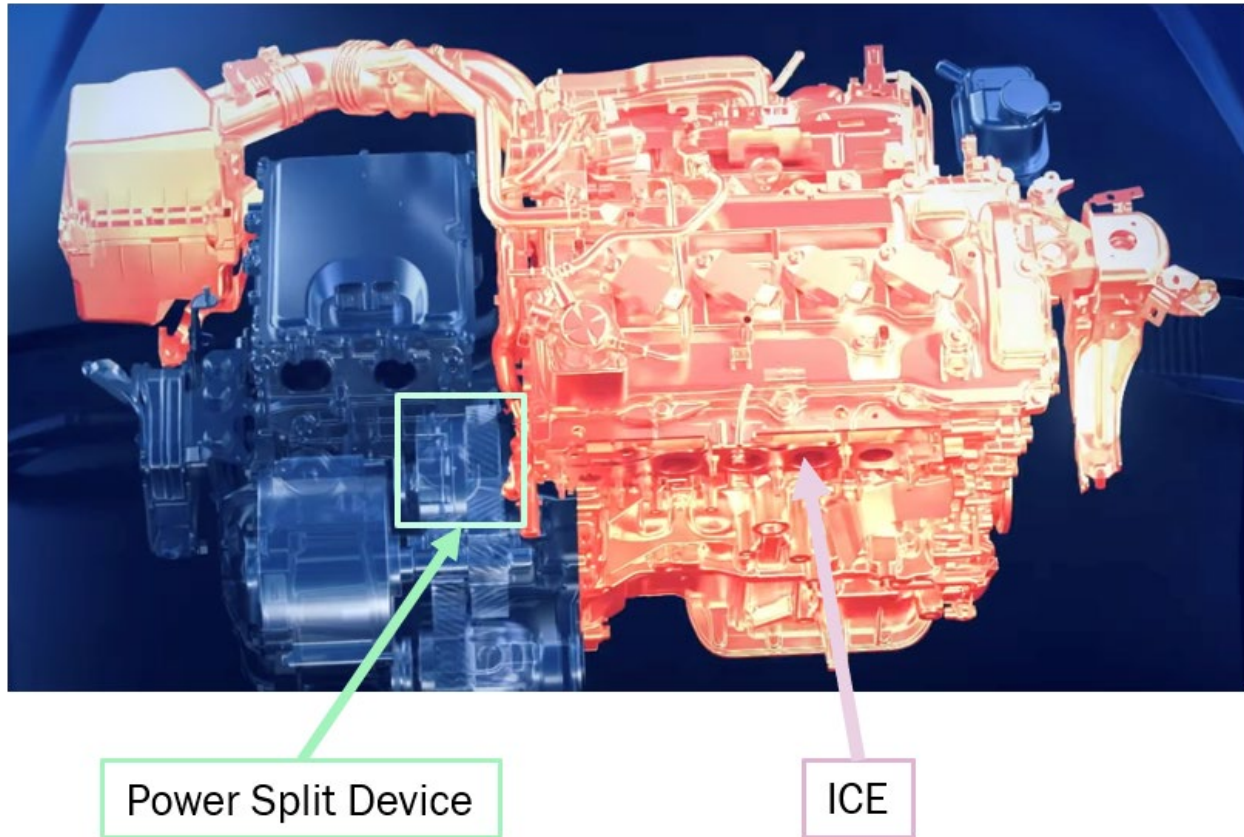


Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>9</sup>

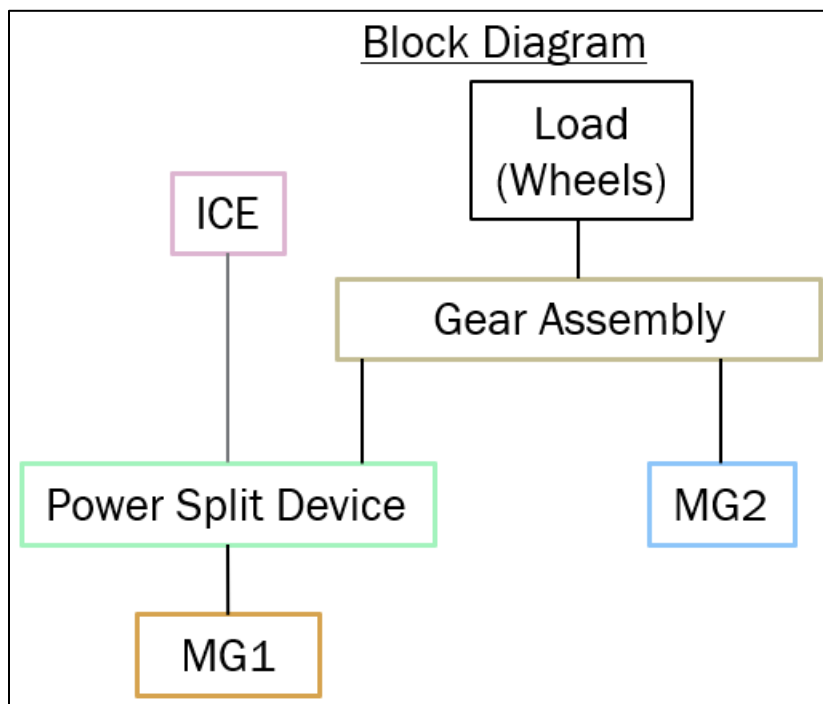


<sup>9</sup> Note this screenshot is provided as a visual representation of approximate location of the gear assembly and MG2 in Toyota's hybrid-electric system.

141. The '296 Accused Products comprise a system for a hybrid electric vehicle comprising “an internal combustion engine coupled to the transmission device via a path that does not include the first traction motor and second traction motor.” For example, the '296 Accused include an internal combustion engine (ICE) coupled to the power split device (i.e., transmission device) via a path not including the traction motors.



Source: <https://www.youtube.com/watch?v=hRYWqdiUl6A>



142. The '296 Accused Products comprise a system for a hybrid electric vehicle comprising “a control system configured to selectively: operate the first traction motor and second traction motor to drive the vehicle through the transmission device and gear assembly, respectively.” For example, the '296 Accused Products include a control system, e.g., power control module, computer, control module, electronic control module (ECM), and/or electronic control unit(s) (ECU(s)), configured to selectively operate MG1 and MG2 to drive the vehicle through the power split device (i.e., transmission device) and gear assembly, respectively.

The Prius Prime was the first Toyota hybrid to use a dual motor drive, which helps improve acceleration in EV Mode for spirited driving. The system engages both the generator (MG1) and electric drive motor (MG2) for drive torque via an innovative one-way clutch. This is the first deployment of MG1 for that purpose. In other Prius models, MG1 provides only battery charging while MG2 provides drive torque and charging.

## Prius Prime Changes its Name to Prius Plug-in Hybrid for Model Year 2025

Prius Plug-in Hybrid's Hybrid Synergy Drive® system helps maximize output from both the gas engine and electric motors, generating up to 220 horsepower for you to enjoy.

PSD

To ICE

MG1

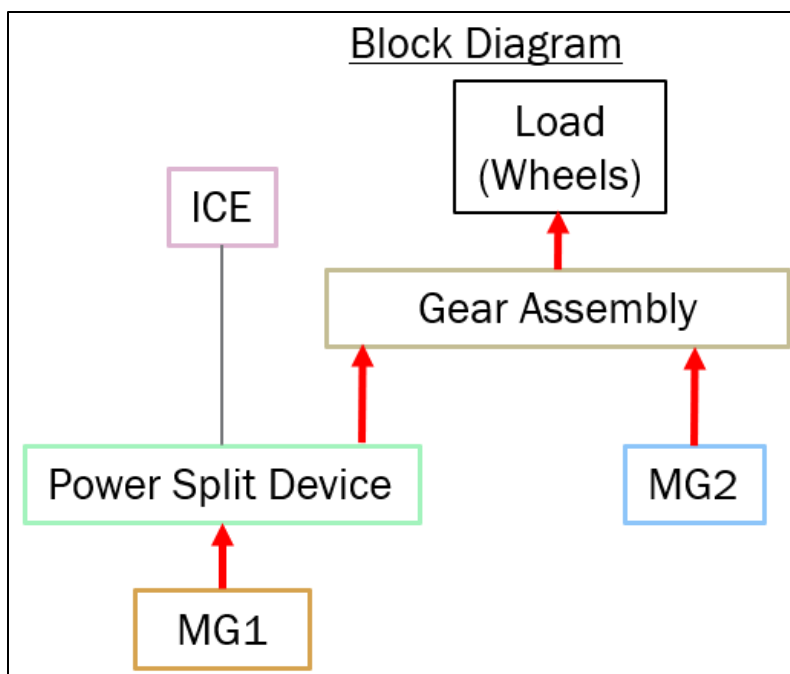
To Load

MG2

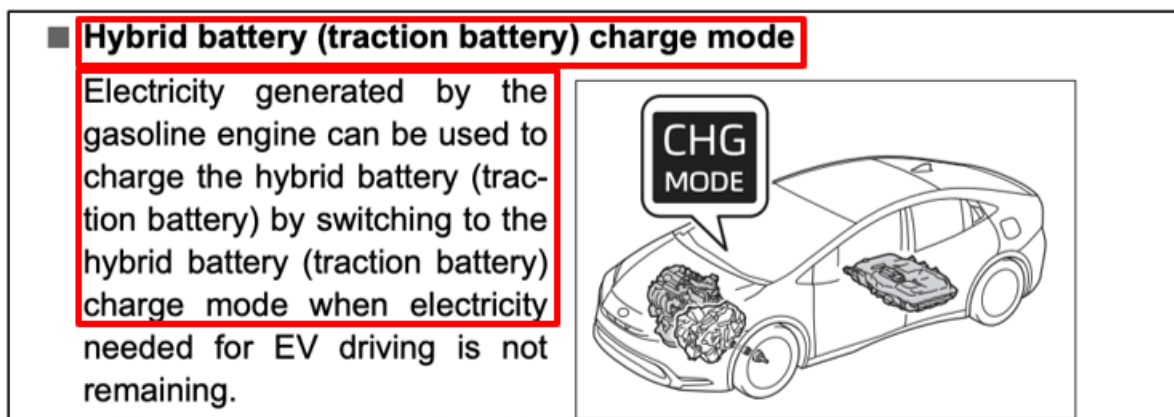
Gear Assembly

1 - carrier, 2 - input shaft, 3 - sun gear, 4 - pinion gear, 5 - final drive gear, 6 - final driven gear, 7 - counter driven gear, 8 - MG2 reduction gear, 9 - motor MG2, 10 - counter drive gear (compound gear), 11 - ring gear, 12 - generator MG1, 13 - oil pump, 14 - power split planetary gear unit

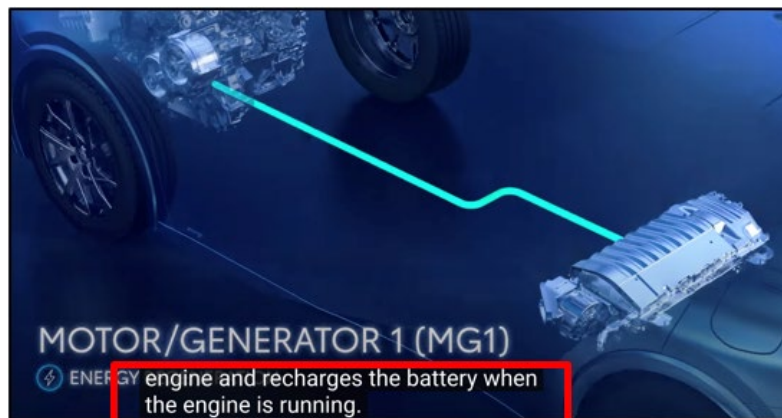
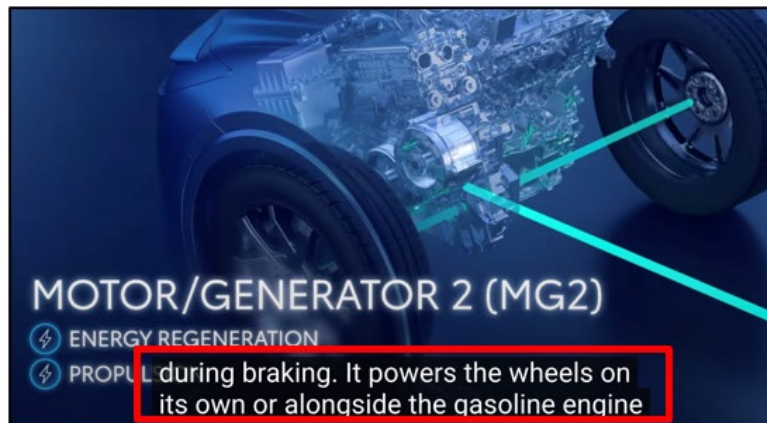
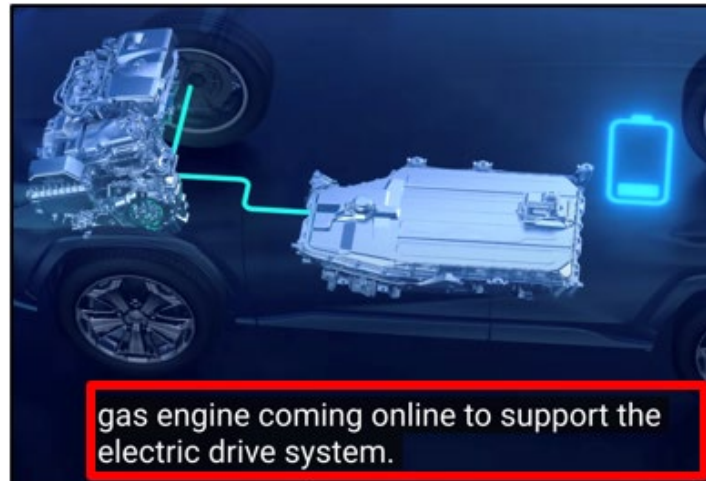
<sup>10</sup> Note this screenshot is provided as a visual representation of approximate location of the power split device, gear assembly, and electric motors in Toyota's hybrid-electric system.



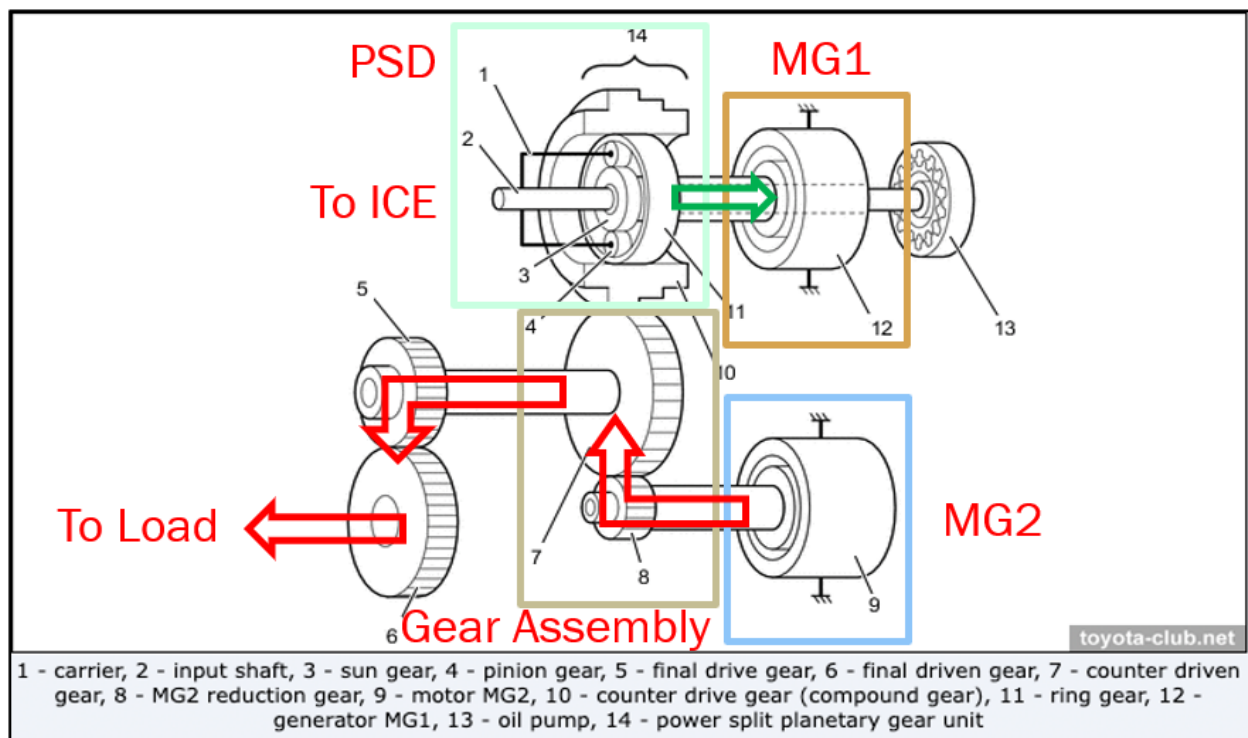
143. The '296 Accused Products comprise a control system configured to selectively “operate the first traction motor as a generator to generate electrical power while operating the second traction motor to drive the vehicle through the gear assembly.” For example, the '296 Accused Products’ control system is configured to selectively operate MG1 as a generator to generate electrical power while operating MG2 to drive the vehicle through the gear assembly.



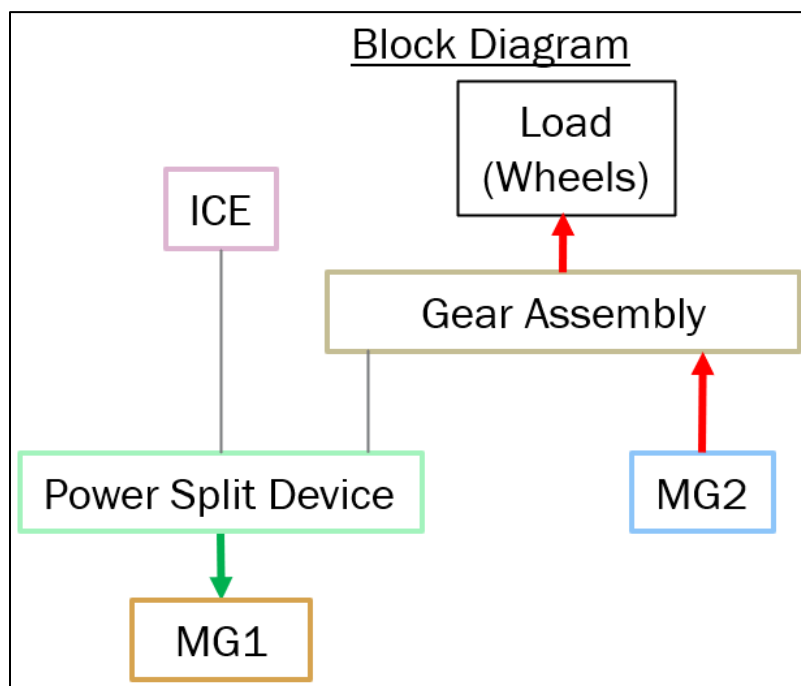
Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F60U/pdf/OM47F60U.pdf>



Source: <https://www.youtube.com/watch?v=1OjZ4zW9gq8>



Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>11</sup>



<sup>11</sup> Note this screenshot is provided as a visual representation of approximate location of the power split device, gear assembly, and electric motors in Toyota's hybrid-electric system.

***Indirect Infringement (Inducement – 35 U.S.C. § 271(b))***

144. In addition and/or in the alternative to the direct infringements, Toyota indirectly infringes one or more claims of the '296 Patent by knowingly and intentionally inducing others, including its customers and/or other end users, to directly infringe the '296 Patent (e.g., by operating or otherwise using '296 Accused Products).

145. At a minimum, Toyota has had knowledge of the '296 Patent at least since service of this Complaint. Toyota also has knowledge of the '296 Patent since receiving detailed correspondence from BHT prior to the filing of the Complaint, alerting Toyota to its infringements. Since receiving notice of its infringements, Toyota has actively induced, and continues to actively induce, the direct infringements of its customers and/or other end users (e.g., as illustrated above) as set forth under U.S.C. § 271(b). Such inducements have been committed with the knowledge, or with willful blindness to the fact, that the acts induced constitute infringement of the '296 Patent. Indeed, Toyota has intended to cause, continues to intend to cause, and has taken, and continues to take, affirmative steps to induce infringement by, among other things, creating and disseminating advertisements and instructive materials that promote the infringing use of the Accused Products, including marketing materials, user manuals (e.g., those available via <https://www.toyota.com/owners/warranty-owners-manuals/>), and online instructional materials (e.g., those available via <https://www.youtube.com/toyotausa>) that specifically teach and encourage customers and other end users to use the '296 Accused Products in an infringing manner, including by providing instructions on how to turn on and operate the '439 Accused Products. By providing such instructions and support, Toyota knows (and has known), or should know (and should have known), that its actions have actively induced, and continue to actively induce, infringement of the '296 Patent.

### ***Damages***

146. BHT has been damaged as a result of Toyota's infringing conduct described in this Count. Toyota is, thus, liable to BHT in an amount that adequately compensates it for Toyota's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

147. Despite having knowledge of the '296 Patent and knowledge that it directly and/or indirectly infringes one or more claims of the '296 Patent, Toyota has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Toyota's infringing activities relative to the '296 Patent have, thus, been, and continue to be, willful, wanton, and deliberate in disregard of BHT's rights with respect to the '296 Patent, justifying enhanced damages under 35 U.S.C. § 284.

### **COUNT VIII**

(INFRINGEMENT OF U.S. PATENT NO. 10,549,648)

148. BHT incorporates the preceding paragraphs herein by reference.

149. This cause of action arises under the patent laws of the United States, and, in particular, 35 U.S.C. §§ 271, *et seq.*

150. BHT is the owner of all substantial rights, title, and interest in and to the '648 Patent, including the right to exclude others and to enforce, sue, and recover damages for past, present, and future infringements.

151. The '648 Patent is valid, enforceable, and was duly and legally issued by the United States Patent and Trademark Office on February 4, 2020, after full and fair examination.

### ***Direct Infringement (35 U.S.C. § 271(a))***

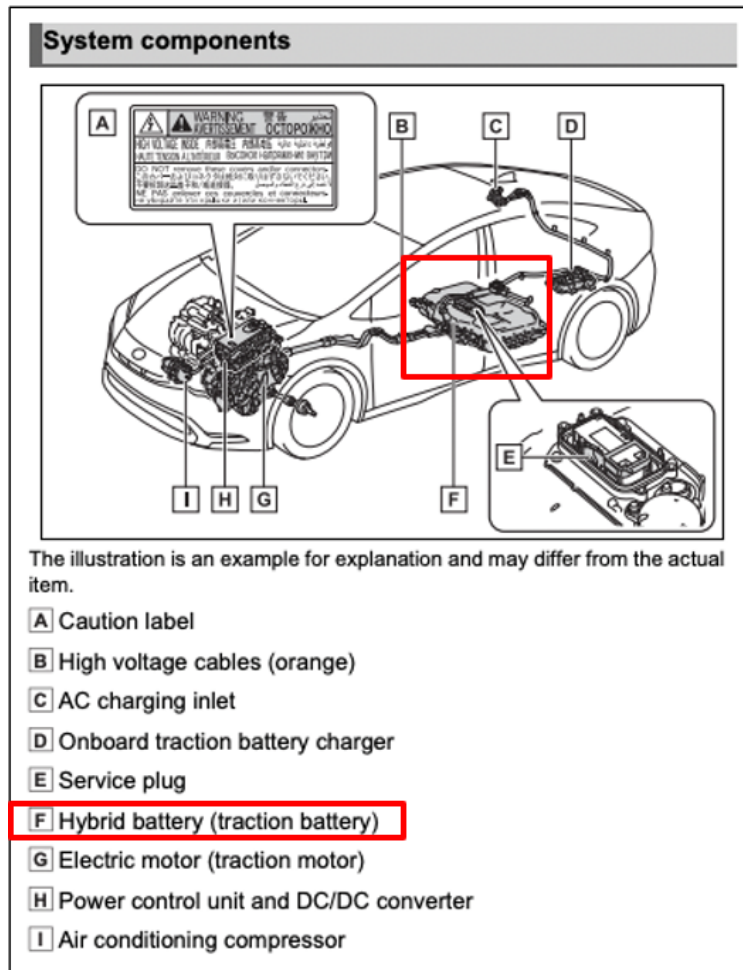
152. Toyota directly infringes one or more claims of the '648 Patent in this District and elsewhere in Texas and the United States.

153. Toyota directly infringes, either by itself or via its agent(s), at least claim 16 of the '648 Patent as set forth under 35 U.S.C. § 271(a) by making, using, selling, offering to sell, and/or importing Toyota and Lexus branded electric vehicles equipped that incorporate the fundamental technologies covered by the '648 Patent, including, but not limited to, Toyota and Lexus branded vehicles (e.g., the 2025 Toyota Prius Plug-In Hybrid) equipped with electric and/or hybrid-electric powertrain systems (collectively, “the '648 Accused Products”).

154. By way of illustration only, Toyota’s '648 Accused Products comprise each and every element of claim 16 of the '648 Patent. The '648 Accused Products comprise “[a] hybrid electric vehicle propulsion system, comprising: an energy storage system.” For example, the '648 Accused Products include a hybrid electric vehicle propulsion system comprising an energy storage system (ESS) which includes a hybrid battery.

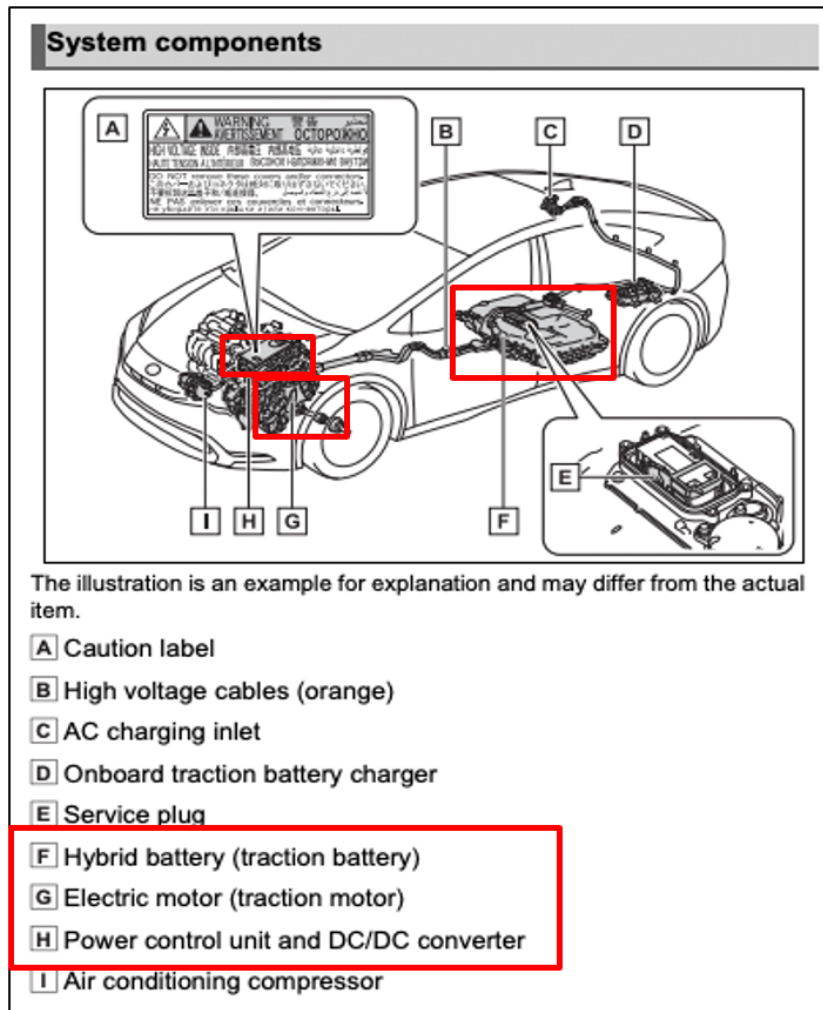


Source: <https://www.toyota.com/priuspluginhybrid/2025/>



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>

155. The '648 Accused Products comprise a hybrid electric vehicle propulsion system comprising “a first electric motor coupled to the energy storage system; [and] a second electric motor coupled to the energy storage system.” For example, the '648 Accused Products include an MG1 (i.e., first electric motor) and an MG2 (i.e., second electric motor) both coupled to the hybrid battery through a power control unit.



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>

**Dynamic and Efficient**

Under the hood of the 2025 Prius Plug-in Hybrid is Toyota's Fifth generation Toyota Hybrid System, which pairs the M20A-FXS inline four-cylinder 2.0L gas engine with two motor-generators (MG1 and MG2) through a planetary-type continuously variable transmission. The engine, working in tandem with the electric motor (MG2), assures responsive performance, while exemplary energy efficiency is achieved by using both electric motors (MG1 and MG2) to charge a lithium-ion battery.

Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>



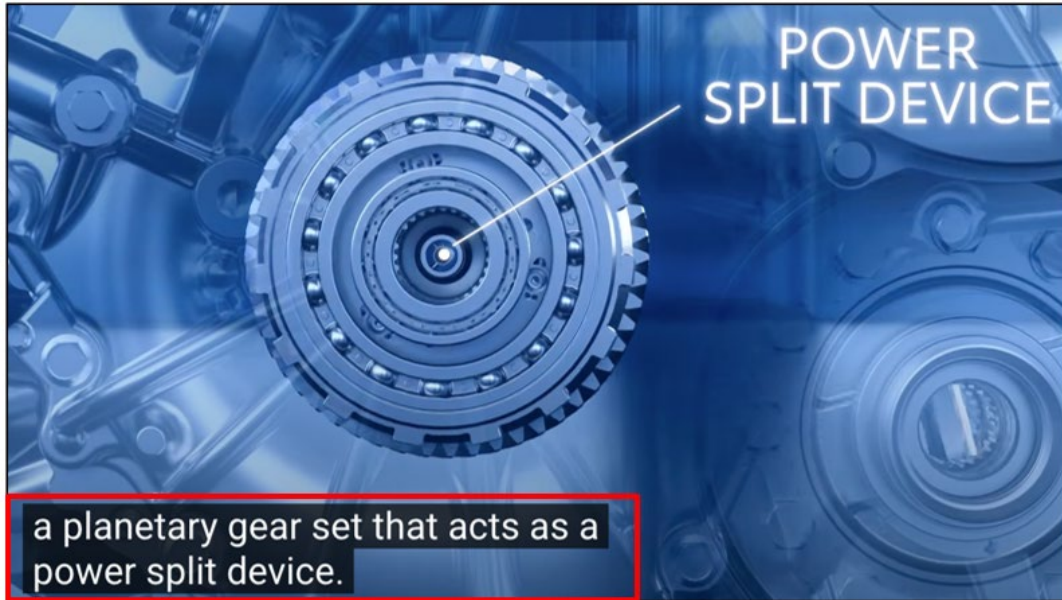
Source: <https://www.youtube.com/watch?v=1OjZ4zW9gq8>

156. The '648 Accused Products comprise a hybrid electric vehicle propulsion system comprising “a transmission device coupled to the first electric motor, the transmission device comprising an arrangement of planetary gears.” For example, the '648 Accused Products include a power split device (i.e., a transmission device) comprising a planetary gear set coupled to MG1 (i.e., the first electric motor).

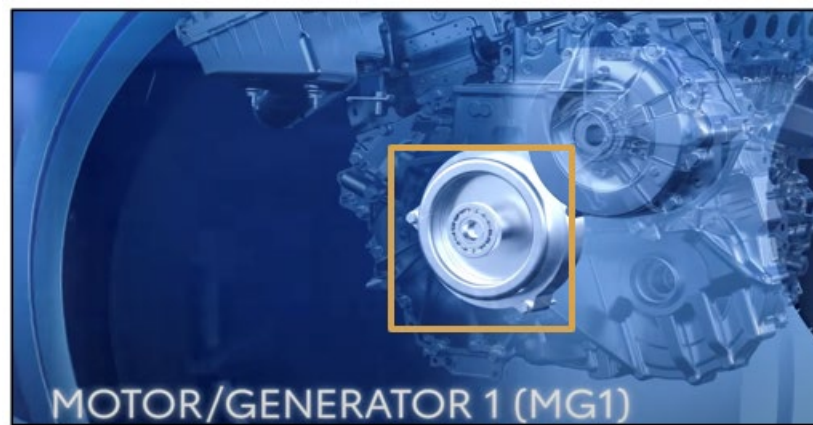
#### Dynamic and Efficient

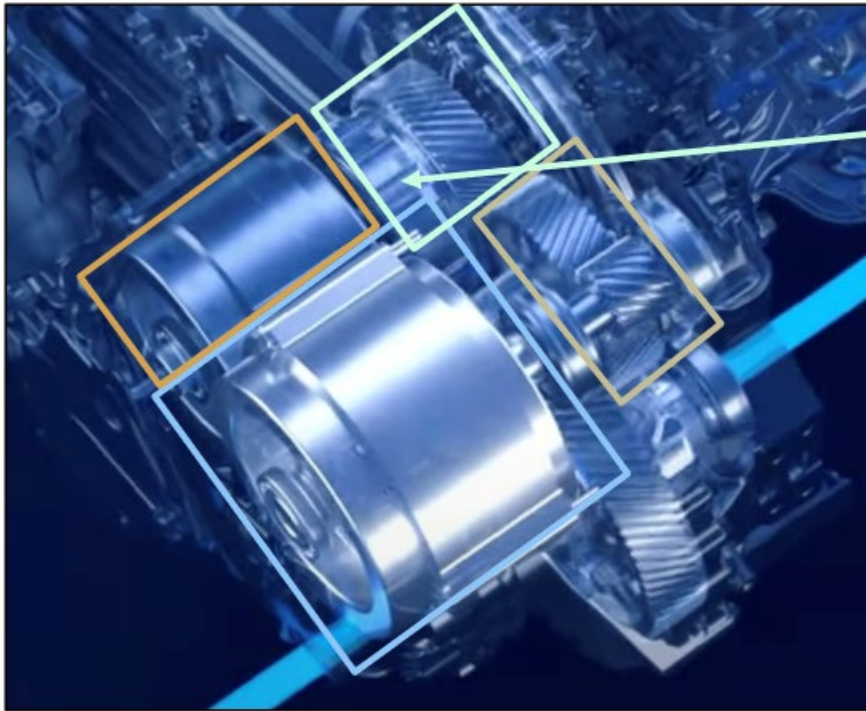
Under the hood of the 2025 Prius Plug-in Hybrid is Toyota's Fifth generation Toyota Hybrid System, which pairs the M20A-FXS inline four-cylinder 2.0L gas engine with two motor-generators (MG1 and MG2) through a planetary-type continuously variable transmission. The engine, working in tandem with the electric motor (MG2), assures responsive performance, while exemplary energy efficiency is achieved by using both electric motors (MG1 and MG2) to charge a lithium-ion battery.

Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>



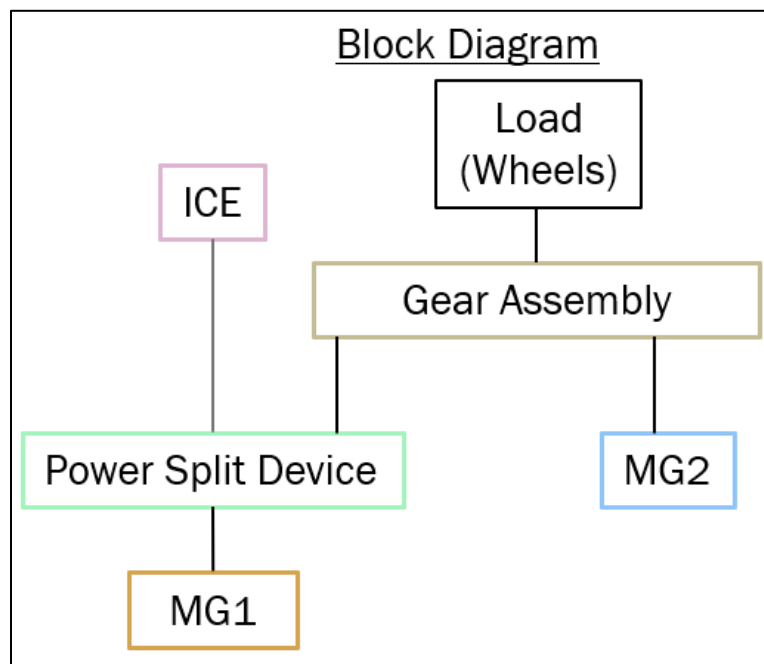
Source: <https://www.youtube.com/watch?v=hRYWqdiUlba>





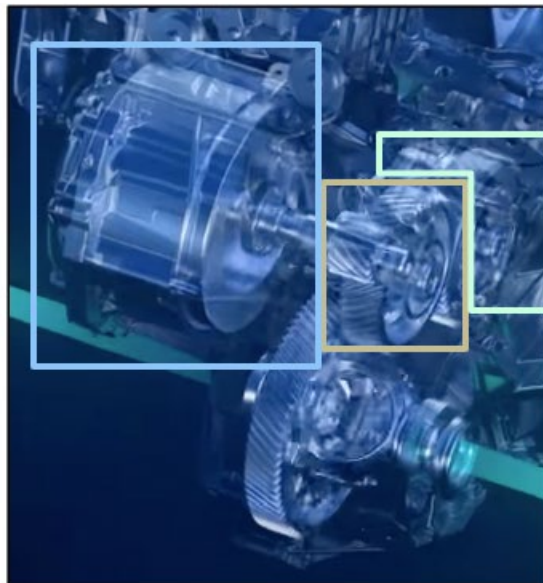
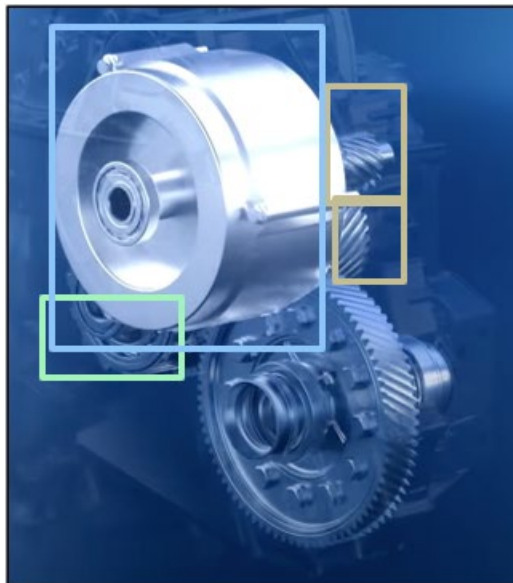
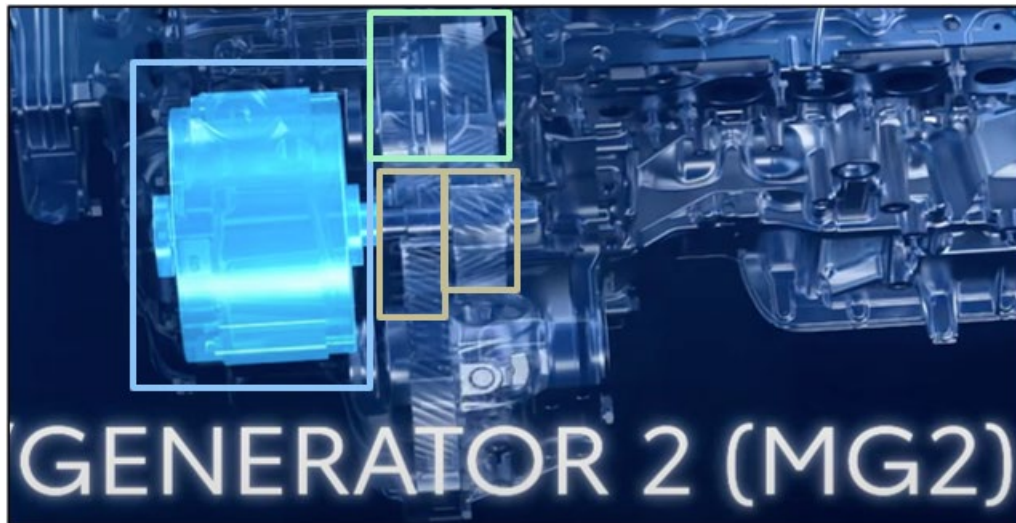
Planetary  
gear set in  
power split  
device

Source: <https://www.youtube.com/watch?v=1OjZ4zW9gg8>

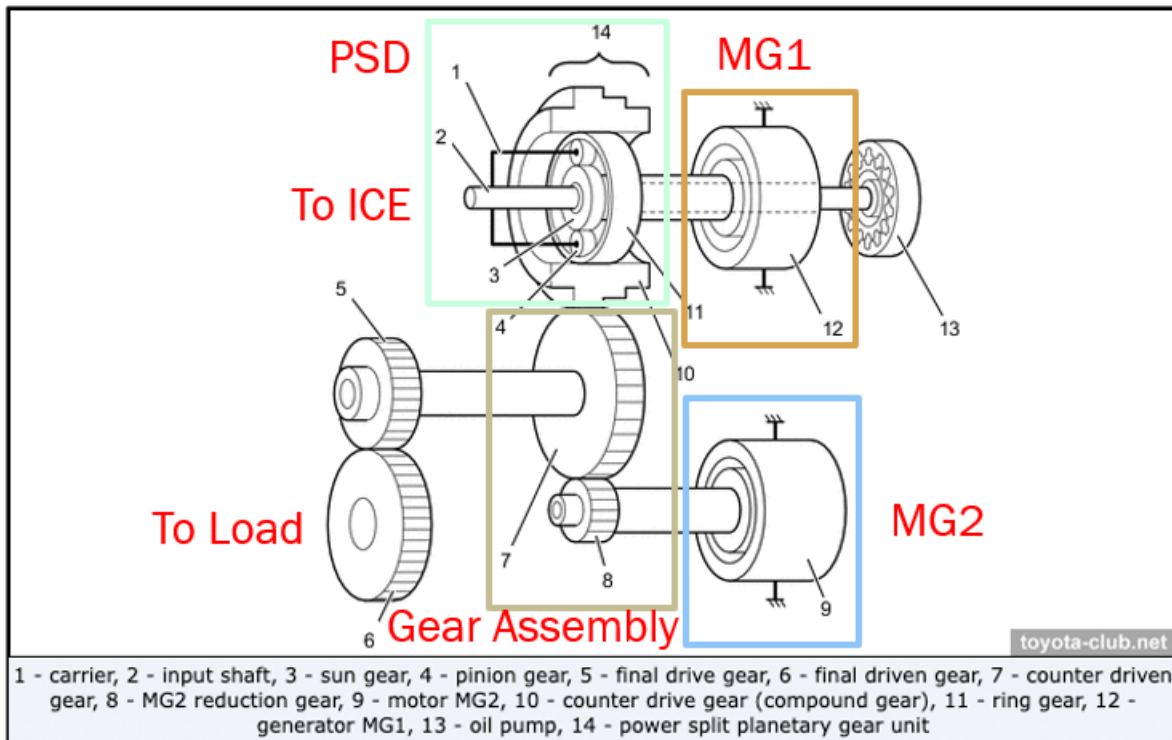


157. The '648 Accused Products comprise a hybrid electric vehicle propulsion system comprising “a gear assembly coupled between the second electric motor and the transmission device such that the output of the second electric motor bypasses the transmission device.” For

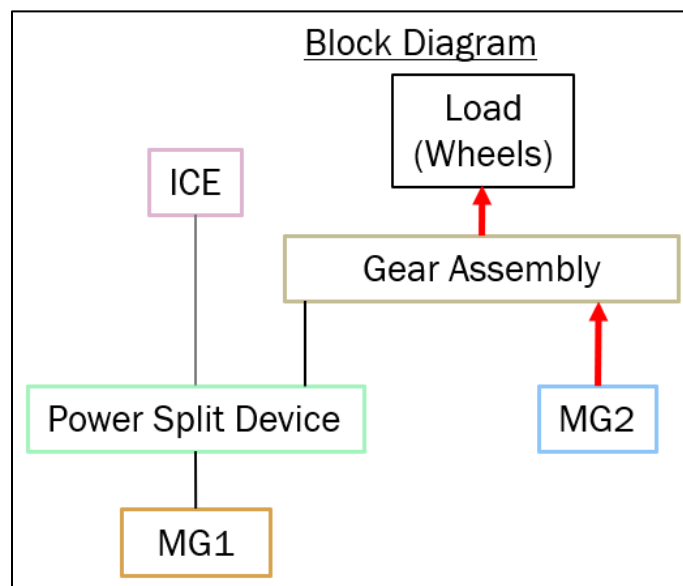
example, the '648 Accused Products include a gear assembly coupled between MG2 (i.e., the second electric motor) and the power split device (i.e., transmission device) such that the output of MG2 bypasses the power split device.



Source: <https://www.youtube.com/watch?v=hRYWqdiUl6A>

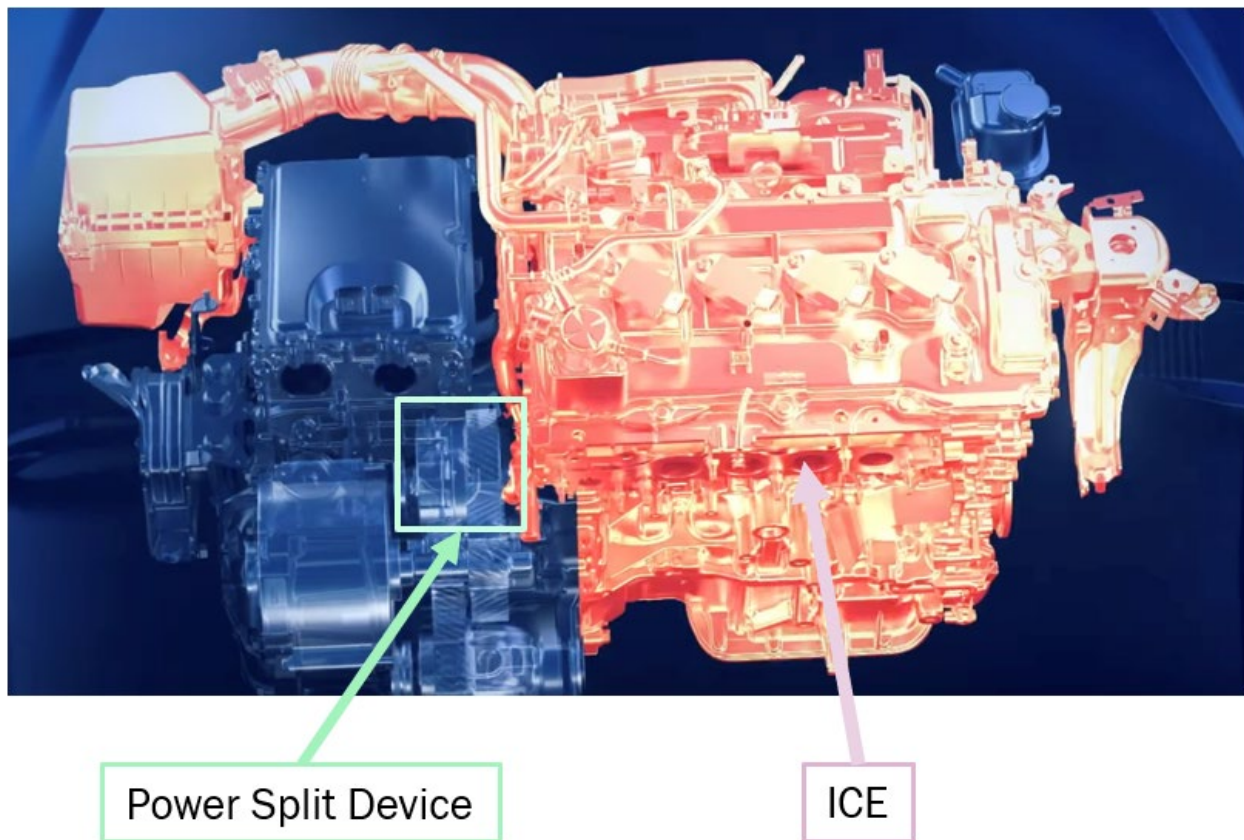


Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>12</sup>

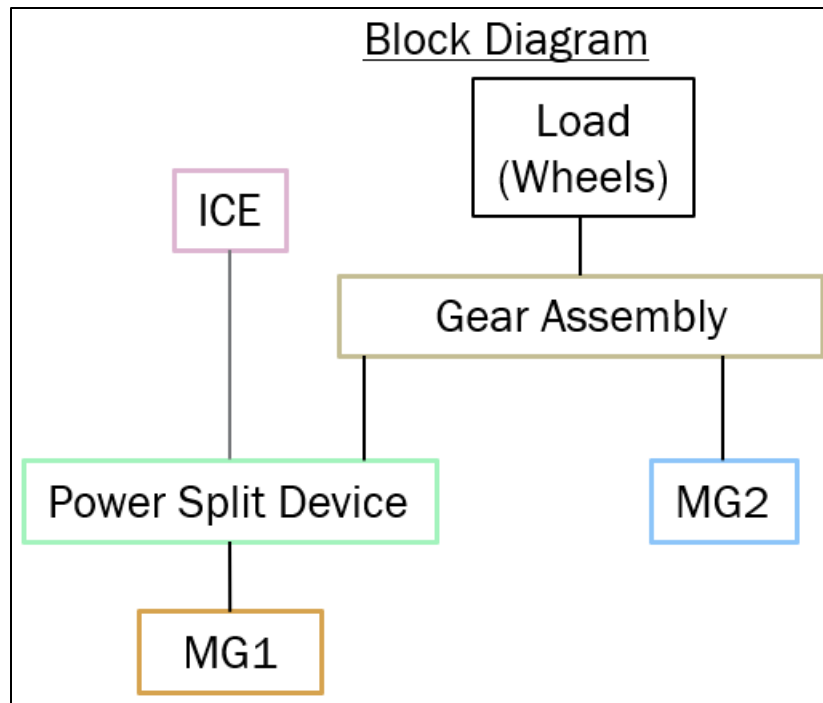


<sup>12</sup> Note this screenshot is provided as a visual representation of approximate location of the gear assembly and MG2 in Toyota's hybrid-electric system.

158. The '648 Accused Products comprise a hybrid electric vehicle propulsion system comprising “an internal combustion engine coupled to the transmission device.” For example, the '648 Accused Products include an internal combustion engine (ICE) coupled to the power split device (i.e., transmission device).



Source: <https://www.youtube.com/watch?v=hRYWqdiUlba>



159. The '648 Accused Products comprise hybrid electric vehicle propulsion system comprising “a control system configured to selectively: operate the first electric motor and second electric motor to drive the vehicle through the transmission device and gear assembly, respectively.” For example, the '648 Accused Products include a control system configured to operate MG1 (i.e., the first electric motor) and MG2 (i.e., the second electric motor) to drive the vehicle through the power split device (i.e., transmission device) and gear assembly, respectively.

The Prius Prime was the first Toyota hybrid to use a dual motor drive, which helps improve acceleration in EV Mode for spirited driving. The system engages both the generator (MG1) and electric drive motor (MG2) for drive torque via an innovative one-way clutch. This is the first deployment of MG1 for that purpose. In other Prius models, MG1 provides only battery charging while MG2 provides drive torque and charging.

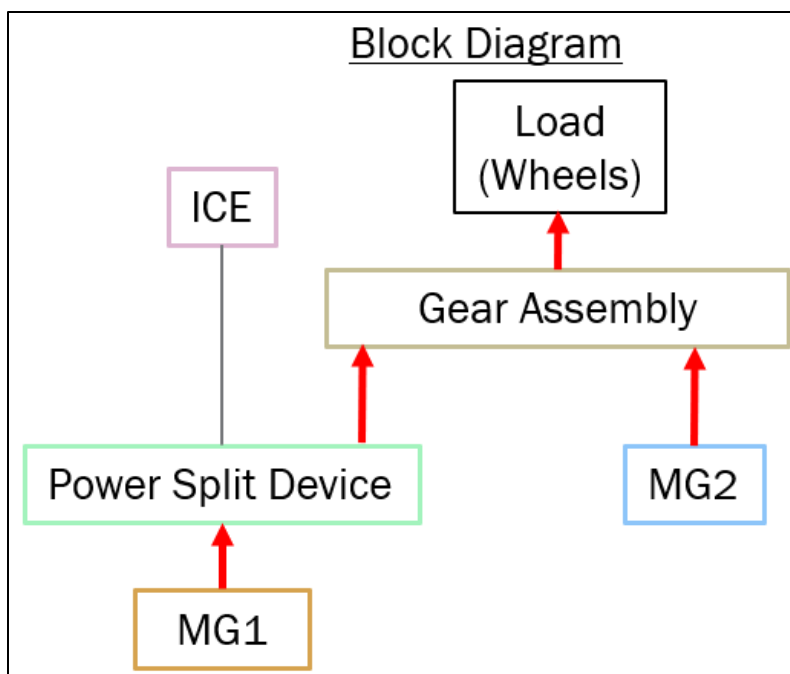
Source: <https://pressroom.toyota.com/the-2021-toyota-prius-prime-adds-safety-and-tech-while-continuing-to-combine-the-best-of-both-worlds/>

Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>

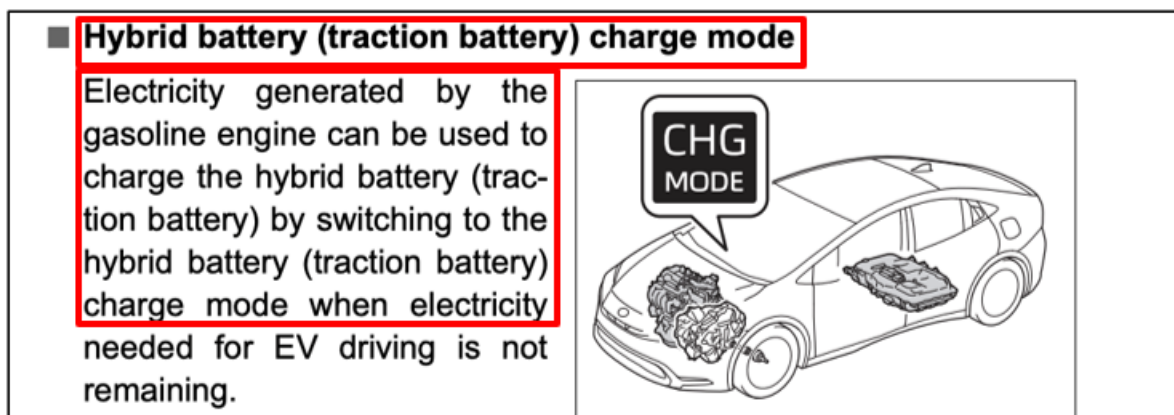
Source: <https://www.toyotaofglendale.com/2025-priuspluginhybrid/>



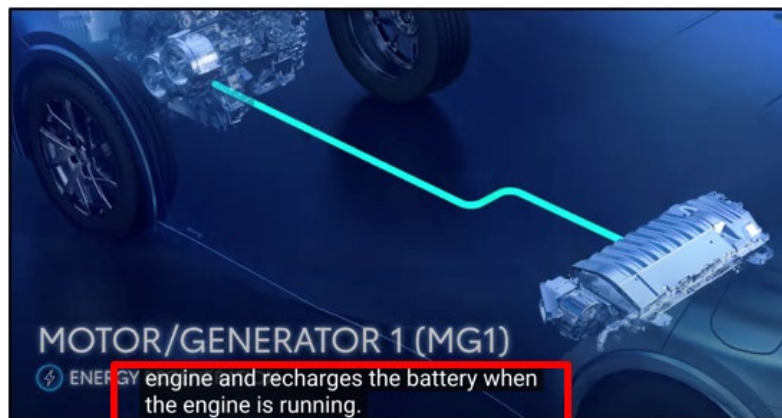
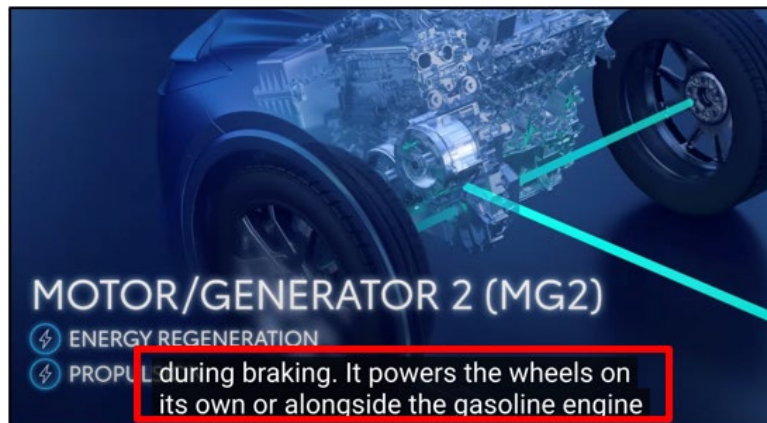
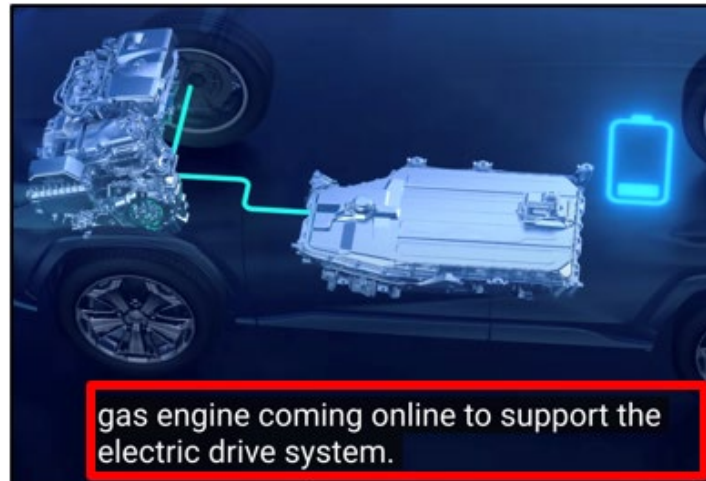
113 Toyota Motor Corp. v. Bunker Hill Technologies, LLC  
IPR 2026-00333 BHILL Ex. 2002



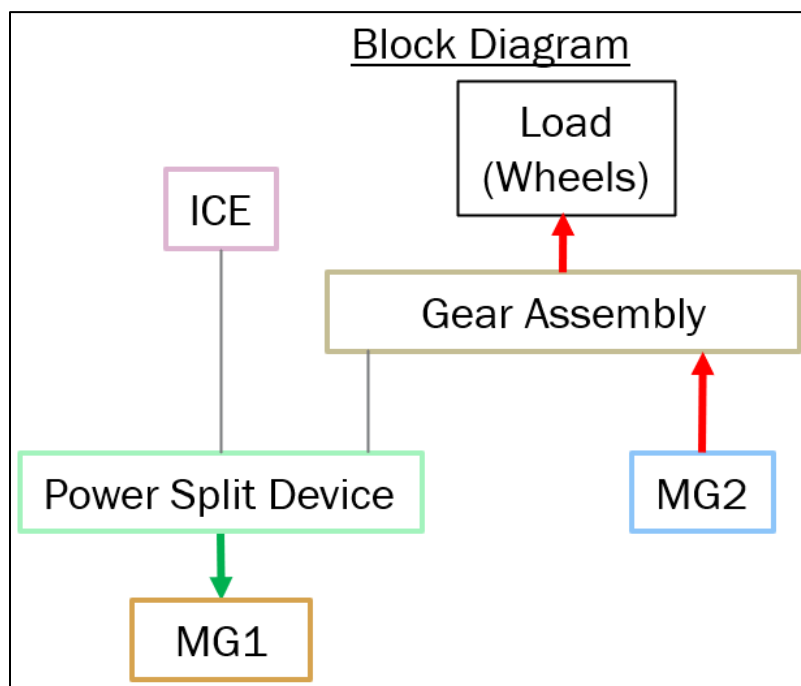
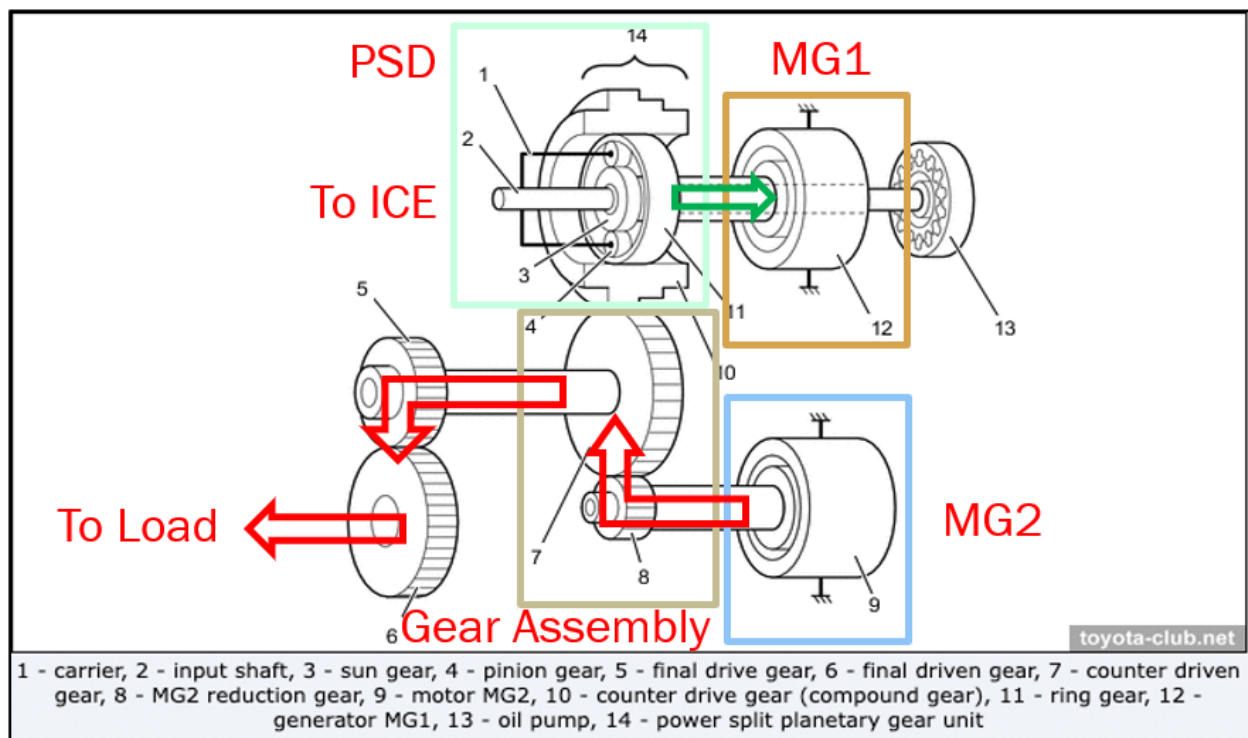
160. The '648 Accused Products comprise a control system configured to selectively “operate the first electric motor as a generator to generate electrical power while operating the second electric motor to drive the vehicle through the gear assembly.” For example, the '648 Accused Products include a control system configured to operate MG1 (i.e., the first electric motor) as a generator to generate electrical power while operating MG2 (i.e., the second electric motor) to drive the vehicle through the gear assembly.



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F60U/pdf/OM47F60U.pdf>

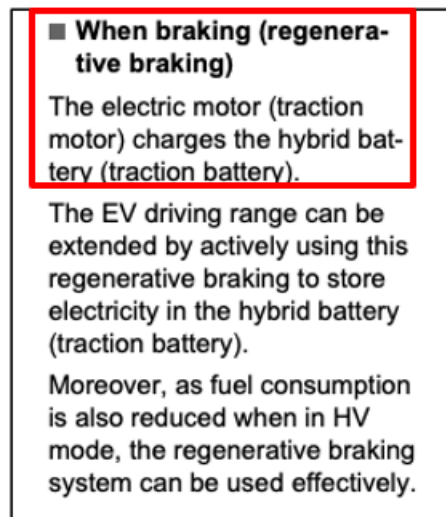


Source: <https://www.youtube.com/watch?v=1OjZ4zW9gq8>

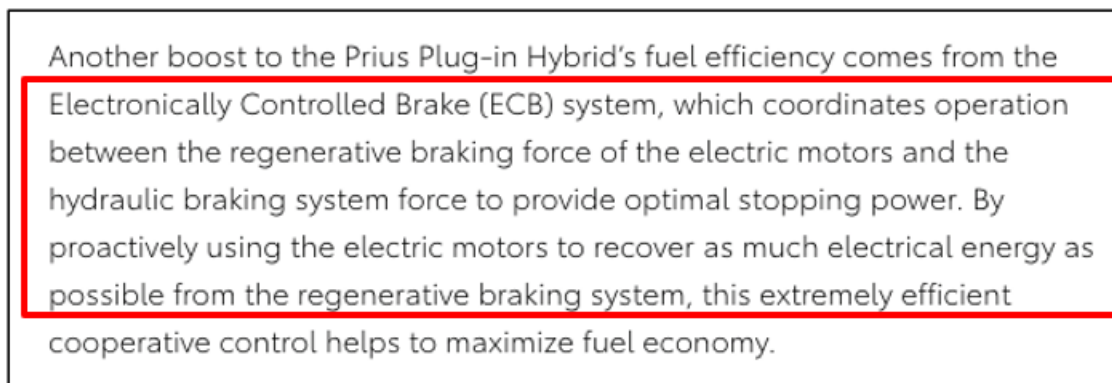


<sup>14</sup> Note this screenshot is provided as a visual representation of approximate location of the power split device, gear assembly, and electric motors in Toyota's hybrid-electric system.

161. The '648 Accused Products comprise a control system configured to selectively “operate the second electric motor as a generator to generate electrical power.” For example, the '648 Accused Products include a control system configured to operate MG2 (i.e., the second electric motor) as a generator to generate electrical power when performing regenerative braking.



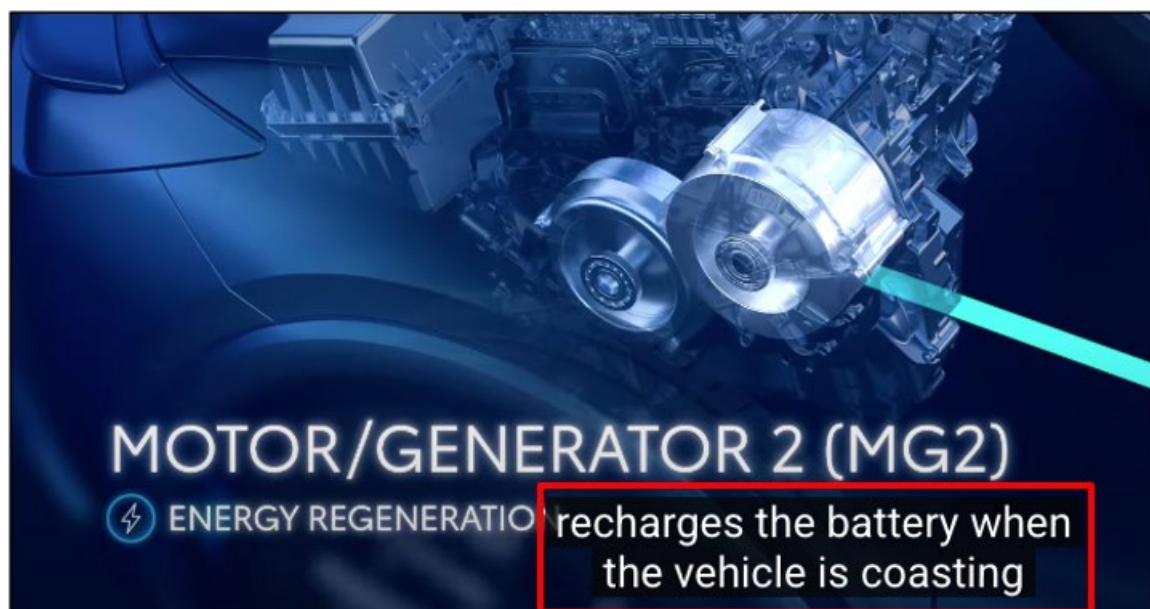
Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>



Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>



Source: <https://www.youtube.com/watch?v=hRYWqdiUl6A>



Source: <https://www.youtube.com/watch?v=1OjZ4zW9gg8>

***Indirect Infringement (Inducement – 35 U.S.C. § 271(b))***

162. In addition and/or in the alternative to the direct infringements, Toyota indirectly infringes one or more claims of the '648 Patent by knowingly and intentionally inducing others, including its customers and/or other end users, to directly infringe the '648 Patent (e.g., by operating a '648 Accused Product).

163. At a minimum, Toyota has had knowledge of the '648 Patent at least since service of this Complaint. Toyota also has knowledge of the '648 Patent since receiving detailed correspondence from BHT prior to the filing of the Complaint, alerting Toyota to its infringements. Since receiving notice of its infringements, Toyota has actively induced, and continues to actively induce, the direct infringements of its customers and/or other end users (e.g., as illustrated above) as set forth under U.S.C. § 271(b). Such inducements have been committed with the knowledge, or with willful blindness to the fact, that the acts induced constitute infringement of the '648 Patent. Indeed, Toyota has intended to cause, continues to intend to cause, and has taken, and continues to take, affirmative steps to induce infringement by, among other things, creating and disseminating advertisements and instructive materials that promote the infringing use of the Accused Products, including marketing materials, user manuals (e.g., those available via <https://www.toyota.com/owners/warranty-owners-manuals/>), and online instructional materials (e.g., those available via <https://www.youtube.com/toyotausa>) that specifically teach and encourage customers and other end users to use the '648 Accused Products in an infringing manner, including by operating a '648 Accused Product. By providing such instructions and support, Toyota knows (and has known), or should know (and should have known), that its actions have actively induced, and continue to actively induce, infringement of the '648 Patent.

### ***Damages***

164. BHT has been damaged as a result of Toyota's infringing conduct described in this Count. Toyota is, thus, liable to BHT in an amount that adequately compensates it for Toyota's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

165. Despite having knowledge of the '648 Patent and knowledge that it directly and/or indirectly infringes one or more claims of the '648 Patent, Toyota has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Toyota's infringing activities relative to the '648 Patent have, thus, been, and continue to be, willful, wanton, and deliberate in disregard of BHT's rights with respect to the '648 Patent, justifying enhanced damages under 35 U.S.C. § 284.

### **COUNT IX**

#### **(INFRINGEMENT OF U.S. PATENT NO. 11,374,508)**

166. BHT incorporates the preceding paragraphs herein by reference.

167. This cause of action arises under the patent laws of the United States, and, in particular, 35 U.S.C. §§ 271, *et seq.*

168. BHT is the owner of all substantial rights, title, and interest in and to the '508 Patent, including the right to exclude others and to enforce, sue, and recover damages for past, present, and future infringements.

169. The '508 Patent is valid, enforceable, and was duly and legally issued by the United States Patent and Trademark Office on June 28, 2022, after full and fair examination.

#### ***Direct Infringement (35 U.S.C. § 271(a))***

170. Toyota directly infringes one or more claims of the '508 Patent in this District and elsewhere in Texas and the United States.

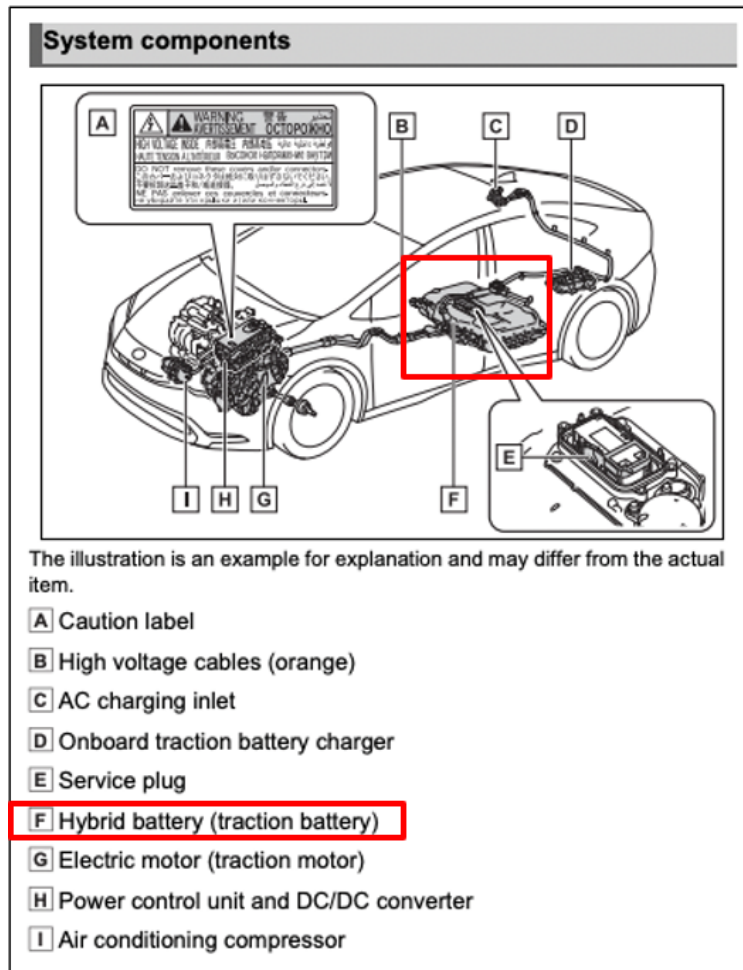
171. Toyota directly infringes, either by itself or via its agent(s), at least claim 1 of the '508 Patent as set forth under 35 U.S.C. § 271(a) by making, using, selling, offering to sell, and/or importing Toyota and Lexus branded electric vehicles equipped that incorporate the fundamental technologies covered by the '508 Patent, including, but not limited to, Toyota and Lexus branded

vehicles (e.g., the 2025 Toyota Prius Plug-In Hybrid) equipped with hybrid-electric powertrain systems (collectively, “the ’508 Accused Products”).

172. By way of illustration only, Toyota’s ’508 Accused Products comprise each and every element of claim 1 of the ’508 Patent. The ’508 Accused Products comprise “[a] drive system for a vehicle, comprising: an energy storage system (ESS).” For example, the ’508 Accused Products are vehicles that include an electric drive system comprising an energy storage system (ESS) which includes a hybrid battery.

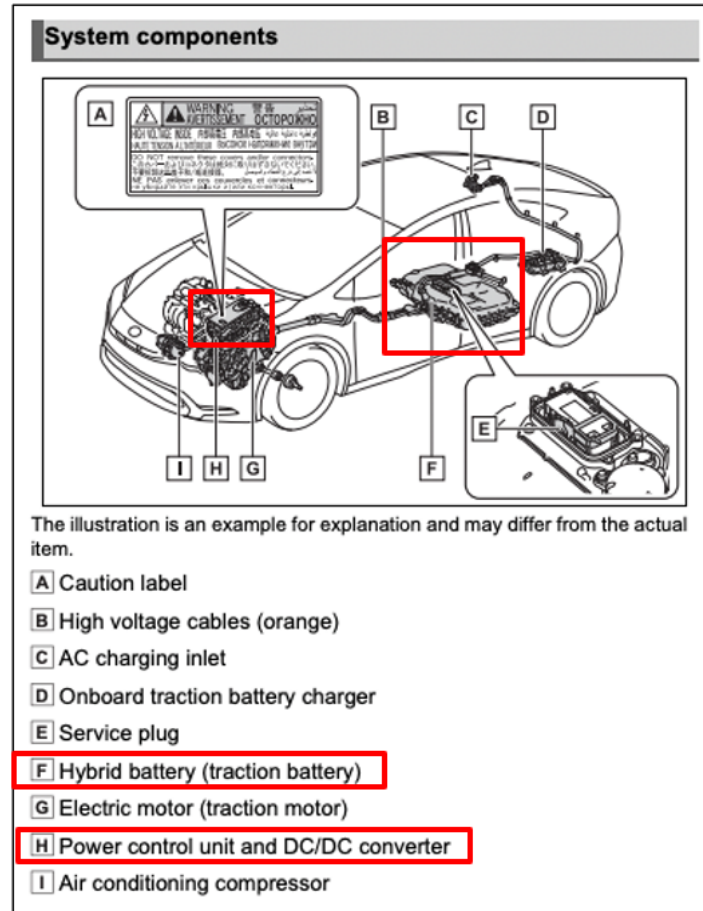


Source: <https://www.toyota.com/priuspluginhybrid/2025/>



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>

173. The '508 Accused Products comprise a drive system for a vehicle comprising “a power conversion device coupled to the ESS.” For example, the '508 Accused Products include a power control unit (i.e., a power conversion device) coupled to the hybrid battery.



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>

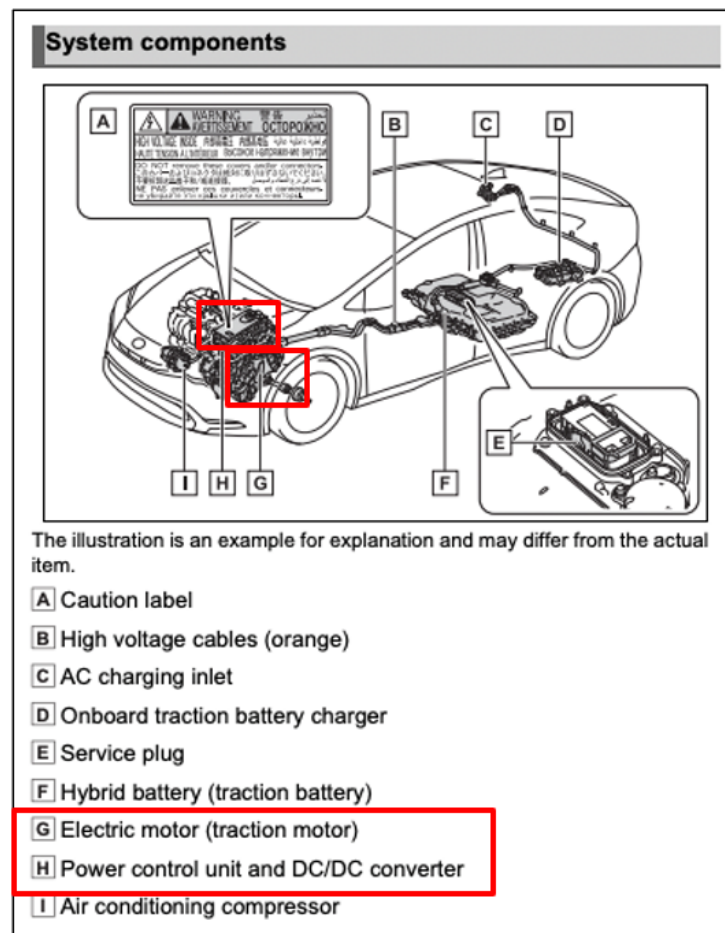
## Power Control Unit (PCU)

The PCU manages power flow between the engine, electric motor, and battery, ensuring seamless transitions and maximum efficiency.

Source: <https://www.kalispelltoyota.com/blog/understanding-toyotas-innovative-hybrid-technology/>

174. The '508 Accused Products comprise a drive system for a vehicle comprising “a first electric motor coupled to the power conversion device; [and] a second electric motor coupled to the power conversion device.” For example, the '508 Accused Products include a MG2 motor

(i.e., first electric motor) and a MG1 motor (i.e., second electric motor) each coupled to the power control unit (i.e., a power conversion device).



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F56U/pdf/OM47F56U.pdf>

**Dynamic and Efficient**

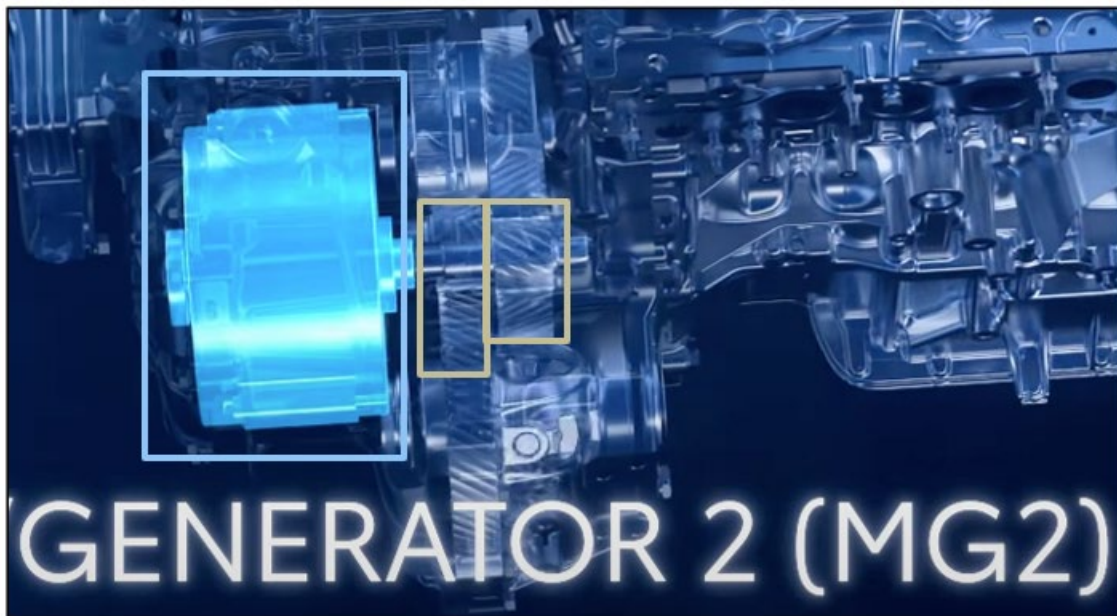
Under the hood of the 2025 Prius Plug-in Hybrid is Toyota's Fifth generation Toyota Hybrid System, which pairs the M20A-FXS inline four-cylinder 2.0L gas engine with two motor-generators (MG1 and MG2) through a planetary-type continuously variable transmission. The engine, working in tandem with the electric motor (MG2), assures responsive performance, while exemplary energy efficiency is achieved by using both electric motors (MG1 and MG2) to charge a lithium-ion battery.

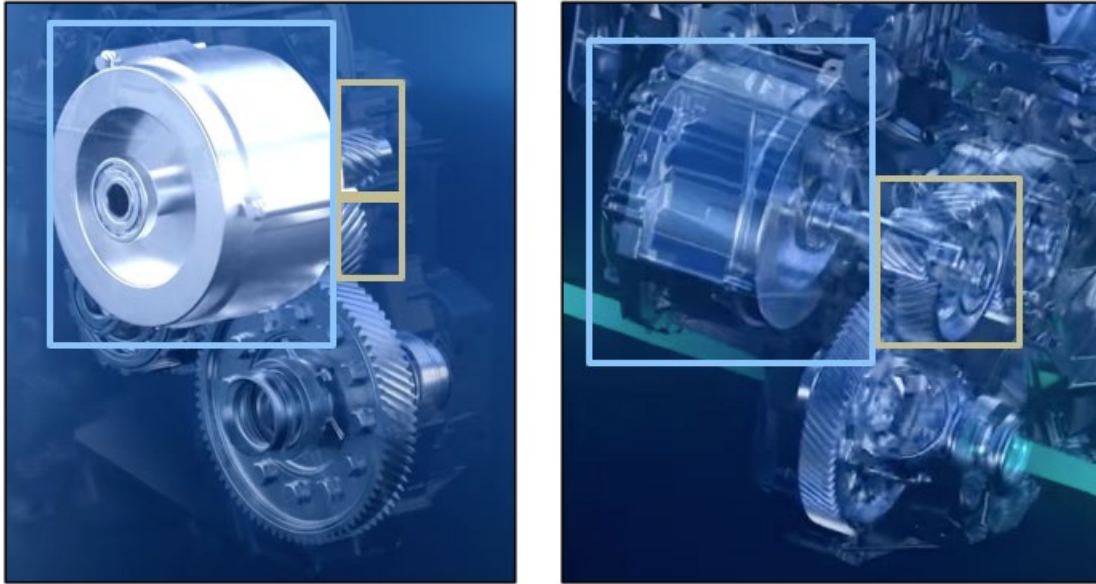
Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>



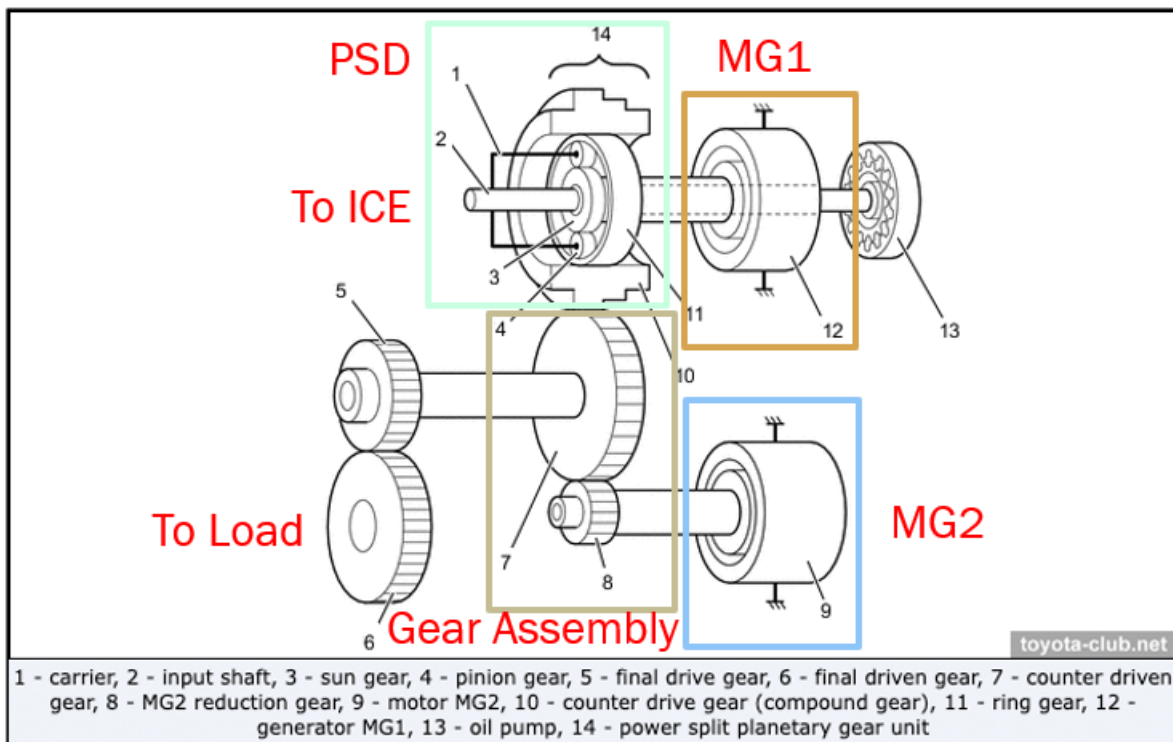
Source: <https://www.youtube.com/watch?v=1OjZ4zW9gq8>

175. The '508 Accused Products comprise a drive system for a vehicle comprising “a transmission device coupled to the first electric motor.” For example, the '508 Accused Products include a gear assembly (i.e., a transmission device) coupled to MG2 (i.e., first electric motor).



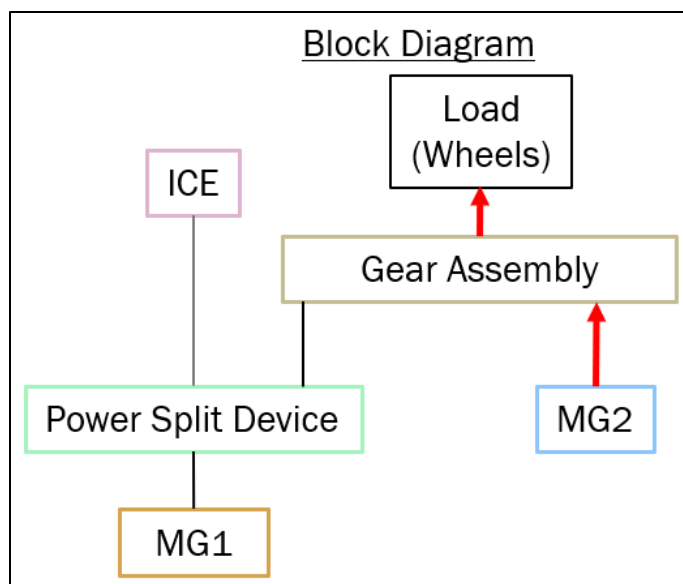


Source: <https://www.youtube.com/watch?v=hRYWqdiUl6A>



Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>15</sup>

<sup>15</sup> Note this screenshot is provided as a visual representation of approximate location of the gear assembly and MG2 in Toyota's hybrid-electric system.

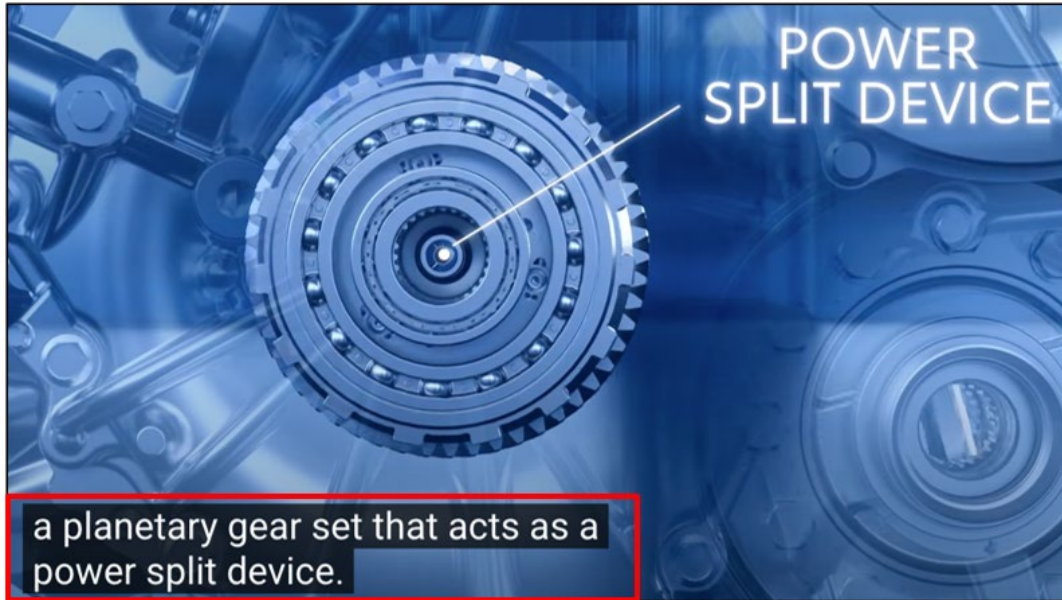


176. The '508 Accused Products comprise a drive system for a vehicle comprising “a power split device coupled to the transmission device and the second electric motor, the power split device comprising one or more planetary sets.” For example, the '508 Accused Products include a power split device coupled to the gear assembly (i.e., transmission device) and MG1 (i.e., second electric motor) comprising a planetary gear set (i.e., one or more planetary sets).

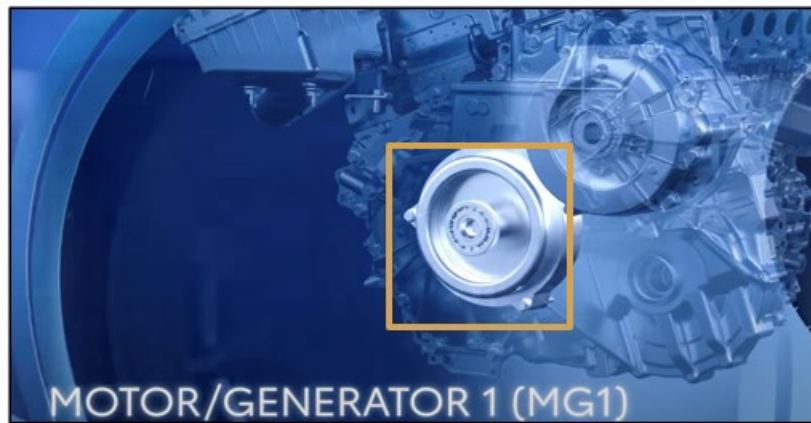
#### Dynamic and Efficient

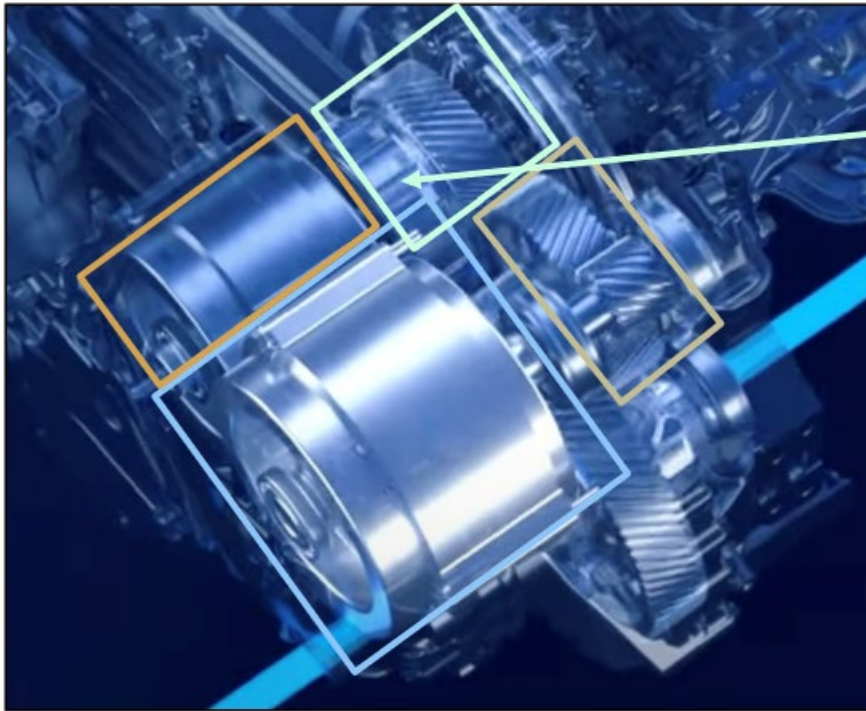
Under the hood of the 2025 Prius Plug-in Hybrid is Toyota's Fifth generation Toyota Hybrid System, which pairs the M20A-FXS inline four-cylinder 2.0L gas engine with two motor-generators (MG1 and MG2) through a planetary-type continuously variable transmission. The engine, working in tandem with the electric motor (MG2), assures responsive performance, while exemplary energy efficiency is achieved by using both electric motors (MG1 and MG2) to charge a lithium-ion battery.

Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>



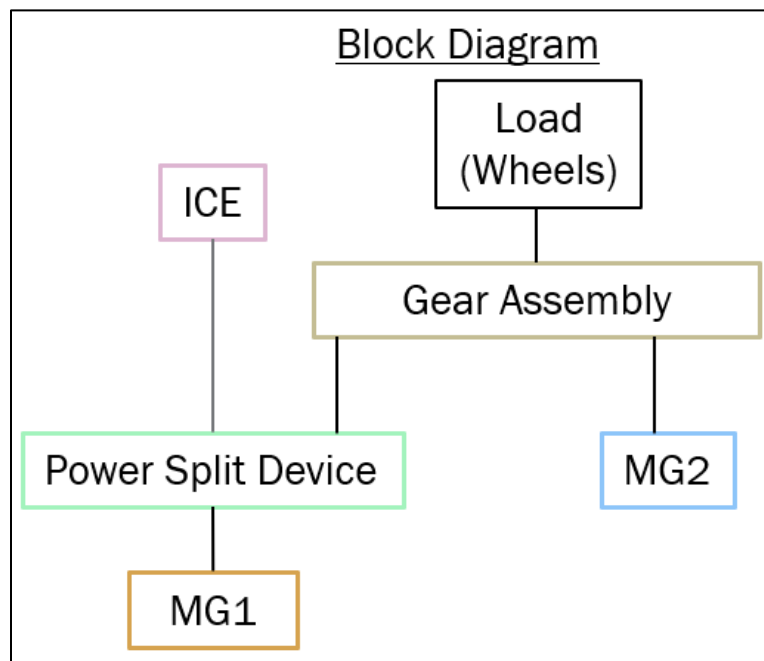
Source: <https://www.youtube.com/watch?v=hRYWqdiUlba>





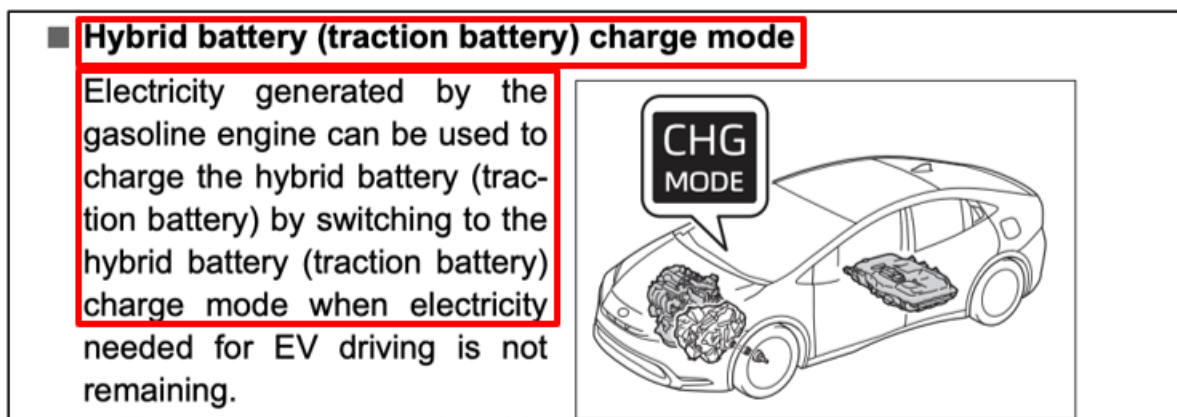
Planetary  
gear set in  
power split  
device

Source: <https://www.youtube.com/watch?v=1OjZ4zW9gq8> (showing, e.g., MG1 connects to the power split device, and the center gear in the gear assembly rotates with a gear of the power split device, thereby coupling the power split device between the gear assembly and MG1.)

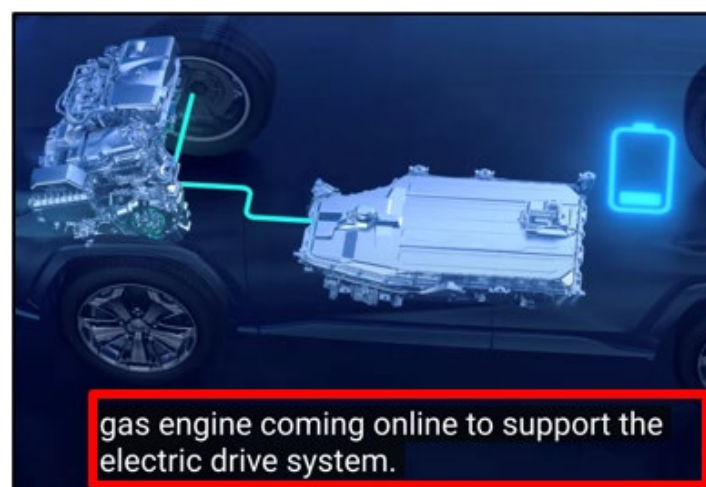


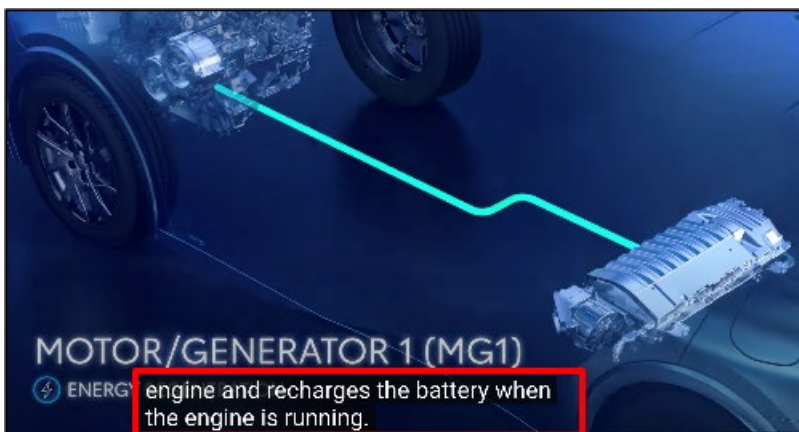
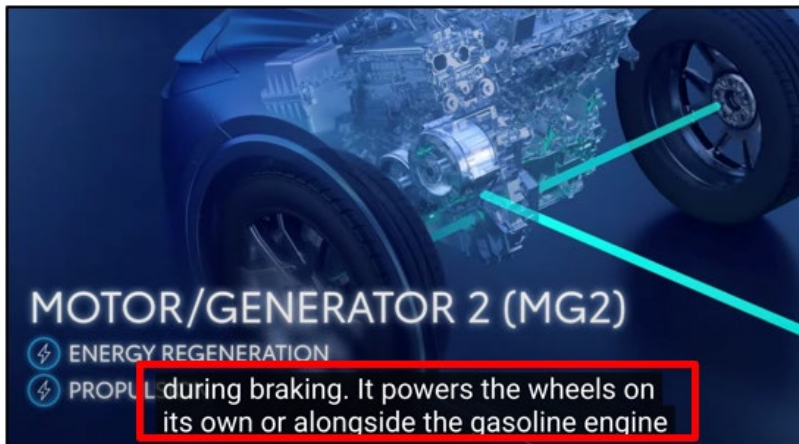
177. The '508 Accused Products comprise a drive system for a vehicle comprising “an energy management system (EMS) configured to: enable only the first electric motor of the first

and second electric motors to operate as a motor to drive the vehicle through the transmission device in a first mode of operation when the vehicle is cruising.” For example, the ’508 Accused Products include a vehicle control system including multiple electronic control units (ECUs) (i.e., energy management system (EMS)) configured to enable MG2 (i.e., the first electric motor) to provide torque to the load through the gear assembly (i.e., transmission device) to drive the vehicle and enable MG1 (i.e., the second electric motor) to operate as a generator to generate electrical power during a cruise mode, e.g., a charge mode that includes the internal combustion engine (ICE) charging MG1 while the vehicle is cruising (i.e., a first mode of operation when the vehicle is cruising).

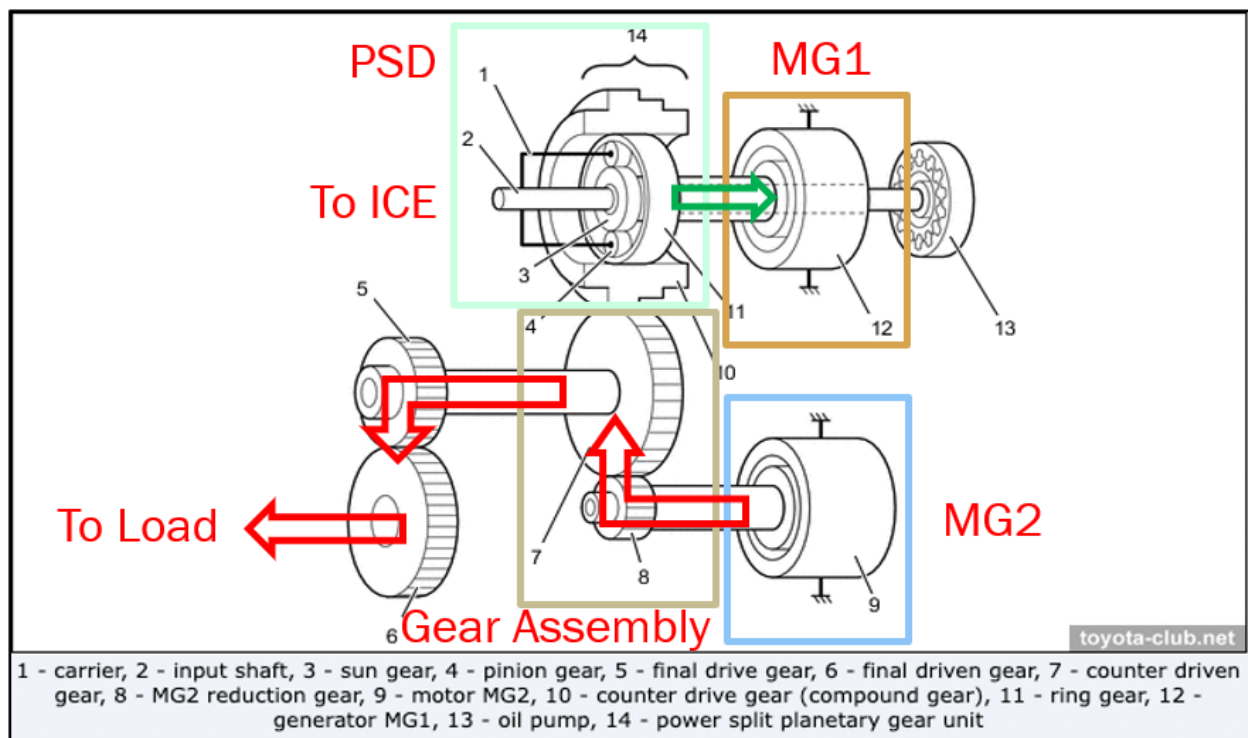


Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F60U/pdf/OM47F60U.pdf>

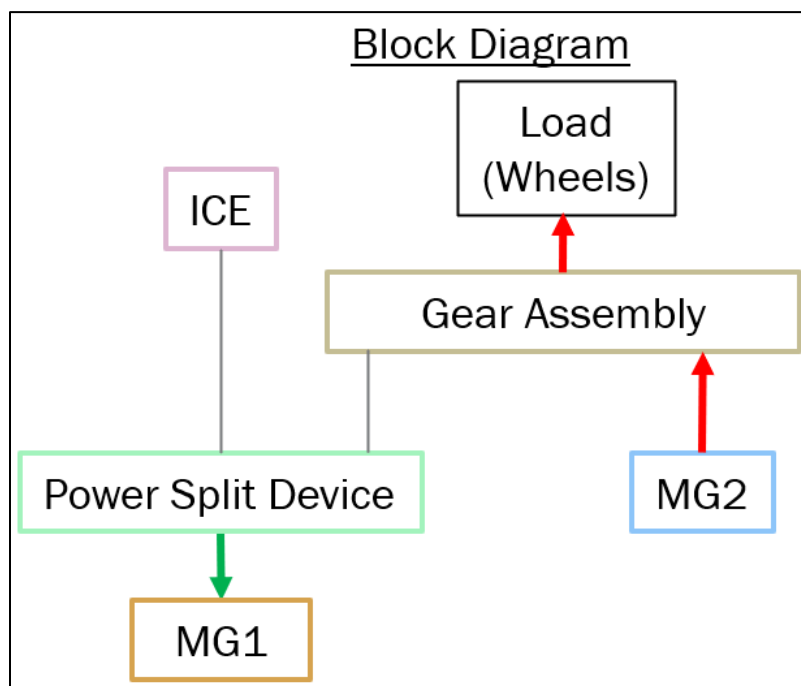




Source: <https://www.youtube.com/watch?v=1OjZ4zW9gg8>

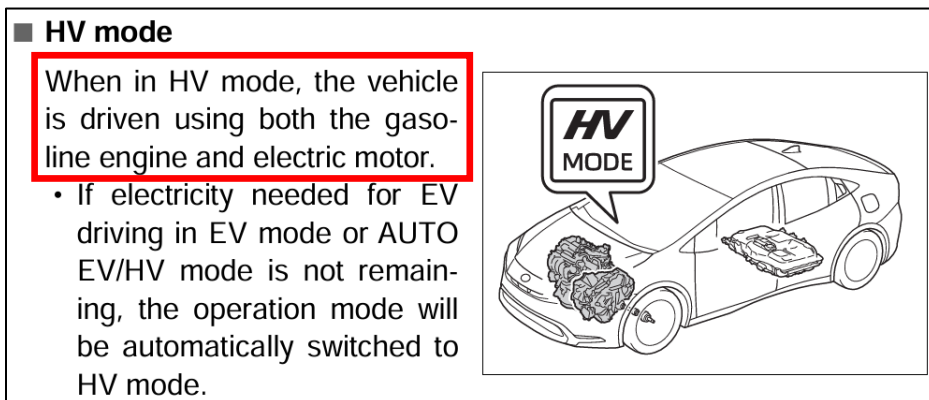


Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>16</sup>

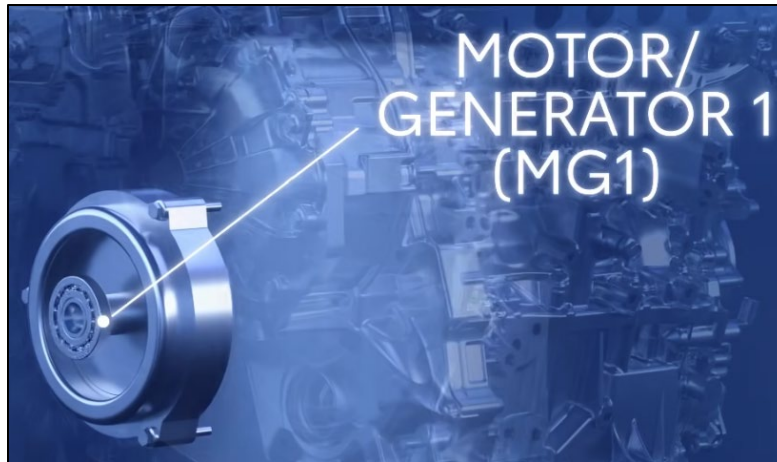


<sup>16</sup> Note this screenshot is provided as a visual representation of approximate location of the power split device, gear assembly, and electric motors in Toyota's hybrid-electric system.

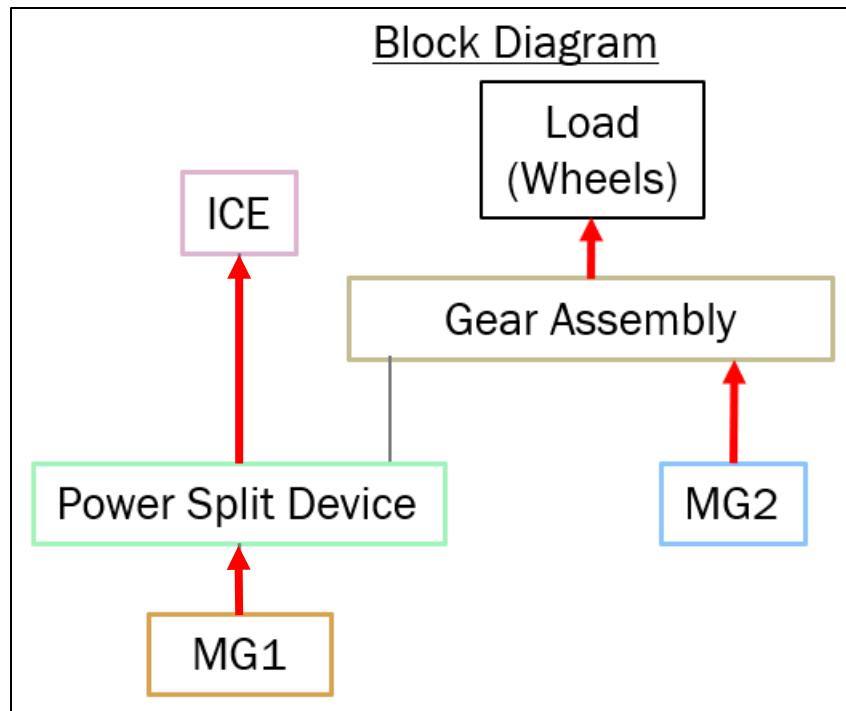
178. The '508 Accused Products comprise an energy management system (EMS) configured to “enable only the first electric motor of the first and second electric motors to operate as a motor to drive the vehicle through the transmission device in a second mode of operation when the vehicle is starting.” For example, the '508 Accused Products include a vehicle control system including multiple electronic control units (ECUs) (i.e., energy management system (EMS)) configured to enable MG2 (i.e., the first electric motor) to provide torque to the load through the gear assembly (i.e., transmission device) to drive the vehicle and enable MG1 (i.e., the second electric motor) to operate as a motor to start the internal combustion engine (ICE) during a start mode, e.g., a HV mode that includes MG1 starting the ICE while MG2 is configured to provide torque to the wheels when the vehicle is starting (i.e., a second mode of operation when the vehicle is starting).



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F60U/pdf/OM47F60U.pdf>



Source: <https://www.youtube.com/watch?v=hRYWqdiUlba>



179. The '508 Accused Products comprise an energy management system (EMS) configured to “enable the first electric motor to operate as a motor to drive the vehicle through the transmission device and enable the second electric motor to operate as a motor to drive the vehicle through the power split device in a third mode of operation when the vehicle is accelerating.” For example, the '508 Accused Products include a vehicle control system including multiple electronic control units (ECUs) (i.e., energy management system (EMS)) configured to enable MG2 (i.e., the first electric motor) to provide torque to the load through the gear assembly (i.e., the transmission device) and MG1 (i.e., the second electric motor) to provide torque to the load through the power split device to drive the vehicle during an acceleration mode, e.g., EV mode including when the vehicle is accelerating (i.e., a third mode of operation when the vehicle is accelerating).

The Prius Prime was the first Toyota hybrid to use a dual motor drive, which helps improve acceleration in EV Mode for spirited driving. The system engages both the generator (MG1) and electric drive motor (MG2) for drive torque via an innovative one-way clutch. This is the first deployment of MG1 for that purpose. In other Prius models, MG1 provides only battery charging while MG2 provides drive torque and charging.

Source: <https://pressroom.toyota.com/the-2021-toyota-prius-prime-adds-safety-and-tech-while-continuing-to-combine-the-best-of-both-worlds/>

## **Prius Prime Changes its Name to Prius Plug-in Hybrid for Model Year 2025**

Source: <https://pressroom.toyota.com/electrify-the-road-in-the-2025-toyota-prius-plug-in-hybrid/>

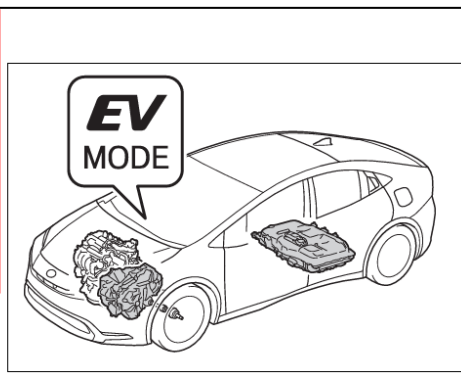
Prius Plug-in Hybrid's Hybrid Synergy Drive® system helps maximize output from both the gas engine and electric motors, generating up to 220 horsepower for you to enjoy.

Source: <https://www.toyotaofglendale.com/2025-priuspluginhybrid/>

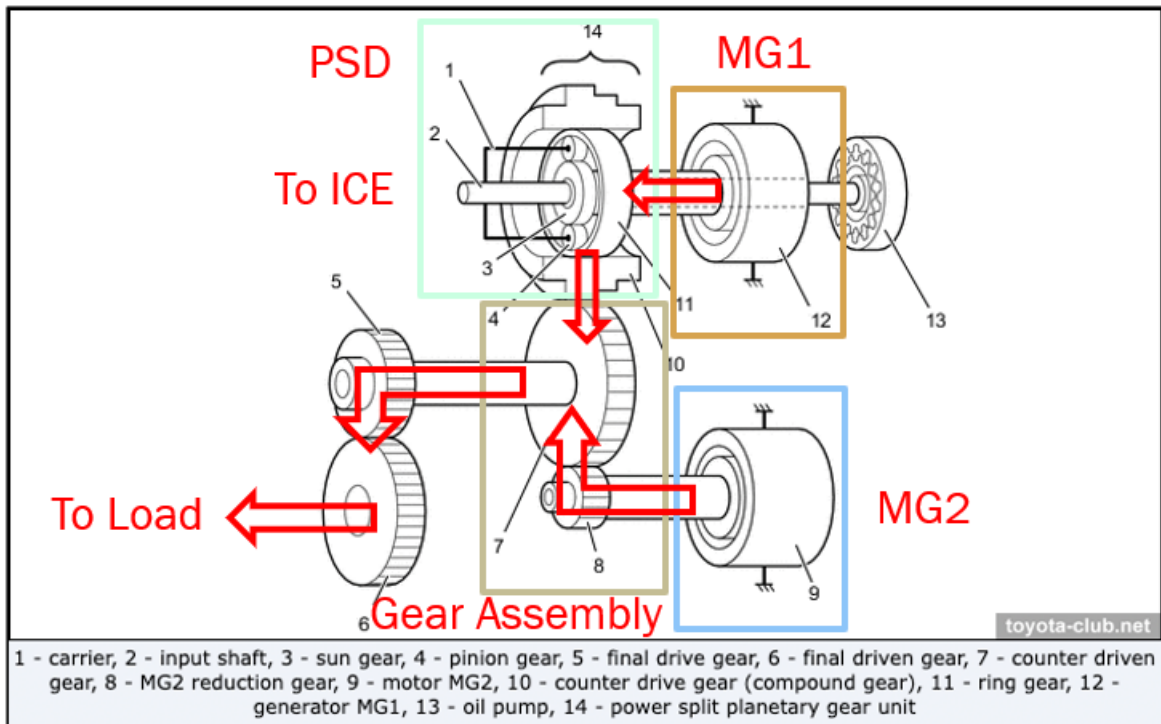
### **■ EV mode**

When a sufficient amount of electricity is remaining after charging, EV driving is performed using electricity stored in the hybrid battery (traction battery).

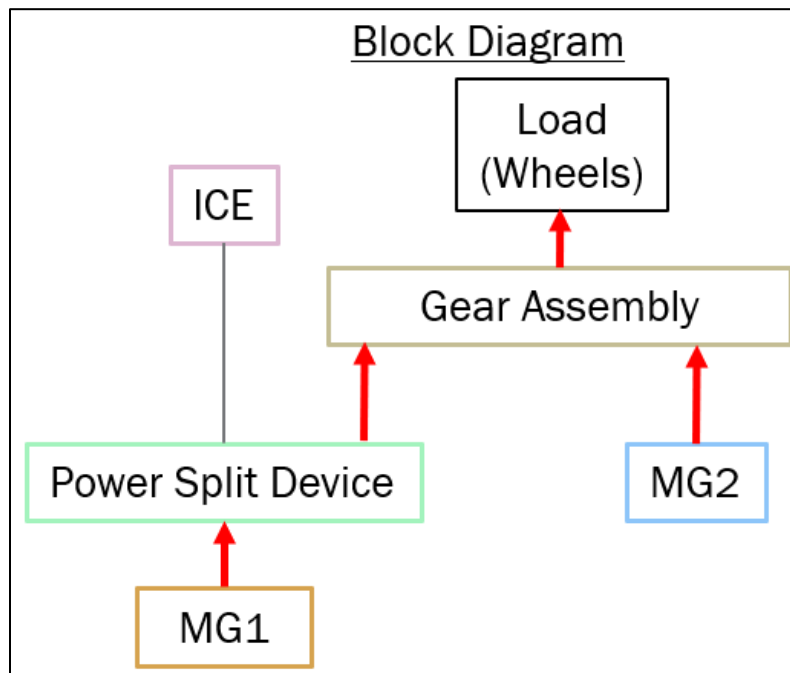
When in EV mode, the EV drive mode indicator illuminates.



Source: <https://assets.sia.toyota.com/publications/en/om-s/OM47F60U/pdf/OM47F60U.pdf>



Source: [https://toyota-club.net/files/faq/21-12-01\\_faq\\_hybrid\\_tr\\_en.htm](https://toyota-club.net/files/faq/21-12-01_faq_hybrid_tr_en.htm)<sup>17</sup>



<sup>17</sup> Note this screenshot is provided as a visual representation of approximate location of the power split device, gear assembly, and electric motors in Toyota's hybrid-electric system.

***Indirect Infringement (Inducement – 35 U.S.C. § 271(b))***

180. In addition and/or in the alternative to the direct infringements, Toyota indirectly infringes one or more claims of the '508 Patent by knowingly and intentionally inducing others, including its customers and/or other end users, to directly infringe the '508 Patent (e.g., by operating a '508 Accused Product).

181. At a minimum, Toyota has had knowledge of the '508 Patent at least since service of this Complaint. Toyota also has knowledge of the '508 Patent since receiving detailed correspondence from BHT prior to the filing of the Complaint, alerting Toyota to its infringements. Since receiving notice of its infringements, Toyota has actively induced, and continues to actively induce, the direct infringements of its customers and/or other end users (e.g., as illustrated above) as set forth under U.S.C. § 271(b). Such inducements have been committed with the knowledge, or with willful blindness to the fact, that the acts induced constitute infringement of the '508 Patent. Indeed, Toyota has intended to cause, continues to intend to cause, and has taken, and continues to take, affirmative steps to induce infringement by, among other things, creating and disseminating advertisements and instructive materials that promote the infringing use of the Accused Products, including marketing materials, user manuals (e.g., those available via <https://www.toyota.com/owners/warranty-owners-manuals/>), and online instructional materials (e.g., those available via <https://www.youtube.com/toyotausa>) that specifically teach and encourage customers and other end users to use the '508 Accused Products in an infringing manner, including by operating a '508 Accused Product. By providing such instructions and support, Toyota knows (and has known), or should know (and should have known), that its actions have actively induced, and continue to actively induce, infringement of the '508 Patent.

***Damages***

182. BHT has been damaged as a result of Toyota's infringing conduct described in this Count. Toyota is, thus, liable to BHT in an amount that adequately compensates it for Toyota's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

183. Despite having knowledge of the '508 Patent and knowledge that it directly and/or indirectly infringes one or more claims of the '508 Patent, Toyota has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Toyota's infringing activities relative to the '508 Patent have, thus, been, and continue to be, willful, wanton, and deliberate in disregard of BHT's rights with respect to the '508 Patent, justifying enhanced damages under 35 U.S.C. § 284.

### **CONCLUSION**

184. BHT is entitled to recover from Toyota the damages sustained by BHT as a result of Toyota's wrongful acts and willful infringements in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court.

185. BHT has incurred and will incur attorneys' fees, costs, and expenses in the prosecution of this action. The circumstances of this dispute may give rise to an exceptional case within the meaning of 35 U.S.C. § 285, and, in such case, BHT is entitled to recover its reasonable and necessary attorneys' fees, costs, and expenses.

### **JURY DEMAND**

186. BHT hereby requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

### **PRAYER FOR RELIEF**

187. BHT respectfully requests that the Court find in its favor and against Toyota, and that the Court grant BHT the following relief:

- (i) Judgment that one or more claims of the Asserted Patents have been infringed, either literally and/or under the doctrine of equivalents, by Toyota;
- (ii) Judgment that one or more claims of the Asserted Patents have been willfully infringed, either literally and/or under the doctrine of equivalents, by Toyota;
- (iii) Judgment that Toyota account for and pay to BHT all damages and costs incurred by BHT because of Toyota's infringements and other conduct complained of herein, including an accounting for any sales or damages not presented at trial;
- (iv) Judgment that Toyota account for and pay to BHT a reasonable, ongoing, post-judgment royalty because of Toyota's infringements, including continuing infringing activities, and other conduct complained of herein;
- (v) Judgment that BHT be granted pre-judgment and post-judgment interest on the damages caused by Toyota's infringements and other conduct complained of herein;
- (vi) Judgment that this case is exceptional under the provisions of 35 U.S.C. § 285 and award enhanced damages; and
- (vii) Such other and further relief as the Court deems just and equitable.

Dated: November 18, 2025

Respectfully submitted,

/s/ Patrick J. Conroy

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