

CHAMPION’S INFRINGEMENT CONTENTIONS FOR
U.S. PATENT NO. 10,221,780
AS ASSERTED AGAINST
HARBOR FREIGHT MODEL 70143
FILING DATE: JUNE 12, 2015
PRIORITY DATE: JUNE 12, 2015

I. Harbor Freight Model 70143



II. Brief Description

Harbor Freight Model 70143 is a dual fuel portable generator under Harbor Freight’s Predator brand. It uses a 224cc engine producing 5,000W (starting)/3,900W (running) when using gasoline and 5,000W (starting)/3,600W (running) when using liquefied petroleum gas (“LPG”; also known as propane). It can operate at 25% load for up to 18.2 hours with its 3.7-gallon gasoline tank or up to 14.6 hours with a 20-pound LPG tank. Model 70143 includes carbon monoxide (“CO”) and low oil shutoffs. It includes a battery-operated, push-button electric start and a recoil starter. A remote starting option lets a user start up and shut down the generator from up to 100 feet away using the included key fob. Model 70143 also includes seven receptacles, circuit breaker protection, and a control panel with a digital display. Model 70143 also has a fold-down locking handle.

III. Asserted Claims and Priority Date

Model 70143 is alleged to infringe claims 1, 6, 8, and 15 (the “Asserted Claims”) of U.S. Patent No. 10,221,780 (the “’780 Patent”).

The priority date for the Asserted Claims of the ’780 Patent is June 12, 2015.

IV. Statement Regarding Contributory and Induced Infringement

The claimed generator operates on different fuels, like a liquid fuel (e.g., gasoline) or a gaseous fuel (e.g., LPG), but a gaseous fuel tank (e.g., an LPG tank), the gaseous fuel in the gaseous fuel tank, and liquid fuel in the liquid fuel tank (e.g., gasoline in a gasoline tank) are not required for infringement unless explicitly claimed in the Asserted Claims. Nonetheless, to the extent the Court construes any claim to require a gaseous fuel tank, gaseous fuel in the gaseous fuel tank, or liquid fuel in a liquid fuel tank, Harbor Freight contributes to or induces infringement by instructing its users to use a gaseous fuel tank and gaseous fuel and to fill the liquid fuel tank in order to operate the dual fuel engine.

Harbor Freight induces infringement of various Asserted Claims by specifically instructing its customers to attach an LPG tank to the engine and to put liquid fuel in the liquid fuel tank. [See Harbor Freight Owner's Manual for Model 70143 at page 17 (listing gasoline quality requirements with instructions to "If needed, fill the Fuel Tank to about 1 inch under the fill neck of the Fuel Tank with 87 octane . . .") and at page 14 (providing instructions "[f]or LPG Operation: Connecting LPG/Propane Tank . . . e. Connect LPG/Propane tank using provided attachment kit only. Kit includes 1.5 meter (4.9 ft) Hose.").] To the extent the Court construes any Asserted Claim to require an LPG tank, gaseous fuel, or liquid fuel for infringement, when Harbor Freight's customers use the Accused Instrumentalities with a filled LPG tank connected and with fuel in the liquid fuel tank, the infringement of any such Asserted Claims is completed. As such, Harbor Freight's instructions to customers to connect a filled LPG tank and fill the liquid fuel tank before operation of the Accused Instrumentalities constitutes indirect infringement.

For the same reasons, Harbor Freight's conduct also constitutes contributory infringement. To the extent the Court's claim construction requires an LPG tank, gaseous fuel, or liquid fuel for infringement, Harbor Freight supplies its customers every component necessary to infringe the Asserted Claims except the filled LPG tank and the liquid fuel. Because the Owner's Manual for Model 70143 instructs customers to connect a filled LPG tank to the generator and to fill the liquid fuel tank with fuel, [*id.*], Harbor Freight knew that Model 70143 would be used to infringe any applicable Asserted Claims. By connecting and using the Accused Instrumentalities with a filled LPG tank connected or with liquid fuel in the liquid fuel tank, Harbor Freight's customers complete the infringement of such Asserted Claims. As such, Harbor Freight's conduct also constitutes contributory infringement of such Asserted Claims.

Champion incorporates this Section IV by reference into any element of any asserted claim that is construed to require attachment of a gaseous fuel tank, gaseous fuel, or filling of the liquid fuel tank with fuel.

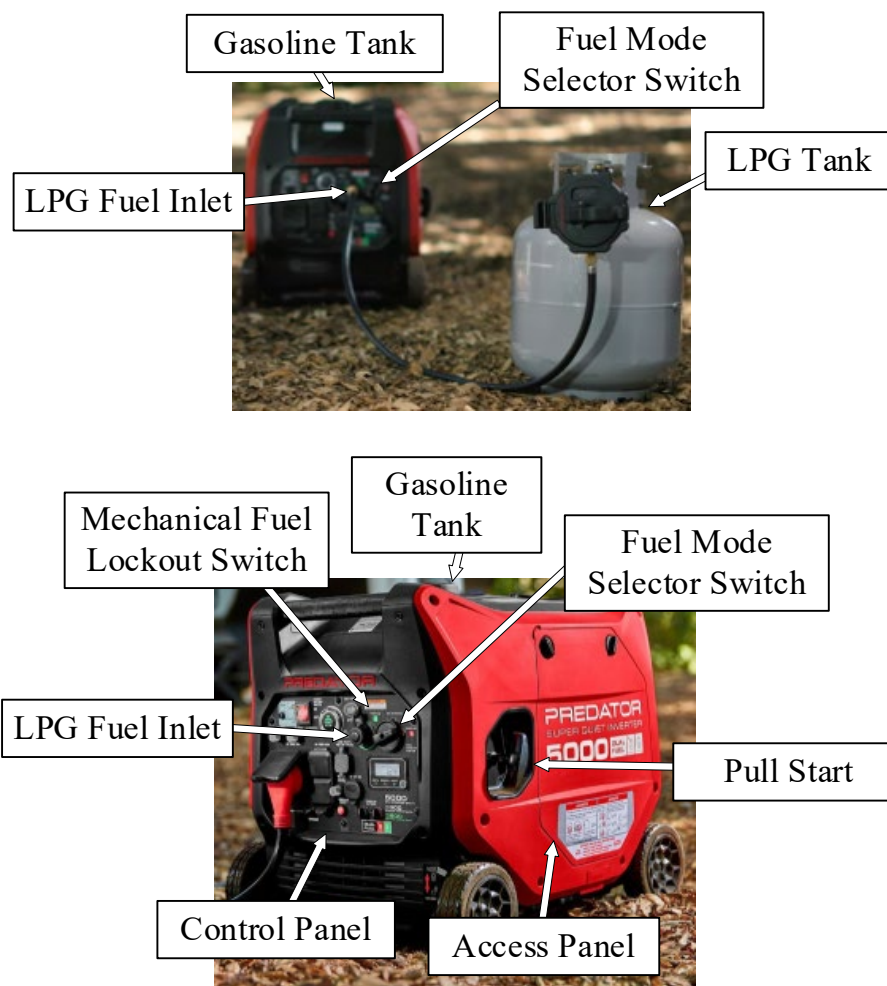
V. Claim Chart

'780 Patent Asserted Claims	Model 70143 Components
1. (Preamble) A mechanical	Although not necessary for infringement ¹ , the preamble of claim 1 is found within Model 70143 as follows:

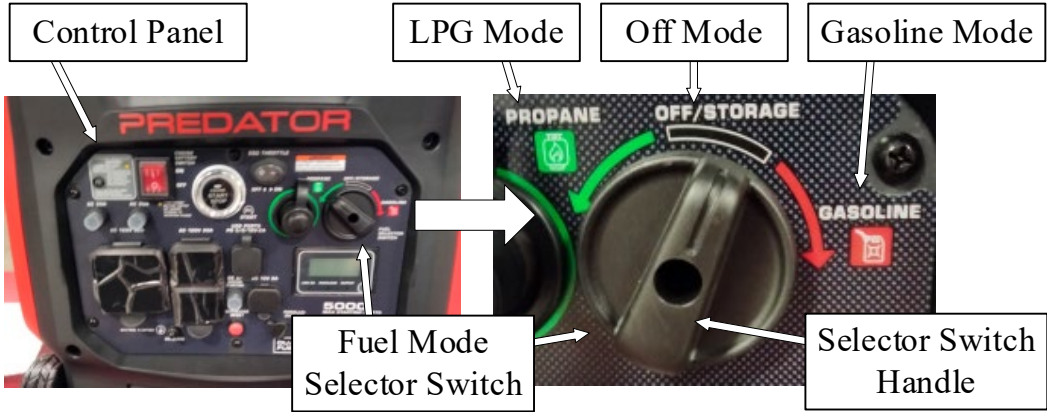
¹ The preambles of the Asserted Claims of the '780 Patent are not limiting and therefore should not be part of the infringement analysis. See *Artic Cat Inc. v. GEP Power Prods., Inc.*, 919 F.3d 1320, 1328 (Fed. Cir. 2019) ("We have long ruled that 'a preamble is not limiting where a patentee defines a structurally complete invention in the

fuel lockout switch for a dual fuel engine comprising:

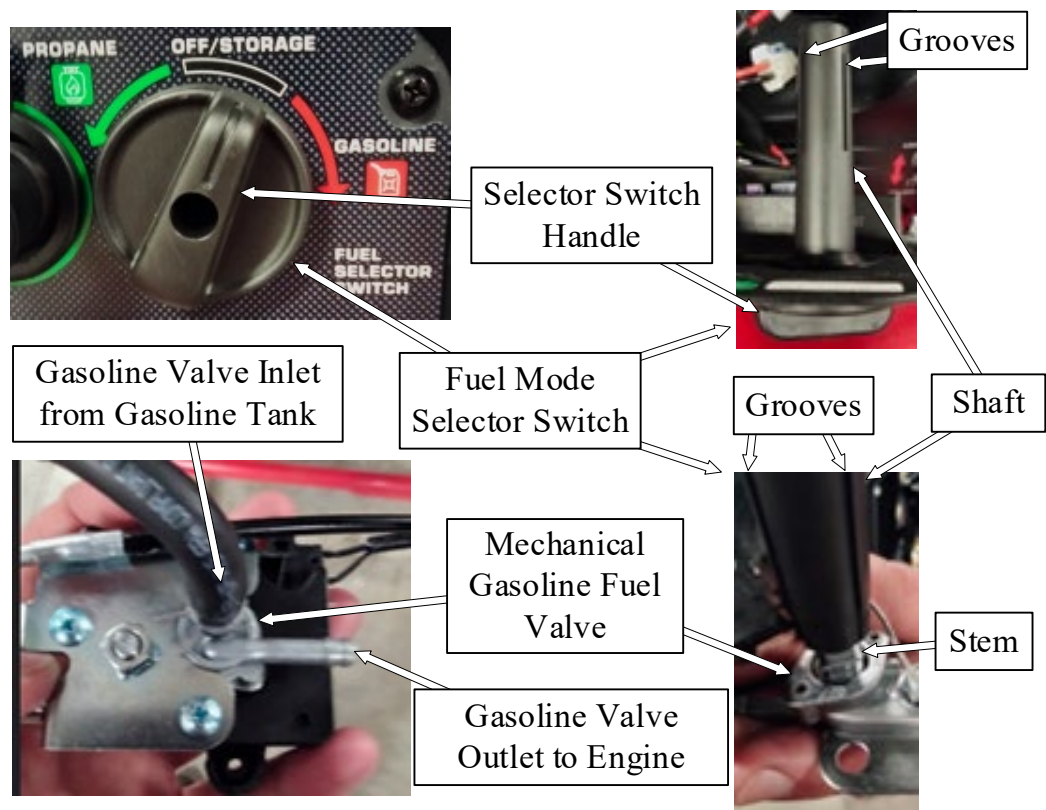
Model 70143 includes a dual fuel engine that may run on fuel from either of two fuel sources. The first fuel source is a gaseous fuel source in the form of a pressurized LPG tank, and the second fuel source is a liquid fuel source in the form of a gasoline tank. However, the gasoline tank may also be considered the first fuel source, and the LPG tank may be considered the second fuel source, depending on the alternative interpretations below. The fuel sources feed fuel to the engine via respective fuel lines. The mechanical fuel lockout switch includes a fuel mode selector switch that is located in a control panel and allows only one fuel source to feed fuel to the engine at a time and controls which fuel source is selected.



claim body and uses the preamble only to state a purpose or intended use for the invention.”) (quoting *Cataline Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002)). Nonetheless, Champion provides general description of Model 70143 next to the preamble to show how it meets the preamble and to assist in the infringement analysis by giving an overview of the Accused Instrumentalities. Champion incorporates this footnote by reference in the preambles of all the Asserted Claims.

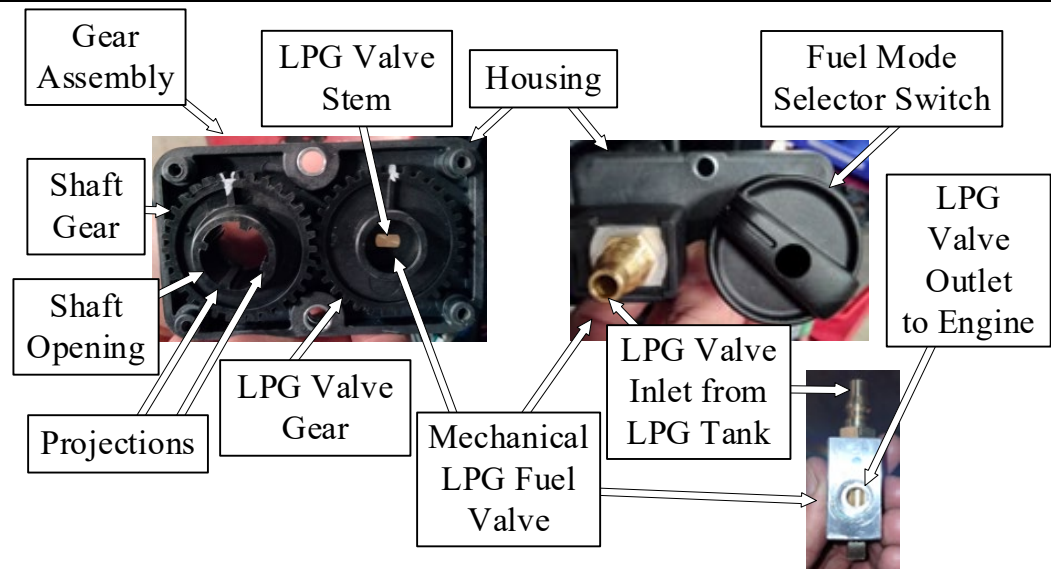
	 <p>Access Panel Opening</p> <p>Dual Fuel Engine</p>
<p>(a) a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line; and</p>	<p>Element (a) of claim 1 is found within Model 70143 directly and literally² as follows:</p> <p>The fuel mode selector switch is rotatable between an Off Mode, an LPG Mode, and a Gasoline Mode via a handle on the front of the selector switch. The selector switch includes a shaft and controls a valve assembly. The valve assembly includes a mechanical gasoline fuel valve located behind the generator control panel (“gasoline valve”), a mechanical LPG fuel valve located in the generator control panel (“LPG valve”), and a mechanical gasoline fuel valve located in the carburetor (“carburetor valve”).</p>  <p>Control Panel</p> <p>LPG Mode</p> <p>Off Mode</p> <p>Gasoline Mode</p> <p>Fuel Mode Selector Switch</p> <p>Selector Switch Handle</p>

² To the extent further discovery or claim construction reveals that any of the Accused Instrumentalities do not literally infringe the '780 Patent, Champion reserves the right to argue the Accused Instrumentalities infringe any of the Asserted Claims of the '780 Patent under the doctrine of equivalents. Champion incorporates this footnote by reference into each element of each Asserted Claim that Champion alleges is literally infringed by the Accused Instrumentalities.



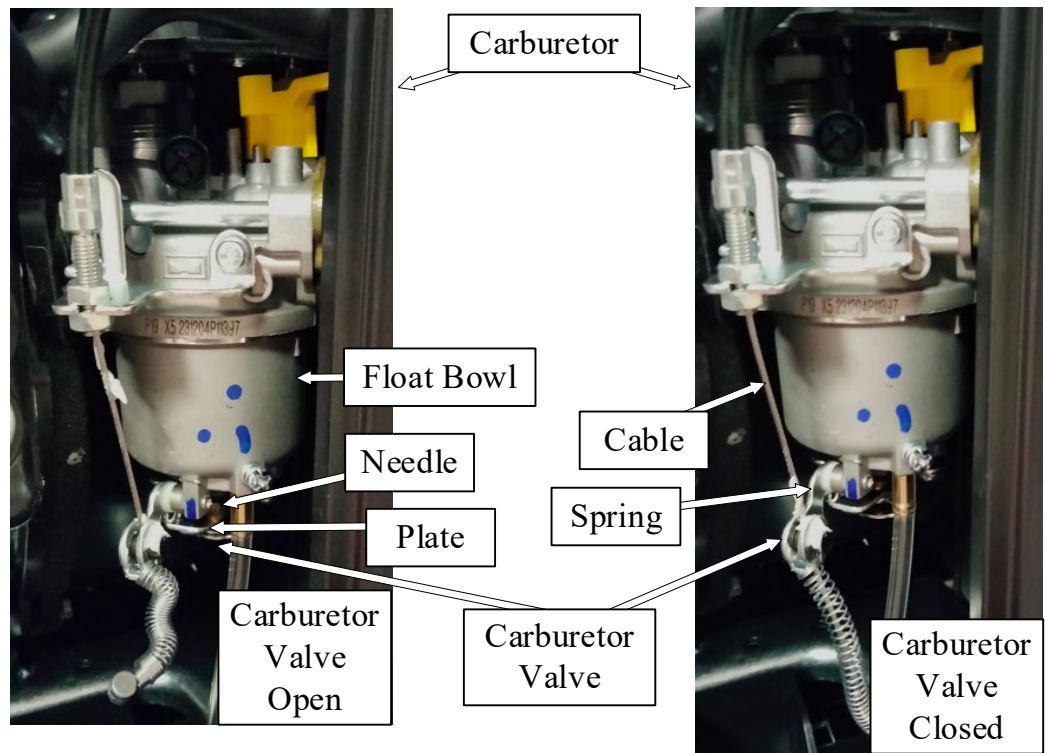
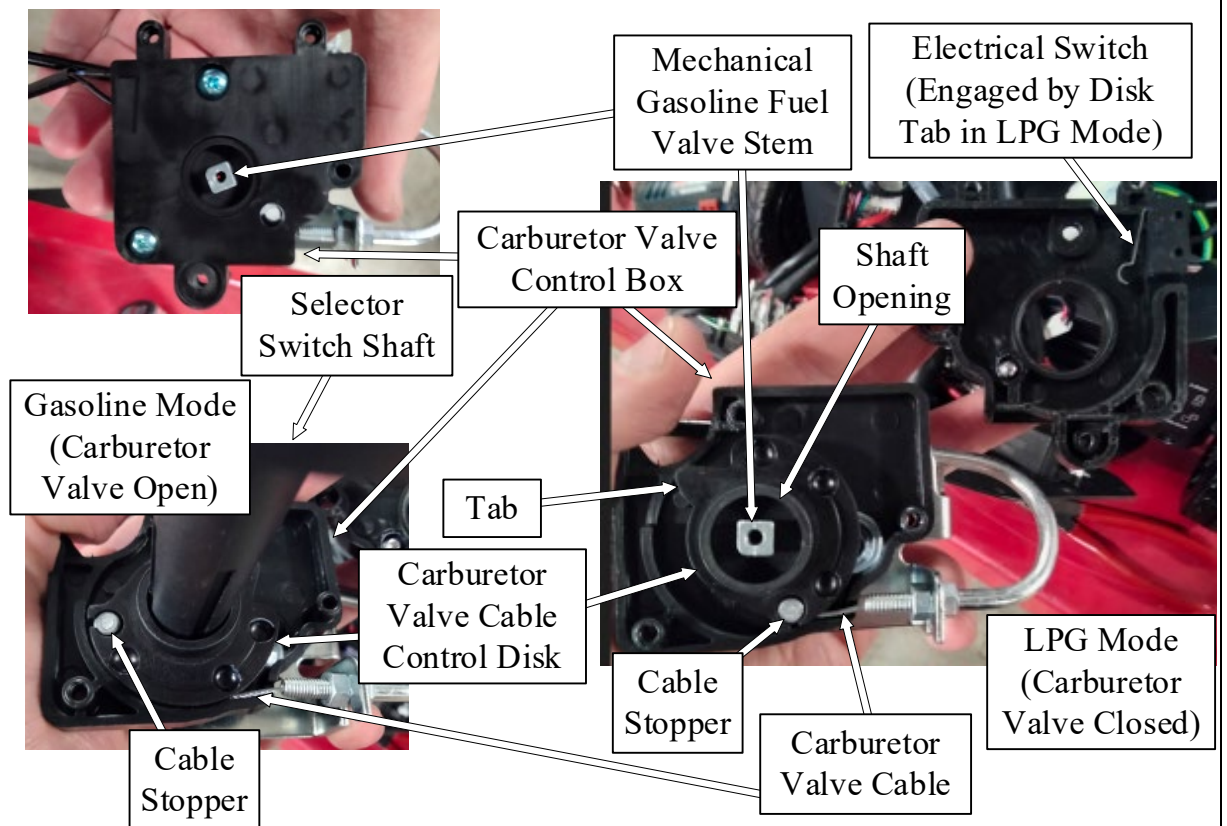
The gasoline valve is positioned between the gasoline tank and the engine. The selector switch shaft engages the gasoline valve. As the selector switch rotates, the shaft actuates the gasoline valve between a closed position in which the gasoline valve prevents gasoline from flowing therethrough and an open position in which the gasoline valve allows gasoline to flow therethrough.

The LPG valve is positioned between the LPG tank and the engine. The selector switch controls the LPG valve via a gear assembly that is located behind the control panel and includes a housing and two gears positioned within the housing. The two gears includes a shaft gear and an LPG valve gear. The shaft gear includes a shaft opening though which the selector switch shaft extends. Projections extending into the shaft opening engage grooves on the selector switch shaft such that, as the selector switch rotates, the shaft gear rotates therewith. The LPG valve gear is engaged with the shaft gear to rotate simultaneously with the shaft gear upon rotation of the selector switch. The LPG valve gear also engages the LPG valve stem to actuate the LPG valve between a closed position in which the LPG valve prevents LPG from flowing therethrough and an open position in which the LPG valve allows LPG to flow therethrough.



The carburetor valve is located in a bottom side of the carburetor in the carburetor's float bowl. The carburetor valve includes a needle that selectively opens and closes a fuel path for gasoline to flow through the carburetor to the engine. That is, the carburetor valve has a closed position in which the carburetor valve prevents gasoline from flowing to the engine and an open position in which the carburetor valve allows gasoline to flow to the engine. The carburetor valve is biased to the closed position via a spring that forces a rotating plate supporting the needle to rotate toward the float bowl. The needle may be retracted to open the fuel path through the float bowl via a cable that is able to overcome the force of the spring.

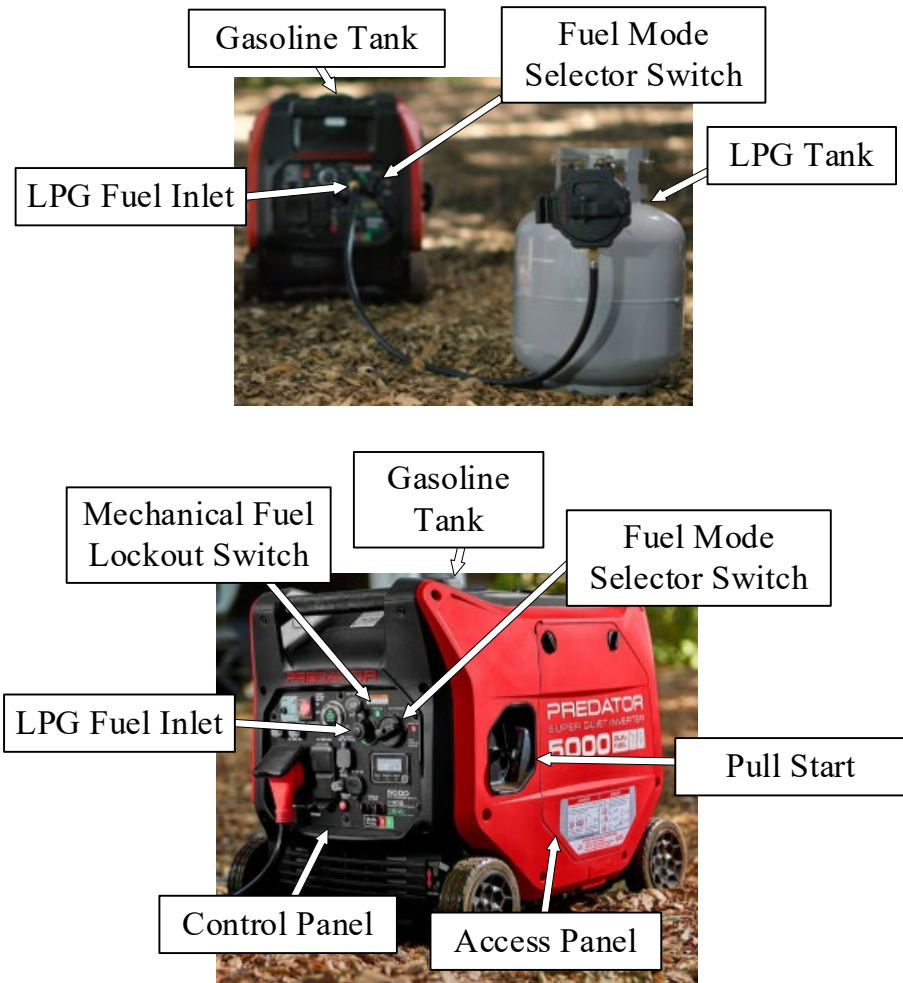
The selector switch controls the cable of the carburetor valve via a carburetor valve control box that is located behind the control panel. The carburetor valve control box includes a carburetor valve cable control disk ("cable control disk"). The cable control disk includes a shaft opening in which the selector switch shaft engages the cable control disk. The gasoline valve stem also extends into the shaft opening, and the selector switch engages the gasoline valve stem therein. The cable control disk additionally holds a cable stopper at an end of the carburetor valve cable. As the selector switch rotates, the cable control disk selectively retracts the carburetor cable by rotating the cable stopper. Retracting the carburetor cable causes the rotating plate to retract the needle and place the carburetor valve into the open position.

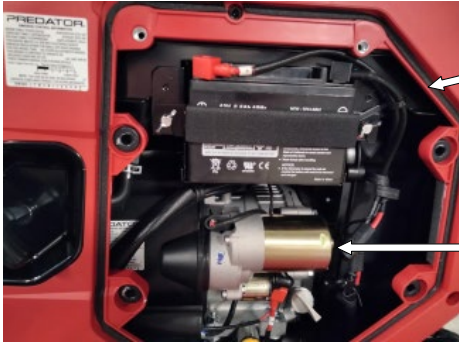
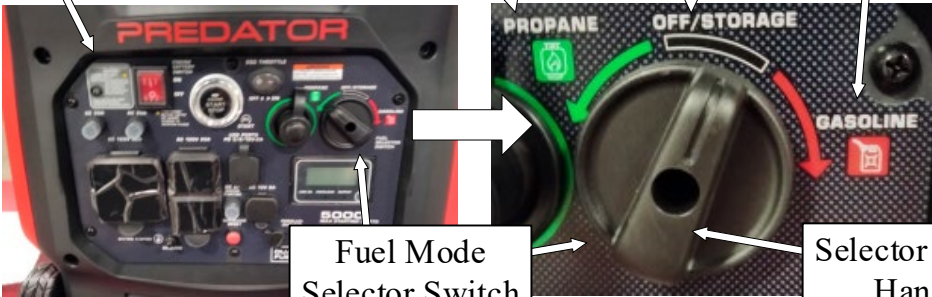


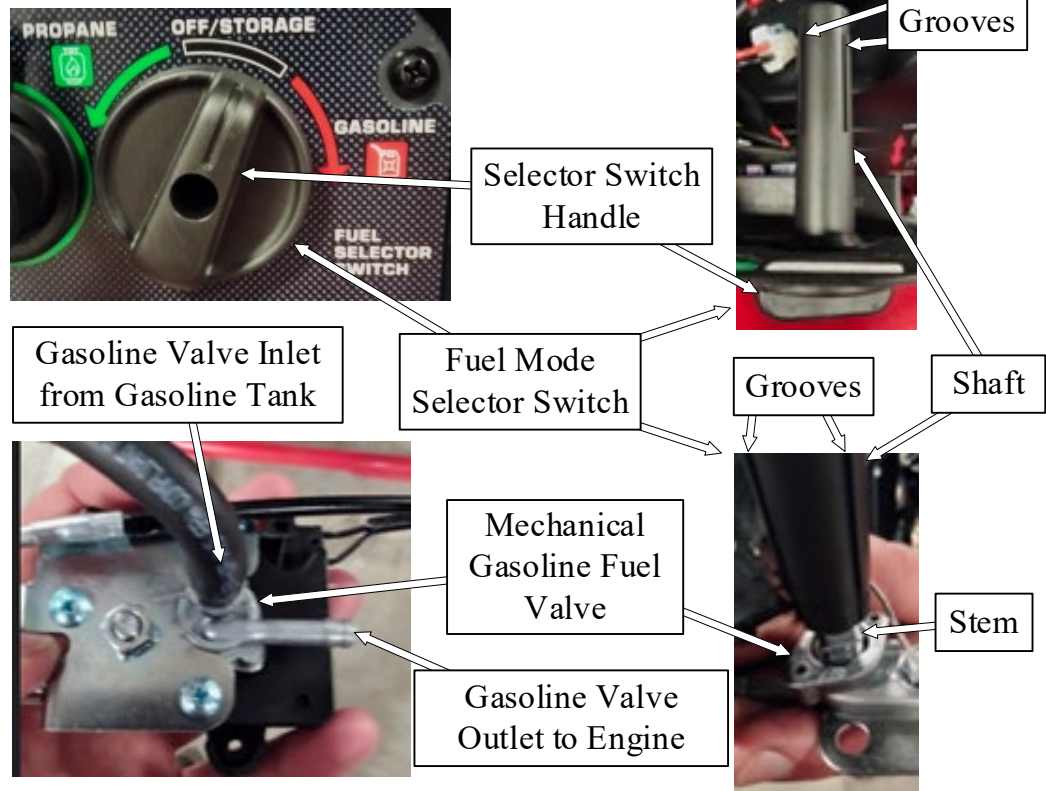
	<p>When the selector switch is in Off Mode, the gasoline valve, LPG valve, and carburetor valves are all in their closed positions to prevent both gasoline and LPG from flowing to the engine. When the selector switch rotates to Gasoline Mode, the selector switch actuates the gasoline and carburetor valves to the open position to allow gasoline to flow to the engine, and the LPG valve remains in the closed position to prevent LPG from flowing to the engine simultaneously with gasoline. When the selector switch rotates to LPG Mode, the selector switch actuates the LPG valve to the open position to allow LPG to flow to the engine and the gasoline and carburetor valves to the closed position to prevent gasoline from flowing to the engine simultaneously with LPG. Thus, any of the gasoline, LPG, and carburetor valves may be considered the claimed mechanical fuel valve.</p>
(b) a fuel lockout apparatus coupled to the mechanical fuel valve;	<p>Element (b) of claim 1 is found within Model 70143 directly and literally as follows:</p> <p>The selector switch coupled to the gasoline and carburetor valves, the gear assembly coupled to the LPG valve, or a combination of the selector switch and the gear assembly may be considered the claimed fuel lockout apparatus.</p>
(c) wherein the mechanical fuel lockout switch:	<p>Element (c) of claim 1 is found within Model 70143 directly and literally as follows:</p> <p>The mechanical fuel lockout switch includes the selector switch; the valve assembly having the gasoline, LPG, and carburetor valves; the gear assembly; and the carburetor valve control box.</p>
(c)(1) communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and	<p>Element (c)(1) of claim 1 is found within Model 70143 directly and literally as follows:</p> <p>When the selector switch is in LPG Mode, the LPG valve is in the open position, and the gasoline and carburetor valves are in the closed position. Thus, the mechanical fuel lockout switch communicates LPG to the engine from the LPG tank and prevents communication of gasoline to the engine from the gasoline tank.</p> <p>Alternatively, when the fuel mode selector switch is in Gasoline Mode, the gasoline and carburetor valves are in the open position, and the LPG valve is in the closed position. Thus, the mechanical fuel lockout switch communicates gasoline to the engine from the gasoline tank and prevents communication of LPG to the engine from the LPG tank.</p>

<p>(c)(2) communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position; and</p>	<p>Element (c)(2) of claim 1 is found within Model 70143 directly and literally as follows:</p> <p>When the fuel mode selector switch rotates to Gasoline Mode, the gasoline and carburetor valves are in the open position, and the LPG valve is in the closed position. Thus, the mechanical fuel lockout switch communicates gasoline to the engine from the gasoline tank and has interrupted communication of LPG to the engine from the LPG tank.</p> <p>Alternatively, when the fuel mode selector switch rotates to LPG Mode, the LPG valve is in the open position, and the gasoline and carburetor valves are in the closed position. Thus, the mechanical fuel lockout switch communicates LPG to the engine from the LPG tank and has interrupted communication of gasoline to the engine from the gasoline tank.</p>
<p>(d) wherein the fuel lockout apparatus is configured to:</p>	<p>Element (d) of claim 1 is found within Model 70143 directly and literally as follows:</p> <p>The selector switch and gear assembly (separately or together) are configured to:</p>
<p>(d)(1) prevent the second fuel source from coupling to the second fuel line while the mechanical fuel valve is in the first position; and</p>	<p>Element (d)(1) of claim 1 is found within Model 70143 directly and literally as follows:</p> <p>When the selector switch is in LPG Mode, the selector switch and gear assembly (separately or together) are configured to prevent the gasoline tank from coupling to a gasoline fuel line extending between the gasoline valve outlet and the carburetor while the LPG valve is in the open position and the gasoline and carburetor valves are in the closed position by preventing actuation of the gasoline, LPG, or carburetor valve without rotating the selector switch or the shaft and LPG valve gears in the gear assembly. That is, when the selector switch is in LPG Mode, the gasoline and carburetor valves cannot be actuated to the open position.</p> <p>Alternatively, when the selector switch is in Gasoline Mode, the selector switch and gear assembly (separately or together) are configured to prevent the LPG tank from coupling to an LPG fuel line extending between the LPG valve outlet and the carburetor while the gasoline and carburetor valves are in the open position and the LPG valve is in the closed position by preventing actuation of the gasoline, LPG, or carburetor valve without rotating the selector switch or the shaft and LPG valve gears in the gear assembly. That is, when the selector switch is in Gasoline Mode, the LPG valve cannot be actuated to the open position.</p>
<p>(d)(2) permit the second fuel source to couple to the</p>	<p>Element (d)(2) of claim 1 is found within Model 70143 directly and literally as follows:</p> <p>When the selector switch is in Gasoline Mode, the selector switch and gear assembly (separately or together) are configured to permit the gasoline tank to couple to the gasoline</p>

<p>second fuel line while the mechanical fuel valve is in the second position.</p>	<p>fuel line extending between the gasoline valve outlet and the carburetor by actuating the gasoline and carburetor valves to the open position. That is, when the selector switch is in Gasoline Mode, the selector switch and gear assembly (separately or together) hold the gasoline and carburetor valves in the open position.</p> <p>Alternatively, when the selector switch is in LPG Mode, the selector switch and gear assembly (separately or together) are configured to permit the LPG tank to couple to the LPG fuel line extending between the LPG valve outlet and the carburetor by actuating the LPG valve to the open position. That is, when the selector switch is in LPG Mode, the selector switch and gear assembly (separately or together) hold the LPG valve in the open position.</p>
<p>6. The mechanical fuel lockout switch for a dual fuel engine of claim 1, wherein the mechanical fuel valve and the fuel lockout apparatus operate together to ensure that fuel from the first fuel source and fuel from the second fuel source are not simultaneously delivered to the dual fuel engine.</p>	<p>Claim 6 is found within Model 70143 directly and literally as follows:</p> <p>Champion incorporates by reference in claim 6 the contentions set forth above for claim 1.</p> <p>As explained above, the selector switch and gear assembly (separately or together) operate together with the gasoline, LPG, and/or carburetor valves to ensure that gasoline from the gasoline tank and LPG from the LPG tank are not simultaneously delivered to the engine.</p>
<p>8. (Preamble) A method of assembling a mechanical fuel lockout switch for an internal</p>	<p>Although not necessary for infringement, the preamble of claim 8 is found within Model 70143 as follows:</p> <p>As explained in more detail below, the components of Model 70143 are arranged in a manner such that they had to be assembled in the manner claimed to include a mechanical fuel lockout switch including a fuel mode selector switch; a valve assembly having gasoline, LPG,</p>

combustion engine comprising:	and carburetor valves; a gear assembly; and a carburetor valve control box for a dual fuel internal combustion engine that may operate on gasoline or LPG.
(a) providing an internal combustion engine configured to operate on a fuel from a first fuel source and a different fuel from a second fuel source;	<p>Element (a) of claim 8 is found within Model 70143 directly and literally as follows:</p>  <p>Model 70143 includes a dual fuel engine that may run on fuel from either of two fuel sources. The first fuel source is a gaseous fuel source in the form of a pressurized LPG tank, and the second fuel source is a liquid fuel source in the form of a gasoline tank. However, the gasoline tank may also be considered the first fuel source, and the LPG tank may be considered the second fuel source, depending on the alternative interpretations below. Both fuel sources feed fuel to the engine via respective fuel lines. The mechanical fuel lockout switch includes a fuel mode selector switch that is located in a control panel and allows only one fuel source to feed fuel to the engine at a time and controls which fuel source is selected.</p>

	<div><div>Access Panel Opening</div><div>Duel Fuel Engine</div></div>
(b) coupling a mechanical fuel valve to the internal combustion engine actuateable between a first position and a second position to selectively control fuel flow to the internal combustion engine from the first fuel source through a first fuel line and the second fuel source through a second fuel line; and	<div>Element (b) of claim 8 is found within Model 70143 directly and literally as follows:</div> <div><div>Control Panel</div><div>LPG Mode</div><div>Off Mode</div><div>Gasoline Mode</div><div><div>Fuel Mode Selector Switch</div><div>Selector Switch Handle</div></div></div>

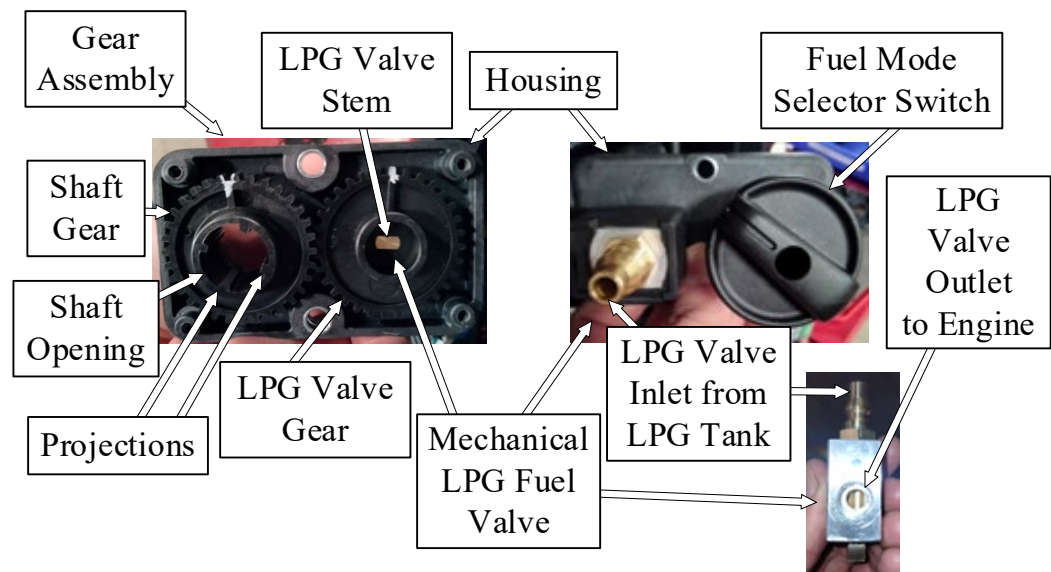


The fuel mode selector switch is rotatable between an Off Mode, an LPG Mode, and a Gasoline Mode via a handle on the front of the selector switch. The selector switch includes a shaft and controls a valve assembly. The valve assembly includes a mechanical gasoline fuel valve located behind the generator control panel of the generator (“gasoline valve”), a mechanical LPG fuel valve located in the control panel of the generator (“LPG valve”), and a mechanical gasoline fuel valve located in the carburetor (“carburetor valve”). Each of the gasoline, LPG, and carburetor valves is coupled to the engine to selectively allow fuel to flow thereto.

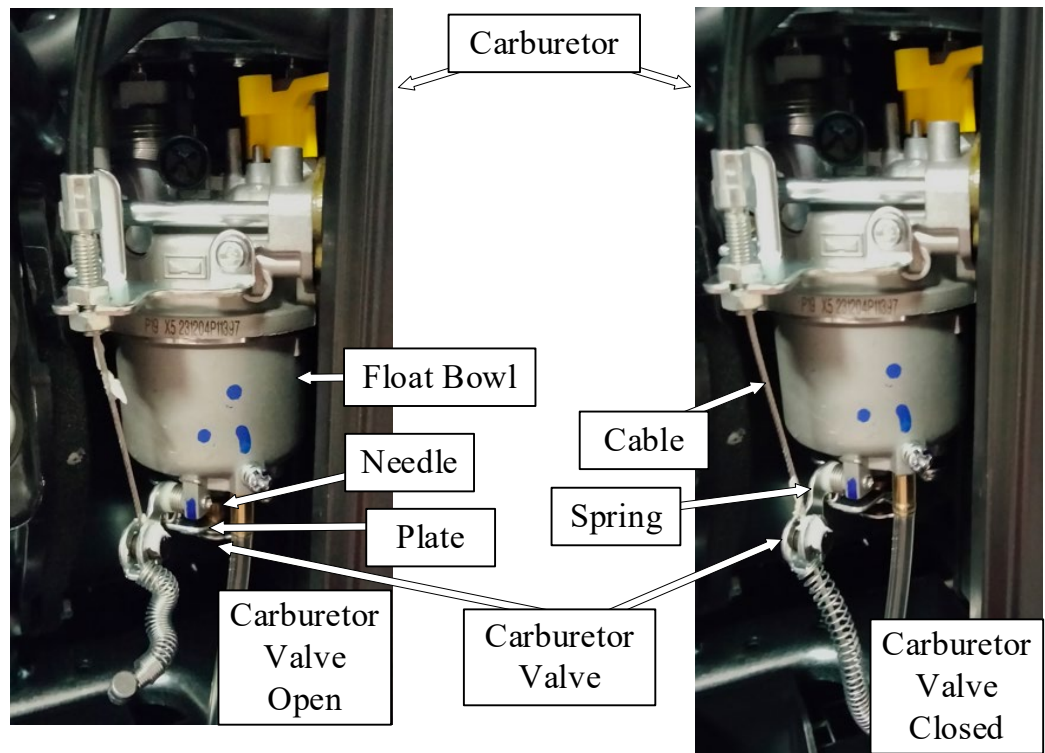
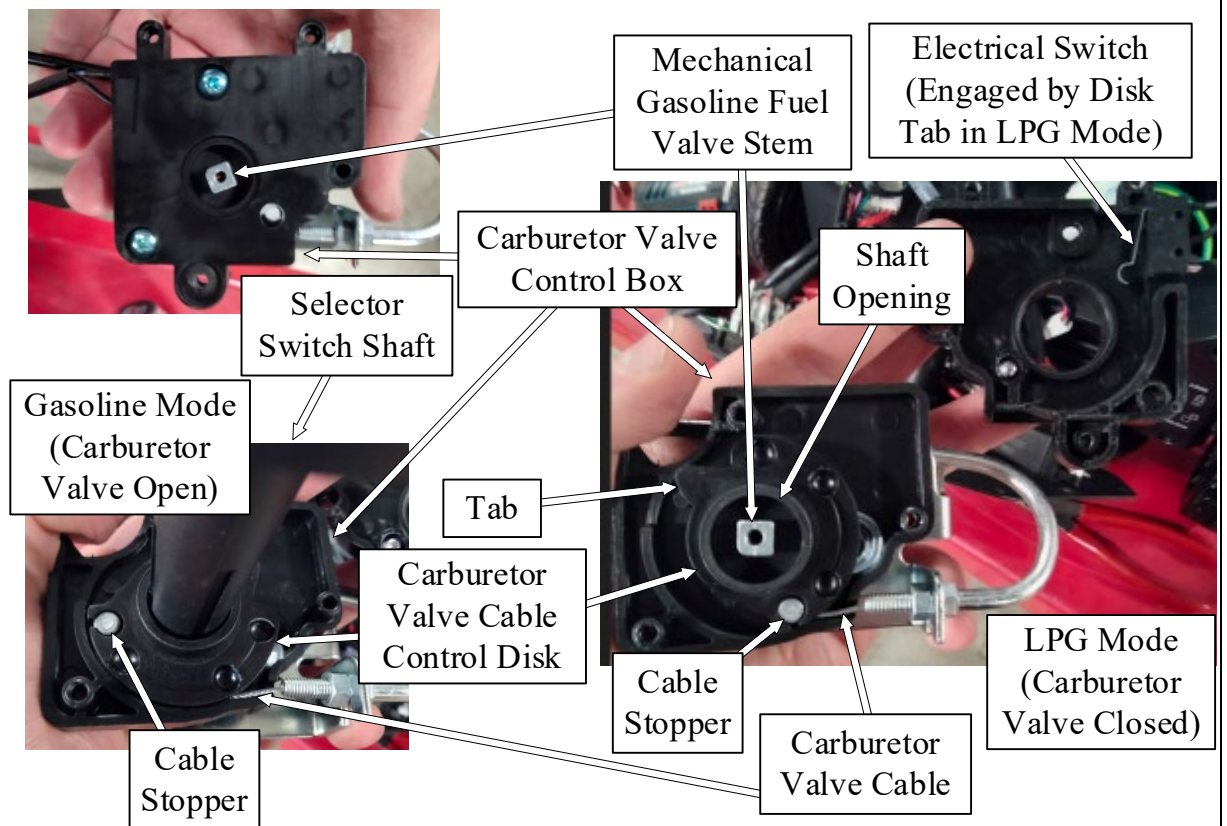
The gasoline valve is positioned between the gasoline tank and the engine. The selector switch shaft engages the gasoline valve. As the selector switch rotates, the shaft actuates the gasoline valve between a closed position in which the gasoline valve prevents gasoline from flowing therethrough and an open position in which the gasoline valve allows gasoline to flow therethrough.

The LPG valve is positioned between the LPG tank and the engine. The selector switch controls the LPG valve via a gear assembly that is located behind the control panel and includes a housing and two gears positioned within the housing. The two gears includes a shaft gear and an LPG valve gear. The shaft gear includes a shaft opening though which the selector switch shaft extends. Projections extending into the shaft opening engage grooves on the selector switch shaft such that, as the selector switch rotates, the shaft gear rotates

therewith. The LPG valve gear is engaged with the shaft gear to rotate simultaneously with the shaft gear upon rotation of the selector switch. The LPG valve gear also engages the LPG valve stem to actuate the LPG valve between a closed position in which the LPG valve prevents LPG from flowing therethrough and an open position in which the LPG valve allows LPG to flow therethrough.

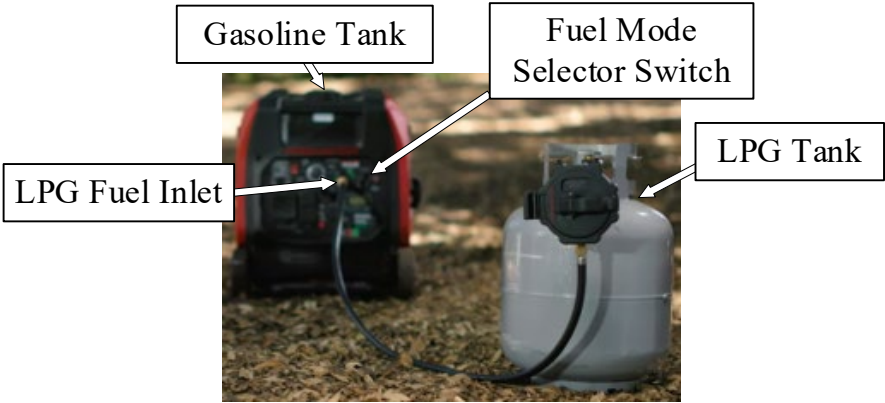
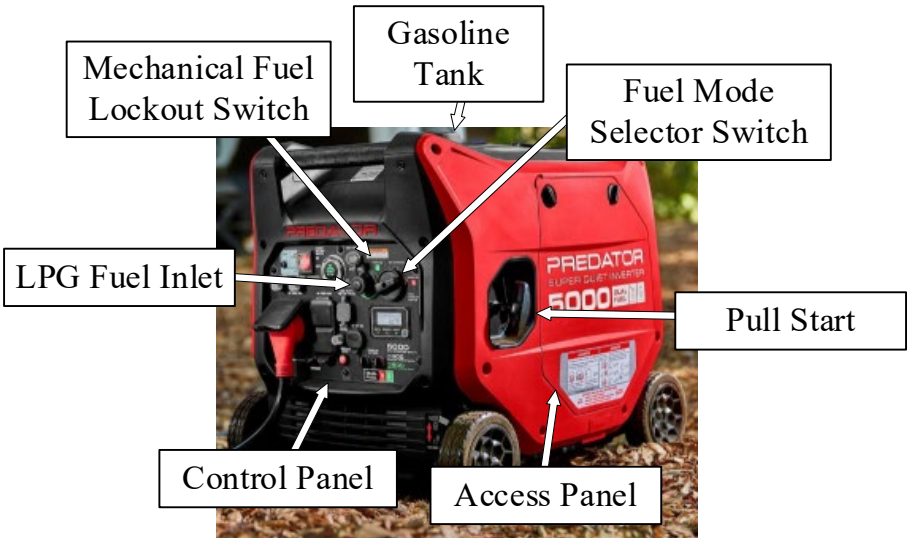


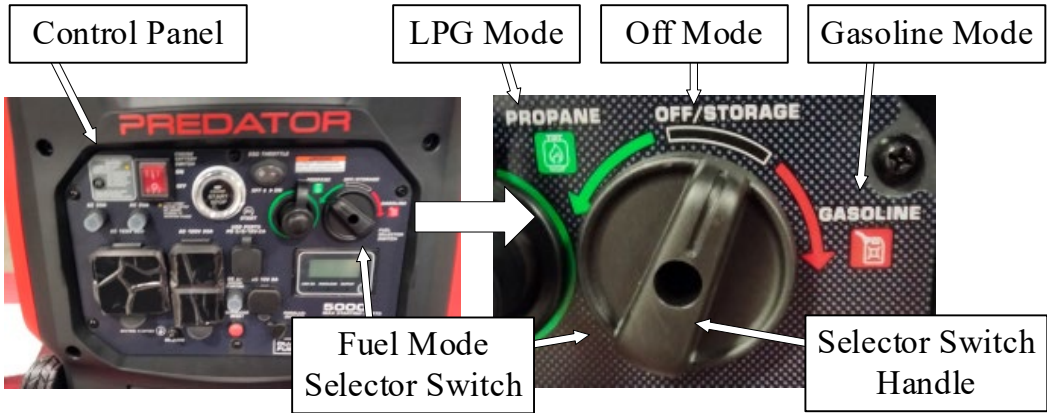
The carburetor valve is located in a bottom side of the carburetor in the carburetor's float bowl. The carburetor valve includes a needle that selectively opens and closes a fuel path for gasoline to flow through the carburetor to the engine. That is, the carburetor valve has a closed position in which the carburetor valve prevents gasoline from flowing to the engine and an open position in which the carburetor valve allows gasoline to flow to the engine. The carburetor valve is biased to the closed position via a spring that forces a rotating plate supporting the needle to rotate toward the float bowl. The needle may be retracted to open the fuel path through the float bowl via a cable that is able to overcome the force of the spring.

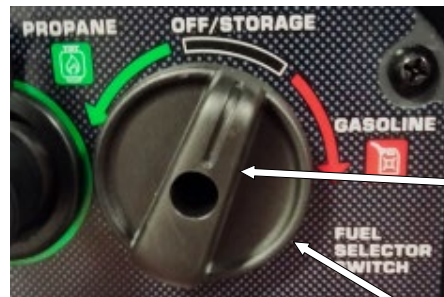


	<p>The selector switch controls the cable of the carburetor valve via a carburetor valve control box that is located behind the control panel. The carburetor valve control box includes a carburetor valve cable control disk (“cable control disk”). The cable control disk includes a shaft opening in which the selector switch shaft engages the cable control disk. The gasoline valve stem also extends into the shaft opening, and the selector switch engages the gasoline valve stem therein. The cable control disk additionally holds a cable stopper at an end of the carburetor valve cable. As the selector switch rotates, the cable control disk selectively retracts the carburetor cable by rotating the cable stopper. Retracting the carburetor cable causes the rotating plate to retract the needle and place the carburetor valve into the open position.</p> <p>When the selector switch is in Off Mode, the gasoline valve, LPG valve, and carburetor valves are all in their closed positions to prevent both gasoline and LPG from flowing to the engine. When the selector switch rotates to Gasoline Mode, the selector switch actuates the gasoline and carburetor valves to the open position to allow gasoline to flow to the engine, and the LPG valve remains in the closed position to prevent LPG from flowing to the engine simultaneously with gasoline. When the selector switch rotates to LPG Mode, the selector switch actuates the LPG valve to the open position to allow LPG to flow to the engine and the gasoline and carburetor valves to the closed position to prevent gasoline from flowing to the engine simultaneously with LPG. Thus, any of the gasoline, LPG, and carburetor valves may be considered the claimed mechanical fuel valve.</p>
(c) coupling a fuel lockout apparatus to the mechanical fuel valve;	<p>Element (c) of claim 8 is found within Model 70143 directly and literally as follows:</p> <p>The selector switch coupled to the gasoline and carburetor valves, the gear assembly coupled to the LPG valve, or a combination of the selector switch and the gear assembly may be considered the claimed a fuel lockout apparatus coupled to a mechanical fuel valve.</p>
(d) wherein when the mechanical fuel valve is in the first position, the fuel lockout apparatus communicates the first fuel source to the internal combustion engine and prevents the	<p>Element (d) of claim 8 is found within Model 70143 directly and literally as follows:</p> <p>When the selector switch is in LPG Mode, the gear assembly holds the LPG valve in the open position, and the selector switch holds the gasoline and carburetor valves in the closed position. Thus, the selector switch and gear assembly (separately or together) communicate LPG form the LPG tank to the engine and prevent the gasoline tank from coupling to the engine. Rotating the selector switch from LPG Mode to Gasoline Mode actuates the LPG valve to the closed position and the gasoline and carburetor valves to the open position, which causes the selector switch and gear assembly (separately or together) to permit the gasoline tank to couple to the engine and interrupts the LPG tank communication with the engine.</p> <p>Alternatively, when the selector switch is in Gasoline Mode, the selector switch holds the gasoline and carburetor valves in the open position, and the gear assembly holds the LPG valve in the closed position. Thus, the selector switch and gear assembly (separately or together) communicate gasoline form the gasoline tank to the engine and prevent the LPG</p>

<p>second fuel source from coupling to the internal combustion engine, and actuation of the mechanical fuel valve to the second position causes the fuel lockout apparatus to permit the second fuel source to couple to the internal combustion engine, and interrupts the first fuel source communication with the internal combustion engine; and</p>	<p>tank from coupling to the engine. Rotating the selector switch from Gasoline Mode to LPG Mode actuates the gasoline and carburetor valves to the closed position and the LPG valve to the open position, which causes the selector switch and gear assembly (separately or together) to permit the LPG tank to couple to the engine and interrupts the gasoline tank communication with the engine.</p>
<p>(e) wherein the fuel lockout apparatus prevents actuation of the mechanical fuel valve to the first position when the second fuel source is coupled to the internal</p>	<p>Element (e) of claim 8 is found within Model 70143 directly and literally as follows:</p> <p>When the selector switch is in Gasoline Mode, the selector switch and gear assembly (separately or together) prevent actuation of the LPG valve to the open position without also actuating the gasoline and carburetor valves to the closed position, at which time, the gasoline tank would no longer be coupled to the engine.</p> <p>Alternatively, when the selector switch is in LPG Mode, the selector switch and gear assembly (separately or together) prevent actuation of the gasoline and carburetor valves to the open position without also actuating the LPG valve to the closed position, at which time, the LPG tank would no longer be coupled to the engine.</p>

combustion engine.	
15. (Preamble) A mechanical fuel lockout switch for a dual fuel engine comprising:	<p>Although not necessary for infringement, the preamble of claim 15 is found within Model 70143 as follows:</p> <div data-bbox="479 510 1359 909"><p>This diagram shows a close-up of the fuel system of a dual fuel engine. It includes a black gasoline tank at the top left, a white LPG tank at the bottom right, and a black fuel mode selector switch in the center. Arrows point from labels to each of these components: 'Gasoline Tank' points to the top left tank, 'Fuel Mode Selector Switch' points to the central switch, 'LPG Fuel Inlet' points to the inlet on the left, and 'LPG Tank' points to the bottom right tank.</p></div> <p>Model 70143 includes a dual fuel engine that may run on fuel from either of two fuel sources. The first fuel source is a gaseous fuel source in the form of a pressurized LPG tank, and the second fuel source is a liquid fuel source in the form of a gasoline tank. However, the gasoline tank may also be considered the first fuel source, and the LPG tank may be considered the second fuel source, depending on the alternative interpretations below. Both fuel sources feed fuel to the engine via respective fuel lines. The mechanical fuel lockout switch includes a fuel mode selector switch that is located in a control panel and allows only one fuel source to feed fuel to the engine at a time and controls which fuel source is selected.</p> <div data-bbox="467 1278 1369 1812"><p>This diagram shows a wider view of the dual fuel engine, a red Predator 5000 model. It includes a black gasoline tank at the top, a white LPG tank at the bottom right, and a black fuel mode selector switch in the center. Arrows point from labels to each of these components: 'Mechanical Fuel Lockout Switch' points to the switch on the left, 'Gasoline Tank' points to the top tank, 'Fuel Mode Selector Switch' points to the central switch, 'LPG Fuel Inlet' points to the inlet on the left, 'Pull Start' points to the handle on the right, 'Control Panel' points to the panel on the left, and 'Access Panel' points to the panel on the right.</p></div>

	 <p>Access Panel Opening</p> <p>Dual Fuel Engine</p>
<p>(a) a mechanical fuel valve actuateable between a first position and a second position to selectively control fuel flow to the dual fuel engine from a first fuel source through a first fuel line and a second fuel source through a second fuel line; and</p>	<p>Element (a) of claim 15 is found within Model 70143 directly and literally as follows:</p>  <p>Control Panel</p> <p>LPG Mode</p> <p>Off Mode</p> <p>Gasoline Mode</p> <p>Fuel Mode Selector Switch</p> <p>Selector Switch Handle</p> <p>The fuel mode selector switch is rotatable between an Off Mode, an LPG Mode, and a Gasoline Mode via a handle on the front of the selector switch. The selector switch includes a shaft and controls a valve assembly. The valve assembly includes a mechanical gasoline fuel valve located behind the generator control panel of the generator (“gasoline valve”), a mechanical LPG fuel valve located in the control panel of the generator (“LPG valve”), and a mechanical gasoline fuel valve located in the carburetor (“carburetor valve”).</p>



Selector Switch Handle

Gasoline Valve Inlet from Gasoline Tank

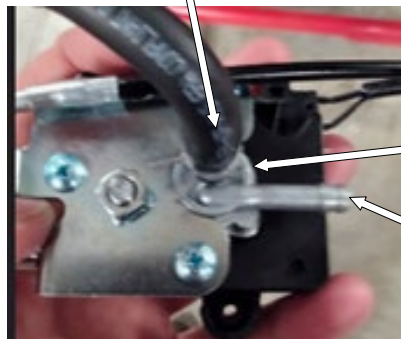
Fuel Mode Selector Switch



Grooves

Grooves

Shaft



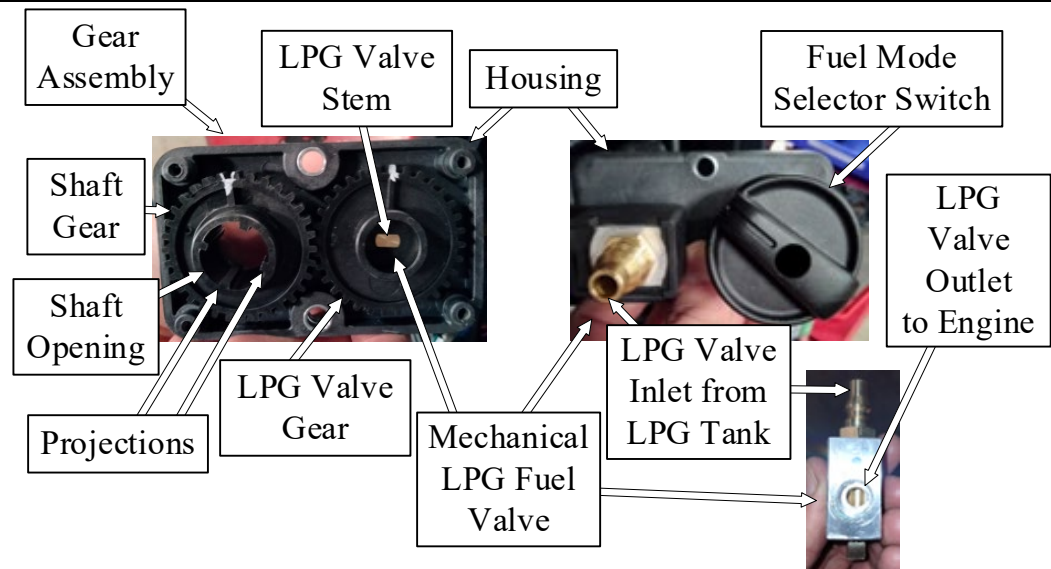
Mechanical Gasoline Fuel Valve

Gasoline Valve Outlet to Engine

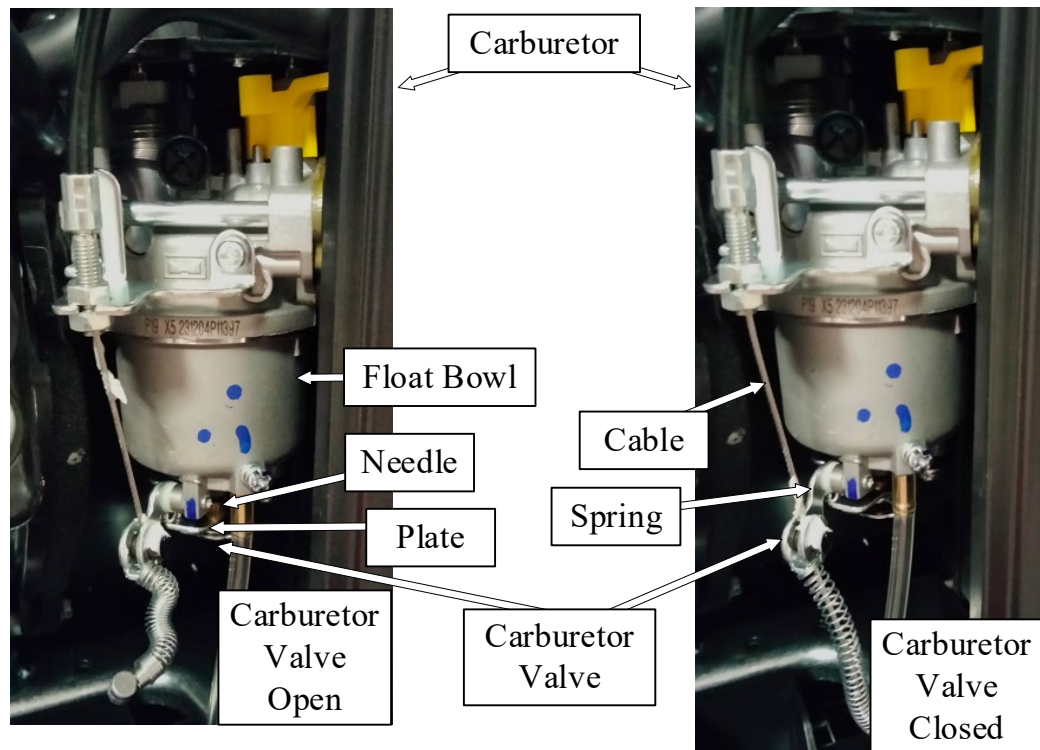


Stem

The gasoline valve is positioned between the gasoline tank and the engine. The selector switch shaft engages the gasoline valve. As the selector switch rotates, the shaft actuates the gasoline valve between a closed position in which the gasoline valve prevents gasoline from flowing therethrough and an open position in which the gasoline valve allows gasoline to flow therethrough.

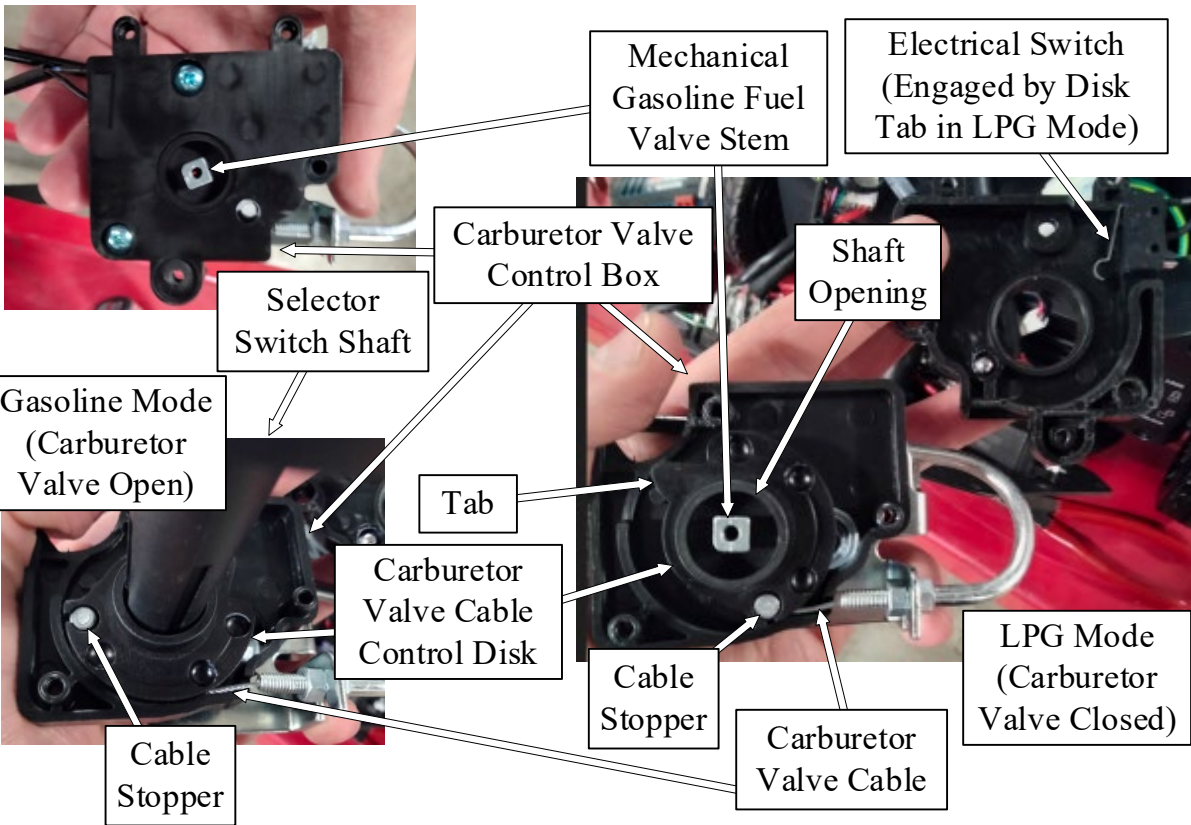


The LPG valve is positioned between the LPG tank and the engine. The selector switch controls the LPG valve via a gear assembly that is located behind the control panel and includes a housing and two gears positioned within the housing. The two gears includes a shaft gear and an LPG valve gear. The shaft gear includes a shaft opening though which the selector switch shaft extends. Projections extending into the shaft opening engage grooves on the selector switch shaft such that, as the selector switch rotates, the shaft gear rotates therewith. The LPG valve gear is engaged with the shaft gear to rotate simultaneously with the shaft gear upon rotation of the selector switch. The LPG valve gear also engages the LPG valve stem to actuate the LPG valve between a closed position in which the LPG valve prevents LPG from flowing therethrough and an open position in which the LPG valve allows LPG to flow therethrough.



The carburetor valve is located in a bottom side of the carburetor in the carburetor's float bowl. The carburetor valve includes a needle that selectively opens and closes a fuel path for gasoline to flow to through the carburetor to the engine. That is, the carburetor valve has a closed position in which the carburetor valve prevents gasoline from flowing to the engine and an open position in which the carburetor valve allows gasoline to flow to the engine. The carburetor valve is biased to the closed position via a spring that forces a rotating plate supporting the needle to rotate toward the float bowl. The needle may be retracted to open the fuel path through the float bowl via a cable that is able to overcome the force of the spring.

The selector switch controls the cable of the carburetor valve via a carburetor valve control box that is located behind the control panel. The carburetor valve control box includes a carburetor valve cable control disk ("cable control disk"). The cable control disk includes a shaft opening in which the selector switch shaft engages the cable control disk. The gasoline valve stem also extends into the shaft opening, and the selector switch engages the gasoline valve stem therein. The cable control disk additionally holds a cable stopper at an end of the carburetor valve cable. As the selector switch rotates, the cable control disk selectively retracts the carburetor cable by rotating the cable stopper. Retracting the carburetor cable causes the rotating plate to retract the needle and place the carburetor valve into the open position.

	 <p>When the selector switch is in Off Mode, the gasoline valve, LPG valve, and carburetor valves are all in their closed positions to prevent both gasoline and LPG from flowing to the engine. When the selector switch rotates to Gasoline Mode, the selector switch actuates the gasoline and carburetor valves to the open position to allow gasoline to flow to the engine, and the LPG valve remains in the closed position to prevent LPG from flowing to the engine simultaneously with gasoline. When the selector switch rotates to LPG Mode, the selector switch actuates the LPG valve to the open position to allow LPG to flow to the engine and the gasoline and carburetor valves to the closed position to prevent gasoline from flowing to the engine simultaneously with LPG. Thus, any of the gasoline, LPG, and carburetor valves may be considered the claimed mechanical fuel valve.</p>
(b) a fuel lockout apparatus coupled to the mechanical fuel valve;	<p>Element (b) of claim 15 is found within Model 70143 directly and literally as follows:</p> <p>The selector switch coupled to the gasoline and carburetor valves, the gear assembly coupled to the LPG valve, or a combination of the selector switch and the gear assembly may be considered the claimed a fuel lockout apparatus.</p>
(c) wherein the mechanical	<p>Element (c) of claim 15 is found within Model 70143 directly and literally as follows:</p>

fuel lockout switch:	The mechanical fuel lockout switch includes the selector switch; the valve assembly having the gasoline, LPG, and carburetor valves; the gear assembly; and the carburetor valve control box.
(c)(1) communicates the first fuel source to the dual fuel engine and prevents communication between the second fuel source and the dual fuel engine when the mechanical fuel valve is in the first position, and	<p>Element (c)(1) of claim 15 is found within Model 70143 directly and literally as follows:</p> <p>When the selector switch is in LPG Mode, the LPG valve is in the open position, and the gasoline and carburetor valves are in the closed position. Thus, the mechanical fuel lockout switch communicates LPG to the engine from the LPG tank and prevents communication of gasoline to the engine from the gasoline tank.</p> <p>Alternatively, when the fuel mode selector switch is in Gasoline Mode, the gasoline and carburetor valves are in the open position, and the LPG valve is in the closed position. Thus, the mechanical fuel lockout switch communicates gasoline to the engine from the gasoline tank and prevents communication of LPG to the engine from the LPG tank.</p>
(c)(2) communicates the second fuel source to the dual fuel engine and interrupts the first fuel source communication with the dual fuel engine when in the second position; and	<p>Element (c)(2) of claim 15 is found within Model 70143 directly and literally as follows:</p> <p>When the fuel mode selector switch rotates to Gasoline Mode, the gasoline and carburetor valves are in the open position, and the LPG valve is in the closed position. Thus, the mechanical fuel lockout switch communicates gasoline to the engine from the gasoline tank and has interrupted communication of LPG to the engine from the LPG tank.</p> <p>Alternatively, when the fuel mode selector switch rotates to LPG Mode, the LPG valve is in the open position, and the gasoline and carburetor valves are in the closed position. Thus, the mechanical fuel lockout switch communicates LPG to the engine from the LPG tank and has interrupted communication of gasoline to the engine from the gasoline tank.</p>
(d) wherein the fuel lockout apparatus prevents actuation of	<p>Element (d) of claim 15 is found within Model 70143 directly and literally as follows:</p> <p>When the selector switch is in Gasoline Mode, the selector switch and gear assembly (separately or together) prevent actuation of the LPG valve to the open position without also</p>

the mechanical fuel valve to the first position when the second fuel source communicates with the dual fuel engine.	<p>actuating the gasoline and carburetor valves to the closed position, at which time, the gasoline tank would no longer communicate with the engine.</p> <p>Alternatively, when the selector switch is in LPG Mode, the selector switch and gear assembly (separately or together) prevent actuation of the gasoline and carburetor valves to the open position without also actuating the LPG valve to the closed position, at which time, the LPG tank would no longer communicate with the engine.</p>
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