16.Diagnostics for Engine Starting Failure A: PROCEDURE

1. Check of the fuel amount
\rightarrow
2. Inspection of starter motor circuit. < Ref. to EN(H6DO)(diag)-76, STARTER MOTOR CIRCUIT, Diagnostics for Engine Starting Failure.>
\downarrow
3. Inspection of ECM power supply and ground line. <ref. (ecm),="" and="" check="" control="" diagnostics="" en(h6do)(diag)-86,="" engine="" failure.="" for="" ground="" line="" module="" of="" power="" starting="" supply="" to=""></ref.>
\rightarrow
4. Inspection of ignition control system. <ref. control="" diagnostics="" en(h6do)(diag)-89,="" engine="" failure.="" for="" ignition="" starting="" system,="" to=""></ref.>
\rightarrow
5. Inspection of fuel pump circuit. <ref. circuit,="" diagnostics="" en(h6do)(diag)-92,="" engine="" failure.="" for="" fuel="" pump="" starting="" to=""></ref.>
\rightarrow
6. Inspection of fuel injector circuit. <ref. circuit,="" diagnostics="" en(h6do)(diag)-93,="" engine="" fail-<br="" for="" fuel="" injector="" starting="" to="">ure.></ref.>

ENGINE (DIAGNOSTICS)

B: STARTER MOTOR CIRCUIT

1. MODEL WITHOUT PUSH BUTTON START

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H6DO)(diag)-64, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H6DO)(diag)-49, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

Engine electrical system, 3.6 L model (without push button start)<Ref. to WI-150, 3.6 L MODEL (WITHOUT PUSH BUTTON START), WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	CHECK BATTERY. Check the battery. <ref. gen-<br="" sc(h6do)-2,="" to="">eral Description.></ref.>	Is the battery OK?	Go to step 2.	Charge or replace the battery. <ref. to SC(H6DO)-20, Battery.></ref.
2	CHECK OPERATION OF STARTER MOTOR.	Does the starter motor oper- ate?	Go to step 3.	Go to step 4.

	Sten	Check	Ves	No
2			Chook the energy	Check ignition con
3	CHECK DTC.	EN(H6DO)(diag)-48, OPERA-	priate DTC using	trol system. <ref.< td=""></ref.<>
		TION. Read Diagnostic Trouble	the "List of Diag-	to
		Code (DTC).>	nostic Trouble	EN(H6DO)(diag)-
			Code (DTC)".	89, IGNITION
			<ref. td="" to<=""><td>CONTROL SYS-</td></ref.>	CONTROL SYS-
			EN(H6DO)(diag)-	TEM, Diagnostics
			97, List of Diagnos-	for Engine Starting
			tic Trouble Code	Failure.>
			(DTC).>	
4	CHECK INPUT SIGNAL FOR STARTER MO-	Is the voltage 10 V or more?	Check the starter	Go to step 5.
	IUR.		motor. <ref. td="" to<=""><td></td></ref.>	
	 Disconnect the connector from starter 		$SC(\Pi ODO)-7$,	
	2) Disconnect the connector from statter		Starter.>	
	3) Place the select lever in "P" range or "N"			
	range.			
	4) Turn the ignition switch to START.			
	5) Measure the voltage between the starter			
	motor connector and the engine ground.			
	Connector & terminal			
	(B14) No. 1 (+) — Engine ground (–):			-
5	CHECK INPUT SIGNAL FOR STARTER MO-	Is the voltage 10 V or more?	Repair the open	Go to step 6.
	1) Diago the coloct lover in "D" renge or "N"		circuit of the har-	
	range		starter relay con-	
	2) Turn the ignition switch to START		nector and starter	
	3) Measure the voltage between starter relay		motor	
	connector and chassis ground.			
	Connector & terminal			
	(B493) No. 3 (+) — Chassis ground (–):			
6	CHECK HARNESS BETWEEN BATTERY	Is the voltage 10 V or more?	Go to step 7.	Repair the power
	AND IGNITION SWITCH CONNECTOR.			supply circuit.
	1) Turn the ignition switch to OFF.			
	2) Disconnect the connector from ignition			
	switch.			
	3) Measure the voltage between ignition			
	Connector & terminal			
	(B72) No. 3 (+) — Chassis ground (–):			
7	CHECK IGNITION SWITCH.	Is the resistance less than 1 Ω ?	Go to step 8.	Replace the igni-
	Measure the resistance between ignition switch			tion switch. <ref.< td=""></ref.<>
	terminals after turning the ignition switch to			to SL-67,
	START position.			REPLACEMENT,
	Terminals			Ignition Key Lock.>
	No. 3 — No. 2:			
	No. 3 — No. 6:			
8	CHECK INPUT VOLTAGE OF STARTER RE-	Is the voltage 10 V or more?	Go to step 9.	Repair the open
	LAT. 1) Remove the starter relev			circuit of narness
	 nemove the statter felay. 2) Connect the connector to ignition quitch 			relay connector
	 Connect the connector to ignition switch. Turn the ignition switch to START 			and ignition switch
	 4) Measure the voltage between starter relay 			connector
	connector and chassis ground			
	Connector & terminal			
	(B493) No. 4 (+) — Chassis ground (–):			

	Step	Check	Yes	No
9	CHECK STARTER RELAY.	Is the resistance less than 1 Ω ?	Go to step 10.	Replace the starter
	1) Connect the battery to starter relay termi-		•	relay.
	nals No. 1 and No. 2.			
	2) Measure the resistance between starter			
	relay terminals.			
	No 3 – No 4:			
10	CHECK HABNESS BETWEEN ECM AND	Is the resistance less than 1 O?	Go to step 11	Renair the open
	STARTER RELAY CONNECTOR.			circuit of harness
	1) Turn the ignition switch to OFF.			between ECM con-
	2) Disconnect the connector from ECM.			nector and starter
	3) Measure the resistance of harness between			relay connector.
	ECM connector and starter relay connector.			
	Connector & terminal (B135) No. 26 — (B493) No. 1:			
	(B136) No. 16 — (B493) No. 3:			
11	CHECK INPUT VOLTAGE OF STARTER RE-	Is the voltage 10 V or more?	Go to step 12.	Go to step 13.
	LAY.			
	 Connect the connector to ECM. 			
	Place the select lever in "P" range or "N"			
	range.			
	 4) Measure the voltage between starter relay. 			
	connector and chassis ground.			
	Connector & terminal			
	(B493) No. 2 (+) — Chassis ground (–):			
12	CHECK HARNESS BETWEEN ECM AND IN-	Is the resistance less than 1 Ω ?	Check the ECM	Repair the open
	HIBITOR RELAY CONNECTOR.		power supply and	circuit in harness
	 Iurn the ignition switch to OFF. Disconnect the inhibitor relay connector 		ground line. <ret.< th=""><th>between ECIVI con-</th></ret.<>	between ECIVI con-
	 Measure the resistance of harness between 		EN(H6DO)(diag)-	relav connector.
	ECM connector and inhibitor relay connector.		86, CHECK	
	Connector & terminal		POWER SUPPLY	
	(B136) No. 35 — (B498) No. 1:		AND GROUND	
			ULE (ECM) Diag-	
			nostics for Engine	
			Starting Failure.>	
13	CHECK INPUT VOLTAGE OF INHIBITOR RE-	Is the voltage 10 V or more?	Go to step 14.	Check the follow-
	LAY.			ing item and repair
	1) Turn the ignition switch to OFF.			if necessary.
	 Disconnect the inhibitor relay connector. Turn the ignition switch to START 			• Blown out of fuse
	4) Measure the voltage between inhibitor relay			Open or around
	connector and chassis ground.			short circuit of har-
	Connector & terminal			ness between igni-
	(B498) No. 2 (+) — Chassis ground (–):			tion switch
	(B498) No. 4 (+) — Chassis ground (–):			connector and
				nector
14	CHECK INHIBITOR RELAY.	Is the resistance less than 1 O?	Go to step 15.	Replace the inhibi-
	1) Connect the battery to inhibitor relay termi-			tor relay.
	nals No. 1 and No. 2.			
	2) Measure the resistance between inhibitor			
	relay terminals.			
	No. $3 - No. 4$			
1		1		

	Step	Check	Yes	No
15	 CHECK HARNESS BETWEEN INHIBITOR RELAY CONNECTOR AND STARTER RE- LAY CONNECTOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between inhibitor relay connector and starter relay con- nector. Connector & terminal (B498) No. 3 — (B493) No. 2: 	Is the resistance less than 1 Ω ?	Repair the open circuit of harness between TCM and inhibitor relay con- nector.	Repair the open circuit of harness between inhibitor relay connector and starter relay connector.

ENGINE (DIAGNOSTICS)

2. MODEL WITH PUSH BUTTON START

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H6DO)(diag)-64, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H6DO)(diag)-49, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

Engine electrical system, 3.6 L model (with push button start)<Ref. to WI-166, 3.6 L MODEL (WITH PUSH BUTTON START), WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	CHECK BATTERY. Check the battery. <ref. bat-<br="" sc(h6do)-20,="" to="">tery.></ref.>	Is the battery OK?	Go to step 2.	Charge or replace the battery. <ref. to SC(H6DO)-20, Battery.></ref.
2	CHECK OPERATION OF STARTER MOTOR.	Does the starter motor oper- ate?	Go to step 3.	Go to step 4.
3	CHECK DTC.	Is DTC displayed? <ref. to<br="">EN(H6DO)(diag)-48, OPERA- TION, Read Diagnostic Trouble Code (DTC).></ref.>	Check the appro- priate DTC using the "List of Diag- nostic Trouble Code (DTC)". <ref. to<br="">EN(H6DO)(diag)- 97, List of Diagnos- tic Trouble Code (DTC).></ref.>	Check ignition con- trol system. <ref. to EN(H6DO)(diag)- 89, IGNITION CONTROL SYS- TEM, Diagnostics for Engine Starting Failure.></ref.
4	CHECK PUSH BUTTON IGNITION SWITCH. Press the push button ignition switch twice with the ignition OFF (ACC OFF). NOTE: Release the brake pedal.	Does the ignition turn to ON?	Go to step 5 .	Check the push button start sys- tem. <ref. to<br="">KPS(diag)-86, INSPECTION, General Diagnos- tic Table.></ref.>
5	 CHECK PUSH BUTTON IGNITION SWITCH. 1) Depress the brake pedal. NOTE: Shift the select lever to "P" range. 2) Check the push button ignition switch indicator. 	Does the indicator turn to green?	Go to step 6 .	Check the brake signal circuit. <ref. to CC(diag)-18, 12, Diagnostic Proce- dure with Cancel Code.></ref.
6	 CHECK START SWITCH SIGNAL. 1) Read the waveform of «Starter SW» using the Subaru Select Monitor. NOTE: For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h6do)(diag)-40,="" monitor.="" select="" subaru="" to=""></ref.> 2) Press the push button ignition switch once with the brake pedal depressed. 	Does waveform of the «Starter SW» occur?	Go to step 10.	Go to step 7.
7	 CHECK HARNESS BETWEEN ECM AND KEYLESS ACCESS CM. 1) Turn the ignition to OFF. 2) Disconnect the connectors from ECM and keyless access CM. 3) Measure the resistance of harness between ECM connector and keyless access CM. <i>Connector & terminal</i> (B136) No. 16 — (B572) No. 7: 	Is the resistance less than 1 Ω?	Go to step 8.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and keyless access CM con- nector • Poor contact of coupling connector
8	CHECK HARNESS BETWEEN ECM AND KEYLESS ACCESS CM. Measure the resistance between ECM connec- tor and chassis ground. Connector & terminal (B136) No. 16 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 9.	Repair the short circuit to ground in harness between ECM connector and keyless access CM con- nector.

	Step	Check	Yes	No
9	CHECK START SWITCH SIGNAL.	Does waveform of the start	Repair the poor	Repair the poor
	1) Connect the connector to ECM and keyless	switch signal occur?	contact of ECM	contact of keyless
	access CM.		connector.	access CM con-
	2) Read the waveform of start switch signal			nector.
	USING an OSCIIIOSCOPE.			
	with the brake pedal depressed			
	Connector & terminal			
	(B136) No. 16 (+) — Chassis ground (–):			
10	CHECK INPUT SIGNAL FOR STARTER MO-	Is the voltage 10 V or more?	Check the starter	Go to step 11.
	TOR.		motor. <ref. td="" to<=""><td></td></ref.>	
	 Iurn the ignition to OFF. Disconnect the connector from starter 		SC(H6DO)-7,	
	2) Disconnect the connector norm starter		Starter.>	
	 Place the select lever in "P" range or "N" 			
	range.			
	4) Press the push button ignition switch once			
	with the brake pedal depressed.			
	5) Measure the voltage between the starter			
	Connector & terminal			
	(B14) No. 1 (+) — Engine ground (–):			
11	CHECK HARNESS BETWEEN STARTER RE-	Is the resistance less than 1 Ω ?	Go to step 12.	Repair the open
	LAY CONNECTOR AND STARTER MOTOR.			circuit of the har-
	1) Remove the starter relay.			ness between
	2) Measure the resistance of harness between			starter relay con-
	Connector & terminal			motor
	(B225) No. 43 — (B14) No. 1:			
12	CHECK IG RELAY 1 (PUSH BUTTON START)	Is the voltage 10 V or more?	Go to step 13.	Check the follow-
	POWER SUPPLY.			ing item and repair
	1) Remove the IG relay 1 (push button start).			or replace if neces-
	 2) Turn the ignition to ON. 2) Measure the voltage between the IC relay 1. 			sary.
	(push button start) connector and chassis			Open circuit or
	ground.			short circuit to
	Connector & terminal			ground in harness
	(B225) No. 32 (+) — Chassis ground (–):			between IG relay 1
	(B225) No. 35 (+) — Chassis ground (–):			(push button start)
				Less access CM
				connector
				 Open circuit or
				short circuit to
				ground in harness
				between IG relay 1
				connector and bat-
				tery
				 Poor contact of
				coupling connector
13	CHECK HARNESS BETWEEN IG RELAY 1	Is the resistance less than 5 Ω ?	Go to step 14.	Repair the open
	(PUSH BUTTON START) CONNECTOR AND			circuit in harness
	1) Turn the ignition to OFF			perween the IG
	 Measure the resistance of harness between 			ton start) connec-
	the IG relay 1 (push button start) connector and			tor and chassis
	chassis ground.			ground.
	Connector & terminal			
	(B225) No. 34 — Chassis ground:			

r	•	• •••••		
	Step	Check	Yes	No
14	CHECK IG RELAY 1 (PUSH BUTTON START).	Is the resistance less than 1 Ω ?	Go to step 15.	Replace the IG relay 1 (push but-
	ton start) terminals No. 34 and No. 35			SI -115 IG Belavi
	2) Measure the resistance between IG relay 1			(Push Button
	(push button start) terminals.			Start).>
	Terminals			Old ().>
	No. 32 — No. 33:			
15	CHECK STARTER RELAY (PUSH BUTTON	Is the voltage 10 V or more?	Go to step 16.	Check the follow-
	START) POWER SUPPLY.	5	•	ing item and repair
	1) Install the IG relay 1 (push button start).			or replace if neces-
	2) Remove the starter relay (push button start).			sary.
	3) Turn the ignition to ON.			 Blown out of fuse
	4) Measure the voltage between starter relay			(F/B No. 26)
	(push button start) connector and chassis			Open circuit or
	Ground.			short circuit to
	$(B225)$ No. 36 (\pm) — Chassis around ($-$):			hetween starter
	(B225) No. 39 (+) — Chassis ground (-):			relay (push button
	(), ()			start) connector
				and IG relay 1
				(push button start)
				connector
				 Open circuit or
				short circuit to
				ground in narness
				relay (nush button
				start) connector
				and battery
16	CHECK HARNESS BETWEEN STARTER RE-	Is the resistance less than 5 Ω ?	Go to step 17.	Repair the open
	LAY (PUSH BUTTON START) CONNECTOR			circuit in harness
	AND CHASSIS GROUND.			between starter
	1) Turn the ignition to OFF.			relay (push button
	2) Measure the resistance of harness between			start) connector
	starter relay (push button start) connector and			and chassis
	Connector & terminal			ground.
	(B225) No. 38 — Chassis around:			
17	CHECK STARTER BELAY (PUSH BUTTON	Is the resistance less than 1 O?	Go to step 18	Replace the starter
···	START).			relay (push button
	1) Connect the battery to starter relay (push			start). <ref. sl-<="" td="" to=""></ref.>
	button start) terminals No. 38 and No. 39.			113, Starter Relay
	2) Measure the resistance between starter			(Push Button
	relay (push button start) terminals.			Start).>
	Ierminais No 26 No 27:			
10		le the registered loss than 1 02	Go to stop 10	Popair the open
10	LAV (PUSH BUTTON START) CONNECTOR		Go to step 19.	circuit in harness
	AND STARTER CUT RELAY CONNECTOR.			between starter
	1) Remove the starter cut relay.			relay (push button
	2) Measure the resistance of harness between			start) connector
	starter relay (push button start) connector and			and starter cut
	starter cut relay connector.			relay connector.
	Connector & terminal			
	(B225) No. 37 — (B225) No. 18:			
	(B225) NO. 37 — (B225) NO. 22:			

	Step	Check	Yes	No
19	 CHECK HARNESS BETWEEN ECM AND STARTER CUT RELAY CONNECTOR. 1) Disconnect the connector from ECM. 2) Measure the resistance between starter cut relay and chassis ground. Connector & terminal (B225) No. 20 — Chassis ground: 	Is the resistance 1 MΩ or more?	Go to step 20 .	Repair the short circuit to ground in harness between ECM connector and starter cut relay connector.
20	CHECK STARTER CUT RELAY. Measure the resistance between starter cut relay terminals. Terminals No. 19 — No. 22:	Is the resistance less than 1 Ω ?	Go to step 21 .	Replace the starter cut relay. <ref. to<br="">SL-121, Starter Cut Relay.></ref.>
21	CHECK HARNESS BETWEEN STARTER CUT RELAY CONNECTOR AND STARTER RELAY CONNECTOR. Measure the resistance of harness between starter cut relay connector and starter relay connector. Connector & terminal (B225) No. 19 — (B225) No. 44:	Is the resistance less than 1 Ω ?	Go to step 22 .	Repair the open circuit in harness between starter cut relay connector and starter relay connector.
22	CHECK HARNESS BETWEEN ECM AND STARTER RELAY CONNECTOR. Measure the resistance of harness between ECM connector and starter relay connector. Connector & terminal (B135) No. 26 — (B225) No. 42:	Is the resistance less than 1 Ω ?	Go to step 23.	Repair the open circuit of harness between ECM con- nector and starter relay connector.
23	 CHECK STARTER RELAY. 1) Connect the battery to starter relay terminals No. 40 and No. 42. 2) Measure the resistance between starter relay terminals. <i>Terminals</i> <i>No. 43 — No. 44:</i> 	Is the resistance less than 1 Ω ?	Go to step 24.	Replace the starter relay. <ref. to<br="">EN(H6DO)(diag)- 9, LOCATION, Electrical Compo- nent Location.></ref.>
24	 CHECK HARNESS BETWEEN STARTER CUT RELAY CONNECTOR AND INHIBITOR RELAY CONNECTOR. 1) Remove the inhibitor relay. 2) Measure the resistance of harness between starter cut relay connector and inhibitor relay connector. Connector & terminal (B225) No. 19 — (B225) No. 1: (B225) No. 19 — (B225) No. 5: 	Is the resistance less than 1 Ω?	Go to step 25 .	Check the follow- ing item and repair or replace if neces- sary. • Blown out of fuse (F/B No. 21) • Open circuit in harness between starter cut relay connector and inhibitor relay con- nector
25	 CHECK HARNESS BETWEEN ECM, TCM AND INHIBITOR RELAY CONNECTOR. 1) Disconnect the connector from TCM. 2) Measure the resistance of harness between ECM, TCM and inhibitor relay connector. Connector & terminal (B225) No. 3 — (B54) No. 11: (B225) No. 3 — (B136) No. 35: 	Is the resistance less than 1 Ω ?	Go to step 26 .	Repair the open circuit of harness between ECM, TCM and inhibitor relay connector.

	Step	Check	Yes	No
26	CHECK HARNESS BETWEEN INHIBITOR RELAY CONNECTOR AND STARTER RE- LAY CONNECTOR. Measure the resistance of harness between inhibitor relay connector and starter relay con- nector. Connector & terminal (B225) No. 2 — (B225) No. 40:	Is the resistance less than 1 Ω?	Go to step 27.	Repair the open circuit of harness between inhibitor relay connector and starter relay connector.
27	 CHECK INHIBITOR RELAY. 1) Connect the battery to inhibitor relay terminals No. 3 and No. 5. 2) Measure the resistance between inhibitor relay terminals. Terminals No. 1 - No. 2: 	Is the resistance less than 1 Ω ?	Go to step 28.	Replace the inhibi- tor relay. <ref. to<br="">EN(H6DO)(diag)- 9, LOCATION, Electrical Compo- nent Location.></ref.>
28	 CHECK NEUTRAL POSITION SWITCH SIGNAL. 1) Connect all relays and connectors to their proper positions. 2) Read the value of «Neutral Position Switch» using the Subaru Select Monitor. NOTE: For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h6do)(diag)-40,="" monitor.="" select="" subaru="" to=""></ref.> 3) Turn the ignition to ON. 4) Place the select lever in "P" range or "N" range. 	Is «Neutral» displayed?	Check the ECM power supply and ground line. <ref. to EN(H6DO)(diag)- 86, CHECK POWER SUPPLY AND GROUND LINE OF ENGINE CONTROL MOD- ULE (ECM), Diag- nostics for Engine Starting Failure.></ref. 	Repair the open circuit in harness between ECM con- nector and TCM connector.

C: CHECK POWER SUPPLY AND GROUND LINE OF ENGINE CONTROL MOD-ULE (ECM)

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H6DO)(diag)-64, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H6DO)(diag)-49, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

• Engine electrical system, 3.6 L model (without push button start)<Ref. to WI-150, 3.6 L MODEL (WITH-OUT PUSH BUTTON START), WIRING DIAGRAM, Engine Electrical System.>

 Engine electrical system, 3.6 L model (with push button start)<Ref. to WI-166, 3.6 L MODEL (WITH PUSH BUTTON START), WIRING DIAGRAM, Engine Electrical System.>





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ENGINE (DIAGNOSTICS)

		i	t	1
Ste	p	Check	Yes	No
1CHECK MAIN REL 1) Turn the ignition 2) Remove the ma 3) Connect the bai No. 1 and No. 2. 4) Measure the rest terminals. Terminals No. 3 - No. 4;	AY. a switch to OFF. ain relay. ttery to main relay terminals sistance between main relay	Is the resistance less than 1 Ω?	Go to step 2.	Replace the main relay. <ref. to<br="">FU(H6DO)-55, Main Relay.></ref.>
		la the vesistence less there 5 00	Cata stan 0	Den einthe henness
 2 CHECK GROUND 1) Disconnect the 2) Measure the res ECM connector and (B134) No. 3 (B134) No. 4 (B137) No. 1 (B137) No. 3 (B137) No. 5 	connector from ECM. sistance of harness between d chassis ground. minal Chassis ground: Chassis ground: Chassis ground: Chassis ground: Chassis ground: Chassis ground:	is the resistance less than 5 12?	Go to step 3 .	 Arepair the harness and connector. NOTE: In this case, repair the following item: Open circuit of harness between ECM connector and engine ground terminal Poor contact of coupling connector
3 CHECK INPUT VO 1) Turn the ignition 2) Measure the vo tor and chassis gro Connector & tern (B136) No. 2 (+, (B136) No. 30 (-)	DETAGE OF ECM. n switch to ON. Itage between ECM connecund. minal) — Chassis ground (-): +) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 4.	Repair the open or ground short circuit of harness of power supply cir- cuit.
4 CHECK INPUT VO Measure the voltag nector and chassis Connector & teru (B220) No. 1 (+, (B220) No. 4 (+,	DETAGE OF MAIN RELAY. le between main relay con- ground. minal) — Chassis ground (–):) — Chassis ground (–):	Is the voltage 10 V or more?	Go to step 5.	Repair the open or ground short circuit of harness of power supply cir- cuit.
5 CHECK INPUT VO 1) Turn the ignition 2) Install the main 3) Turn the ignition 4) Measure the vo tor and chassis gro Connector & tern (B135) No. 13 (-	DLTAGE OF ECM. n switch to OFF. relay. n switch to ON. Itage between ECM connecund. minal +) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 6.	Repair the open circuit of harness between ECM con- nector and main relay connector.
6 CHECK INPUT VO 1) Turn the ignitior 2) Connect the cor 3) Turn the ignitior 4) Measure the vo tor and chassis gro Connector & terr (B136) No. 1 (+, (B137) No. 7 (+,	DETAGE OF ECM. In switch to OFF. Innector to ECM. In switch to ON. Itage between ECM connec- und. <i>minal</i>) — Chassis ground (-):) — Chassis ground (-):	Is the voltage 10 V or more?	Check ignition con- trol system. <ref. to EN(H6DO)(diag)- 89, IGNITION CONTROL SYS- TEM, Diagnostics for Engine Starting Failure.></ref. 	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and main relay connector • Poor contact of main relay connec- tor • Poor contact of ECM connector

D: IGNITION CONTROL SYSTEM

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H6DO)(diag)-64, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H6DO)(diag)-49, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

• Engine electrical system, 3.6 L model (without push button start)<Ref. to WI-150, 3.6 L MODEL (WITH-OUT PUSH BUTTON START), WIRING DIAGRAM, Engine Electrical System.>

 Engine electrical system, 3.6 L model (with push button start)<Ref. to WI-166, 3.6 L MODEL (WITH PUSH BUTTON START), WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	CHECK SPARK PLUG CONDITION.	Is the spark plug condition nor-	Go to step 2.	Replace the spark
	 Remove the spark plug. <ref. ig(h6do)-<br="" to="">4, REMOVAL, Spark Plug.></ref.> Check the spark plug condition. <ref. to<br="">IG(H6DO)-5, INSPECTION, Spark Plug.></ref.> 	mal?		plug. <ref. to<br="">IG(H6DO)-4, Spark Plug.></ref.>

ENGINE (DIAGNOSTICS)

ſ				
	Step	Check	Yes	No
	2 CHECK IGNITION SYSTEM FOR SPARKS.	Does spark occur at each cylin-	Check fuel pump	Go to step 3.
	 Connect the spark plug to ignition coil. 	der?	system. <ref. th="" to<=""><th></th></ref.>	
	Release the fuel pressure. <ref. li="" to<=""></ref.>		EN(H6DO)(diag)-	
	FU(H6DO)-59, RELEASING OF FUEL PRES-		92, FUEL PUMP	
	SURE, PROCEDURE, Fuel.>		CIRCUIT, Diag-	
	3) Contact the spark plug thread portion to		nostics for Engine	
	engine.		Starting Failure.>	
	4) While opening the throttle valve fully, start		J	
	the engine to check if spark occurs at each cyl-			
	inder.			
ł		Is the voltage 10 V or more?	Go to stop 4	Popairtha barnoss
		Is the voltage to v of more?	Go to step 4.	and connector
	1) Turn the ignition switch to OEE			
	 Disconnect the connector from ignition coll 			NOTE:
	 2) Disconnect the connector from ignition con. 2) Ture the ignitian quitteb to ON. 			in this case, repair
	 a) Turn the ignition switch to ON. A) Measure the velterie between irrition coil. 			the following item:
	4) Measure the voltage between ignition coll			 Open circuit or
	connector and engine ground.			short circuit to
	Connector & terminal			ground in harness
	(E31) No. 3 (+) — Engine ground (–):			of power supply
	(E32) No. 3 (+) — Engine ground (–):			circuit
	(E33) No. 3 (+) — Engine ground (–):			 Blown out of fuse
	(E34) No. 3 (+) — Engine ground (–):			(M/B No. 14)
	(E45) No. 3 (+) — Engine ground (–):			 Poor contact of
	(E46) No. 3 (+) — Engine ground (–):			coupling connector
ľ	4 CHECK HARNESS OF IGNITION COIL	Is the resistance less than 5 Ω ?	Go to step 5.	Repair the open
	GROUND CIRCUIT.		•	circuit in harness
	1) Turn the ignition switch to OFF.			between ignition
	2) Measure the resistance of harness between			coil connector and
	ignition coil connector and engine ground.			engine grounding
	Connector & terminal			terminal.
	(E31) No. 2 — Engine ground:			
	(E32) No. 2 — Engine ground:			
	(E33) No. 2 — Engine ground:			
	(E34) No. 2 — Engine ground:			
	(E45) No. 2 — Engine ground:			
	(E46) No. 2 — Engine ground			
ŀ	5 CHECK HARNESS BETWEEN ECM AND IG-	Is the resistance less than 1 O?	Go to step 6	Ronair the harness
				and connector
	1) Disconnect the connector from ECM			
	2) Measure the resistance of harness between			NUTE:
	ECM connector and ignition coil connector			the following item:
	Connector & terminal			• Open aircuit of
	(B134) No. 21 — (E31) No. 1:			bornoon botwoon
	(B134) No. 22 — (E32) No. 1:			ECM connector
	(B134) No. 22 – (E32) No. 1: (B134) No. 21 – (E33) No. 1:			
	(B124) No. 37 — (E33) No. 1. (B124) No. 22 (E24) No. 1:			and the ignition con
	(B134) No. 32 — (E34) No. 1. (B134) No. 25 (E45) No. 1:			connector
	(B134) No. 25 — (E45) No. 1. (B124) No. 26 — (E46) No. 1.			 Poor contact or
	(B134) NO. 20 — (E40) NO. 1.		A -	coupling connector
	6 CHECK HARNESS BETWEEN ECM AND IG-	Is the resistance 1 M Ω or	Go to step 7.	Repair the ground
	NITION COIL CONNECTOR.	more?		short circuit of har-
	Measure the resistance of harness between			ness between
	ECM connector and chassis ground.			ECM connector
	Connector & terminal:			and ignition coil
	(B134) No. 21 — Chassis ground:			connector.
	(B134) No. 22 — Chassis ground:			
	(B134) No. 31 — Chassis ground:			
	(B134) No. 32 — Chassis ground:			
	(B134) No. 25 — Chassis ground:			
	(B134) No. 26 — Chassis ground:			

	Step	Check	Yes	No
7	CHECK FOR POOR CONTACT. Check for poor contact of ECM connector.	Is there poor contact of ECM connector?	Repair the poor contact of ECM connector.	Replace the igni- tion coil. <ref. to<br="">IG(H6DO)-7, Igni- tion Coil.></ref.>

E: FUEL PUMP CIRCUIT

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H6DO)(diag)-64, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H6DO)(diag)-49, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	CHECK OPERATING SOUND OF FUEL	Does the fuel pump emit oper-	Check the fuel	Display the DTC.
	PUMP.	ating sound?	injector circuit.	<ref. th="" to<=""></ref.>
	Make sure that the fuel pump operates for two		<ref. th="" to<=""><th>EN(H6DO)(diag)-</th></ref.>	EN(H6DO)(diag)-
	seconds when turning the ignition switch to ON.		EN(H6DO)(diag)-	48, OPERATION,
	NOTE:		93, FUEL INJEC-	Read Diagnostic
	Fuel pump operation can be executed using the		TOR CIRCUIT,	Trouble Code
	Subaru Select Monitor.		Diagnostics for	(DTC).>
	For detailed procedures, refer to "System Oper-		Engine Starting	
	ation Check". <ref. en(h6do)(diag)-65,<="" th="" to=""><th></th><th>Failure.></th><th></th></ref.>		Failure.>	
	System Operation Check Mode.>			

F: FUEL INJECTOR CIRCUIT

CAUTION:

Check or repair only faulty parts.

• After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H6DO)(diag)-64, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H6DO)(diag)-49, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

 Engine electrical system, 3.6 L model (without push button start)<Ref. to WI-150, 3.6 L MODEL (WITH-OUT PUSH BUTTON START), WIRING DIAGRAM, Engine Electrical System.>

• Engine electrical system, 3.6 L model (with push button start)<Ref. to WI-166, 3.6 L MODEL (WITH PUSH BUTTON START), WIRING DIAGRAM, Engine Electrical System.>



Step	Check	Yes	No
1 CHECK OPERATION OF EACH FUEL INJEC- TOR. While cranking the engine, check each fuel injector emits operating sound. Use a sound scope or listen by attaching a screwdriver to the injector for this check.	Does the fuel injector emit operating sound?	Check the fuel pressure. <ref. to<br="">ME(H6DO)-31, INSPECTION, Fuel Pressure.></ref.>	Go to step 2.

	Step	Check	Yes	No
2	CHECK POWER SUPPLY TO EACH FUEL IN-	Is the voltage 10 V or more?	Go to step 3.	Repair the harness
	 Turn the ignition switch to OFF. 			
	2) Disconnect the connector from fuel injector.			In this case, repair
	3) Turn the ignition switch to ON.			the following item:
	4) Measure the voltage between fuel injector			Open circuit in
	connector and the engine ground.			harness between
	Connector & terminal			main relay and fuel
	#1 (E5) No. 2 (+) — Engine ground (–):			injector connector
	#2 (E16) No. 2 (+) — Engine ground (–):			 Poor contact of
	#3 (E6) No. 2 (+) — Engine ground (–):			main relay connec-
	#4 (E17) No. 2 (+) — Engine ground (-):			tor
	#5 (E43) NO. 2 (+) — Engine ground (-): #6 (E44) No. 2 (+) — Engine ground (-):			 Poor contact of
-	#6 (244) NO. 2 (+) — Eligine ground (-).			coupling connector
3		Is the resistance less than 1 Ω ?	Go to step 4.	Repair the harness
	1) Turn the ignition quitch to OEE			and connector.
	2) Disconnect the connector from ECM			NOIE:
	 Measure the resistance of harness between 			the following item:
	ECM connector and fuel injector connector			• Open circuit in
	Connector & terminal			harness between
	#1 (B134) No. 10 — (E5) No. 1:			ECM connector
	#2 (B134) No. 11 — (E16) No. 1:			and fuel injector
	#3 (B134) No. 12 — (E6) No. 1:			connector
	#4 (B134) No. 13 — (E17) No. 1:			 Poor contact of
	#5 (B134) No. 23 — (E43) No. 1:			coupling connector
	#6 (B134) No. 24 — (E44) No. 1:			
4	CHECK HARNESS BETWEEN ECM AND	Is the resistance 1 M Ω or	Go to step 5.	Repair the short
	FUEL INJECTOR CONNECTOR.	more?		circuit to ground in
	Measure the resistance between ECM connec-			narness between
	Connector & terminal			and fuel injector
	#1 (B134) No 10 — Chassis around:			connector
	#2 (B134) No. 11 — Chassis ground:			connector.
	#3 (B134) No. 12 — Chassis ground:			
	#4 (B134) No. 13 — Chassis ground:			
	#5 (B134) No. 23 — Chassis ground:			
	#6 (B134) No. 24 — Chassis ground:			
5	CHECK EACH FUEL INJECTOR.	Is the resistance 5 — 20 Ω ?	Go to step 6.	Replace the faulty
	Measure the resistance between each fuel			fuel injector. <ref.< td=""></ref.<>
	injector terminals.			to FU(H6DO)-44,
	Terminals			Fuel Injector.>
	No. 1 — No. 2:			
6	CHECK FOR POOR CONTACT.	Is there poor contact of ECM	Repair the poor	Inspection using
	Check for poor contact of ECM connector.	connector?	contact of ECM	"General Diagnos-
			connector.	TIC TADIE". <ret. td="" to<=""></ret.>
				EN(HODO)(diag)-
				420, INSPEC-
				Diagnostic Table >
				Diagnostic Table.>