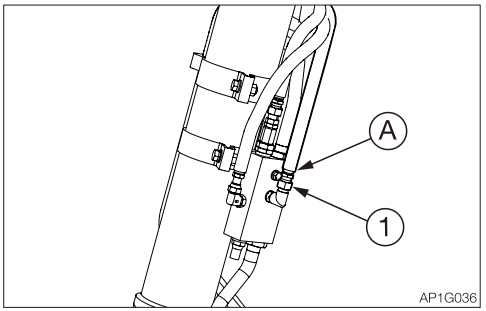
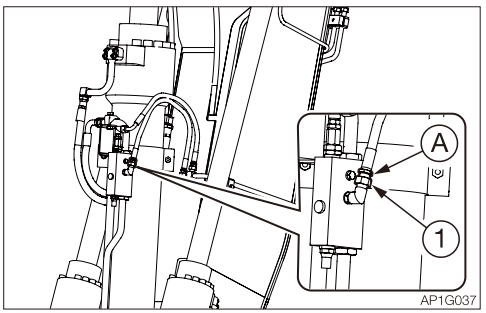
• Emergency shut-off valve

1. Place a pan under the hose (A) or (B) to catch the waste oil.
2. Start the engine and run it at low idle.
3. Fully lower the safety lock lever to the unlock position.

Boom

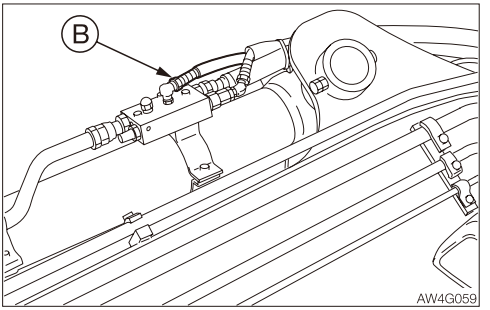


2-Piece boom (Second boom)



4. Hold the hose fitting (A) in place with a wrench and slowly loosen the hose nut (1).
5. Slowly move the boom in the “Boom lower” direction a little until there are no more air bubbles coming from the hose nut (1) joint.
6. Hold the hose fitting (A) in place with a wrench and tighten the hose nut (1).
   Tightening torque: 50 N·m (36.9 ft-lb.)

Arm



4. Loosen the hose (B) slowly.
5. Slowly move the arm in the “Arm in” direction a little until there are no more air bubbles coming from the hose (B) joint.
6. Tighten the hose (B).
   Tightening torque: 50 N·m (36.9 ft-lb.)

• Slew motor and cylinders

1. Start the engine, let it run at a low-idling speed for 10 minutes.
2. Maintain the engine at low idle, then extend and retract each cylinder 4 or 5 times, without letting them reach the stroke end.
3. Slew slowly left and right several times.
4. Run the engine at high speed, then extend and retract each cylinder 4 or 5 times, without letting them reach the stroke end.
5. Slew left and right several times.
6. Return the engine speed to low idle, then extend and retract each cylinder 4 or 5 times to the stroke end.

WHEN REQUIRED

REPLACING THE BUCKET TEETH AND THE SIDE CUTTERS

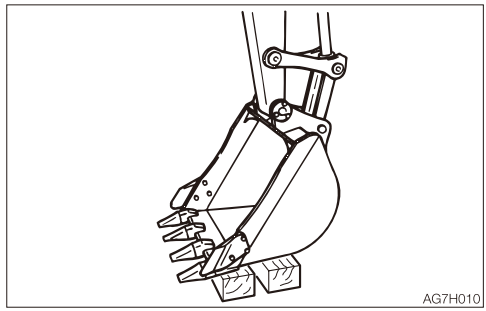
Replace the bucket teeth if the tooth points are worn. Do not wait until the bucket is damaged.

⚠ WARNING

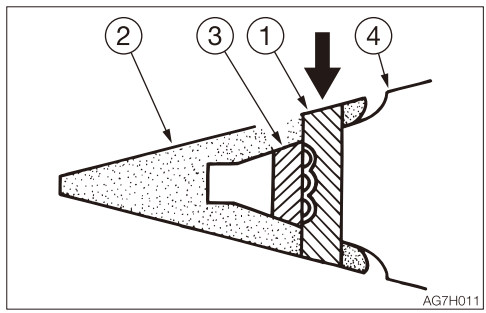
- **Before performing maintenance or repairs under the machine, lower all moveable working equipment to the ground or in the lowermost position.**
- **To prevent unexpected movement, firmly secure the working equipment when repairing or replacing the bucket teeth or side cutter.**
- **When using a hammer, pins may fly out or metal particles may be scattered. This may lead to serious injury.**
  - **If hard metal parts such as pins, bucket teeth, side cutter or bearings are hit with a hammer, wear protective gear such as safety goggles and gloves.**
  - **When hitting pins or bucket teeth, always check that there is no one in the surrounding area.**
- **Do not allow unauthorized personnel in the work area while working.**

Removing

1. Clean the bucket and park the machine on a flat and rigid ground.



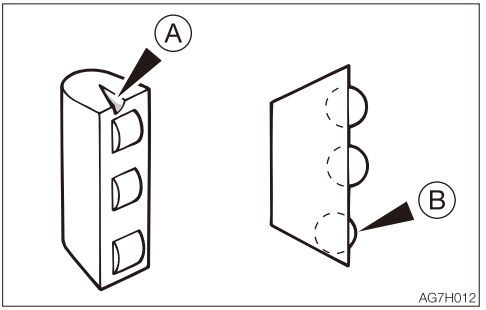
2. Place the bucket with its bottom flat on the blocks so that the locking pin can be knocked out.
3. Remove the key, and then check that the bucket is stable.



4. Knock out the locking pin (1) and remove the point (2).

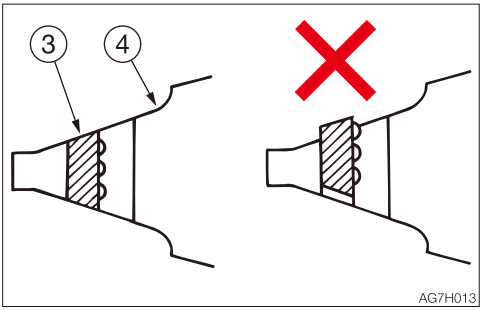
Note: If the drift is set against rubber pin lock (3) when it is hit, the rubber pin lock may break. Set it against the back of the locking pin.

5. Remove the rubber pin lock (3). Check if the rubber pin lock is still usable. Replace it if it is as follows.

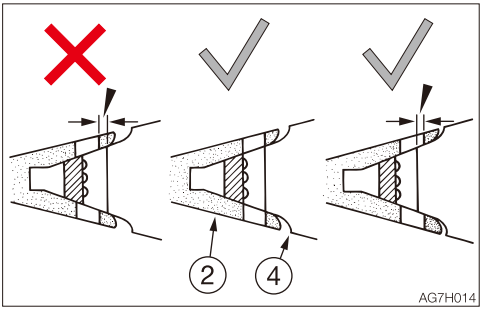


A .....There are cracks in the rubber and the roller is coming off.
B .....The roller is dented when pressed with a finger.

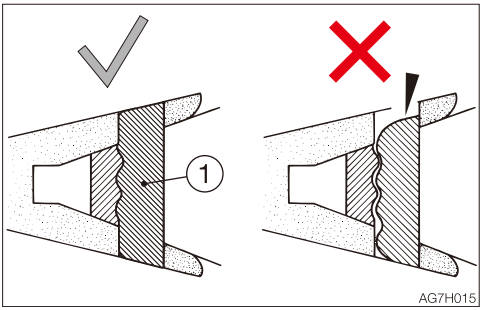
Installation



1. Remove the dirt on the surface of adaptor and the inner part of tooth, make the better contact on the mating part.
2. Push rubber pin lock (3) into the welding adaptor (4).
   Do not let the rubber pin lock stick out from the welding adaptor surface.

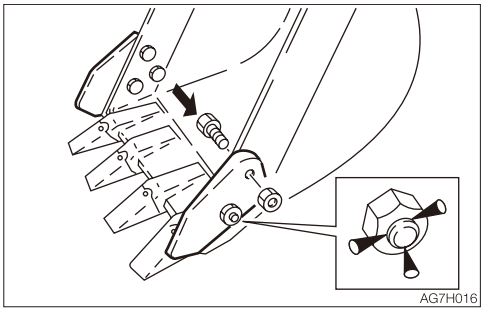


3. Install the point (2) onto the welding adaptor (4).
   Insert the point so that the surface behind the point's pin hole is aligned with the surface behind the welding adapter's pin hole.



4. Knock out the locking pin (1).
   Check that the end surfaces of the locking pin just knocked out are aligned with the upper and lower surface of the point. Do not use the worn locking pin.
   The life of the teeth can be lengthened and the frequency of its replacement can be reduced by turning it upside down so that it will wear evenly.
   Replace the rubber pin lock and locking pin at the same time as replacing the teeth. This makes it possible to prevent the teeth from falling out.

• Side cutter
Installation



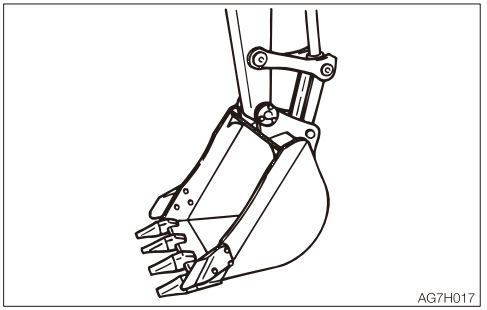
1. Insert the bolts from the inner of the bucket and tighten the side cutter with nuts.
   Tightening torque: 475 N·m (350 ft-lb.)
2. Caulk the bolts with a punch at three spots along the periphery of the screw to prevent the nuts from coming loose.

REPLACING THE BUCKET

⚠ WARNING

- Before performing maintenance or repairs under the machine, lower all working equipment to the ground or in the lowermost position.
- If maintenance must be performed with the engine running, always work as a two person team communicating each other.
  - One person must sit in the operator's seat so that he/she can immediately stop the engine when necessary. He/she must take care not to touch the lever or pedal unless necessary.
  - The one who performs maintenance must make sure to keep his/her body or clothing away from the moving part of the machine.
- When using a hammer, pins may fly out or metal particles may be scattered. This may lead to serious injury.
  - If hard metal parts such as pins, bucket teeth, side cutter or bearings are hit with a hammer, wear protective gear such as safety goggles and gloves.
  - When hitting pins or bucket teeth, always check that there is no one in the surrounding area.
- When aligning the pin holes, always do so by checking them visually. Do not insert your finger in the pin hole, or you could lose your finger.

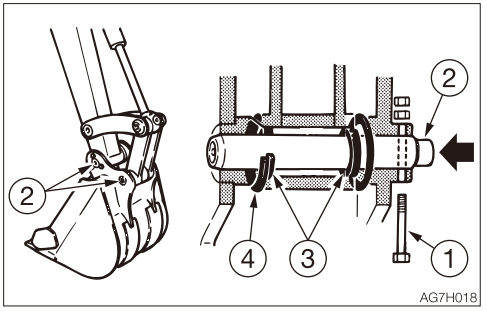
Removing



1. Lower the bucket to the ground as shown on the figure above in a stable position.

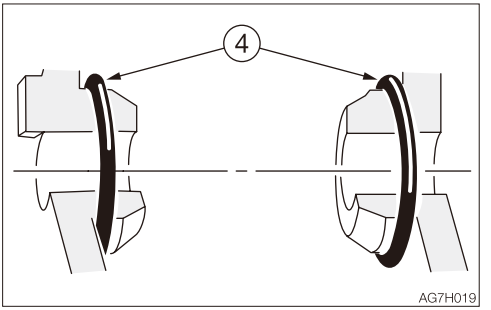
Note: When removing pins, set the bucket so that it is barely touching the ground. If the bucket is firmly touching the ground, the resistance will be great and it will be difficult to remove the pin.

2. Set the safety lock lever to the locked position and stop the engine.

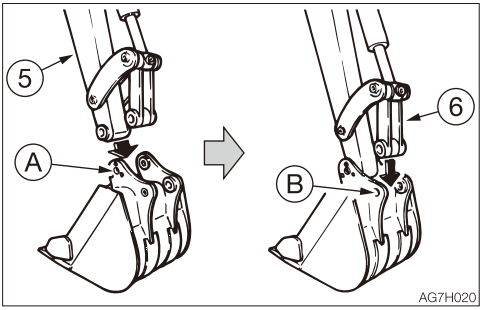


3. Remove the bolt (1).
4. Hammer the pin (2) out of the bucket.
5. Remove the bucket.
   Inspect the pin seal (3) and replace it if it is deformed or damaged. (Refer to “Replacing the pin seal” on page 5-75.)

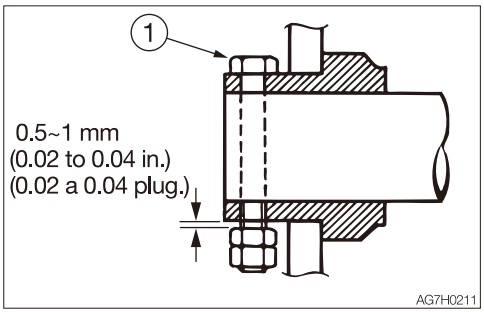
Installation



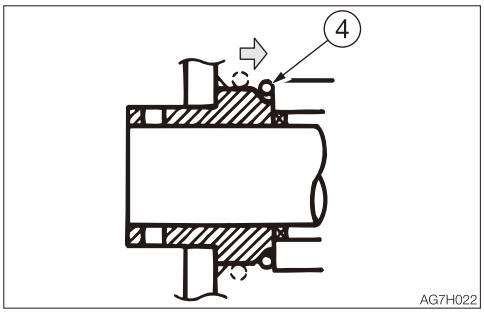
1. Set the O-ring (4) on the bucket as shown on the figure above.



2. Align the pin hole (A) on the bucket with the pin hole on the arm (5), and install the pin (2).
3. Operate the cylinder, align the pin hole (B) on the bucket with the pin hole on the link arm (6), and install the pin (2).

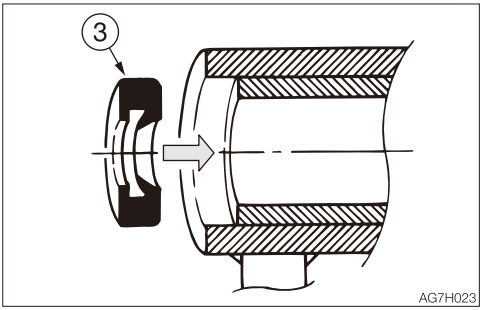


4. Align the turn prevention holes, and then install the bolt (1) and the nut. Be sure to leave a gap of about 0.5 to 1 mm (0.02 to 0.04 in.) between the nut and bucket bush, or the nut will come loose.



5. Adjust the gap between the bucket and the arm.
   Refer to “Adjusting the gap between the bucket and arm (If equipped)” on page 5-76.
6. Slide the O-ring (4).

Replacing the pin seal

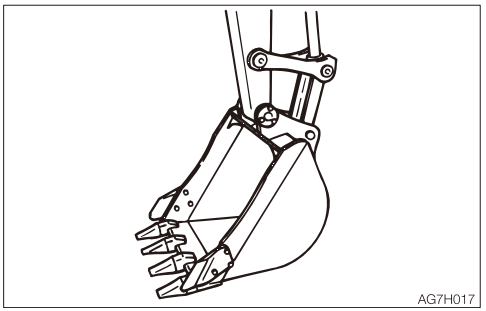


1. Set the pin seal (3) in the direction shown on the figure above.
2. Use a mallet to slowly press the pin seal in. Be careful not to damage the seal.

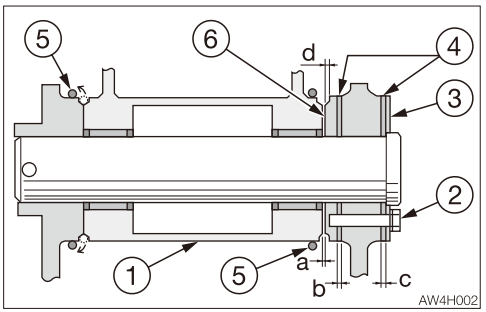
ADJUSTING THE GAP BETWEEN THE BUCKET AND ARM (IF EQUIPPED)

⚠ WARNING

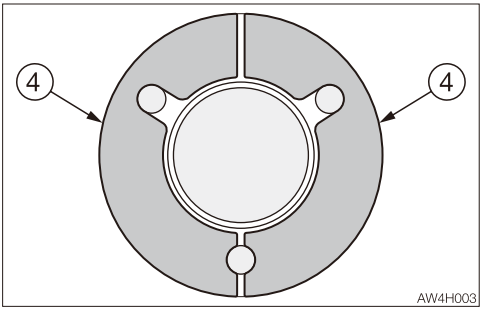
- **Before performing maintenance or repairs under the machine, lower all working equipment to the ground or in the lowermost position.**
- **To prevent unexpected movement, securely block the working equipment when adjusting the gap.**



1. Lower the bucket to the ground in a stable position as shown in the figure above.
2. Slew the upperstructure slightly to the left and lightly press the arm to the left side of the bucket (the side without an adjuster).
3. Set the safety lock lever to the lock position and stop the engine.



4. Slightly loosen the 3 bolts (2) (using a 22 mm (0.87 in) wrench) and remove the shims (4) from “gap c” between the blade (3) and bucket. The shims (4) are in two parts and can be removed easily when the bolts are slightly loosened by sticking a screwdriver in the seam between the left and right shims.
5. Move the O-ring (5) to bring the gap (a) into view and measure the width of the gap (a).



6. Press the head of the bolts (2) with a finger to eliminate gap (a). This increases gap (b). Insert the shims removed above into gap (b), using as many shims as can be inserted easily.
7. Set the remaining shims back in gap (c), then tighten the bolts.
   Tightening torque : 83 N·m (61.5 ft-lb).
   This completes the adjustment.

Note: The proper total number of shims for gaps (b) and (c) is 6 x 2 = 12. If you forget to set the shims remaining in step 7 above back in gap (c), the tip of bolts (2) will extend past the boss (6). This may damage the boss at the arm’s tip or cause the bolt to break. If the end face of boss (6) wears and the width of the groove (d) for the O-ring reaches 5 mm (0.2 in), replace boss (6) with a new one.

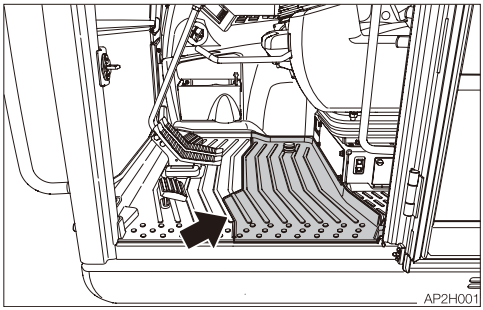
INSPECTING AND REPLENISHING THE WINDSHIELD WASHER FLUID

⚠ WARNING

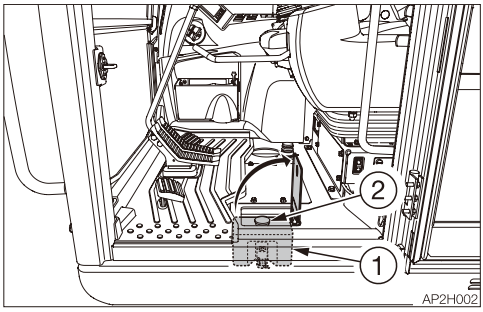
Choose ethyl alcohol as washer solution. Do not use methyl alcohol as washer solution. It could damage the eyes.

Use a windshield washer fluid designed specifically for motor vehicles. Follow the instructions included with the washer fluid.

Inspection



1. Remove the floor mat.



2. Open the cover.
3. Inspect the washer tank (1) and add washer fluid if the level is low.

Replenishing

1. Mix the washer fluid to the prescribed concentration.
2. Remove the cap (2) and add washer fluid. Keep the dust away while replenishing the washer fluid.
3. Install the cap (2).

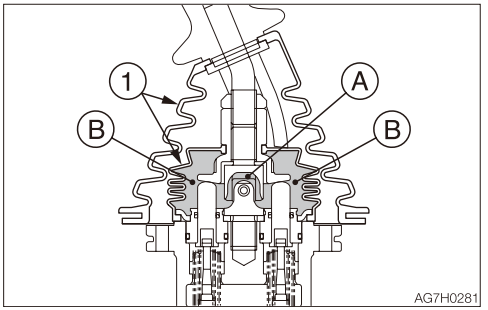
LUBRICATING THE LEVERS AND PEDALS

⚠ WARNING

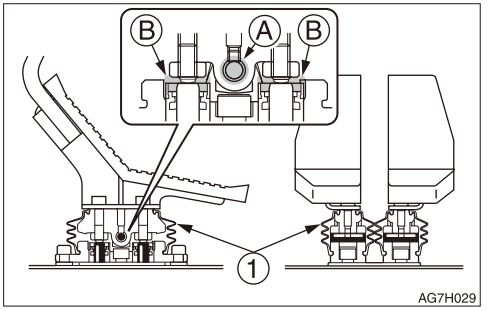
Set the machine to the parking posture, stop the engine, remove the starter key and store it. Failure to do so may result in the machine moving abruptly, leading to serious injury or death.

If the levers or pedals no longer move smoothly, grease them.

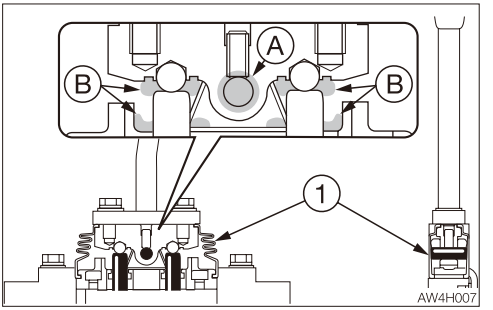
Operating levers



Travel levers/pedals



Dozer blade lever



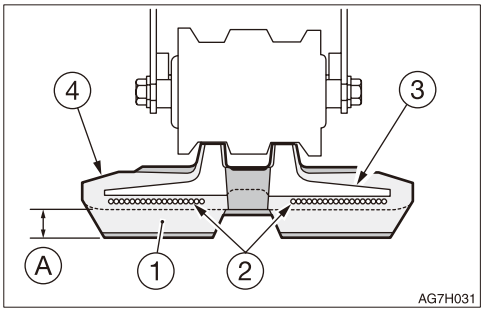
1. Remove the lower mount section of the boot (1) and turn it upward.
2. Wipe off the old grease.
3. Apply grease to points (A) and (B).
4. Set the boot (1) back as it was.

INSPECTING THE RUBBER CRAWLERS

Repair or replace the rubber crawlers if their condition becomes as described below. Consult your sales or service dealer for repair or replacement.

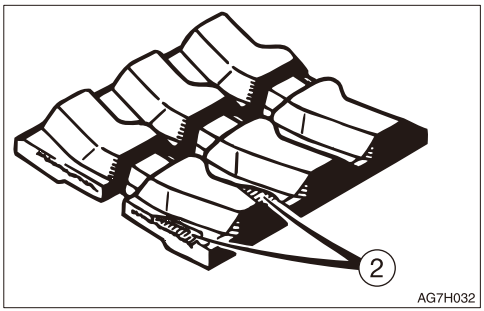
Rubber crawler
Replace the crawler if the entire crawler is stretched and cannot be adjusted.

(1) Lug



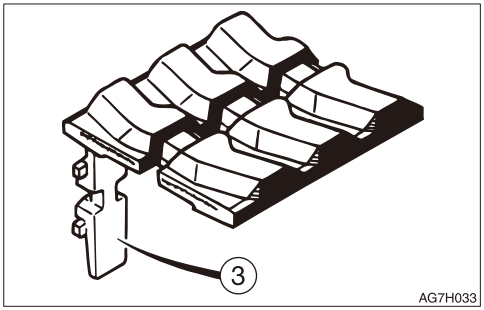
Replace if the height of (A) is 5 mm (0.2 in.) or below.

(2) Steel cord



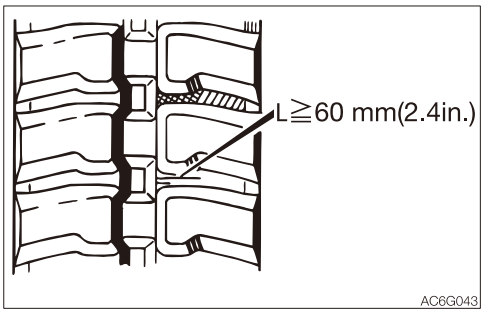
Replace if the steel cord is exposed for two links or more.
Replace if the half or more of the steel cords on one side are cut.

(3) Metal core



Replace if even one metal core is off.

(4) Rubber



Repair if there are cracks of 60 mm (2.4 in.) or greater in length.
If the steel cord is visible, repair as soon as possible, regardless of the length of the crack.

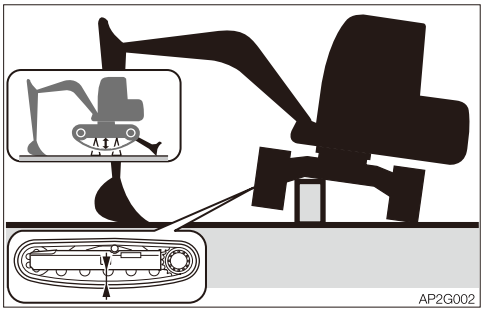
REPLACING THE RUBBER CRAWLERS

⚠ WARNING

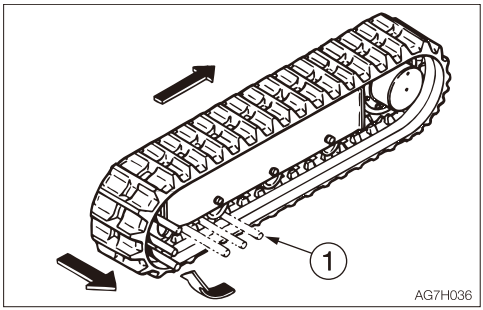
- **If you must work beneath the raised machine or working equipment, always use wood blocks, jack-stands or other rigid and stable supports. Never get under the machine or working equipment if they are not sufficiently supported.**
- **If maintenance must be performed with the engine running, always work as a two person team communicating each other.**
  - **One person must sit in the operator's seat so that he/she can immediately stop the engine when necessary. He/she must take care not to touch the lever or pedal unless necessary.**
  - **The one who performs maintenance must make sure to keep his/her body or clothing away from the moving part of the machine.**

Removal

1. Fully release the tension of the rubber crawler.
   Refer to "Inspecting and adjusting the crawler tension" on page 5-40.



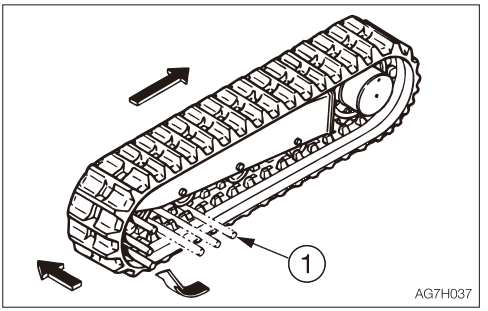
2. Use the working equipment to lift the body.



3. Set an iron pipe (1) in the rubber crawler and turn the sprocket slowly in the reverse direction.
4. Turn until the iron pipe (1) is directly next to the idler and the rubber crawler lifts away from the idler, then stop turning the sprocket.
5. Slide the rubber crawler sideways and remove it from the crawler frame.
   Remove the other rubber crawler using the same procedure.

Installation

1. Use the working equipment to lift the body.



2. Set the rubber crawler on the sprocket.
3. Set an iron pipe (1) in the rubber crawler and turn the sprocket slowly in the reverse direction.
4. Turn until the iron pipe (1) is directly next to the idler and the rubber crawler lifts away from the idler, then stop turning the sprocket.
5. Slide the rubber crawler inward, engage it on the idler, then pull out the iron pipe.
6. Check that the rubber crawler is securely engaged on the sprocket and idler.
7. Tighten the rubber crawler to the standard tension.
   Refer to “Inspecting and adjusting the crawler tension” on page 5-40.
8. Install the other rubber crawler using the same procedure.

REPLACING THE DIESEL PARTICULATE FILTER <APPLICABLE MACHINE MODELS 514901229 OR LATER>

The DPF must be replaced if the ash lamp lights up or flashes. Refer to “16. Standstill regeneration in process/Demand indicator lamp/Ash lamp” on page 2-24.
This operation requires experience. Ask a Takeuchi service agent for it.

EVERY 2 YEARS

REPLACING THE RECEIVER DRYER

This operation requires experience. Ask your sales or service dealer for it.

MAINTENANCE DURING EXTENDED STORAGE PERIOD

STORAGE PROCEDURES

If the machine is to be stored for 30 days or more, store it indoors. If it must be stored outdoors, park the machine on a surface laid with lumber on a flat ground, and place a waterproof cover over it so that it stays dry.

1. Clean the machine.
2. Inspect for oil leakage, water leakage, cracks and loose nuts and bolts.
3. Add fuel and replace the hydraulic oil and oil.
4. To prevent the DEF/AdBlue® solution from evaporating, fill up the DEF/AdBlue® tank.
5. To prevent rusting and freezing, replace the engine coolant with long-life coolant (LLC).
   Refer to “Replacing the engine cooling system” on page 5-59.
6. Use the grease gun to lubricate the grease fittings.
7. Fully retract the bucket and arm cylinders and lower the bucket and dozer blade to the ground.
8. Apply rust-inhibiting oil to the hydraulic cylinder rods.
9. Disconnect the negative cable from the battery and cover the battery to prevent freezing.

IMPORTANT: The SCR system operates for up to 2 minutes after the starter switch is turned to the OFF position.
When removing the batteries or electrical connectors for inspection or maintenance, wait for at least 2 minutes after the starter switch is turned to the OFF position. Otherwise, the system could fail.

During storage

⚠ WARNING

- **Do not operate the machine in an enclosed area without adequate ventilation.**
- **If natural ventilation is not possible, install ventilators, fans, exhaust extension pipes or other venting devices.**

1. To prevent rusting, operate the machine once a month so that the oil can be circulated throughout the system.
2. Inspect the battery and recharge it as necessary.
   Ask your sales or service dealer for recharging.

Starting the machine after storage

IMPORTANT: If the above “Storage procedures” have not been followed during the extended storage periods, consult your sales or service dealer before starting the machine again.

1. Wipe off the rust-inhibiting oil that was applied on the piston rods of the hydraulic oil cylinders.
2. Add oil or grease as necessary.
3. If the storage period has been four months or more, replace DEF/AdBlue®. There is a risk that the SCR system may malfunction; contact a Takeuchi service dealer for assistance.

Returning the engine to service

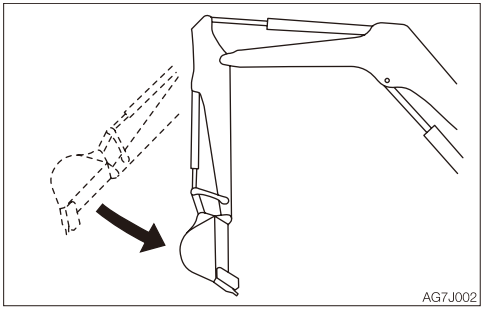
1. Perform the daily checks.
2. The engine should be pre-oiled before startup.
   a. Crank the engine, leaving the fuel system shut off so the engine will not start, for 15 seconds.
   b. Then pause for 30 seconds.
   c. Repeat the procedure until you have cranked the engine for a total of one minute. This will circulate the oil in the engine's lubrication system.
3. Prime the fuel system.
4. Start the engine. Allow the engine to idle for approximately 15 minutes while you check for:
   · Proper oil pressure
   · Fuel, engine oil or coolant leaks
   · Proper operation of the indicators and/or gauges
5. Avoid prolonged operation at minimum or maximum engine speeds and loads for the remainder of the first hour of operation.

TROUBLESHOOTING

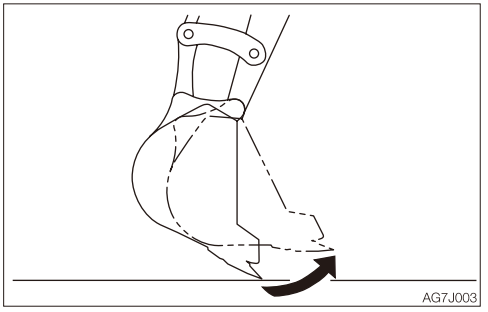


SYMPTOMS THAT ARE NOT MALFUNCTIONS

The symptoms listed below are not malfunctions.



- The arm retracting speed momentarily slows down when it reaches an almost vertical position while the engine is running at low speed.



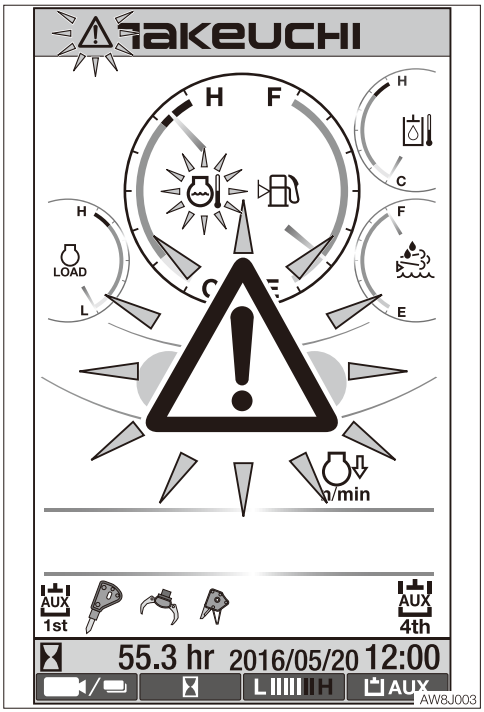
- The bucket teeth moving speed momentarily slows down when it reaches an almost horizontal position while the engine is running at low speed.
- The slew motor produces noise at the beginning and end of the slewing.
- The travel motor produces noise when stopped suddenly from its high speed traveling.
- The control valve produces noise if excessive force is applied to the working equipment or when it moved to the stroke end.
- It becomes less easy to operate the machine when an attachment weighing more than a standard arm or bucket is installed.

IF THE ENGINE OVERHEATS

⚠ WARNING

- **Do not open the engine hood when steam is coming from it. The steam or hot water may spurt out and cause burns.**
- **Do not try to remove the radiator cap or the drain plug when the cooling water is hot. Stop the engine, wait until the engine and the radiator cool, and then slowly loosen the radiator cap to release the internal pressure.**
- **Before performing maintenance, stop the engine and allow the machine to cool down.**

The symptoms listed below indicate overheating.



- An alarm is sounded and the vehicle and engine emergency lamp and the coolant temperature warning lamp start flashing.
- The water temperature gauge level is in the red zone.
- Steam comes from the engine room.

Remedy procedure

1. Park the machine in a safe place.
2. Check if steam is coming out of the closed engine hood.
3. If there is steam, stop the engine immediately and contact your sales or service dealer for repair. If steam, is not coming out run the engine at low idle and let the water temperature cool down.
4. When the water temperature gauge LED drops in the green zone, stop the engine.
5. Perform the inspections and the remedies listed below once the engine cools down.
   - V-rib belt slack..... Adjust
     Refer to page 5-67.
   - Coolant level..... Add
     Refer to page 5-22.
   - Water leakage..... Repair
   - Radiator fins ..... Clean
     Refer to page 5-49.
   - Sediment in cooling system
     ..... Clean
     Refer to page 5-59.

If the problem persists after the above remedies, contact your sales or service dealer for repair.

IF THE BATTERY GOES DEAD

The symptoms below indicate that the battery is dead.
- The starter motor does not turn or fails to start the engine.
- The horn is too weak.

Remedy procedure

Start the engine using the booster battery on the other vehicle (booster vehicle) and the jumper cables.

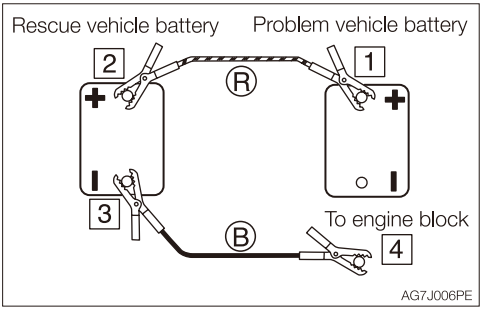
⚠ WARNING

- **When starting the engine using the jumper cables, be sure to connect the cables by following the proper steps. Improper use of jumper cables can result in battery explosion or unexpected machine motion.**
  - **Do not allow the booster vehicle and the machine with a dead battery (dead machine) to touch each other.**
  - **Do not allow the positive (+) and the negative (–) clips of the jumper cables to touch each other.**
  - **When connecting, attach the jumper cable to the positive (+) terminals first. When disconnecting, remove the cable from the negative (–) terminal (ground) first.**
  - **Connect the last clip of the jumper cable to a point as far away from the battery as possible.**
- **Always wear the protective goggle when jump starting the engine by using the jumper cables.**

IMPORTANT: Use the jumper cables and clips of a size suited to the capacity of battery. Do not use damaged or corroded jumper cables and clips.
IMPORTANT: Be sure that the battery of the booster vehicle has the same capacity as the battery of the dead machine.
IMPORTANT: Be sure to connect the clips securely.

Connecting the jumper cables

IMPORTANT: Set the starter keys of the booster vehicle and the dead machine to the OFF position.



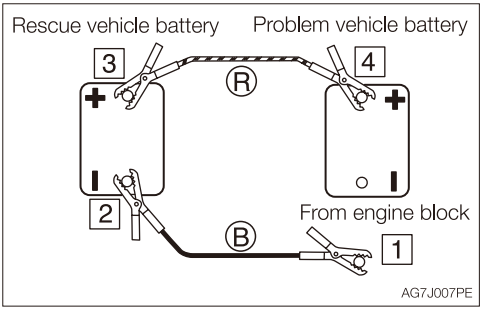
1. Connect the clip of jumper cable (R) to the positive (+) battery terminal of the dead machine.
2. Connect the other clip of jumper cable (R) to the positive (+) battery terminal of the booster vehicle.
3. Connect the clip of jumper cable (B) to the negative (–) battery terminal of the booster vehicle.
4. Connect the other clip of jumper cable (B) to the engine block of the dead machine. Connect the clip to a place as far from the battery as possible.

Starting the engine

1. Check that the clips are securely connected to the terminals.
2. Start the engine of the booster vehicle and run it at high speed.
3. Start the engine of the dead machine.

Disconnecting the jumper cables

Once the dead machine is successfully running, remove the jumper cables by following the same steps as for connection in the reverse order.



1. Disconnect the clip of jumper cable (B) from the engine block of the dead machine.
2. Disconnect the other clip of jumper cable (B) from the negative (–) battery terminal of the booster vehicle.
3. Disconnect the clip of jumper cable (R) from the positive (+) battery terminal of the booster vehicle.
4. Disconnect the clip of jumper cable (R) from the positive (+) battery terminal of the dead machine.

Recharging

Ask your sales or service dealer for recharging the dead battery.

MEMO

IF A FUSE BLOWS

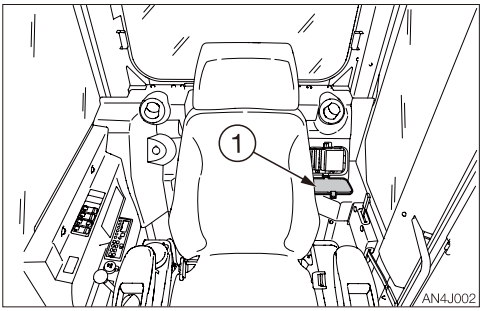
If a light does not come on or the electrical system does not work, a fuse may be blown. Inspect the fuses.

INSPECTING AND REPLACING THE FUSE

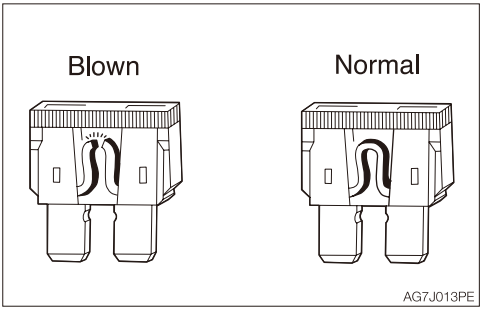
⚠ WARNING

If the fuse blows again soon after replacement, then the electric system is likely faulty. It may pose a fire hazard if not properly repaired. Contact your sales or service dealer for advice.

1. Turn the starter key to the OFF position to stop the engine.

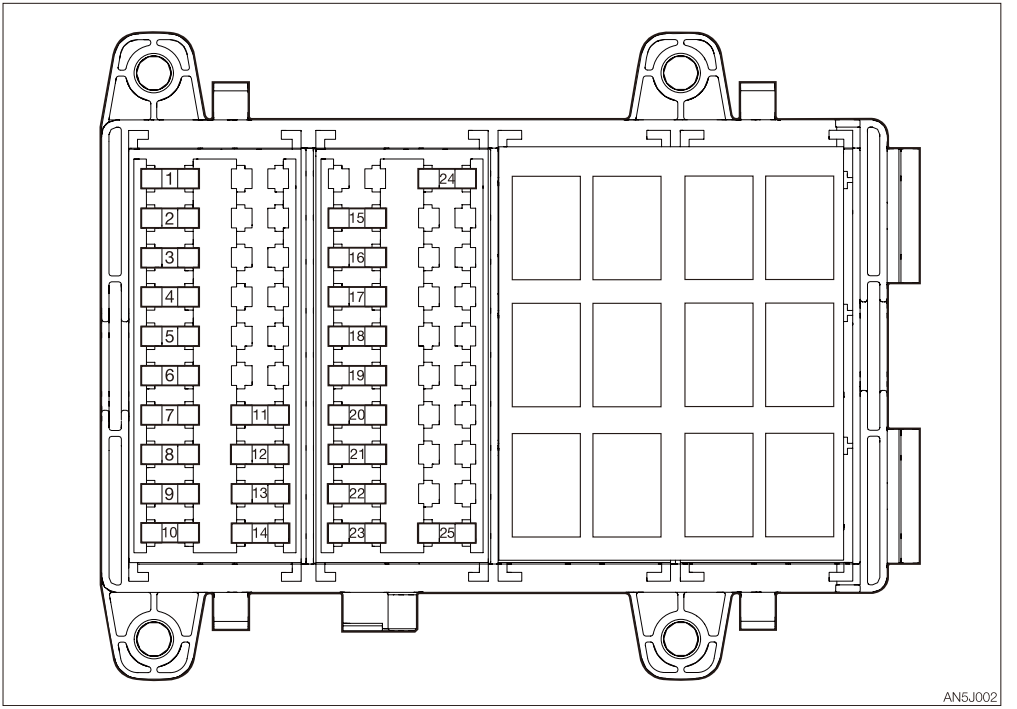


2. Open the fuse box cover (1).
3. Inspect for blown fuses.



4. If a fuse is blown, replace it with a spare fuse of the same capacity.

Fuse layout and circuits protected

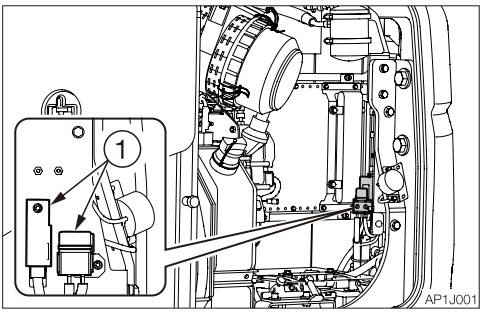


No.	Capacity	Symbol	Protected circuit	Fuse No.
1	25A		Fan switch	F10
2	10A		Air conditioner switch	F9
3	15A	OPT (2)	Option (2)	F8
4	15A	OPT (1)	Option (1)	F7
5	25A	CAB	Cab	F6
6	10A		Display	F5
7	10A	CTL	Controller, travel alarm	F4
8	20A		Safety lock lever	F3
9	10A		Wiper	F2
10	20A		Lights	F1
11	5A	OPT (12V)	Option (12V)	F14
12	15A	NOx	NOx sensor	F13

No.	Capacity	Symbol	Protected circuit	Fuse No.
13	5A		DEF sensor	F12
14	3A		Immobilizer	F11
15	15A		Controller	F29
16	10A		Display	F28
17	3A		Immobilizer	F27
18	25A		Fuel supply pump	F26
19	30A		ECU	F25
20	20A 10A**		Feed pump	F24
21	30A		SCR system	F23
22	10A		Starter switch	F22
23	10A		Horn	F21
24	10A	OPT (12V)	Option (12V)	F40
25*	5A		Pre heater	F31

*: Applicable machine models 514800713 or later
**: Applicable machine models 514800743 or later
Applicable machine models 514901503 to 514901512, 514901514 or later

INSPECTING THE SLOW BLOW FUSE



If the machine is not turned on after turning the starter switch to the ON position, the cartridge type slow blow fuse (1) is likely blown. Open the left side cover for inspection. If the slow blow fuse is blown, contact your sales or service dealer.

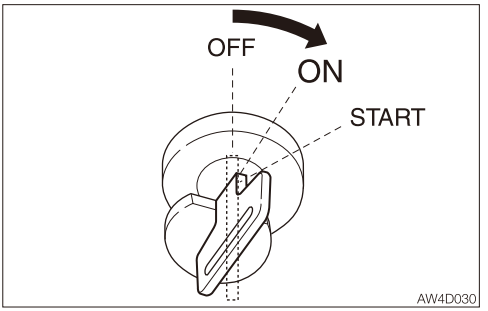
Note: Slow blow fuses are large type fuses used in high current applications. Like a regular fuse, they act as fuses by protecting the electric components and wirings from damage caused by excessive current draw.

RESTARTING AFTER ADDING FUEL

BLEEDING AIR FROM THE FUEL SYSTEM

IMPORTANT: NEVER use the starter motor to crank the engine in order to prime the fuel system. This may cause the starter motor to overheat and damage the coils, pinion gear and/or ring gear.
IMPORTANT: If the engine stalls due to fuel shortage, add fuel, turn the key to the ON position for 60 seconds, and then turn it to the START position. Running the starter for a long time before there is enough fuel is going through can cause the starter to fail.

1. Add fuel.



2. Turn the starter switch to the ON position and hold it there for 20 seconds.
   Air is released from the pump during this period.
3. Turn the starter switch to the OFF position, and then to the ON position. Hold it there for 20 seconds again.
   Repeat this step at least twice until air is completely released.

Note: Air in the fuel system causes the engine to fail to start or to have other problems. Always bleed air when the fuel tank is emptied or when there is air in the fuel system.

RESTARTING WHEN THE DEF/ ADBLUE® LEVEL IS LOW OR THE TANK IS EMPTY

1. Turn the starter switch to the OFF position.
2. Refill the DEF/AdBlue® tank
3. Perform the warm-up operation until the warning lamp goes out.
4. If the warning lamp does not go out, turn the starter switch to the OFF position, and then restart the machine.

IF A WARNING LAMP FLASHES

If an alarm is sounded or a warning lamp starts flashing during operation, park the machine in a safe place and perform the remedy procedures described below.

Warning lamp	Lamp name	Causes and remedies
 AW4J0041	**ECM error warning lamp**	There is a problem in the engine. If an error code is displayed on the multi-information display, inform your sales or service dealer of the code and ask for help. Refer to “Multi-information display” on page 2-20. Refer to “Engine error code list” on page 6-18.
 AN4J005	**Engine stop request warning lamp**	
 AW4J007	**Vehicle and engine emergency lamp**	There is a problem in the machine. Refer to the respective warning lamp below. Get the vehicle or engine error code number from the multi- information display and consult your sales or service dealer referring to the number on the “Vehicle error code list” or “Engine error code list”. Refer to “Multi-information display” on page 2-20. Refer to “Vehicle error code list” on page 6-16. Refer to “Engine error code list” on page 6-18.
 AG7J018	**Coolant temperature warning lamp**	The coolant temperature is too high and the engine is overheating. Refer to “If the engine overheats” on page 6-3.
 AN4J006	**Coolant level warning lamp**	The coolant level is too low. Make sure that there is no leakage, and then add the coolant.

Warning lamp	Lamp name	Causes and remedies
 AG7J017	**Engine oil pressure warning lamp**	There is a problem in the engine lubrication system. Check the engine oil level. If the lamp is flashing when the level is normal or even after replenishment of oil or coolant, consult your sales or service dealer. Refer to “Inspecting and replenishing the engine oil” on page 5-24.
 AN4J008	**DEF/AdBlue® level warning lamp**	The DEF/AdBlue® level is low. Make sure that there is no leakage, and then add the DEF/AdBlue® solution. Refer to “Checking the DEF/AdBlue® level and refilling” on page 5-33.
 AR0J004	**SCR system warning lamp**	There is a problem in the SCR system. Contact a Takeuchi service dealer for advice.
 AR0J005	**DEF/AdBlue® quality indicator lamp**	The DEF/AdBlue® quality is deteriorated. Replace with the DEF/AdBlue® solution that complies the correct Standard.
 AG7J019	**Battery charge warning lamp**	There is a problem with the V-rib belt or charger. Check the V-rib belt for slack or breakage and adjust as necessary. If the lamp continues flashing after maintenance, there is likely a problem with the charger. Contact a Takeuchi service dealer for assistance. Refer to “Replacing the V-rib belt” on page 5-67.

Warning lamp	Lamp name	Causes and remedies
 AW4J009	**Water separator warning lamp**	Water is in the water separator. Drain water. Refer to “Inspecting the pre-fuel filter and draining” on page 5-26.
 AG7J020	**Air cleaner warning lamp**	The air cleaner is clogged. Clean it. Refer to “Inspecting and cleaning the air cleaner” on page 5-30.
 AU7J002	**Hydraulic oil temp. warning lamp**	The hydraulic oil temperature became too high due to machine overworking. Stop operation, run the engine at low idle and let the hydraulic oil cool down.
 AQ0J004	**Third auxiliary hydraulic warning lamp**	Pressure in the third auxiliary hydraulic line is too low Consult your sales or service dealer for help.
 AW4J010	**Fuel level warning lamp**	The fuel level is too low. Add fuel. Refer to “Inspecting the fuel level” on page 5-27.
 AM1J005	**Lift overload warning lamp**	This lamp starts flashing if the overload warning device is activated. If it occurs, reduce the load to be lifted. Refer to “Lift overload warning switch” on page 2-60.
 AW8J001	**Auto greasing warning indicator lamp**	The grease tank is empty or the fuse is blown; greasing is disabled. • Add grease to the grease tank • Identify the blown fuse and replace it with a new one.

VEHICLE ERROR CODE LIST

If an error code appears on the display, consult your sales or service dealer.

Error code	Error details
9	Impossible to sense ACC key
402	CAN 0 communication error
502	CAN communication error (ECM)
602	CAN communication error (cluster gauge)
612	CAN communication error (OX)
652	CAN communication error (IOX)
702	CAN communication error (HVAC)
822	CAN communication error (TAKEUCHI Security System)
1703	Main power supply voltage error (too high)
1704	Main power supply voltage error (too low)
1713	OX power supply voltage error (too high)
1714	OX power supply voltage error (too low)
1733	IOX power supply voltage error (too high)
1734	IOX power supply voltage error (too low)
2503	MC sensor voltage error (too high)
2504	MC Sensor voltage error (too low)
2513	IOX sensor voltage error (too high)
2514	IOX sensor voltage error (too low)
3300	Alternator charge faulty
3401	Engine oil pressure error
3500	Overheat
3600	Air cleaner clogged
3700	Water separator
3820	Hydraulic oil temp. too high
3823	Hydraulic oil temp. sensor voltage error (too high)
3824	Hydraulic oil temp. sensor voltage error (too low)

VEHICLE ERROR CODE LIST

Error code	Error details
5303	Accelerator sensor error (short circuit)
5304	Accelerator sensor error (cable break)
5503	Fuel sender voltage error (too high)
5504	Fuel sender voltage error (too low)
5603	Lift alarm sensor error (short circuit)
5604	Lift alarm sensor error (cable break)
5833	Pressure sensor P3 error (short-circuit)
5834	Pressure sensor P3 error (cable break)
6503	AUX1 slide switch voltage value error (too high)
6504	AUX1 slide switch voltage value error (too low)
6509	AUX1 slide switch neutral error
6519	AUX1 (L) switch error
6529	AUX1 (R) switch error
6609	AUX2 slide switch neutral error
6603	AUX2 slide switch voltage value error (too high)
6604	AUX2 slide switch voltage value error (too low)
6709	AUX3 switch error
6859	Grease level low
8005	Pump PWM output electric current error (too low)
8015	AUX1 (L) PWM output electric current error (too low)
8025	AUX1 (R) PWM output electric current error (too low)
8035	AUX2 (L) PWM output electric current error (too low)
8045	AUX2 (R) PWM output electric current error (too low)
8055	Fan drive PWM output voltage error (too low)
8715	AUX1 pressure SOL output electric current error (too low)
8725	AUX2 pressure SOL output electric current error (too low)
9900	Options settings change (TFM)
9990	Model changed
9991	Unknown model

PWM = Pulse Width Modulation

<Applicable machine models 514901229 or later>

ENGINE ERROR CODE LIST

If an error code appears on the display, consult your sales or service dealer.

SPN	FMI	Error description
29	2	Machine - Position accelerator pedal 2 - Data erratic intermittent or incorrect
29	3	Machine - Position accelerator pedal 2 - Voltage above normal or shorted to high source
29	4	Machine - Position accelerator pedal 2 - Voltage below normal or shorted to low source
51	0	Engine - Throttle valve position - Data above normal operational range (Most severe level)
51	1	Engine - Throttle valve position - Data below normal operational range (Most severe level)
51	3	Engine - Throttle valve position - Voltage above normal or shorted to high source
51	4	Engine - Throttle valve position - Voltage below normal or shorted to low source
51	5	Engine - Throttle valve position - Current below normal or open circuit
51	6	Engine - Throttle valve position - Current above normal or grounded circuit
51	7	Engine - Throttle valve position - Mechanical system not responding or out of adjustment
51	11	Engine - Throttle valve position - Root cause not known
51	12	Engine - Throttle valve position - Bad intelligent device or component
91	3	Machine - Position accelerator pedal - Voltage above normal or shorted to high source
91	4	Machine - Position accelerator pedal - Voltage below normal or shorted to low source
91	11	Machine - Position accelerator pedal - Root cause not known
94	1	Engine - Fuel low pressure sensor - Data below normal operational range (Most severe level)
94	3	Engine - Fuel low pressure sensor - Voltage above normal or shorted to high source
94	4	Engine - Fuel low pressure sensor - Voltage below normal or shorted to low source
97	3	Engine - Water in fuel sensor - Voltage above normal or shorted to high source
97	4	Engine - Water in fuel sensor - Voltage below normal or shorted to low source
97	12	Engine - Water in fuel sensor - Bad intelligent device or component

SPN	FMI	Error description
100	0	Engine - Oil pressure sensor - Data above normal operational range (Most severe level)
100	1	Engine - Oil pressure sensor - Data below normal operational range (Most severe level)
100	3	Engine - Oil pressure sensor - Voltage above normal or shorted to high source
100	4	Engine - Oil pressure sensor - Voltage below normal or shorted to low source
102	1	Engine - Charge air pressure sensor - Data below normal operational range (Most severe level)
102	2	Engine - Charge air pressure sensor - Data erratic intermittent or incorrect
102	3	Engine - Charge air pressure sensor - Voltage above normal or shorted to high source
102	4	Engine - Charge air pressure sensor - Voltage below normal or shorted to low source
105	0	Engine - Charge air temperature sensor - Data above normal operational range (Most severe level)
105	1	Engine - Charge air temperature sensor - Data below normal operational range (Most severe level)
105	3	Engine - Charge air temperature sensor - Voltage above normal or shorted to high source
105	4	Engine - Charge air temperature sensor - Voltage below normal or shorted to low source
105	11	Engine - Charge air temperature sensor - Root cause not known
107	0	Engine - Air filter differential pressure sensor - Data above normal operational range (Most severe level)
107	3	Engine - Air filter differential pressure sensor - Voltage above normal or shorted to high source
108	0	Engine - Ambient pressure sensor - Data above normal operational range (Most severe level)
108	1	Engine - Ambient pressure sensor - Data below normal operational range (Most severe level)
108	3	Engine - Ambient pressure sensor - Voltage above normal or shorted to high source
108	4	Engine - Ambient pressure sensor - Voltage below normal or shorted to low source
108	11	Engine - Ambient pressure sensor - Root cause not known

SPN	FMI	Error description
110	0	Engine - Coolant temperature sensor - Data above normal operational range (Most severe level)
110	1	Engine - Coolant temperature sensor - Data below normal operational range (Most severe level)
110	3	Engine - Coolant temperature sensor - Voltage above normal or shorted to high source
110	4	Engine - Coolant temperature sensor - Voltage below normal or shorted to low source
111	1	Engine - Coolant level sensor - Data below normal operational range (Most severe level)
132	11	Engine - Air mass - Root cause not known
157	3	Engine - Rail pressure sensor - Voltage above normal or shorted to high source
157	4	Engine - Rail pressure sensor - Voltage below normal or shorted to low source
164	2	Engine - Rail pressure - Data erratic intermittent or incorrect
168	0	Machine - Battery voltage - Data above normal operational range (Most severe level)
168	1	Machine - Battery voltage - Data below normal operational range (Most severe level)
168	2	Machine - Battery voltage - Data erratic intermittent or incorrect
168	3	Machine - Battery voltage - Voltage above normal or shorted to high source
168	4	Machine - Battery voltage - Voltage below normal or shorted to low source
171	0	Engine - Ambient air temperature sensor - Data above normal operational range (Most severe level)
171	1	Engine - Ambient air temperature sensor - Data below normal operational range (Most severe level)
171	3	Engine - Ambient air temperature sensor - Voltage above normal or shorted to high source
171	4	Engine - Ambient air temperature sensor - Voltage below normal or shorted to low source
172	0	Engine - Ambient air temperature sensor - Data above normal operational range (Most severe level)
172	1	Engine - Ambient air temperature sensor - Data below normal operational range (Most severe level)
172	2	Engine - Ambient air temperature sensor - Data erratic intermittent or incorrect
172	3	Engine - Ambient air temperature sensor - Voltage above normal or shorted to high source
172	4	Engine - Ambient air temperature sensor - Voltage below normal or shorted to low source
175	0	Engine - Oil temperature - Data above normal operational range (Most severe level)

SPN	FMI	Error description
175	3	Engine - Oil temperature - Voltage above normal or shorted to high source
175	4	Engine - Oil temperature - Voltage below normal or shorted to low source
190	0	Engine - Rotation speed - Data above normal operational range (Most severe level)
190	2	Engine - Rotation speed - Data erratic intermittent or incorrect
190	8	Engine - Rotation speed - Abnormal frequency or pulse width or period
190	11	Engine - Rotation speed - Root cause not known
190	12	Engine - Rotation speed - Bad intelligent device or component
190	14	Engine - Rotation speed - Special instructions
411	0	Engine - EGR differential pressure - Data above normal operational range (Most severe level)
411	2	Engine - EGR differential pressure - Data erratic intermittent or incorrect
411	3	Engine - EGR differential pressure - Voltage above normal or shorted to high source
411	4	Engine - EGR differential pressure - Voltage below normal or shorted to low source
411	11	Engine - EGR differential pressure - Root cause not known
412	3	Engine - EGR temperature sensor - Voltage above normal or shorted to high source
412	4	Engine - EGR temperature sensor - Voltage below normal or shorted to low source
520	9	Machine - CAN torque rotation speed control - Abnormal update rate timeout
624	3	Machine - Amber warning lamp - Voltage above normal or shorted to high source
624	4	Machine - Amber warning lamp - Voltage below normal or shorted to low source
624	5	Machine - Amber warning lamp - Current below normal or open circuit
624	12	Machine - Amber warning lamp - Bad intelligent device or component
630	12	Engine - ECU calibration memory - Bad intelligent device or component
639	14	Machine - CAN - Special instructions
651	3	Engine - Injector 1 - Voltage above normal or shorted to high source
651	5	Engine - Injector 1 - Current below normal or open circuit
652	3	Engine - Injector 2 - Voltage above normal or shorted to high source
652	5	Engine - Injector 2 - Current below normal or open circuit
653	3	Engine - Injector 3 - Voltage above normal or shorted to high source
653	5	Engine - Injector 3 - Current below normal or open circuit
654	3	Engine - Injector 4 - Voltage above normal or shorted to high source
654	5	Engine - Injector 4 - Current below normal or open circuit

SPN	FMI	Error description
655	3	Engine - Injector 5 - Voltage above normal or shorted to high source
655	5	Engine - Injector 5 - Current below normal or open circuit
656	3	Engine - Injector 6 - Voltage above normal or shorted to high source
656	5	Engine - Injector 6 - Current below normal or open circuit
676	11	Engine - Glow plug relay - Root cause not known
677	3	Engine - Starter relay - Voltage above normal or shorted to high source
677	4	Engine - Starter relay - Voltage below normal or shorted to low source
677	5	Engine - Starter relay - Current below normal or open circuit
677	12	Engine - Starter relay - Bad intelligent device or component
729	3	Engine - Preheating relay - Voltage above normal or shorted to high source
729	4	Engine - Preheating relay - Voltage below normal or shorted to low source
729	5	Engine - Preheating relay - Current below normal or open circuit
729	12	Engine - Preheating relay - Bad intelligent device or component
898	9	Machine - Externally requested engine rotation speed - Abnormal update rate timeout
975	3	Engine - Fan - Voltage above normal or shorted to high source
975	4	Engine - Fan - Voltage below normal or shorted to low source
975	5	Engine - Fan - Current below normal or open circuit
1079	13	Engine - Sensor supply voltage - Out of calibration
1080	13	Engine - Sensor supply voltage 2 - Out of calibration
1109	2	Engine - Protection system requested shutdown - Data erratic intermittent or incorrect
1136	0	Engine - ECU temperature - Data above normal operational range (Most severe level)
1176	0	Engine - TC charge pressure - Data above normal operational range (Most severe level)
1176	1	Engine - TC charge pressure - Data below normal operational range (Most severe level)
1176	2	Engine - TC charge pressure - Data erratic intermittent or incorrect
1176	3	Engine - TC charge pressure - Voltage above normal or shorted to high source
1176	4	Engine - TC charge pressure - Voltage below normal or shorted to low source
1180	0	Engine - TC charge temperature before turbine - Data above normal operational range (Most severe level)
1180	1	Engine - TC charge temperature before turbine - Data below normal operational range (Most severe level)
1180	3	Engine - TC charge temperature before turbine - Voltage above normal or shorted to high source

SPN	FMI	Error description
1188	0	Engine - TC wastegate - Data above normal operational range (Most severe level)
1188	2	Engine - TC wastegate - Data erratic intermittent or incorrect
1188	3	Engine - TC wastegate - Voltage above normal or shorted to high source
1188	4	Engine - TC wastegate - Voltage below normal or shorted to low source
1188	6	Engine - TC wastegate - Current above normal or grounded circuit
1188	7	Engine - TC wastegate - Mechanical system not responding or out of adjustment
1188	11	Engine - TC wastegate - Root cause not known
1188	12	Engine - TC wastegate - Bad intelligent device or component
1188	13	Engine - TC wastegate - Out of calibration
1231	14	Machine - CAN - Special instructions
1235	14	Machine - CAN - Special instructions
1237	2	Engine - Shutdown override switch - Data erratic intermittent or incorrect
1322	12	Engine - Misfire for multiple cylinders - Bad intelligent device or component
1323	12	Engine - Misfire cylinder 1 - Bad intelligent device or component
1324	12	Engine - Misfire cylinder 2 - Bad intelligent device or component
1325	12	Engine - Misfire cylinder 3 - Bad intelligent device or component
1326	12	Engine - Misfire cylinder 4 - Bad intelligent device or component
1327	12	Engine - Misfire cylinder 5 - Bad intelligent device or component
1328	12	Engine - Misfire cylinder 6 - Bad intelligent device or component
1639	0	Engine - Fan rotation speed - Data above normal operational range (Most severe level)
1639	1	Engine - Fan rotation speed - Data below normal operational range (Most severe level)
1639	12	Engine - Fan rotation speed - Bad intelligent device or component
1761	0	Exhaust aftertreatment - DEF tank level sensor - Data above normal operational range (Most severe level)
1761	1	Exhaust aftertreatment - DEF tank level sensor - Data below normal operational range (Most severe level)
1761	2	Exhaust aftertreatment - DEF tank level sensor - Data erratic intermittent or incorrect
1761	14	Exhaust aftertreatment - DEF tank level sensor - Special instructions
2659	0	Engine - EGR mass flow - Data above normal operational range (Most severe level)
2659	1	Engine - EGR mass flow - Data below normal operational range (Most severe level)
2659	2	Engine - EGR mass flow - Data erratic intermittent or incorrect

SPN	FMI	Error description
2659	12	Engine - EGR mass flow - Bad intelligent device or component
2791	0	Engine - EGR actuator - Data above normal operational range (Most severe level)
2791	2	Engine - EGR actuator - Data erratic intermittent or incorrect
2791	3	Engine - EGR actuator - Voltage above normal or shorted to high source
2791	4	Engine - EGR actuator - Voltage below normal or shorted to low source
2791	6	Engine - EGR actuator - Current above normal or grounded circuit
2791	7	Engine - EGR actuator - Mechanical system not responding or out of adjustment
2791	12	Engine - EGR actuator - Bad intelligent device or component
2791	13	Engine - EGR actuator - Out of calibration
2791	16	Engine - EGR actuator - Data above normal operational range (Moderately severe level)
2797	4	Engine - Injector group - Voltage below normal or shorted to low source
2798	4	Engine - Injector group 2 - Voltage below normal or shorted to low source
3031	0	Exhaust aftertreatment - DEF tank temperature - Data above normal operational range (Most severe level)
3031	1	Exhaust aftertreatment - DEF tank temperature - Data below normal operational range (Most severe level)
3224	1	Exhaust aftertreatment - NOx sensor mixing section - Data below normal operational range (Most severe level)
3224	2	Exhaust aftertreatment - NOx sensor mixing section - Data erratic intermittent or incorrect
3224	9	Exhaust aftertreatment - NOx sensor mixing section - Abnormal update rate timeout
3234	2	Exhaust aftertreatment - NOx sensor after SCR - Data erratic intermittent or incorrect
3234	9	Exhaust aftertreatment - NOx sensor after SCR - Abnormal update rate timeout
3234	11	Exhaust aftertreatment - NOx sensor after SCR - Root cause not known
3241	0	Exhaust aftertreatment - Temperature before SCR Cat - Data above normal operational range (Most severe level)
3248	4	Exhaust aftertreatment - Temperature after DPF - Voltage below normal or shorted to low source
3251	0	Exhaust aftertreatment - DPF differential pressure - Data above normal operational range (Most severe level)
3251	1	Exhaust aftertreatment - DPF differential pressure - Data below normal operational range (Most severe level)
3253	2	Exhaust aftertreatment - DPF differential pressure - Data erratic intermittent or incorrect
3253	3	Exhaust aftertreatment - DPF differential pressure - Voltage above normal or shorted to high source

SPN	FMI	Error description
3253	4	Exhaust aftertreatment - DPF differential pressure - Voltage below normal or shorted to low source
3361	3	Exhaust aftertreatment - DEF metering unit - Voltage above normal or shorted to high source
3361	4	Exhaust aftertreatment - DEF metering unit - Voltage below normal or shorted to low source
3361	6	Exhaust aftertreatment - DEF metering unit - Current above normal or grounded circuit
3361	7	Exhaust aftertreatment - DEF metering unit - Mechanical system not responding or out of adjustment
3519	3	Exhaust aftertreatment - DEF tank temperature - Voltage above normal or shorted to high source
3519	4	Exhaust aftertreatment - DEF tank temperature - Voltage below normal or shorted to low source
3519	12	Exhaust aftertreatment - DEF tank temperature - Bad intelligent device or component
3519	13	Exhaust aftertreatment - DEF tank temperature - Out of calibration
3520	1	Exhaust aftertreatment - DEF quality sensor - Data below normal operational range (Most severe level)
3520	2	Exhaust aftertreatment - DEF quality sensor - Data erratic intermittent or incorrect
3520	3	Exhaust aftertreatment - DEF quality sensor - Voltage above normal or shorted to high source
3520	4	Exhaust aftertreatment - DEF quality sensor - Voltage below normal or shorted to low source
3520	8	Exhaust aftertreatment - DEF quality sensor - Abnormal frequency or pulse width or period
3520	13	Exhaust aftertreatment - DEF quality sensor - Out of calibration
3532	3	Exhaust aftertreatment - DEF tank level sensor - Voltage above normal or shorted to high source
3532	4	Exhaust aftertreatment - DEF tank level sensor - Voltage below normal or shorted to low source
3532	13	Exhaust aftertreatment - DEF tank level sensor - Out of calibration
3699	0	Exhaust aftertreatment - Passive regeneration - Data above normal operational range (Most severe level)
3699	2	Exhaust aftertreatment - Passive regeneration - Data erratic intermittent or incorrect
3711	12	Exhaust aftertreatment - Temperature during Stand Still - Bad intelligent device or component
3936	14	Exhaust aftertreatment - Time Stand Still - Special instructions
4171	2	Dynamic temperature check of temp before SCR
4243	11	Exhaust aftertreatment - SCR heater - Root cause not known
4334	0	Exhaust aftertreatment - DEF pump pressure - Data above normal operational range (Most severe level)

SPN	FMI	Error description
4334	1	Exhaust aftertreatment - DEF pump pressure - Data below normal operational range (Most severe level)
4334	2	Exhaust aftertreatment - DEF pump pressure - Data erratic intermittent or incorrect
4341	3	Exhaust aftertreatment - Heater DEF supply line - Voltage above normal or shorted to high source
4341	4	Exhaust aftertreatment - Heater DEF supply line - Voltage below normal or shorted to low source
4341	5	Exhaust aftertreatment - Heater DEF supply line - Current below normal or open circuit
4343	3	Exhaust aftertreatment - Heater DEF pressure line - Voltage above normal or shorted to high source
4343	4	Exhaust aftertreatment - Heater DEF pressure line - Voltage below normal or shorted to low source
4343	5	Exhaust aftertreatment - Heater DEF pressure line - Current below normal or open circuit
4343	11	Exhaust aftertreatment - Heater DEF pressure line - Root cause not known
4345	3	Exhaust aftertreatment - Heater DEF return line - Voltage above normal or shorted to high source
4345	4	Exhaust aftertreatment - Heater DEF return line - Voltage below normal or shorted to low source
4345	5	Exhaust aftertreatment - Heater DEF return line - Current below normal or open circuit
4345	11	Exhaust aftertreatment - Heater DEF return line - Root cause not known
4360	0	Exhaust aftertreatment - Temperature before SCR Cat - Data above normal operational range (Most severe level)
4360	1	Exhaust aftertreatment - Temperature before SCR Cat - Data below normal operational range (Most severe level)
4360	2	Exhaust aftertreatment - Temperature before SCR Cat - Data erratic intermittent or incorrect
4361	2	Exhaust aftertreatment - Dynamic temperature check before SCR - Data erratic intermittent or incorrect
4361	3	Exhaust aftertreatment - Temperature SCR Cat - Voltage above normal or shorted to high source
4361	4	Exhaust aftertreatment - Temperature SCR Cat - Voltage below normal or shorted to low source
4365	0	Exhaust aftertreatment - DEF tank temperature - Data above normal operational range (Most severe level)
4365	2	Exhaust aftertreatment - DEF tank temperature - Data erratic intermittent or incorrect
4365	3	Exhaust aftertreatment - DEF tank temperature - Voltage above normal or shorted to high source
4365	4	Exhaust aftertreatment - DEF tank temperature - Voltage below normal or shorted to low source

SPN	FMI	Error description
4365	12	Exhaust aftertreatment - DEF tank temperature - Bad intelligent device or component
4365	13	Exhaust aftertreatment - DEF tank temperature - Out of calibration
4366	3	Exhaust aftertreatment - DEF tank heating valve - Voltage above normal or shorted to high source
4366	4	Exhaust aftertreatment - DEF tank heating valve - Voltage below normal or shorted to low source
4366	5	Exhaust aftertreatment - DEF tank heating valve - Current below normal or open circuit
4374	13	Exhaust aftertreatment - DEF metering valve - Out of calibration
4375	3	Exhaust aftertreatment - DEF pump - Voltage above normal or shorted to high source
4375	4	Exhaust aftertreatment - DEF pump - Voltage below normal or shorted to low source
4375	5	Exhaust aftertreatment - DEF pump - Current below normal or open circuit
4376	3	Exhaust aftertreatment - DEF reverse valve - Voltage above normal or shorted to high source
4376	4	Exhaust aftertreatment - DEF reverse valve - Voltage below normal or shorted to low source
4376	5	Exhaust aftertreatment - DEF reverse valve - Current below normal or open circuit
4376	12	Exhaust aftertreatment - DEF reverse valve - Bad intelligent device or component
4765	0	Exhaust aftertreatment - Temperature bevor DOC - Data above normal operational range (Most severe level)
4766	0	Exhaust aftertreatment - Temperature after DOC - Data above normal operational range (Most severe level)
4768	2	Exhaust aftertreatment - Temperature sensor before DOC - Data erratic intermittent or incorrect
4768	3	Exhaust aftertreatment - Temperature sensor before DOC - Voltage above normal or shorted to high source
4768	4	Exhaust aftertreatment - Temperature sensor before DOC - Voltage below normal or shorted to low source
4769	2	Exhaust aftertreatment - Temperature sensor after DOC - Data erratic intermittent or incorrect
4769	3	Exhaust aftertreatment - Temperature sensor after DOC - Voltage above normal or shorted to high source
4769	4	Exhaust aftertreatment - Temperature sensor after DOC - Voltage below normal or shorted to low source
5763	0	Engine - EGR valve - Data above normal operational range (Most severe level)
5763	1	Engine - EGR valve - Data below normal operational range (Most severe level)
5763	3	Engine - EGR valve - Voltage above normal or shorted to high source

SPN	FMI	Error description
5763	4	Engine - EGR valve - Voltage below normal or shorted to low source
5763	5	Engine - EGR valve - Current below normal or open circuit
5763	6	Engine - EGR valve - Current above normal or grounded circuit
5763	7	Engine - EGR valve - Mechanical system not responding or out of adjustment
5763	11	Engine - EGR valve - Root cause not known
520521	5	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (4.1;6.1;7.8); signal range check low.
523008	1	Engine - Manipulation monitoring - Data below normal operational range (Most severe level)
523008	2	Engine - Manipulation monitoring - Data erratic intermittent or incorrect
523009	9	Engine - Fuel pressure relief valve - Abnormal update rate timeout
523009	10	Engine - Fuel pressure relief valve - Abnormal rate of change
523090	2	Machine - Pre selection switch engine brake - Data erratic intermittent or incorrect
523211	9	Engine - CAN engine brake - Abnormal update rate timeout
523212	9	Engine - CAN engine protection - Abnormal update rate timeout
523216	9	Engine - CAN pre heating - Abnormal update rate timeout
523240	9	Engine - CAN Functional mode control - Abnormal update rate timeout
523330	14	Engine - Immobilizer - Special instructions
523350	4	Engine - Injectors bank 1 - Voltage below normal or shorted to low source
523352	4	Engine - Injectors bank 2 - Voltage below normal or shorted to low source
523354	12	Engine - Output power stage Injector - Bad intelligent device or component
523470	2	Engine - Fuel pressure relief valve - Data erratic intermittent or incorrect
523470	7	Engine - Fuel pressure relief valve - Mechanical system not responding or out of adjustment
523470	11	Engine - Fuel pressure relief valve - Root cause not known
523470	12	Engine - Fuel pressure relief valve - Bad intelligent device or component
523470	13	Engine - Fuel pressure relief valve - Out of calibration
523470	14	Engine - Fuel pressure relief valve - Special instructions
523550	12	Engine - Starter switch to long active - Bad intelligent device or component
523601	13	Engine - ECU Sensor supply voltage 3 - Out of calibration
523602	0	Engine - Fan rotation speed - Data above normal operational range (Most severe level)
523603	9	Engine - CAN ambient temperature - Abnormal update rate timeout
523605	9	Machine - CAN torque rotation speed control - Abnormal update rate timeout
523606	9	Machine - CAN torque rotation speed control - Abnormal update rate timeout

SPN	FMI	Error description
523612	3	Engine - ECU - Voltage above normal or shorted to high source
523612	4	Engine - ECU - Voltage below normal or shorted to low source
523612	12	Engine - ECU - Bad intelligent device or component
523612	14	Engine - ECU - Special instructions
523613	0	Engine - Fuel pressure - Data above normal operational range (Most severe level)
523613	1	Engine - Fuel pressure - Data below normal operational range (Most severe level)
523613	2	Engine - Fuel pressure - Data erratic intermittent or incorrect
523615	3	Engine - Fuel metering unit - Voltage above normal or shorted to high source
523615	4	Engine - Fuel metering unit - Voltage below normal or shorted to low source
523615	5	Engine - Fuel metering unit - Current below normal or open circuit
523615	12	Engine - Fuel metering unit - Bad intelligent device or component
523618	3	Machine - Transmission oil sensor - Voltage above normal or shorted to high source
523618	4	Machine - Transmission oil sensor - Voltage below normal or shorted to low source
523619	2	Exhaust aftertreatment - Temperature before SCR Cat - Data erratic intermittent or incorrect
523632	0	Exhaust aftertreatment - DEF pressure - Data above normal operational range (Most severe level)
523632	1	Exhaust aftertreatment - DEF pressure - Data below normal operational range (Most severe level)
523632	3	Exhaust aftertreatment - DEF pressure - Voltage above normal or shorted to high source
523632	4	Exhaust aftertreatment - DEF pressure - Voltage below normal or shorted to low source
523632	11	Exhaust aftertreatment - DEF pressure - Root cause not known
523632	16	Exhaust aftertreatment - DEF pressure - Data above normal operational range (Moderately severe level)
523632	18	Exhaust aftertreatment - DEF pressure - Data below normal operational range (Moderately severe level)
523633	11	Exhaust aftertreatment - Efficiency SCR system - Root cause not known
523668	11	Exhaust aftertreatment - Hardware failure temperature sensor DEF suction unit - Root cause not known
523669	11	Exhaust aftertreatment - Hardware failure quality sensor DEF suction unit - Root cause not known
523670	11	Exhaust aftertreatment - Hardware failure level sensor DEF suction unit - Root cause not known
523698	11	Engine - Shut down request from internal ECU monitoring - Root cause not known

SPN	FMI	Error description
523704	12	Engine - Engine controller 3 - Bad intelligent device or component
523717	12	Engine - CAN ambient conditions - Bad intelligent device or component
523718	3	Exhaust aftertreatment - SCR system - Voltage above normal or shorted to high source
523718	4	Exhaust aftertreatment - SCR system - Voltage below normal or shorted to low source
523718	5	Exhaust aftertreatment - SCR system - Current below normal or open circuit
523718	12	Exhaust aftertreatment - SCR system - Bad intelligent device or component
523719	3	Exhaust aftertreatment - SCR heater - Voltage above normal or shorted to high source
523719	4	Exhaust aftertreatment - SCR heater - Voltage below normal or shorted to low source
523719	5	Exhaust aftertreatment - SCR heater - Current below normal or open circuit
523720	2	Exhaust aftertreatment - Heater DEF metering unit - Data erratic intermittent or incorrect
523720	8	Exhaust aftertreatment - Heater DEF metering unit - Abnormal frequency or pulse width or period
523721	2	Exhaust aftertreatment - DEF temperature - Data erratic intermittent or incorrect
523721	8	Exhaust aftertreatment - DEF temperature - Abnormal frequency or pulse width or period
523721	11	Exhaust aftertreatment - DEF temperature - Root cause not known
523722	8	Exhaust aftertreatment - DEF temperature - Abnormal frequency or pulse width or period
523741	14	Machine - CAN shut down request from engine shut down - Special instructions
523766	9	Machine - CAN torque rotation speed control - Abnormal update rate timeout
523767	9	Machine - CAN torque rotation speed control - Abnormal update rate timeout
523768	9	Machine - CAN torque rotation speed control - Abnormal update rate timeout
523769	9	Machine - CAN torque rotation speed control - Abnormal update rate timeout
523776	9	Machine - CAN torque rotation speed control - Abnormal update rate timeout
523777	9	Machine - CAN torque rotation speed control - Abnormal update rate timeout
523778	9	Machine - CAN torque rotation speed control - Abnormal update rate timeout
523779	9	Machine - CAN torque rotation speed control - Abnormal update rate timeout

SPN	FMI	Error description
523788	0	Engine - CAN TC - Data above normal operational range (Most severe level)
523788	12	Engine - CAN TC - Bad intelligent device or component
523793	9	Engine - CAN AGS - Abnormal update rate timeout
523794	9	Engine - CAN AGS - Abnormal update rate timeout
523803	9	Exhaust aftertreatment - CAN Burner air pump - Abnormal update rate timeout
523858	12	Engine - CAN AGS purification - Bad intelligent device or component
523867	12	Engine - CAN AGS burner air pump - Bad intelligent device or component
523895	13	Engine - Injector 1 IMA Code - Out of calibration
523896	13	Engine - Injector 2 IMA Code - Out of calibration
523897	13	Engine - Injector 3 IMA Code - Out of calibration
523898	13	Engine - Injector 4 IMA Code - Out of calibration
523899	13	Engine - Injector 5 IMA Code - Out of calibration
523900	13	Engine - Injector 6 IMA Code - Out of calibration
523906	3	Engine - Fuel pre feed pump - Voltage above normal or shorted to high source
523906	4	Engine - Fuel pre feed pump - Voltage below normal or shorted to low source
523906	5	Engine - Fuel pre feed pump - Current below normal or open circuit
523906	12	Engine - Fuel pre feed pump - Bad intelligent device or component
523910	0	Exhaust aftertreatment - Burner air pump - Data above normal operational range (Most severe level)
523910	6	Exhaust aftertreatment - Burner air pump - Current above normal or grounded circuit
523910	7	Exhaust aftertreatment - Burner air pump - Mechanical system not responding or out of adjustment
523910	9	Exhaust aftertreatment - Burner air pump - Abnormal update rate timeout
523910	12	Exhaust aftertreatment - Burner air pump - Bad intelligent device or component
523910	14	Exhaust aftertreatment - Burner air pump - Special instructions
523911	0	Exhaust aftertreatment - Burner dosing valve - Data above normal operational range (Most severe level)
523911	4	Exhaust aftertreatment - Burner dosing valve - Voltage below normal or shorted to low source
523911	11	Exhaust aftertreatment - Burner dosing valve - Root cause not known
523912	0	Exhaust aftertreatment - Pressure sensor after burner dosing valve - Data above normal operational range (Most severe level)
523912	1	Exhaust aftertreatment - Pressure sensor after burner dosing valve - Data below normal operational range (Most severe level)

SPN	FMI	Error description
523912	2	Exhaust aftertreatment - Pressure sensor after burner dosing valve - Data erratic intermittent or incorrect
523912	3	Exhaust aftertreatment - Pressure sensor after burner dosing valve - Voltage above normal or shorted to high source
523912	4	Exhaust aftertreatment - Pressure sensor after burner dosing valve - Voltage below normal or shorted to low source
523913	3	Engine - Diagnostic cable glow plug control - Voltage above normal or shorted to high source
523913	4	Engine - Diagnostic cable glow plug control - Voltage below normal or shorted to low source
523914	3	Engine - Glow plug control - Voltage above normal or shorted to high source
523914	4	Engine - Glow plug control - Voltage below normal or shorted to low source
523914	5	Engine - Glow plug control - Current below normal or open circuit
523914	12	Engine - Glow plug control - Bad intelligent device or component
523915	0	Exhaust aftertreatment - Burner post injection metering valve - Data above normal operational range (Most severe level)
523915	3	Exhaust aftertreatment - Burner post injection metering valve - Voltage above normal or shorted to high source
523915	4	Exhaust aftertreatment - Burner post injection metering valve - Voltage below normal or shorted to low source
523915	7	Exhaust aftertreatment - Burner post injection metering valve - Mechanical system not responding or out of adjustment
523915	11	Exhaust aftertreatment - Burner post injection metering valve - Root cause not known
523915	12	Exhaust aftertreatment - Burner post injection metering valve - Bad intelligent device or component
523916	0	Exhaust aftertreatment - Fuel pressure sensor after burner post injection metering valve - Data above normal operational range (Most severe level)
523916	1	Exhaust aftertreatment - Fuel pressure sensor after burner post injection metering valve - Data below normal operational range (Most severe level)
523916	2	Exhaust aftertreatment - Fuel pressure sensor after burner post injection metering valve - Data erratic intermittent or incorrect
523916	3	Exhaust aftertreatment - Fuel pressure sensor after burner post injection metering valve - Voltage above normal or shorted to high source
523916	4	Exhaust aftertreatment - Fuel pressure sensor after burner post injection metering valve - Voltage below normal or shorted to low source
523917	3	Exhaust aftertreatment - Pressure before burner fuel valve - Voltage above normal or shorted to high source
523917	4	Exhaust aftertreatment - Pressure before burner fuel valve - Voltage below normal or shorted to low source
523918	3	Exhaust aftertreatment - Burner metering unit - Voltage above normal or shorted to high source

SPN	FMI	Error description
523918	4	Exhaust aftertreatment - Burner metering unit - Voltage below normal or shorted to low source
523919	0	Exhaust aftertreatment - Burner air pump pressure sensor - Data above normal operational range (Most severe level)
523919	1	Exhaust aftertreatment - Burner air pump pressure sensor - Data below normal operational range (Most severe level)
523919	2	Exhaust aftertreatment - Burner air pump pressure sensor - Data erratic intermittent or incorrect
523919	3	Exhaust aftertreatment - Burner air pump pressure sensor - Voltage above normal or shorted to high source
523919	4	Exhaust aftertreatment - Burner air pump pressure sensor - Voltage below normal or shorted to low source
523920	0	Exhaust aftertreatment - Burner exhaust back pressure sensor - Data above normal operational range (Most severe level)
523920	2	Exhaust aftertreatment - Burner exhaust back pressure sensor - Data erratic intermittent or incorrect
523920	3	Exhaust aftertreatment - Burner exhaust back pressure sensor - Voltage above normal or shorted to high source
523920	4	Exhaust aftertreatment - Burner exhaust back pressure sensor - Voltage below normal or shorted to low source
523921	0	Exhaust aftertreatment - Burner firing chamber temperature - Data above normal operational range (Most severe level)
523921	1	Exhaust aftertreatment - Burner firing chamber temperature - Data below normal operational range (Most severe level)
523921	2	Exhaust aftertreatment - Burner firing chamber temperature - Data erratic intermittent or incorrect
523921	3	Exhaust aftertreatment - Burner firing chamber temperature - Voltage above normal or shorted to high source
523921	4	Exhaust aftertreatment - Burner firing chamber temperature - Voltage below normal or shorted to low source
523922	3	Exhaust aftertreatment - Burner metering unit shut-off valve - Voltage above normal or shorted to high source
523922	4	Exhaust aftertreatment - Burner metering unit shut-off valve - Voltage below normal or shorted to low source
523922	5	Exhaust aftertreatment - Burner metering unit shut-off valve - Current below normal or open circuit
523922	7	Exhaust aftertreatment - Burner metering unit shut-off valve - Mechanical system not responding or out of adjustment
523922	12	Exhaust aftertreatment - Burner metering unit shut-off valve - Bad intelligent device or component
523924	3	Engine - Actuator relay 2 - Voltage above normal or shorted to high source
523924	4	Engine - Actuator relay 2 - Voltage below normal or shorted to low source
523925	3	Engine - Actuator relay 3 - Voltage above normal or shorted to high source
523925	4	Engine - Actuator relay 3 - Voltage below normal or shorted to low source

SPN	FMI	Error description
523926	4	Engine - Actuator relay 4 - Voltage below normal or shorted to low source
523927	3	Engine - Actuator relay 6 - Voltage above normal or shorted to high source
523935	12	Engine - Engine controller 3 - Bad intelligent device or component
523936	12	Engine - Engine controller 3 - Bad intelligent device or component
523938	9	Exhaust aftertreatment - CAN exhaust inlet - Abnormal update rate timeout
523939	9	Exhaust aftertreatment - CAN exhaust inlet - Abnormal update rate timeout
523940	9	Exhaust aftertreatment - CAN exhaust inlet - Abnormal update rate timeout
523941	9	Exhaust aftertreatment - CAN exhaust inlet - Abnormal update rate timeout
523942	9	Exhaust aftertreatment - CAN exhaust inlet - Abnormal update rate timeout
523943	9	Exhaust aftertreatment - CAN exhaust inlet - Abnormal update rate timeout
523946	0	Engine - Injection Zero quantity calibration Injector 1 - Data above normal operational range (Most severe level)
523946	1	Engine - Injection Zero quantity calibration Injector 1 - Data below normal operational range (Most severe level)
523947	0	Engine - Injection Zero quantity calibration Injector 2 - Data above normal operational range (Most severe level)
523947	1	Engine - Injection Zero quantity calibration Injector 2 - Data below normal operational range (Most severe level)
523948	0	Engine - Injection Zero quantity calibration Injector 3 - Data above normal operational range (Most severe level)
523948	1	Engine - Injection Zero quantity calibration Injector 3 - Data below normal operational range (Most severe level)
523949	1	Engine - Injection Zero quantity calibration Injector 4 - Data below normal operational range (Most severe level)
523950	1	Engine - Injection Zero quantity calibration Injector 5 - Data below normal operational range (Most severe level)
523951	0	Engine - Injection Zero quantity calibration Injector 6 - Data above normal operational range (Most severe level)
523960	0	Engine - EGR temperature after EGR cooler - Data above normal operational range (Most severe level)
523960	1	Engine - EGR temperature after EGR cooler - Data below normal operational range (Most severe level)
523980	14	Exhaust aftertreatment - DEF metering quantity - Special instructions
523981	11	Exhaust aftertreatment - DEF tank heater - Root cause not known
523982	0	Engine - Power stage diagnostic - Data above normal operational range (Most severe level)
523982	1	Engine - Power stage diagnostic - Data below normal operational range (Most severe level)

SPN	FMI	Error description
523984	3	Engine - Actuator relay 7 - Voltage above normal or shorted to high source
523986	4	Engine - Actuator relay 6 - Voltage below normal or shorted to low source
523987	4	Engine - Actuator relay 7 - Voltage below normal or shorted to low source
523992	9	Engine - Fan - Abnormal update rate timeout
523995	13	Engine - Injector 7 IMA Code - Out of calibration
523996	13	Engine - Injector 8 IMA Code - Out of calibration
523997	4	Engine - Injectors bank 1 Secondary - Voltage below normal or shorted to low source
523998	4	Engine - Injectors bank 2 Secondary - Voltage below normal or shorted to low source
523999	12	Engine - Injector control Secondary - Bad intelligent device or component
524000	3	Engine - Injector 7 - Voltage above normal or shorted to high source
524000	5	Engine - Injector 7 - Current below normal or open circuit
524001	3	Engine - Injector 8 - Voltage above normal or shorted to high source
524001	5	Engine - Injector 8 - Current below normal or open circuit
524013	7	Exhaust aftertreatment - Burner operation - Mechanical system not responding or out of adjustment
524014	1	Engine - Air pressure glow plug flushing line - Data below normal operational range (Most severe level)
524016	2	Exhaust aftertreatment - Burner air pump - Data erratic intermittent or incorrect
524016	11	Exhaust aftertreatment - Burner air pump - Root cause not known
524018	14	Exhaust aftertreatment - DPF regeneration request - Special instructions
524019	11	Exhaust aftertreatment - Burner air line blocked - Root cause not known
524020	14	Exhaust aftertreatment - Burner regeneration lack of oxygen - Special instructions
524021	11	Exhaust aftertreatment - Burner fuel line - Root cause not known
524022	14	Exhaust aftertreatment - Soot load - Special instructions
524024	11	Exhaust aftertreatment - DOC temperature difference - Root cause not known
524025	5	Exhaust aftertreatment - Stand Still - Current below normal or open circuit
524025	8	Exhaust aftertreatment - Stand Still - Abnormal frequency or pulse width or period
524025	14	Exhaust aftertreatment - Stand Still - Special instructions
524029	2	Exhaust aftertreatment - CAN return actuator - Data erratic intermittent or incorrect
524030	7	Engine - EGR actuator - Mechanical system not responding or out of adjustment
524031	13	Engine - EGR actuator - Out of calibration

SPN	FMI	Error description
524032	2	Engine - EGR actuator - Data erratic intermittent or incorrect
524033	7	Engine - EGR actuator - Mechanical system not responding or out of adjustment
524034	3	Engine - Disc separator - Voltage above normal or shorted to high source
524034	4	Engine - Disc separator - Voltage below normal or shorted to low source
524034	5	Engine - Disc separator - Current below normal or open circuit
524034	12	Engine - Disc separator - Bad intelligent device or component
524036	12	Engine - Diagnostic injector Secondary - Bad intelligent device or component
524038	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524039	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524040	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524041	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524042	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524043	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524044	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524045	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524046	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524047	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524048	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524052	11	Exhaust aftertreatment - Power reduction on Main ECU triggered by fault on Secondary - Root cause not known
524057	2	Engine - Fuel low pressure pump - Data erratic intermittent or incorrect
524063	3	Exhaust aftertreatment - DEF heater - Voltage above normal or shorted to high source
524063	4	Exhaust aftertreatment - DEF heater - Voltage below normal or shorted to low source
524063	5	Exhaust aftertreatment - DEF heater - Current below normal or open circuit
524063	12	Exhaust aftertreatment - DEF heater - Bad intelligent device or component
524065	0	Exhaust aftertreatment - Pressure sensor before SCR Cat - Data above normal operational range (Most severe level)
524065	1	Exhaust aftertreatment - Pressure sensor before SCR Cat - Data below normal operational range (Most severe level)
524065	2	Exhaust aftertreatment - Pressure sensor before SCR Cat - Data erratic intermittent or incorrect
524065	3	Exhaust aftertreatment - Pressure sensor before SCR Cat - Voltage above normal or shorted to high source
524065	4	Exhaust aftertreatment - Pressure sensor before SCR Cat - Voltage below normal or shorted to low source

SPN	FMI	Error description
524067	0	Exhaust aftertreatment - DEF pump temperature - Data above normal operational range (Most severe level)
524067	1	Exhaust aftertreatment - DEF pump temperature - Data below normal operational range (Most severe level)
524067	2	Exhaust aftertreatment - DEF pump temperature - Data erratic intermittent or incorrect
524068	2	Engine - ECU Main Secondary identical - Data erratic intermittent or incorrect
524069	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524070	2	Exhaust aftertreatment - NOx sensor before SCR Cat - Data erratic intermittent or incorrect
524071	2	Exhaust aftertreatment - NOx sensor after SCR Cat - Data erratic intermittent or incorrect
524072	2	Exhaust aftertreatment - NOx sensor before SCR Cat - Data erratic intermittent or incorrect
524073	2	Exhaust aftertreatment - NOx sensor after SCR Cat - Data erratic intermittent or incorrect
524074	2	Exhaust aftertreatment - NOx sensor after SCR Cat - Data erratic intermittent or incorrect
524074	9	Exhaust aftertreatment - NOx sensor after SCR Cat - Abnormal update rate timeout
524075	11	Exhaust aftertreatment - NOx sensor after SCR Cat - Root cause not known
524076	2	Exhaust aftertreatment - NOx sensor before SCR Cat - Data erratic intermittent or incorrect
524076	9	Exhaust aftertreatment - NOx sensor before SCR Cat - Abnormal update rate timeout
524077	11	Exhaust aftertreatment - NOx sensor before SCR Cat - Root cause not known
524078	9	Exhaust aftertreatment - NOx sensor after SCR Cat lambda - Abnormal update rate timeout
524079	9	Exhaust aftertreatment - NOx sensor after SCR Cat lambda - Abnormal update rate timeout
524080	9	Exhaust aftertreatment - NOx sensor before SCR Cat lambda - Abnormal update rate timeout
524081	9	Exhaust aftertreatment - NOx sensor before SCR Cat lambda - Abnormal update rate timeout
524082	9	Exhaust aftertreatment - NOx sensor after SCR Cat NOx - Abnormal update rate timeout
524083	9	Exhaust aftertreatment - NOx sensor after SCR Cat NOx - Abnormal update rate timeout
524084	9	Exhaust aftertreatment - NOx sensor before SCR Cat NOx - Abnormal update rate timeout
524085	9	Exhaust aftertreatment - NOx sensor before SCR Cat NOx - Abnormal update rate timeout

SPN	FMI	Error description
524087	3	Machine - DEF error lamp - Voltage above normal or shorted to high source
524087	4	Machine - DEF error lamp - Voltage below normal or shorted to low source
524087	5	Machine - DEF error lamp - Current below normal or open circuit
524087	12	Machine - DEF error lamp - Bad intelligent device or component
524096	14	Exhaust aftertreatment - EPA counter - Special instructions
524097	9	Exhaust aftertreatment - CAN Burner pump - Abnormal update rate timeout
524098	9	Exhaust aftertreatment - CAN Burner pump - Abnormal update rate timeout
524099	9	Exhaust aftertreatment - CAN DPF - Abnormal update rate timeout
524100	9	Exhaust aftertreatment - CAN DPF - Abnormal update rate timeout
524101	9	Exhaust aftertreatment - CAN DPF - Abnormal update rate timeout
524103	9	Exhaust aftertreatment - CAN Burner air pump - Abnormal update rate timeout
524104	9	Exhaust aftertreatment - CAN DPF - Abnormal update rate timeout
524105	9	Engine - CAN EGR actuator - Abnormal update rate timeout
524106	9	Engine - CAN EGR actuator - Abnormal update rate timeout
524107	9	Engine - CAN EGR actuator - Abnormal update rate timeout
524108	9	Engine - CAN EGR actuator - Abnormal update rate timeout
524109	9	Engine - CAN EGR actuator - Abnormal update rate timeout
524110	9	Engine - Exhaust brake flap - Abnormal update rate timeout
524111	9	Engine - Exhaust brake flap - Abnormal update rate timeout
524112	9	Engine - CAN throttle valve - Abnormal update rate timeout
524113	9	Engine - CAN throttle valve - Abnormal update rate timeout
524114	9	Exhaust aftertreatment - CAN DOC - Abnormal update rate timeout
524115	9	Exhaust aftertreatment - CAN service - Abnormal update rate timeout
524116	9	Exhaust aftertreatment - CAN DEF tank - Abnormal update rate timeout
524117	9	Exhaust aftertreatment - CAN DEF heater - Abnormal update rate timeout
524118	9	Exhaust aftertreatment - CAN DPF regeneration - Abnormal update rate timeout
524120	9	Exhaust aftertreatment - CAN SCR heater diagnostic - Abnormal update rate timeout
524121	9	Engine - CAN wastegate actuator - Abnormal update rate timeout
524122	9	Exhaust aftertreatment - CAN DEF quality - Abnormal update rate timeout
524123	9	Exhaust aftertreatment - CAN SCR heater control - Abnormal update rate timeout
524124	9	Exhaust aftertreatment - CAN DPF - Abnormal update rate timeout

SPN	FMI	Error description
524125	9	Engine - CAN wastegate actuator - Abnormal update rate timeout
524132	0	Engine - Fuel low pressure before pump - Data above normal operational range (Most severe level)
524132	1	Engine - Fuel low pressure before pump - Data below normal operational range (Most severe level)
524132	2	Engine - Fuel low pressure before pump - Data erratic intermittent or incorrect
524133	2	Machine - Override switch - Data erratic intermittent or incorrect
524134	0	Exhaust aftertreatment - DPF ash load - Data above normal operational range (Most severe level)
524135	0	Exhaust aftertreatment - DPF soot load - Data above normal operational range (Most severe level)
524135	14	Exhaust aftertreatment - DPF soot load - Special instructions
524141	7	Exhaust aftertreatment - DEF metering valve - Mechanical system not responding or out of adjustment
524147	7	Exhaust aftertreatment - DEF pressure - Mechanical system not responding or out of adjustment
524147	13	Exhaust aftertreatment - DEF pressure - Out of calibration
524149	2	Engine - TC pressure after turbine - Data erratic intermittent or incorrect
524152	2	Exhaust aftertreatment - CAN DEF quality sensor - Data erratic intermittent or incorrect
524153	2	Exhaust aftertreatment - DEF tank level and temperature - Data erratic intermittent or incorrect
524156	9	Machine - CAN wheel speed - Abnormal update rate timeout
524157	9	Machine - CAN fan control - Abnormal update rate timeout
524159	0	Engine - Fan - Data above normal operational range (Most severe level)
524159	1	Engine - Fan - Data below normal operational range (Most severe level)
524160	3	Engine - Fan control - Voltage above normal or shorted to high source
524160	4	Engine - Fan control - Voltage below normal or shorted to low source
524160	5	Engine - Fan control - Current below normal or open circuit
524161	3	Engine - Fan control - Voltage above normal or shorted to high source
524161	4	Engine - Fan control - Voltage below normal or shorted to low source
524161	5	Engine - Fan control - Current below normal or open circuit
524162	12	Engine - Fan control angle sensor - Bad intelligent device or component
524163	12	Engine - Fan control - Bad intelligent device or component
524175	0	Exhaust aftertreatment - NOx emissions after SCR Cat - Data above normal operational range (Most severe level)
524177	7	Exhaust aftertreatment - DEF pressure suction line - Mechanical system not responding or out of adjustment

SPN	FMI	Error description
524178	7	Exhaust aftertreatment - DEF pressure - Mechanical system not responding or out of adjustment
524184	9	Exhaust aftertreatment - CAN SCR - Abnormal update rate timeout
524189	9	Engine - CAN Main Secondary - Abnormal update rate timeout
524190	14	Engine - Power reduction step 1 - Special instructions
524191	14	Engine - Power reduction step 2 - Special instructions
524192	12	Engine - Fan control - Bad intelligent device or component
524193	8	Exhaust aftertreatment - Time Stand Still - Abnormal frequency or pulse width or period
524194	8	Exhaust aftertreatment - Time Stand Still - Abnormal frequency or pulse width or period
524195	14	Exhaust aftertreatment - Stand Still request - Special instructions
524196	2	Engine - Fan - Data erratic intermittent or incorrect
524196	13	Engine - Fan - Out of calibration
524201	11	Exhaust aftertreatment - SCR effectiveness monitoring Secondary ECU triggered by ambient temperature sensor Main - Root cause not known
524202	11	Exhaust aftertreatment - Collective fault on Secondary ECU triggered by SCR failure Main - Root cause not known
524203	11	Exhaust aftertreatment - Collective fault on Secondary ECU triggered DEF tank failure Main - Root cause not known
524204	11	Exhaust aftertreatment - Collective fault on Secondary ECU triggered by SCR failure Main - Root cause not known
524205	11	Exhaust aftertreatment - Collective fault on Secondary ECU triggered by SCR failure Main - Root cause not known
524206	11	Exhaust aftertreatment - Collective fault on Secondary ECU triggered by DEF dosing failure Main - Root cause not known
524230	11	Exhaust aftertreatment - Hardware failure on Secondary ECU activates power reduction - Root cause not known
524231	11	Exhaust aftertreatment - SCR failure on Secondary ECU activates power reduction - Root cause not known
524232	11	Exhaust aftertreatment - SCR failure on Secondary ECU activates power reduction - Root cause not known
524233	11	Engine - ECU EEPROM error Secondary - Root cause not known
524234	11	Engine - Battery voltage failure on Secondary ECU triggers collective fault Main - Root cause not known
524235	11	Engine - CAN failure on Secondary ECU triggers collective fault Main - Root cause not known
524236	11	Engine - ECU monitoring failure on Secondary ECU triggers collective fault Main - Root cause not known
524237	11	Engine - ECU failure on Secondary ECU triggers collective fault Main - Root cause not known
524238	11	Engine - ECU failure on Secondary ECU triggers collective fault Main - Root cause not known

SPN	FMI	Error description
524239	11	Exhaust aftertreatment - Collective fault on Secondary ECU triggered by SCR failure Main - Root cause not known
524242	11	Engine - Software reset failure on Secondary ECU triggers collective fault Main - Root cause not known
524243	11	Engine - Engine speed signal failure on Secondary ECU triggers collective fault Main - Root cause not known
524248	11	Exhaust aftertreatment - Collective fault on Secondary ECU triggered by SCR failure Main - Root cause not known
524249	11	Exhaust aftertreatment - Collective fault on Main ECU triggered by SCR failure Secondary - Root cause not known
524251	11	Exhaust aftertreatment - Collective fault on Main ECU triggered by SCR failure Secondary - Root cause not known
524252	11	Exhaust aftertreatment - Reverting valve failure on Secondary ECU triggered by collective fault Main - Root cause not known
524253	11	Exhaust aftertreatment - Collective fault on Main ECU triggered by DEF failure Secondary - Root cause not known
524254	11	Exhaust aftertreatment - Collective fault on Main ECU triggered by SCR failure Secondary - Root cause not known
524255	11	Exhaust aftertreatment - Collective fault on Main ECU triggered by DEF failure Secondary - Root cause not known
524256	11	Exhaust aftertreatment - Collective fault on Main ECU triggered by DEF failure Secondary - Root cause not known
524257	11	Exhaust aftertreatment - Collective fault on Main ECU triggered by SCR failure Secondary - Root cause not known
524258	11	Exhaust aftertreatment - Collective fault on Main ECU triggered by SCR failure Secondary - Root cause not known
524259	11	Exhaust aftertreatment - Collective fault on Main ECU triggered by DEF failure Secondary - Root cause not known
524260	11	Exhaust aftertreatment - Collective fault on Main ECU triggered by DEF failure Secondary - Root cause not known
524261	11	Exhaust aftertreatment - Collective fault on Main ECU triggered by DEF failure Secondary - Root cause not known
524262	8	Exhaust aftertreatment - CAN SCR - Abnormal frequency or pulse width or period
524267	14	Exhaust aftertreatment - Announcement trigger power reduction step 2 - Special instructions
524268	9	- Abnormal update rate timeout
524269	9	Engine - CAN Hydraulic Start Stop - Abnormal update rate timeout
524272	14	- Special instructions
524277	11	Engine - ECU afterun too often not waited - Root cause not known
524278	11	Engine - ECU afterun too often consecutive not waited - Root cause not known
524280	8	Engine - CAN oil level sensor - Abnormal frequency or pulse width or period

SPN	FMI	Error description
524281	6	Engine - Throttle valve dynamic current limitation - Current above normal or grounded circuit
524282	11	Exhaust aftertreatment - Hardware failure temperature sensor DEF suction unit - Root cause not known
524283	12	Exhaust aftertreatment - Swapped hoses for differential pressure sensor DPF - Bad intelligent device or component
524284	12	Exhaust aftertreatment - DOC removed - Bad intelligent device or component
524285	2	Machine - GPS status error - Data erratic intermittent or incorrect
524286	2	Machine - Telemetry status error - Data erratic intermittent or incorrect

<Applicable machine models 514601202 or later>

ENGINE ERROR CODE LIST

If an error code appears on the display, consult your sales or service dealer.

DTC-Code	SPN	FMI	Fault description
P000F	5571	15	Engine - Pressure relief valve (PRV) - Data abovenormal operational range (Least severe level)
P000F	5571	16	Engine - Pressure relief valve (PRV) - Data abovenormal operational range (Moderately severe level)
P006D	1209	2	Engine - TC exhaust pressure sensor - Data erraticintermittent or incorrect
P0072	171	4	Engine - Ambient air temperature sensor - Voltagebelow normal or shorted to low source
P0073	171	3	Engine - Ambient air temperature sensor - Voltageabove normal or shorted to high source
P007A	105	0	Engine - Charge air temperature sensor - Data abovenormal operational range (Most severe level)
P007A	105	0	Engine - Charge air temperature sensor - Data abovenormal operational range (Most severe level)
P0087	7103	1	Engine - Rail pressure pump - Data below normaloperational range (Most severe level)
P0088	7103	0	Engine - Rail pressure pump - Data above normaloperational range (Most severe level)
P008A	94	1	Engine - Fuel low pressure sensor - Data below normaloperational range (Most severe level)
P008A	94	1	Engine - Fuel low pressure sensor - Data below normaloperational range (Most severe level)
P008B	94	15	Engine - Fuel low pressure sensor - Data above normaloperational range (Least severe level)
P00C6	94	1	Engine - Fuel low pressure sensor - Data below normaloperational range (Most severe level)
P00E8	105	1	Engine - Charge air temperature sensor - Data belownormal operational range (Most severe level)
P00E8	105	0	Engine - Charge air temperature sensor - Data abovenormal operational range (Most severe level)
P00FA	1209	4	Engine - TC exhaust pressure sensor - Voltage belownormal or shorted to low source
P00FB	1209	3	Engine - TC exhaust pressure sensor - Voltage abovenormal or shorted to high source
P0106	102	2	Engine - Charge air pressure sensor - Data erraticintermittent or incorrect
P0107	102	4	Engine - Charge air pressure sensor - Voltage belownormal or shorted to low source
P0108	102	3	Engine - Charge air pressure sensor - Voltage abovenormal or shorted to high source
P0111	105	2	Engine - Charge air temperature sensor - Data erraticintermittent or incorrect
P0112	105	4	Engine - Charge air temperature sensor - Voltage belownormal or shorted to low source
P0113	105	3	Engine - Charge air temperature sensor - Voltage abovenormal or shorted to high source
P0116	110	2	Engine - Coolant temperature sensor - Data erraticintermittent or incorrect

DTC-Code	SPN	FMI	Fault description
P0117	110	4	Engine - Coolant temperature sensor - Voltage belownormal or shorted to low source
P0118	110	3	Engine - Coolant temperature sensor - Voltage abovenormal or shorted to high source
P012B	1209	1	Engine - TC exhaust pressure sensor - Data belownormal operational range (Most severe level)
P012B	1209	15	Engine - TC exhaust pressure sensor - Data abovenormal operational range (Least severe level)
P012B	1209	2	Engine - TC exhaust pressure sensor - Data erraticintermittent or incorrect
P018F	5571	16	Engine - Pressure relief valve (PRV) - Data abovenormal operational range (Moderately severe level)
P0190	157	4	Engine - Rail pressure metering unit - Voltage belownormal or shorted to low source
P0190	157	3	Engine - Rail pressure metering unit - Voltage abovenormal or shorted to high source
P0196	175	16	Engine - Oil temperature - Data above normaloperational range (Moderately severe level)
P0196	175	0	Engine - Oil temperature - Data above normaloperational range (Most severe level)
P0197	175	4	Engine - Oil temperature - Voltage below normal orshorted to low source
P0198	175	3	Engine - Oil temperature - Voltage above normal orshorted to high source
P0201	5358	6	Engine - Fuel injection quantity injector 1 - Currentabove normal or grounded circuit
P0201	5358	6	Engine - Fuel injection quantity injector 1 - Currentabove normal or grounded circuit
P0201	5358	5	Engine - Fuel injection quantity injector 1 - Currentbelow normal or open circuit
P0202	5359	6	Engine - Fuel injection quantity injector 2 - Currentabove normal or grounded circuit
P0202	5359	6	Engine - Fuel injection quantity injector 2 - Currentabove normal or grounded circuit
P0202	5359	5	Engine - Fuel injection quantity injector 2 - Currentbelow normal or open circuit
P0203	5360	6	Engine - Fuel injection quantity injector 3 - Currentabove normal or grounded circuit
P0203	5360	6	Engine - Fuel injection quantity injector 3 - Currentabove normal or grounded circuit
P0203	5360	5	Engine - Fuel injection quantity injector 3 - Currentbelow normal or open circuit
P0204	5361	6	Engine - Fuel injection quantity injector 4 - Currentabove normal or grounded circuit
P0204	5361	6	Engine - Fuel injection quantity injector 4 - Currentabove normal or grounded circuit
P0204	5361	5	Engine - Fuel injection quantity injector 4 - Currentbelow normal or open circuit
P0205	5362	6	Engine - Fuel injection quantity injector 5 - Currentabove normal or grounded circuit
P0205	5362	6	Engine - Fuel injection quantity injector 5 - Currentabove normal or grounded circuit