SAKAI

MASTERS OF COMPACTION

354 Diagnostic Information

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Please See Operators and Service Manual for additional information.

ALL Work Must be performed by a factory trained technician to prevent injury. This manual is not intended to replace the service manual but to assist with additional information.

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⚠ WARNING

Unexpected machine movement may cause a serious accident. When inspecting the machine while the engine is running, always follow the instructions below.

- **Park the machine on level, flat ground.**
- **Apply the parking brake.**
- **Set chocks in front and behind each drum or tire.**
- **Make sure that service personnel are given the appropriate information at the appropriate time.**
- **Make sure that no one can enter any hazardous area.**

⚠ CAUTION

Do not work on the hydraulic system while the engine is running and the system is hot and under pressure. Do not disconnect hydraulic hoses or fittings until the system has cooled and pressure has been properly relieved.

Before removing any plugs from the pressure measurement ports, always release any residual pressure from the piping and open the cap of the fluid tank to release and pressure.

⚠ WARNING

Inadvertent starting the engine may cause a serious accident.

When inspecting the engine, make sure to exchange the appropriate cues and hand signal with the person at the operator station to avoid any accidents.

⚠ CAUTION

Before inspecting inside of the engine compartment, always stop the engine.

Contact with the fan, V-belt or exhaust system parts while the engine is running may cause serious injury.

354

354 Operators Manual
Scan QR Code to View

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MASTERS OF COMPACTION

Engine	Model		KUBOTA D1703-M-DI-EF03 (Diesel, EPA-Tier 4)
	Type		4-cycle, water-cooled, 3-cylinder in-line, vertical mounted, overhead valve, direct injection type
	Bore × Stroke		87.0 mm × 92.4 mm (3.425 in. × 3.638 in.)
	Displacement		1.647 L (100.5 cu.in.)
	Performance	Rated speed	2,200 min^{-1}
		Rated output	18.2 kW (24 HP)
		Max. torque	96.0 N·m (71 lbf·ft) at 1,500 min^{-1}
		Fuel consumption rate	256 g/kW·h (0.421 lb/HP·h) at 2,200 min^{-1}
		Fuel consumption	5.6 L/h with full load (1.5 gal. with full load)
	Fuel system	Fuel	Diesel (ASTM D975-2D)
		Fuel injection pump	Inline injection pump
		Fuel injection time regulator	Mechanical all speed governor
	Lubrication system	Lubrication type	Full forced pressure feed by gear pump
		Oil filter type	Full flow paper element
		Oil cooler type	N/A
	Air intake system	Air cleaner type	Dry
	Cooling system	Cooling type	Pressurized water forced circulation
		Cooling fan type	Inhale
	Electrical system	Alternator	12 V 60 A
		Starter	12 V 2.0 kW
		Battery	12 V (78 Ah, CCA N/A) × 1 pc. (12 V)
	Dry weight		169 kg (373 lbs.)

Item		Standard value
Engine model		KUBOTA D1703-M-DI-E4B
Rated output		17.7 kW (24 HP)
Max. rpm under no load		2,470 min^{-1}
Min. rpm under no load		1,050 to 1,150 min^{-1}
Cylinder head tightening torque		93.2 to 98.0 N·m (68.8 to 72.3 lbf·ft)
Intake manifold tightening torque		24 to 27 N·m (18 to 20 lbf·ft)
Exhaust manifold tightening torque		24 to 27 N·m (18 to 20 lbf·ft)
Fan belt tension		7.0 to 9.0 mm (0.28 to 0.35 in.)
Valve clearance (intake)		0.18 to 0.22 mm (0.0071 to 0.0086 in.)
Valve clearance (exhaust)		0.18 to 0.22 mm (0.0071 to 0.0086 in.)
Compression pressure	Standard value	2.95 to 3.23 MPa (427 to 469 psi)
	Allowable limit	2.35 MPa (341 psi)

Lubricant	Service classification	Ambient temp. and applicable viscosity rating			Applicable standards
		-15 – 30°C (5 – 86°F) Cold	0 – 40°C (32 – 104°F) Moderate	15 – 55°C (59 – 131°F) Tropical	
Engine oil	API grade CF	SAE 10W-30	SAE 30	SAE 40	MIL-L-2104D
Gear oil	API grade GL 5	SAE 75W-90	SAE 75W-90	SAE 140	MIL-L-2105
Hydraulic oil	Wear resisting	ISO-VG32 over VI 140	ISO-VG46 over VI 140	ISO-VG68 over VI 110	ISO-3448
Grease	Lithium type extreme pressure grease				NLGI-2
Fuel	Ambient temp -15 – -10°C		Ambient temp -10 – 55°C		
	*1 Diesel fuel ASTM・D975 NO.1-D S15 or S500		*2 Diesel fuel ASTM・D975 NO.2-D S15 or S500		

Compartment	Type of fluid	Capacity in liters (gal.)		
		SW354	TW354	TW504
Fuel tank	Diesel oil	40 (10.6)	←	50 (13.2)
Engine oil pan	Engine oil	7.0 (1.8)	←	←
Hydraulic tank	Hydraulic oil	43 (11.4)	←	←
Radiator	Coolant	5.8 (1.5)	←	6.6 (1.7)
Sprinkler tank	Water	200 (52.8)	←	310 (81.9)
Liquid tank	Liquid	—	10 (2.6)	←
Vibrator case	Gear oil	5.0 x 2 (1.3 x 2)	5.0 (1.3)	6.0 (1.6)

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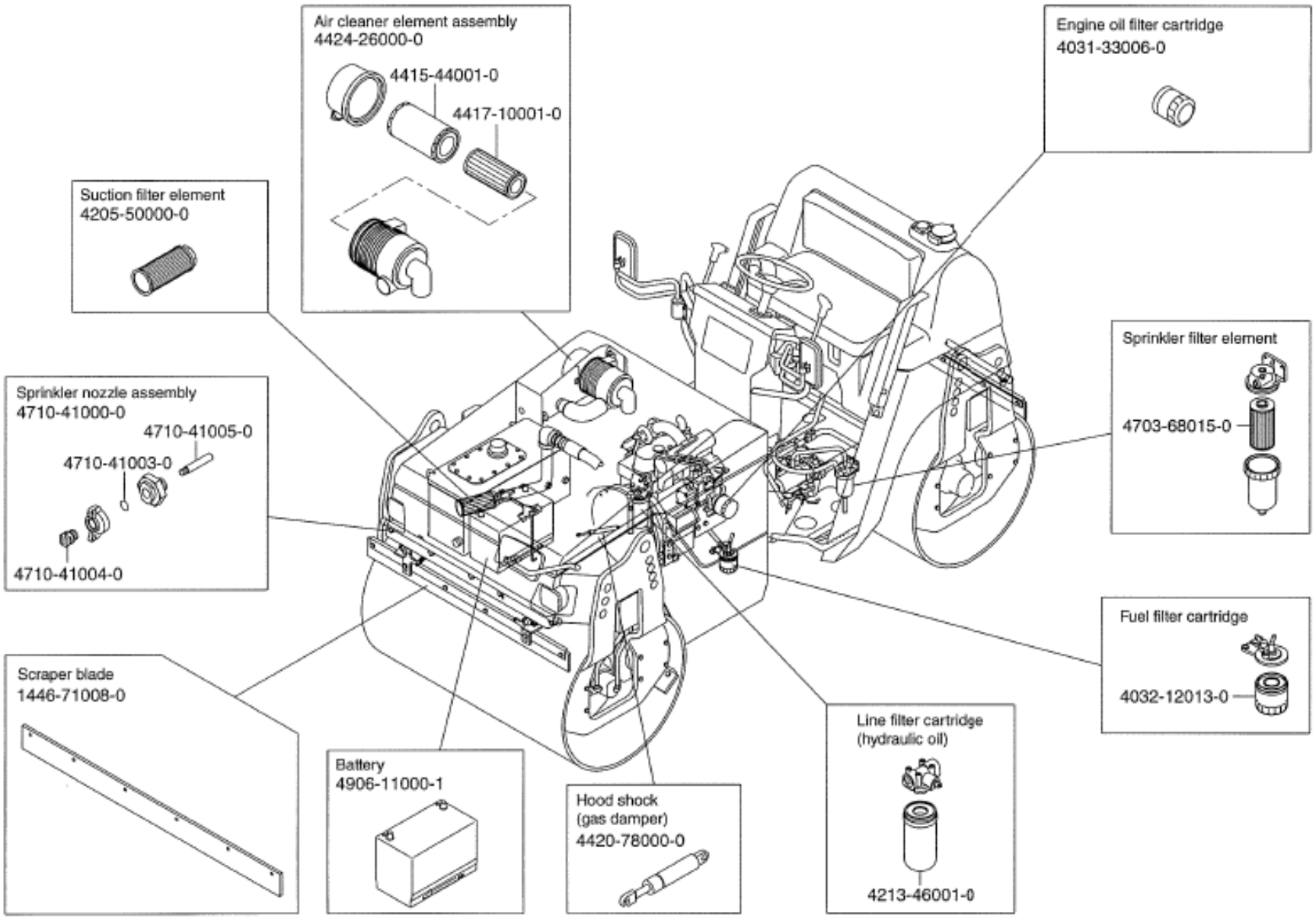
354


Air cleaner element assembly
4424-26000-0
4415-44001-0
4417-10001-0
Engine oil filter cartridge
4031-33006-0
Suction filter element
4205-50000-0
Sprinkler filter element
4703-68015-0
Sprinkler nozzle assembly
4710-41000-0
4710-41005-0
4710-41003-0
4710-41004-0
Fuel filter cartridge
4032-12013-0
Scraper blade
1446-71008-0
Battery
4906-11000-1
Hood shock
(gas damper)
4420-78000-0
Line filter cartridge
(hydraulic oil)
4213-46001-0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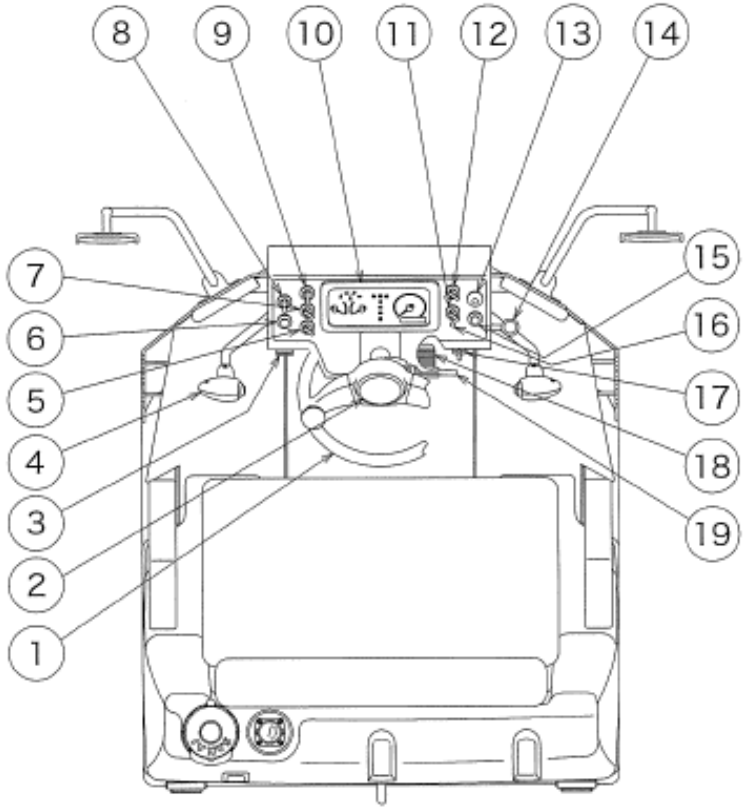
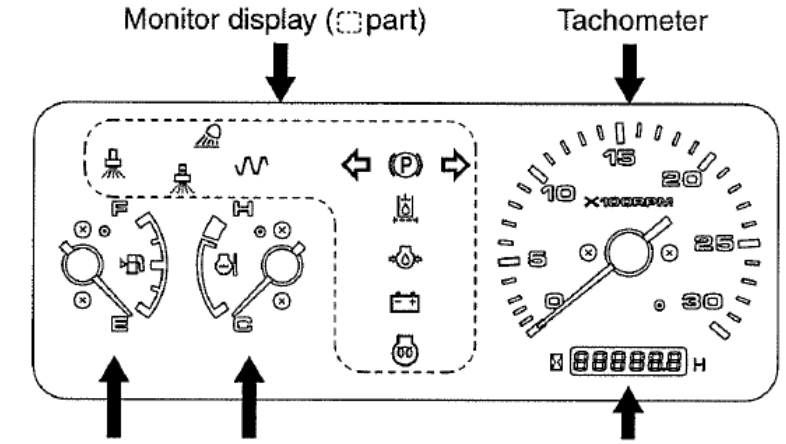
SW354



① Steering wheel
② Horn switch button
③ Back buzzer switch (OPTION)
④ Accessory socket
⑤ Forward-Neutral-Reverse lever (F-N-R lever) with vibration switch
⑥ Liquid spray switch (TW354, TW504)
⑦ Vibration selector switch (TW504)
⑧ Sprinkler switch
⑨ Vibrator switch
⑩ Combination meter
⑪ Lamp switch
⑫ Speed shift switch
⑬ Parking brake switch
⑭ Throttle lever
⑮ Hazard switch
⑯ Eco lamp
⑰ Starter switch
⑱ Brake pedal
⑲ Turn signal lever



Flood lamp indicator lamp
Goes on when flood lamps are lighted.

Turn signal indicator lamp
Flashes when turn signal lever is moved.

Parking brake indicator lamp
Goes on when parking brake is engaged.

Hydraulic oil filter warning lamp
Goes on when filter is clogged.

Engine oil pressure warning lamp
Goes on when engine lubricating oil pressure is lowered below specified value.

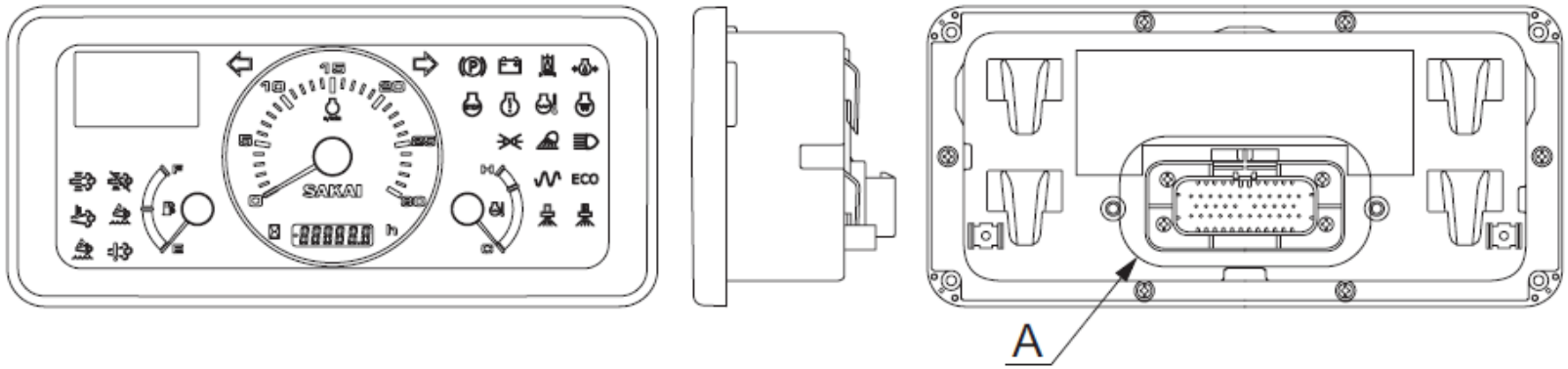
Battery charge lamp
Goes on when troubles have occurred in electric system while engine is running.

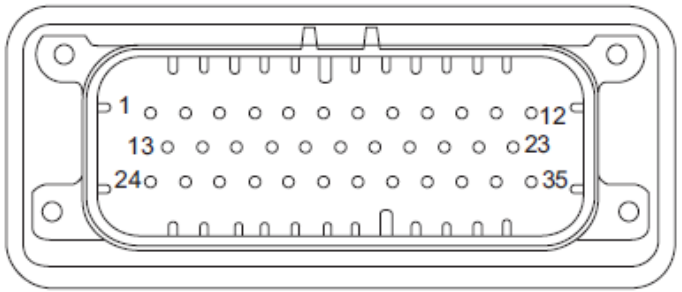
Preheating plug indicator lamp
Goes on when starter switch is turned to HEAT.

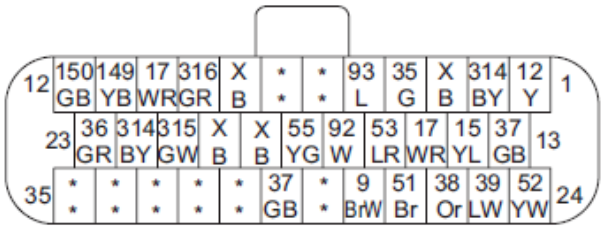
Sprinkler indicator lamp
Goes on when sprinkling is performed.

Liquid sprayer indicator lamp (TW354, TW504)
Goes on when liquid spraying in performed.

Vibrator indicator lamp
Goes on when vibrator operates.



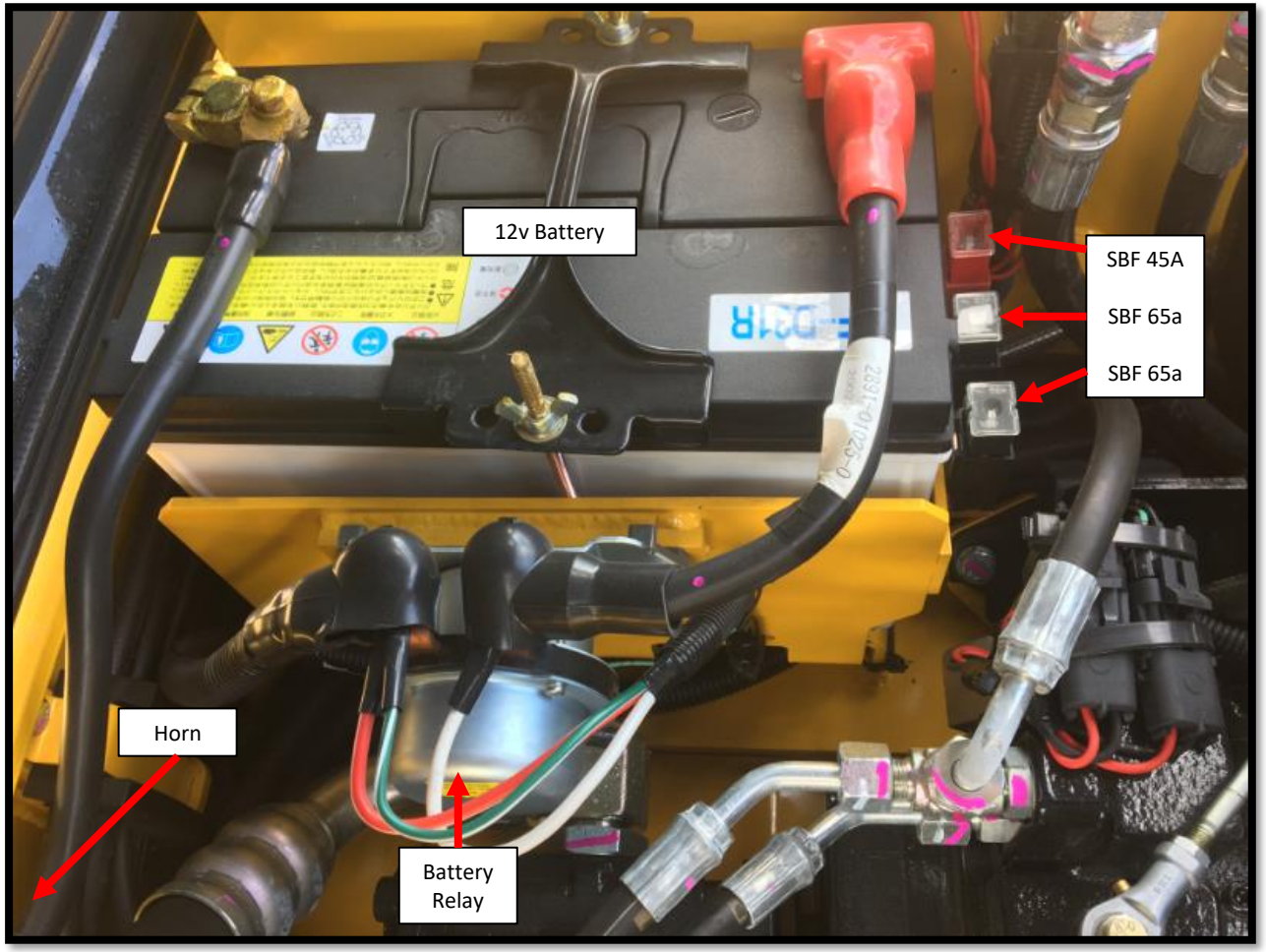


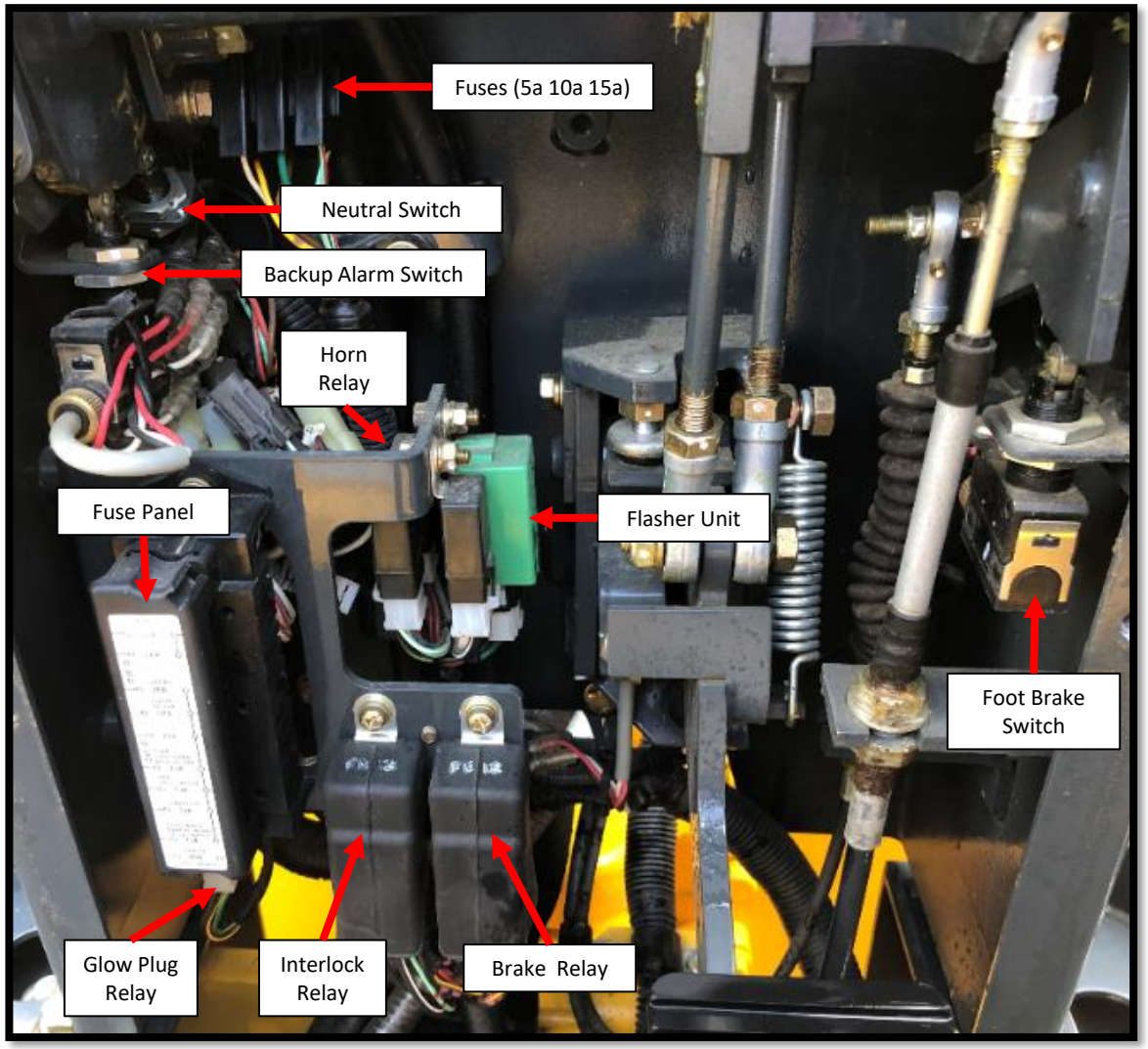


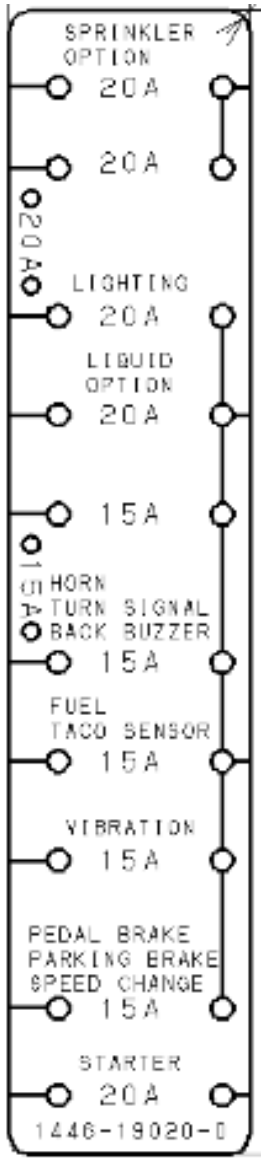
Harness side

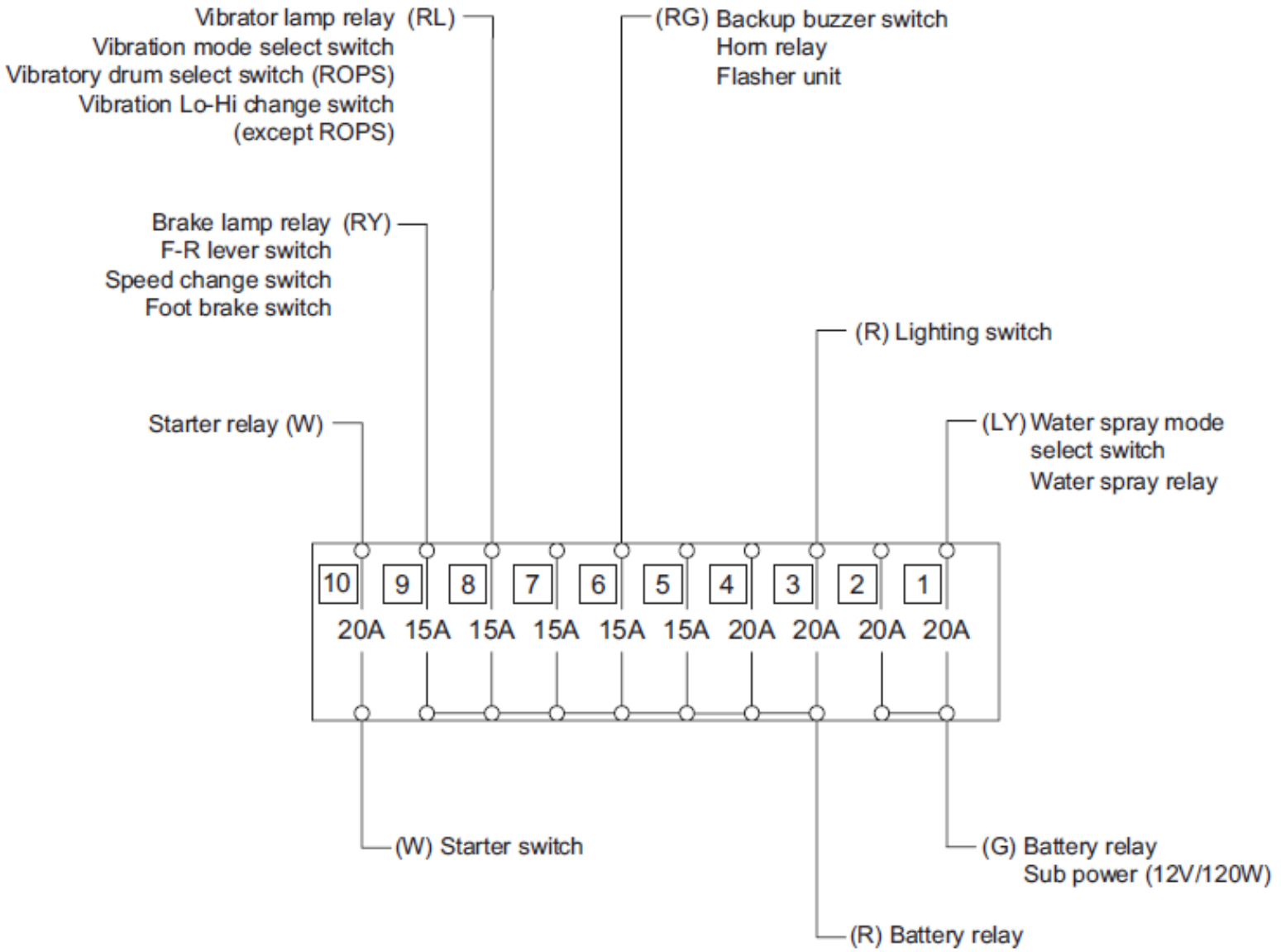
PIN	DESCRIPTION	NO.
1	Battery 24V (+)	(12)
2	Starter switch (ACC)	(314)
3	Ground	(X)
4	Turn signal (R)	(35)
5	Engine stop	(93)
6	Over heat	
7	REV. ratio SEL.1	
8	REV. ratio SEL.3	(X)
9	Buzzer	(316)
10	Lamp check	(17)
11	CAN(+)	(149)
12	CAN(-)	(150)
13	Head lamp	(37)
14	Parking brake	(15)
15	Charge warning	(17)
16	HYD. oil filter warning	(53)
17	Engine warning	(92)
18	Fuel meter	(55)

19	REV. ratio SEL.2	(X)
20	REV. ratio SEL.4	(X)
21	DTC display	(315)
22	Hour meter	(314)
23	Turn signal (L)	(36)
24	Preheating	(52)
25	Water splay	(39)
26	Flood lamp	(38)
27	Vibrator	(51)
28	Liquid spray	(9)
29	High beam	
30	COMBI. meter ILLUMI.	(37)
31	Exhaust system high temperature	
32	DEF low level	
33	Manual regeneration	
34	LYS pin	
35	ECO mode	


12v Battery
SBF 45A
SBF 65a
SBF 65a
Horn
Battery Relay


Fuses (5a 10a 15a)
Neutral Switch
Backup Alarm Switch
Horn Relay
Fuse Panel
Flasher Unit
Foot Brake Switch
Glow Plug Relay
Interlock Relay
Brake Relay


SPRINKLER OPTION
20A
20A
20A
LIGHTING
20A
LIQUID OPTION
20A
15A
15A
HORN
TURN SIGNAL
BACK BUZZER
15A
FUEL
TACO SENSOR
15A
VIBRATION
15A
PEDAL BRAKE
PARKING BRAKE
SPEED CHANGE
15A
STARTER
20A
1446-19020-0


Vibrator lamp relay (RL)
Vibration mode select switch
Vibratory drum select switch (ROPS)
Vibration Lo-Hi change switch
(except ROPS)
(RG) Backup buzzer switch
Horn relay
Flasher unit
Brake lamp relay (RY)
F-R lever switch
Speed change switch
Foot brake switch
(R) Lighting switch
Starter relay (W)
(LY) Water spray mode
select switch
Water spray relay
10 9 8 7 6 5 4 3 2 1
20A 15A 15A 15A 15A 15A 20A 20A 20A 20A
(W) Starter switch
(G) Battery relay
Sub power (12V/120W)
(R) Battery relay


20
20
20
20
15
15
15
15
15
20

No Crank, No Start

Does the display come on when key is turned on?

Yes, Is machine in “Neutral” drive position

Yes, Is the park brake “ON”?

Yes, Is there power at Terminal 50 Black/Red wire on the Starter when turned to “Crank” position?

Yes, Repair connections or replace starter as needed.

No, Engage Park Brake. Does engine crank?

Yes, End diagnosis.

No, Is there power at Terminal 50 Black/Red wire on the Starter when turned to “Crank” position?

No, Shift drive lever to “Neutral”. Does engine crank?

Yes, End diagnosis.

No, Is the park brake “ON”?

No, Engage Park Brake. Does engine crank?

Yes, End diagnosis.

No, Test Battery, is there 12v present?

No, Replace or Charge Battery as needed.

Yes, Does Battery Relay, engage when key switch is turned to “ON” position?

Yes, Check connections and replace Battery Relay as needed.

No, Is there 12V power from key switch (Light Green/White stripe) at Battery Relay?.

Yes, Repair Connection or Replace Battery Relay as needed.

No, Repair Wiring from Key Switch.

No, Is there power at Pin 5 (Black/Red Strips) of the Interlock Relay when key is turned to “Crank” position?

Yes, Repair Connection or Replace Red/Black wire for Interlock Relay to Starter.

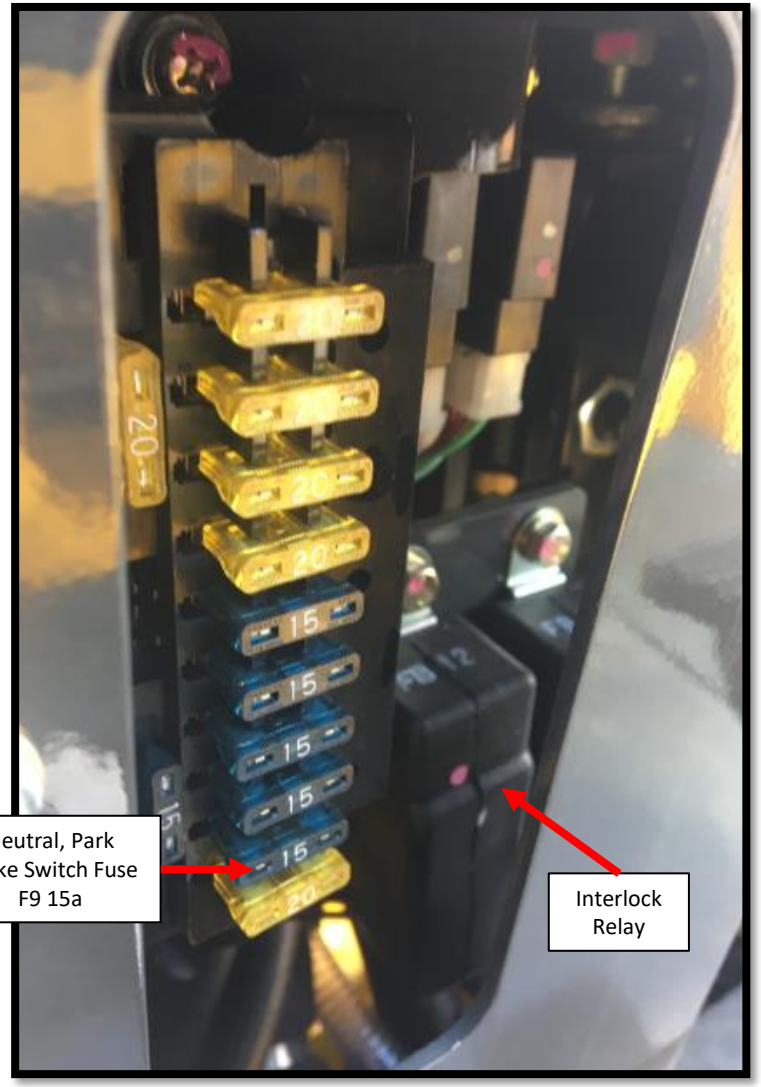
No, Inspect F10 20a and F9 15a fuse. Is the fuse good and is there power across the fuse?

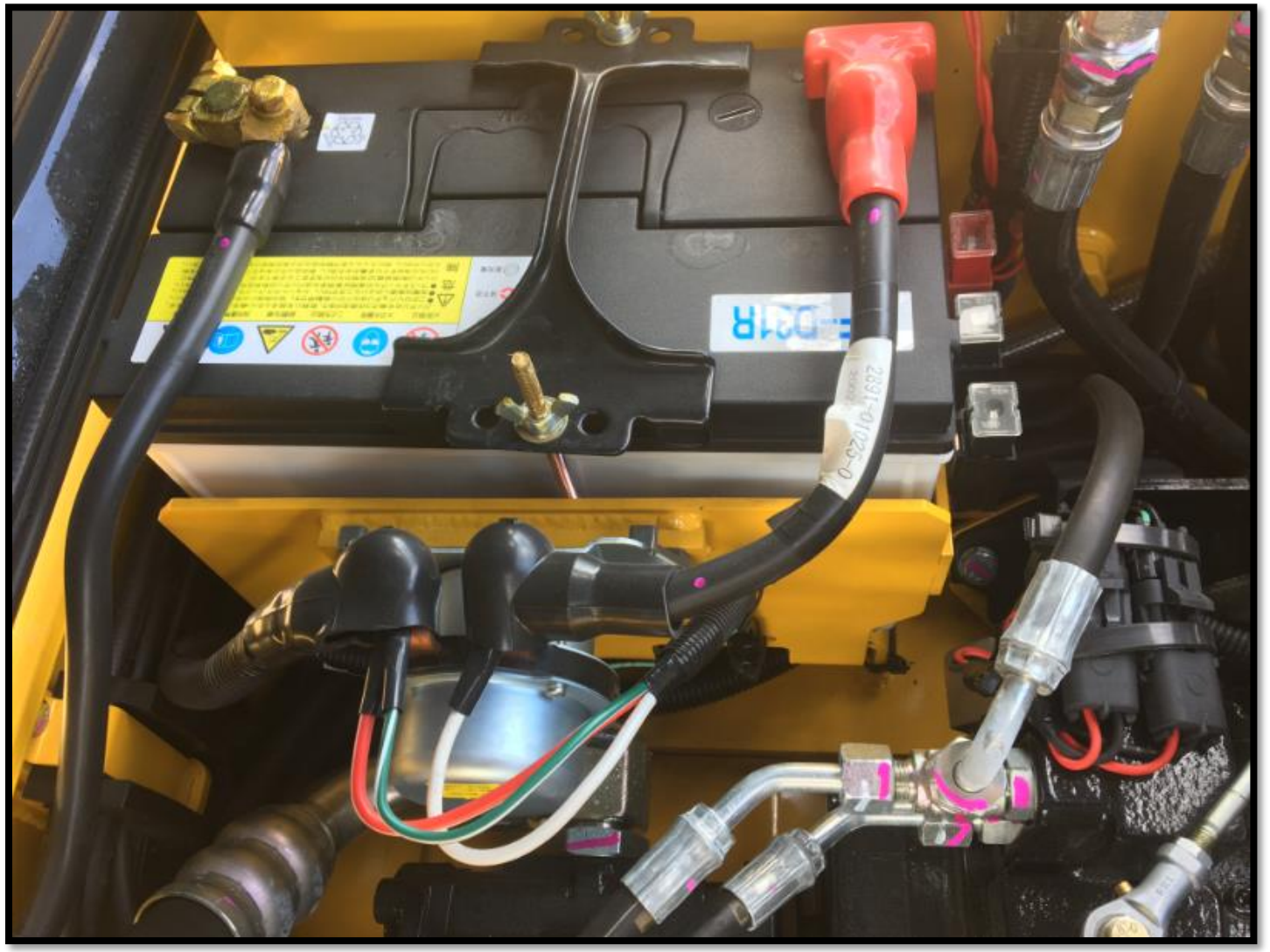
No, Repair connection or replace defective fuse as needed.

Yes, Test Park Brake and Neutral Switch are working correctly?

No, Repair or replace defective Switch as needed.

Yes, Test Brake and Interlock relays and replace as needed.


Neutral, Park Brake Switch Fuse F9 15a
Interlock Relay



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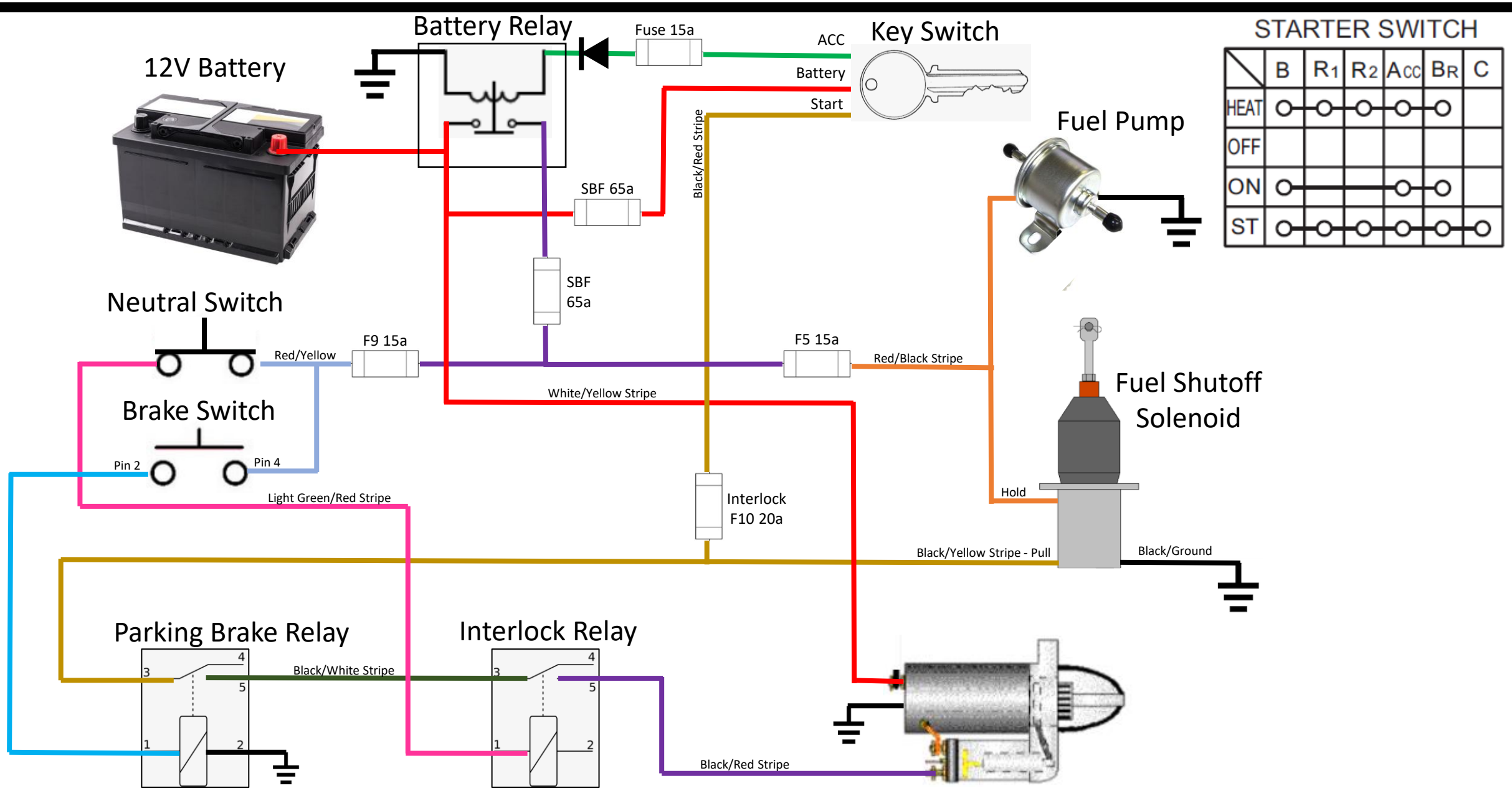
354


Battery Relay
Fuse 15a
ACC
Key Switch
12V Battery
Battery
Start
Black/Red Stripe
Fuel Pump
STARTER SWITCH
B R1 R2 Acc Br C
HEAT
OFF
ON
ST
SBF 65a
SBF
65a
Neutral Switch
Red/Yellow
F9 15a
F5 15a
Red/Black Stripe
White/Yellow Stripe
Brake Switch
Pin 2
Pin 4
Fuel Shutoff
Solenoid
Hold
Light Green/Red Stripe
Interlock
F10 20a
Black/Yellow Stripe - Pull
Black/Ground
Parking Brake Relay
Interlock Relay
Black/White Stripe
Black/Red Stripe

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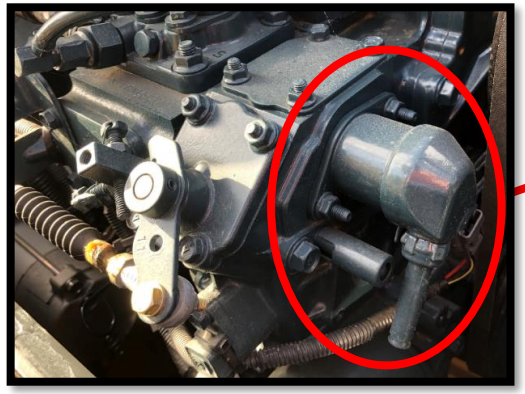
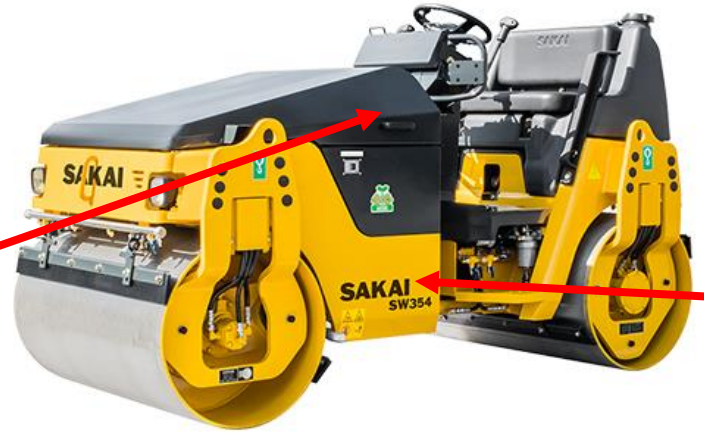
354

Crank, No Start

- No, Is there fuel in the machine?
  - No, Add Fuel and Prime using hand pump.
  - Yes, Is the fuel pump running?
    - No, Check for power at the Fuel Pump on the wire Red/Black stripe?
      - Yes, Replace or repair faulty Fuel Pump
      - No, Inspect F5 15a. Is the fuse good and is there power across the Fuse?
        - Yes, Repair wire from fuse to fuel Pump. Red/Black Stripe.
        - No, Replace Blown Fuse or Repair wire connections.
    - Yes, Remove fuel line to engine and place hose in bucket, does fuel come out when the key switch is turned on?
      - Yes, Does the Fuel Shutoff Solenoid pull in when the Key Switch is turned to the "Crank" position?
        - Yes, Test Compression and Inspect Injector Pump.
        - No, Is there power on the Black/Yellow wire when Starter Switch is turned to "Crank" position?
          - No, Repair wire Black/Yellow wire.
          - Yes, Repair Ground Connection or Replace Defective Fuel Shut Off Solenoid.
      - No, Replace filters as needed or remove fuel restriction, repair as needed.

Fuel Shutoff Solenoid





Fuel Pump

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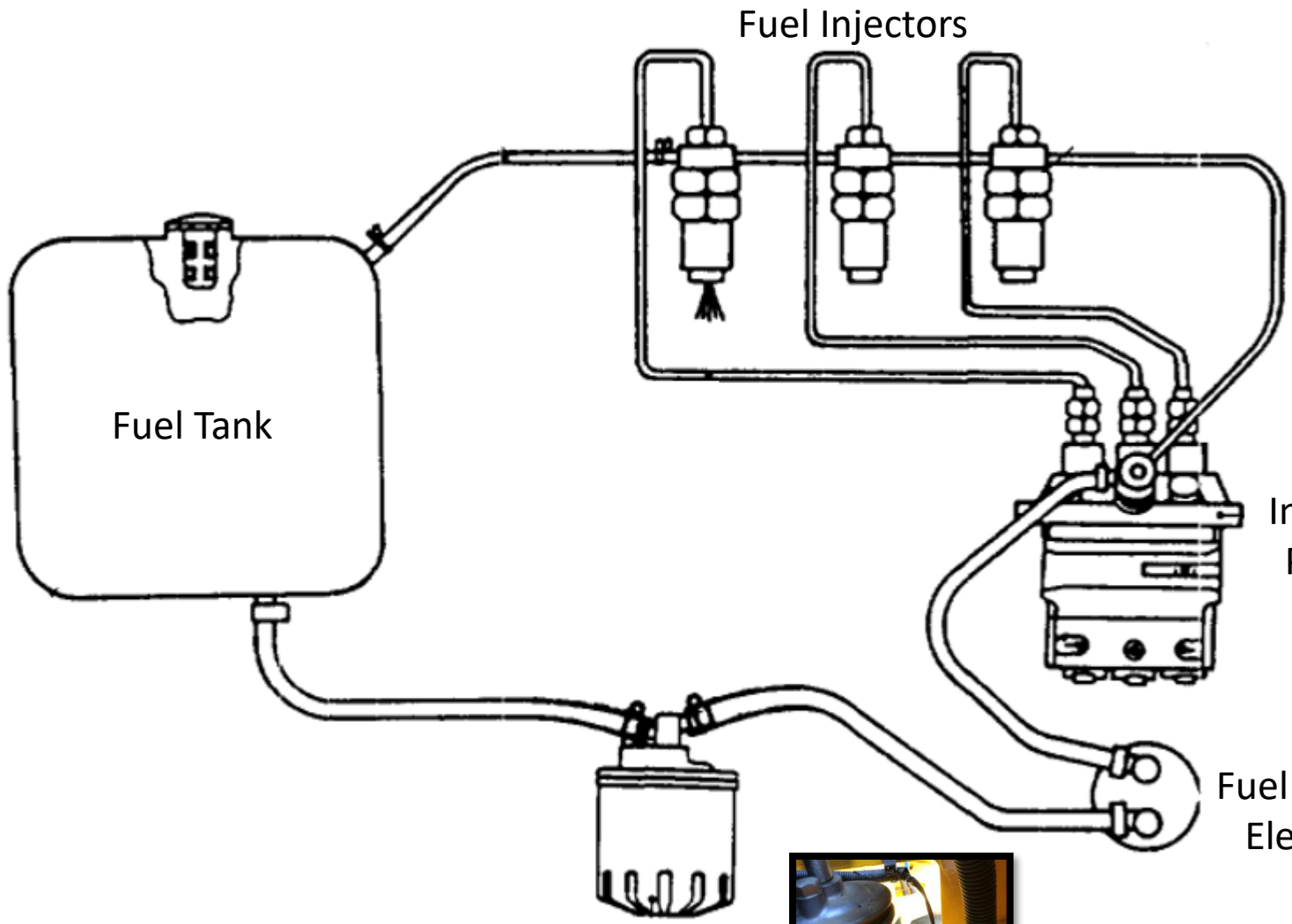
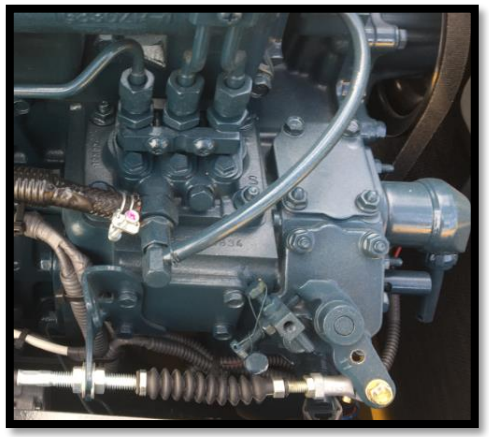

Fuel Injectors
Fuel Tank
Fuel Injector Pump
Fuel Pump Electric
Fuel Filter




FUEL FILTER

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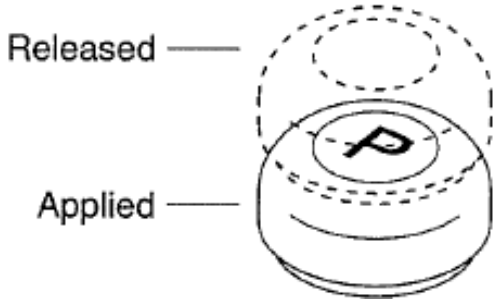
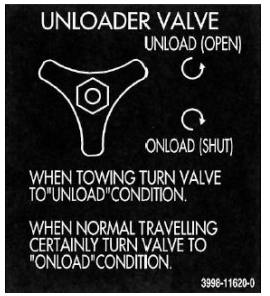
Will not Drive

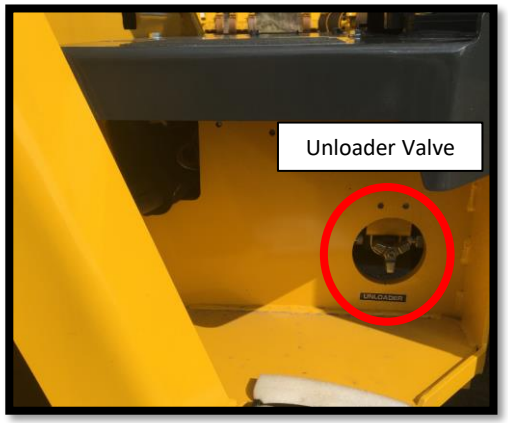
Park Brake Switch

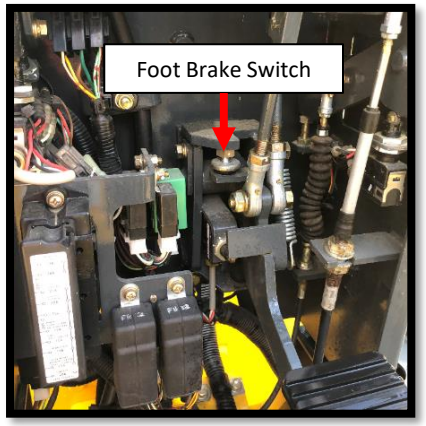


Is the Unloader valve open? Will not drive with valve open

- Yes, Close valve to drive.
- No, Is the Parking brake Applied?
  - No, Inspect Drive Cable. Is cable still connected?
    - No, Re-Install Cable and test.
    - Yes, With Park Brake Released. Is there voltage present at the Park Brake Solenoid (White/Black Stripe)?
      - No, With the Park Brake Switch Released. Is there Power at the switch on Pin 1 (Red/White Stripe)?
        - No, Test for Power on the Foot Brake switch on Pin 3 (Red/White Stripe). Is there Power Present?
          - No, Is there power present at the Foot Brake Switch (Red/Yellow Stripe)?
            - No, Inspect F9 15a, is the fuse good and Power across the fuse?
              - No, Replace blown F9 15a
              - Yes, Repair broken wire connection on Red/Yellow Stripe.
            - Yes, Repair or Replace Defective Foot Brake Switch.
          - Yes, Repair broken wire connection on Red/White Stripe.
        - Yes, Repair or Replace defective Park Brake Switch.
      - Yes, Remove coil from Park Brake solenoid. And Release Park Brake. Place Metal inside coil. Does the coil magnetize?
        - No, Replace defective coil or repair connections to coil.
        - Yes, Test Drive Pressure, is Drive Pressure good @5003?
          - No, Inspect Pump and repair or replace as needed.
          - Yes, Inspect Park Brake Solenoid Valve and Replace as needed.
    - Yes, Release park brake.







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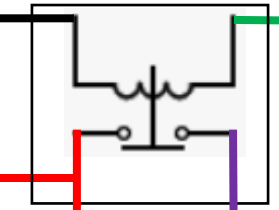
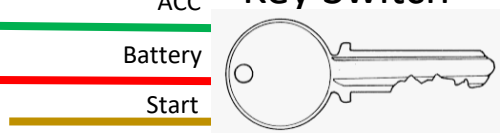
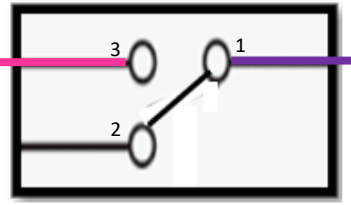
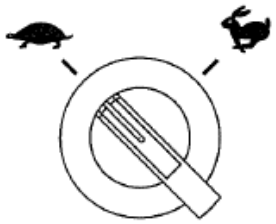


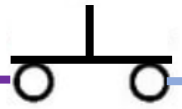


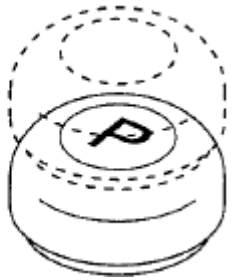
km/h (mile/h)

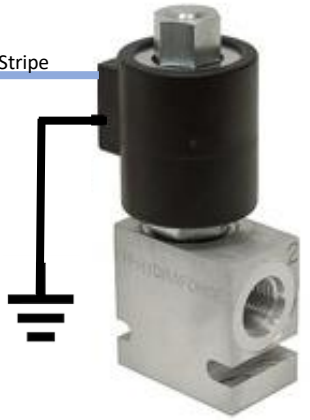
	SW354	TW354	TW504
LOW	0 – 7.0 (0 – 4.3)	0 – 7.0 (0 – 4.3)	0 – 7.0 (0 – 4.3)
HIGH	0 – 10.0 (0 – 6.2)	0 – 10.0 (0 – 6.2)	0 – 10.0 (0 – 6.2)



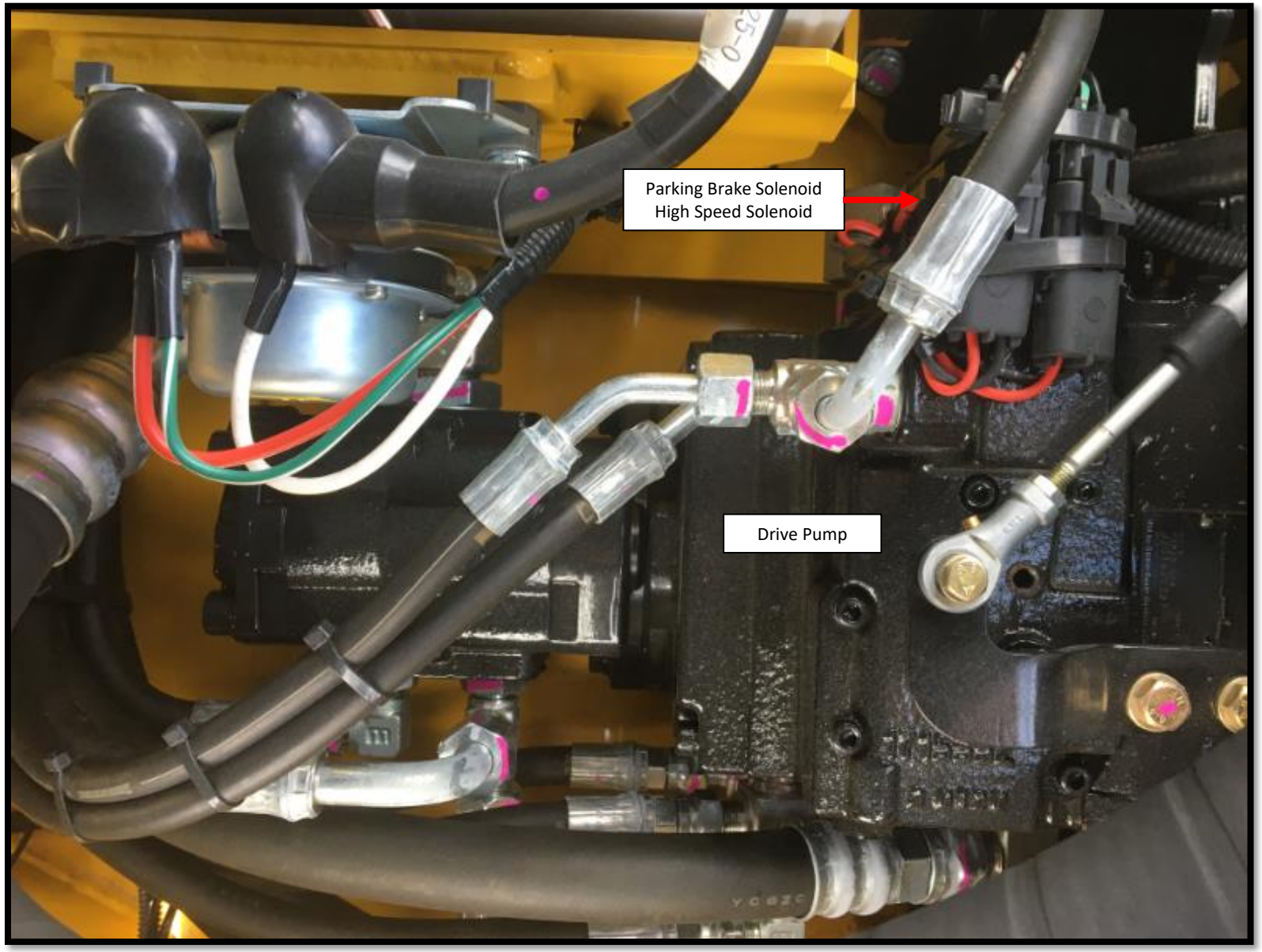


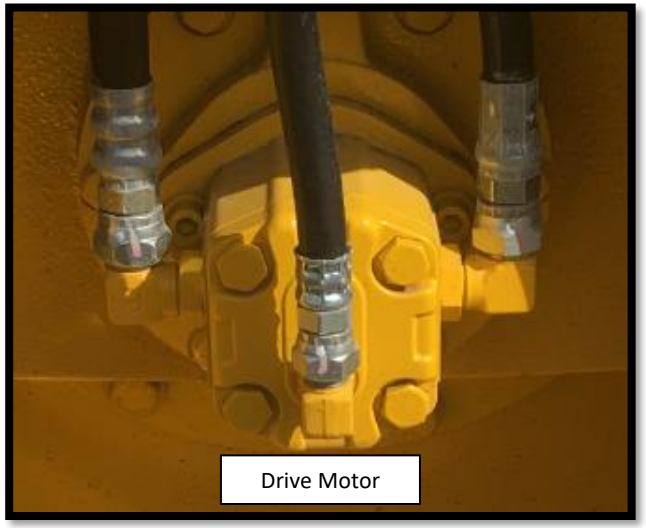


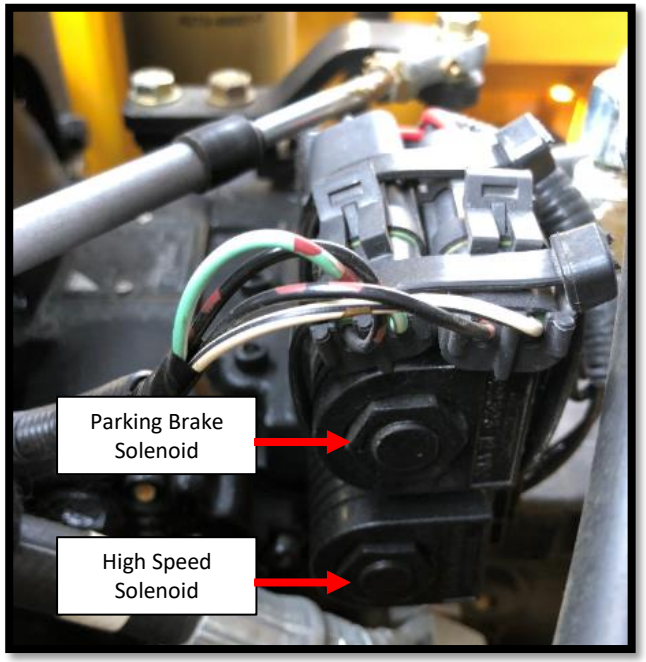




Battery Relay
Fuse 15a
12V Battery
Key Switch
SBF 65a
SBF 65a
F9 15a
Red/Yellow Stripe
Speed Change Solenoid
Speed Change Switch
Foot Brake Switch
Park Brake Switch
Park Brake Solenoid
Light Green/White Stripe
Red/White Stripe
Pin 1
Pin 3
White/Black Stripe


Parking Brake Solenoid
High Speed Solenoid
Drive Pump


Drive Motor


Parking Brake Solenoid
High Speed Solenoid

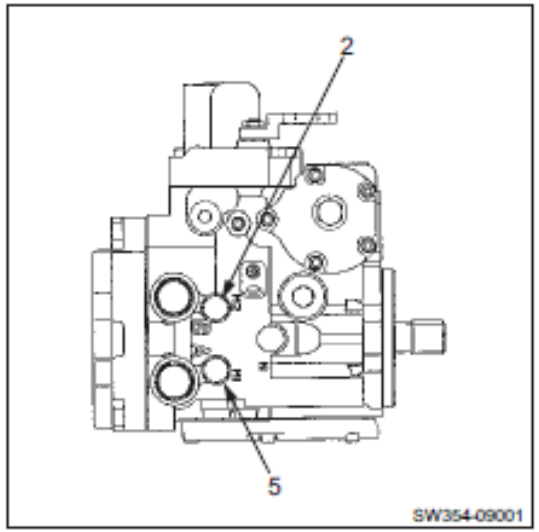
MEASUREMENT AND INSPECTION OF PROPULSION CIRCUIT PRESSURE

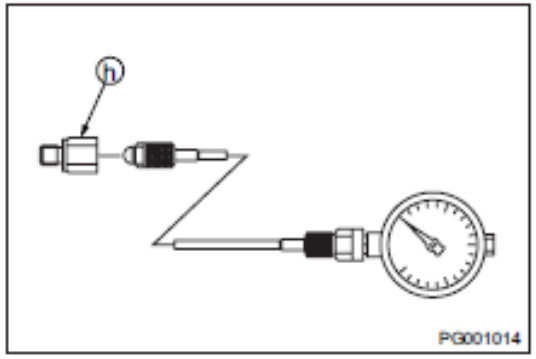
- Oil temperature during measurement : 50 ± 5°C (122 ± 9°F)

① Remove plugs from high pressure gauge port (2) and (5) of propulsion pump. Attach pressure gauge with adapter ⓗ.
- Adapter ⓗ : 9/16-18UNF
- High pressure gauge port (Reverse) : (2)
- High pressure gauge port (Forward) : (5)
- Pressure gauge : 0 to 50 MPa (0 to 7,250 psi)

② Confirm that F-R lever is "N".
③ Apply parking brake by pressing parking brake switch button.
④ Set propulsion speed change switch to "🐢".
⑤ Start the engine and set throttle lever to "Full".
⑥ Establish a condition in which machine propulsion load becomes maximum.
(Pressure does not build up unless propulsion load is applied.)
⑦ With propulsion load at maximum, slowly move F-R lever to the side to be measured.
⑧ Read pressure indicated by pressure gauge.
⑨ After measuring, promptly return F-R lever to "N".

★ Maximum circuit pressure
(high pressure relief valve setting)
: 34.5 MPa (5,003 psi)





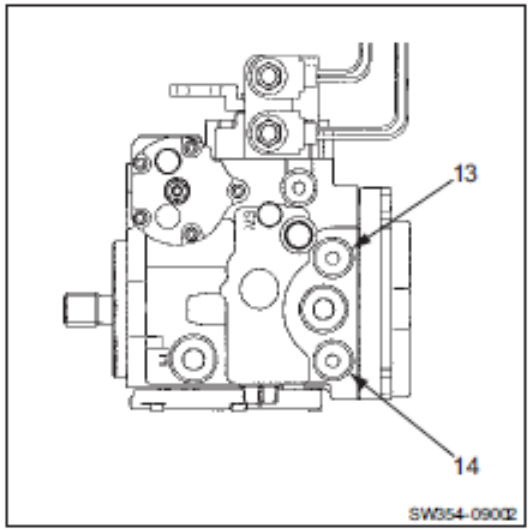
- If measurement results indicate the pressure deviating from maximum circuit pressure range, make an inspection in accordance with procedure described below.

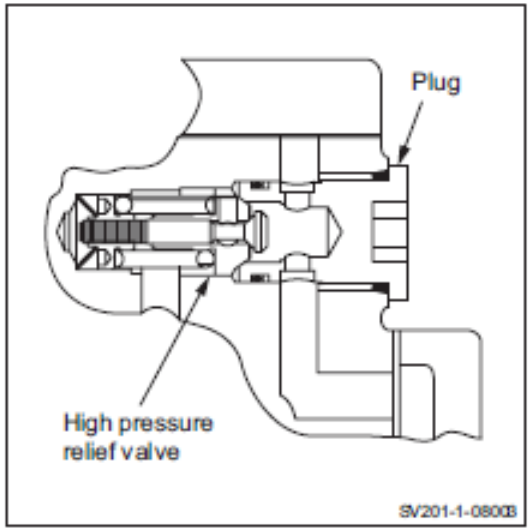
① Remove plug and valve from high pressure check relief valve port (13) or (14) of propulsion pump.
- *High pressure relief valve (Reverse) : (13)
- *High pressure relief valve (Forward) : (14)

② Check removed high pressure relief valve for trapped dirt and other abnormalities.
③ If trapped dirt is present, disassemble and clean high pressure relief valve.
④ If pressure still deviates from maximum circuit pressure range after valve is disassembled and cleaned, replace high pressure relief valve.
⑤ After inspection, measure pressure again and check that pressure reaches maximum circuit pressure range.

N·m Plug : 70 N·m (52 lbf·ft)

(NOTICE)
- **Carefully disassemble and reassemble after taking steps to prevent foreign material from getting in.**





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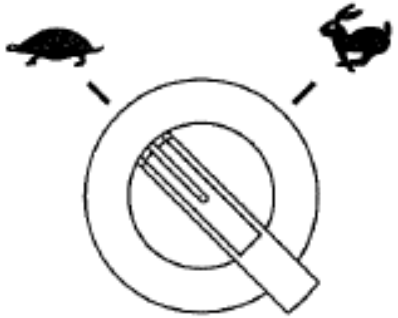
354

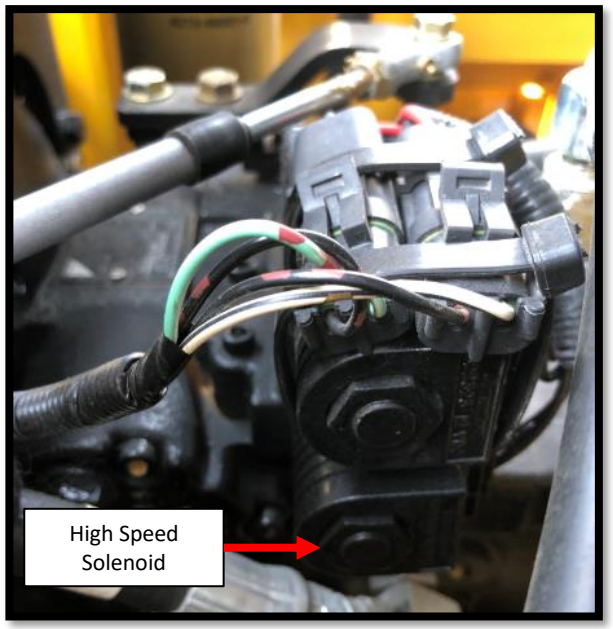
Will not go into High Speed Mode

- Is there power at the High Speed Solenoid (Light Green/White Stripe)?
  - **No**, White Speed Change Switch in Rabbit position, is there power at Pin 3 (Light Green/White Stripe)?
    - **No**, Is there power on the Speed Change Switch on Pin 1 (Red/Yellow Stripe)?
      - **No**, Inspect F9 15a. Is there Power across the fuse?
        - **No**, Replace blown fuse or repair connections.
        - **Yes**, Repair broken wire Red/Yellow Stripe.
      - **Yes**, Repair or Replace defective Speed Change Switch.
    - **Yes**, Repair Broken wire Light Green/White Stripe.
  - **Yes**, Remove coil from High Speed solenoid. Place Switch in Rabbit Position. Place Metal inside coil. Does the coil magnetize?
    - **No**, Replace defective coil or repair connections to coil.
    - **Yes**, Test Speed Pressure, is it at @5003?
      - **No**, Replace defective Pump.
      - **Yes**, Inspect High Speed valve and replace as needed.



km/h (mile/h)

	SW354	TW354	TW504
LOW	0 – 7.0 (0 – 4.3)	0 – 7.0 (0 – 4.3)	0 – 7.0 (0 – 4.3)
HIGH	0 – 10.0 (0 – 6.2)	0 – 10.0 (0 – 6.2)	0 – 10.0 (0 – 6.2)



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354

Front Drum Will not Vibrate

Is there power at the Front Drum Solenoid (Light Green/Red Stripe)?

- Yes, At the Front Drum Vibrate Solenoid. Is there a ground signal on the Brown/Red Stripe?
  - Yes, Remove coil from Front Drum Vibrate solenoid. Place Switch in Front Vibrate Position. Place Metal inside coil. Does the coil magnetize?
    - No, Replace defective coil or repair connections to coil.
    - Yes, Test Vibrate Pressure, is it at @3045?
      - No, Replace defective Pump.
      - Yes, Inspect Front Drum Vibrate valve and replace as needed.
  - No, At the Vibrate Relay, is there power on the Brown/Red Stripe?
    - Yes, Repair broken wire Brown/Red Stripe.
    - No, With Mode Selector switch in Auto. Test Vibrator relay, is there power on Brown/Yellow Stripe?
      - Yes, Repair or Replace defective Vibrator Relay.
      - No, At mode selector switch. Is there Power at Pin 5 (Brown/Yellow Stripe)?
        - Yes, Repair broken wire Brown/Yellow Stripe.
        - No, At the Vibrate Mode Switch. Is there power present on Pin 1-4 (Red/Blue Stripe)?
          - Yes, Repair or Replace Defective Selector Switch.
          - No, Replace Blown F8 15a or repair brown wire from fuse (Red/Blue Stripe).
- No, At the Vibrate Selector Switch F/R. Is there power present on Pin 2 (Light Green/Red Stripe?
  - Yes, Repair broken wire Light Green/Red Stripe.
  - No, At the Vibrate Selector Switch F/R. Is there power present on Pin 1 (Red/Blue Stripe?
    - Yes, Repair or Replace Defective Selector Switch.
    - No, Inspect F8 15a. Is there Power across the fuse?
      - No, Replace blown fuse or repair connections.
      - Yes, Repair broken wire Red/Blue Stripe.

Vibrate Solenoid Front

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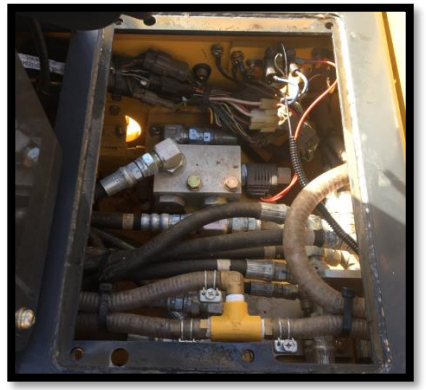
354

Rear Drum Will not Vibrate

Is there power at the Rear Drum Solenoid (Light Green/Black Stripe)?

- Yes, At the Rear Drum Vibrate Solenoid. Is there a ground signal on the Brown/Red Stripe?
  - Yes, Remove coil from Rear Drum Vibrate solenoid. Place Switch in Front Vibrate Position. Place Metal inside coil. Does the coil magnetize?
    - No, Replace defective coil or repair connections to coil.
    - Yes, Test Vibrate Pressure, is it at @3045?
      - No, Replace defective Pump.
      - Yes, Inspect Rear Drum Vibrate valve and replace as needed.
  - No, At the Vibrate Relay, is there power on the Brown/Red Stripe?
    - Yes, Repair broken wire Brown/Red Stripe.
    - No, With Mode Selector switch in Auto. Test Vibrator relay, is there power on Brown/Yellow Stripe?
      - Yes, Repair or Replace defective Vibrator Relay.
      - No, At mode selector switch. Is there Power at Pin 5 (Brown/Yellow Stripe)?
        - Yes, Repair broken wire Brown/Yellow Stripe.
        - No, At the Vibrate Mode Switch. Is there power present on Pin 1-4 (Red/Blue Stripe)?
          - Yes, Repair or Replace Defective Selector Switch.
          - No, Replace Blown F8 15a or repair brown wire from fuse (Red/Blue Stripe).
- No, At the Vibrate Selector Switch F/R. Is there power present on Pin 6 (Light Green/Black Stripe?
  - Yes, Repair broken wire Light Green/Black Stripe.
  - No, At the Vibrate Selector Switch F/R. Is there power present on Pin 4 (Red/Blue) Stripe?
    - Yes, Repair or Replace Defective Selector Switch.
    - No, Inspect F8 15a. Is there Power across the fuse?
      - No, Replace blown fuse or repair connections.
      - Yes, Repair broken wire Red/Blue Stripe.

Vibrate Solenoid Rear



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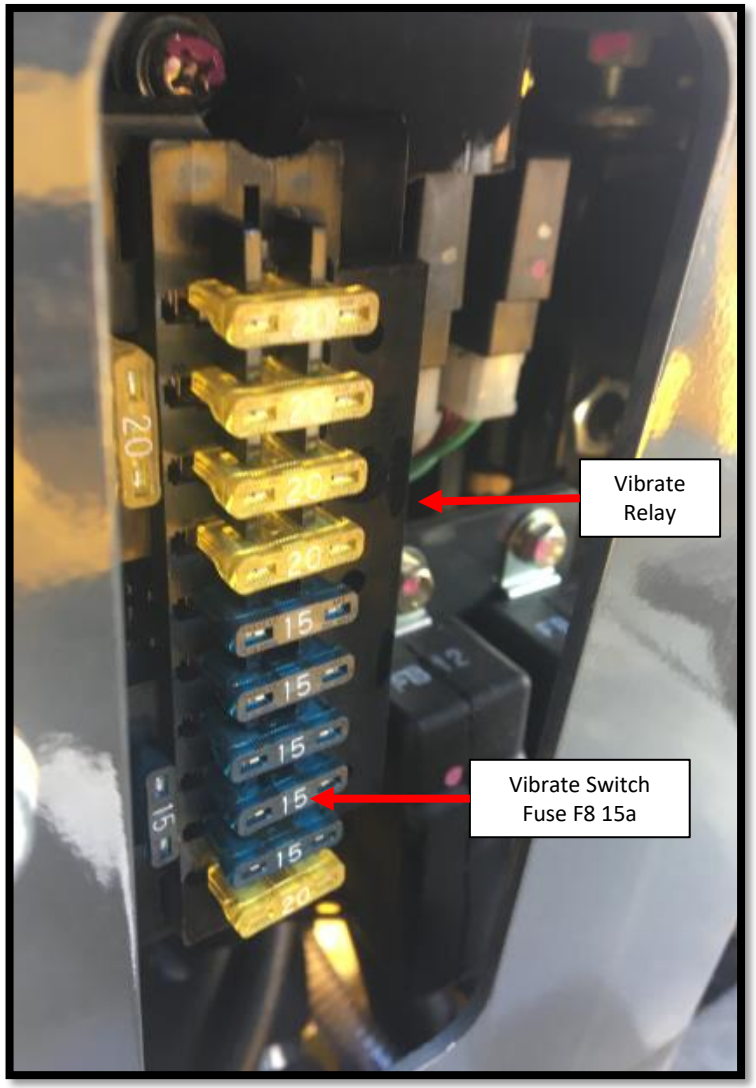
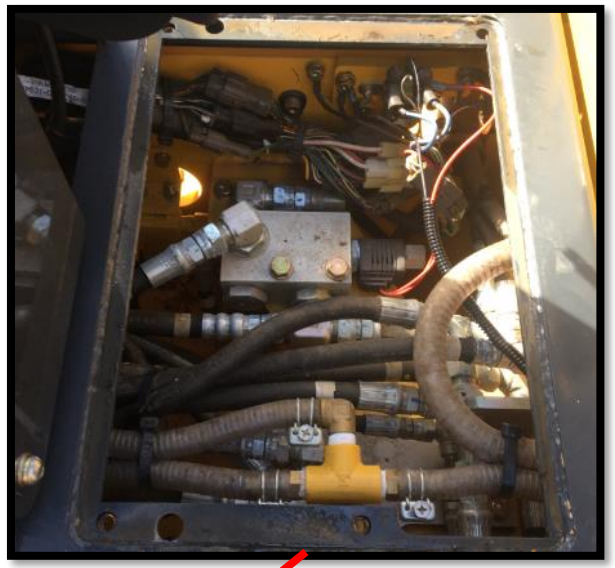
354



Vibrate Solenoid Front

Vibrate Solenoid Rear



MEASUREMENT OF VIBRATOR CIRCUIT PRESSURE

- Oil temperature during measurement : 50 ± 5°C (122 ± 9°F)

① Disconnect hose (1) from vibrator motor. Attach pressure gauge through adapter Ⓟ.
- Adapter Ⓟ : G1/2
- Pressure gauge : 0 to 50 MPa (0 to 7,250 psi)

② Confirm that F-R lever is "N".

③ Apply parking brake by pressing parking brake switch button.

④ SW354 ROPS : Set vibratory drum select switch to "Ⓕ Ⓡ".

⑤ Set vibration mode change switch to "".

⑥ Start the engine and set throttle lever to "Full".

⑦ Press F-R lever vibration switch ON.

⑧ Slowly move F-R lever to forward or reverse side.

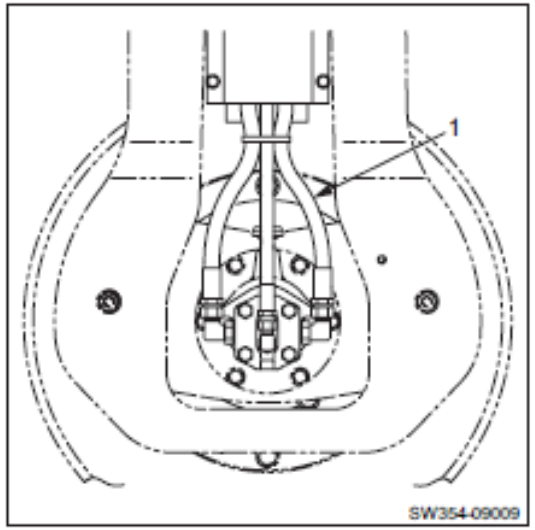
⑨ Read pressure gauge for maximum value of vibrator circuit pressure.

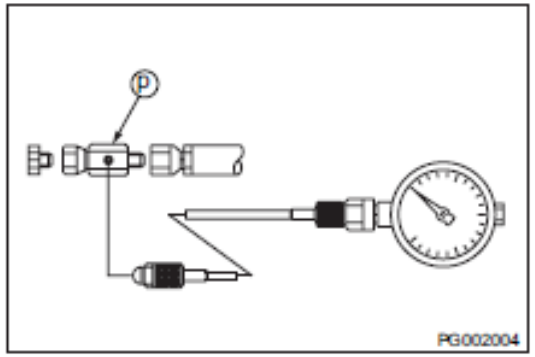
⑩ Turn F-R lever vibration switch OFF or move back F-R lever to "N" as soon as measurement is finished.

★ Maximum circuit pressure (relief valve setting)

SW/TW354 : 12.7 MPa (1,842 psi)

TW504 : 14.0 MPa (2,030 psi)





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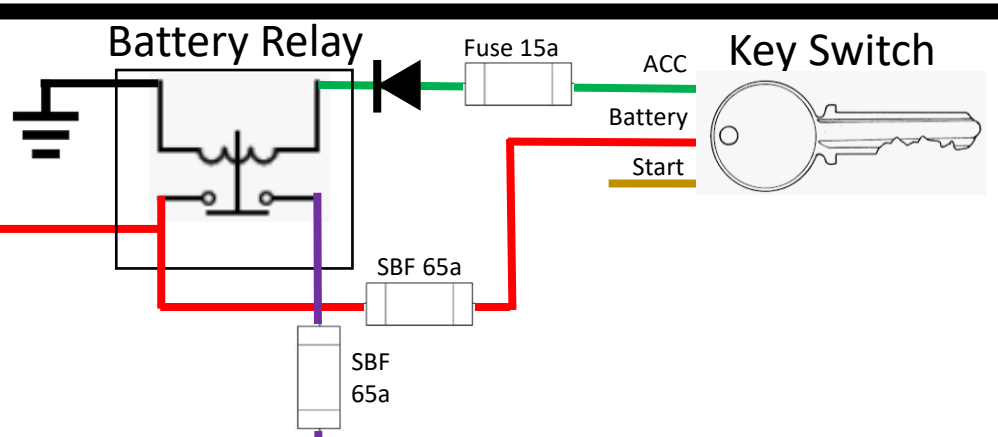
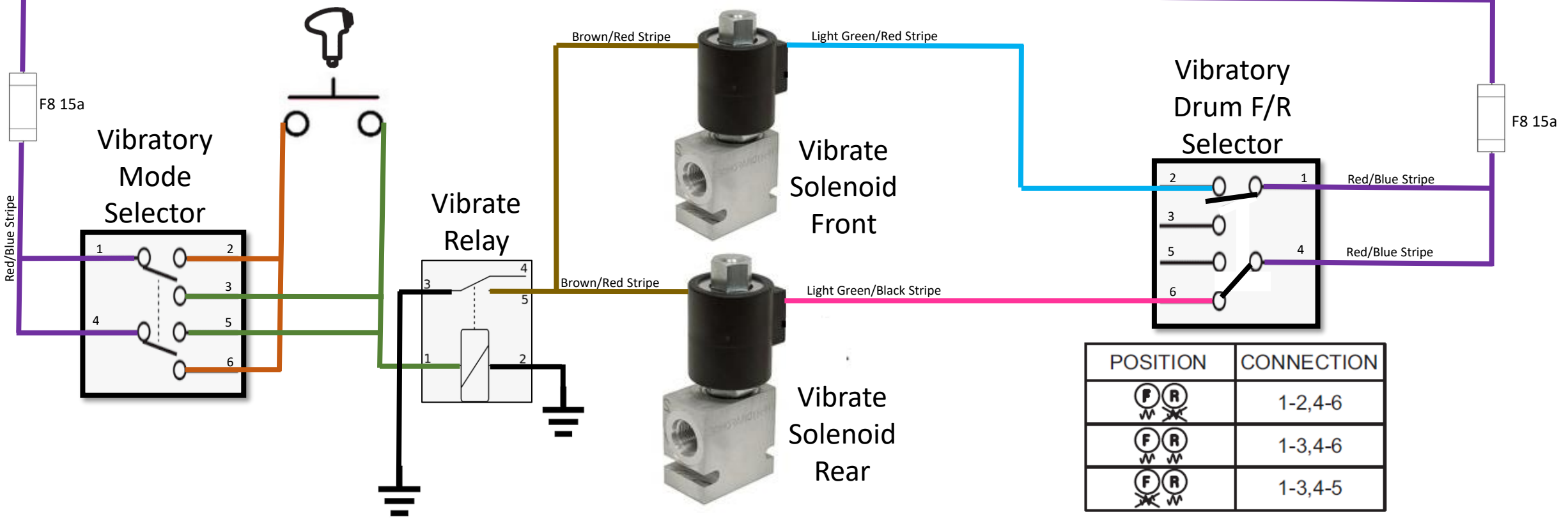
354

VIBRATION MODE SELECT SWITCH

VIBRATION	CONNECTION
	1-2,4-6
O	1-3,4-6
AUTO	1-3,4-5





POSITION	CONNECTION
	1-2,4-6
	1-3,4-6
	1-3,4-5

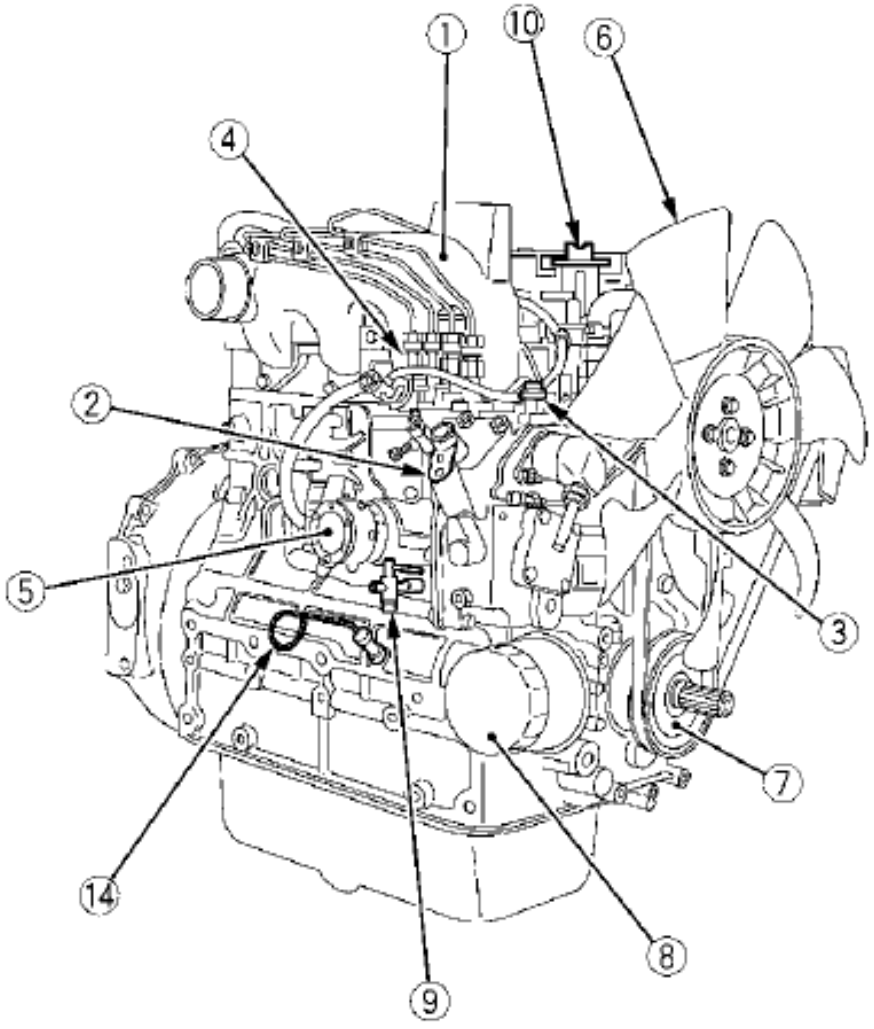
Kubota D1703 Engine Specifications

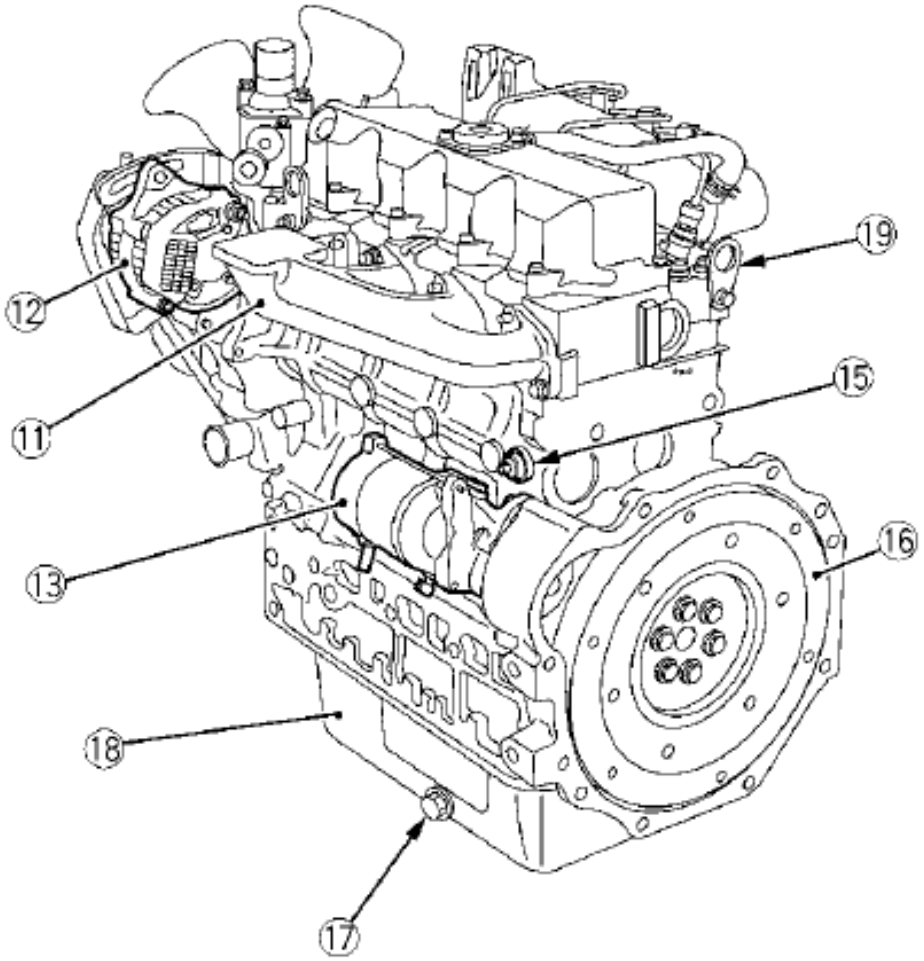
Engine model ..... Kubota D1703
Engine type ..... Vertical, water-cooled, 4-cycle diesel
Number of cylinders 3
Bore and stroke, mm (in.) ..... 87 x 92.4 (3.43 x 3.64)
Total displacement, L (cu.in.) 1.65 (100.5)
Combustion chamber ..... Spherical Type (E-TVCS)
Gross power, kw (hp) 25.7 (34.5)
Net power, kw (hp) 22.4 (30.0)
Maximum speed, rpm 3000
Iidling speed, rpm 750-850
Firing Order 1-2-3
Direction of rotation ..... Counter-clockwise (viewed from flywheel side)
Compression ratio 22.6
Compression Pressure ..... 2.95-3.23 MPa (427-469 psi)

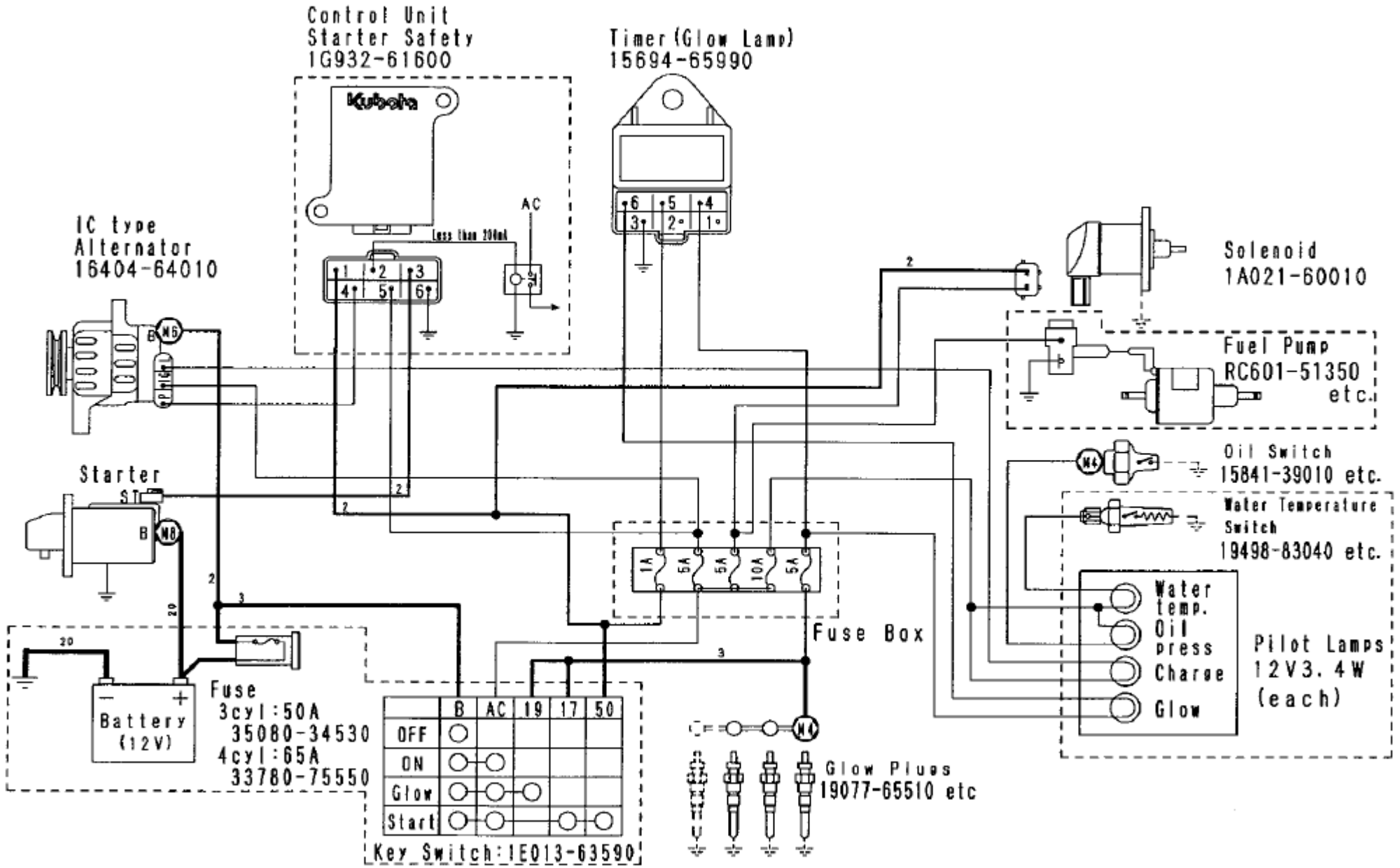
Compression Pressure

1. After warming up the engine, stop it and remove the air cleaner, the muffler and all nozzle holders.
2. Install a compression tester for diesel engines to nozzle holder hole.
3. After making sure that the speed control lever is set at the stop position (Non-injection), run the engine at 200 to 300 rpm with the starter.
4. Read the maximum pressure. Measure the pressure more than twice.
5. If the measurement is below the allowable limit, check the cylinder, piston ring, top clearance, valve and cylinder head.

(1) Intake manifold
(2) Speed control lever
(3) Engine stop lever
(4) Injection pump
(5) Fuel feed pump
(6) Cooling fan
(7) Fan drive pulley
(8) Oil filter cartridge
(9) Water drain cock
(10) Oil filler plug
(11) Exhaust manifold
(12) Alternator
(13) Starter
(14) Oil level gauge
(15) Oil pressure switch
(16) Flywheel
(17) Oil drain plug
(18) Oil pan
(19) Engine hook






Control Unit
Starter Safety
1G932-61600
Timer (Glow Lamp)
15694-65990
IC type
Alternator
16404-64010
Solenoid
1A021-60010
Fuel Pump
RC601-51350
etc.
Oil Switch
15841-39010 etc.
Water Temperature
Switch
19498-83040 etc.
Starter
Fuse Box
Water
temp.
Oil
press
Charge
Glow
Pilot Lamps
12V3.4W
(each)
Battery
(12V)
Fuse
3cyl:50A
35080-34530
4cyl:65A
33780-75550
B AC 19 17 50
OFF
ON
Glow
Start
Key Switch:1E013-63590
Glow Plugs
19077-65510 etc