



# Service Manual

## Chassis & Mast

<b>DP100</b>	<b>3DP-10011-up</b>
<b>DP115</b>	<b>4DP-10011-up</b>
<b>DP135</b>	<b>5DP-10011-up</b>
<b>DP150</b>	<b>6DP-10011-up</b>

## FOREWORD

This service manual is a guide to servicing of Cat® Lift Truck's 10 ton to 15 ton pneumatic models. The instructions are grouped by systems to serve the convenience of your ready reference.

Long productive life of your lift trucks depends to a great extent on correct servicing – the servicing consistent with what you will learn from this service manual. We hope you read the respective sections of this manual carefully and know all the components you will work on before attempting to start a test, repair or rebuild job.

The descriptions, illustrations and specifications contained in this manual were of the trucks of serial numbers in effect at the time it was approved for printing. Cat lift truck reserves the right to change specifications or design without notice and without incurring obligation.

These lift trucks are powered by Mitsubishi 6D16TL diesel engine. For the items of the engine, refer to the following service manual:

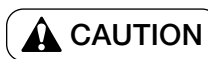
6D16 Diesel Engine Service Manual (Pub. No. 99709-68130)

### Safety Related Signs

The following safety related signs are used in this service manual to emphasize important and critical instructions:



Indicates a specific potential hazard resulting in serious bodily injury or death.



Indicates a specific potential hazard resulting in bodily injury, or damage to, or destruction of, the machine.



Indicates a condition that can cause damage to, or shorten service life of, the machine.

**SAFETY** **WARNING**

The proper and safe lubrication and maintenance for this lift truck, recommended by Cat lift truck, are outlined in the OPERATION & MAINTENANCE MANUAL for these trucks.

Improper performance of lubrication or maintenance procedures is dangerous and could result in injury or death. Read and understand the OPERATION & MAINTENANCE MANUAL before performing any lubrication or maintenance.

The serviceman or mechanic may be unfamiliar with many of the systems on this truck. This makes it important to use caution when performing service work. A knowledge of the system and/or components is important before the removal or disassembly of any component.

Because of the size of some of the truck components, the serviceman or mechanic should check the weights noted in this Manual. Use proper lifting procedures when removing any components.

Following is a list of basic precautions that should always be observed.

1. Read and understand all warning plates and decals on the truck before operating, lubricating or repairing the product.
2. Always wear protective glasses and protective shoes when working around trucks. In particular, wear protective glasses when pounding on any part of the truck or its attachments with a hammer or sledge. Use welders gloves, hood/goggles, apron and other protective clothing appropriate to the welding job being performed. Do not wear loose-fitting or torn clothing. Remove all rings from fingers when working on machinery.
3. Do not work on any truck that is supported only by lift jacks or a hoist. Always use blocks or jack stands to support the truck before performing any disassembly.

4. Lower the forks or other implements to the ground before performing any work on the truck. If this cannot be done, make sure the forks or other implements are blocked correctly to prevent them from dropping unexpectedly.

 **WARNING**

Do not operate this truck unless you have read and understand the instructions in the OPERATION & MAINTENANCE MANUAL. Improper truck operation is dangerous and could result in injury or death.

5. Use steps and grab handles (if applicable) when mounting or dismounting a truck. Clean any mud or debris from steps, walkways or work platforms before using. Always face truck when using steps, ladders and walkways. When it is not possible to use the designed access system, provide ladders, scaffolds, or work platforms to perform safe repair operations.
6. To avoid back injury, use a hoist when lifting components which weigh 23 kg (50 lb.) or more. Make sure all chains, hooks, slings, etc., are in good condition and are of the correct capacity. Be sure hooks are positioned correctly. Lifting eyes are not to be side loaded during a lifting operation.
7. To avoid burns, be alert for hot parts on trucks which have just been stopped and hot fluids in lines, tubes and compartments.
8. Be careful when removing cover plates. Gradually back off the last two bolts or nuts located at opposite ends of the cover or device and pry cover loose to relieve any spring or other pressure, before removing the last two bolts or nuts completely.
9. Be careful when removing filler caps, breathers and plugs on the truck. Hold a rag over the cap or plug to prevent being sprayed or splashed by liquids under pressure. The danger is even greater if the truck has just been stopped because fluids can be hot.

10. Always use tools that are in good condition and be sure you understand how to use them before performing any service work.
11. Reinstall all fasteners with same part number. Do not use a lesser quality fastener if replacements are necessary. Do not mix metric fasteners with standard nuts and bolts.
12. If possible, make all repairs with the truck parked on a level, hard surface. Block truck so it does not roll while working on or under truck.
13. Disconnect battery and discharge any capacitors (electric trucks) before starting to work on truck. Hang "Do not Operate" tag in the Operator's Compartment.
14. Repairs, which require welding, should be performed only with the benefit of the appropriate reference information and by personnel adequately trained and knowledgeable in welding procedures. Determine type of metal being welded and select correct welding procedure and electrodes, rods or wire to provide a weld metal strength equivalent at least to that of parent metal.
15. Do not damage wiring during removal operations. Reinstall the wiring so it is not damaged nor will it be damaged in operation by contacting sharp corners, or by rubbing against some object or hot surface. Do not connect wiring to a line containing fluid.
16. Be sure all protective devices including guards and shields are properly installed and functioning correctly before starting a repair. If a guard or shield must be removed to perform the repair work, use extra caution.
17. Always support the mast and carriage to keep carriage or attachments raised when maintenance or repair work is performed, which requires the mast in the raised position.
18. Loose or damaged fuel, lubricant and hydraulic lines, tubes and hoses can cause fires. Do not bend or strike high pressure lines or install ones which have been bent or damaged. Inspect lines, tubes and hoses carefully. Do not check for leaks with your hands. Pin hole (very small) leaks can result in a high velocity oil stream that will be invisible close to the hose. This oil can penetrate the skin and cause personal injury. Use cardboard or paper to locate pin hole leaks.
19. Tighten connections to the correct torque. Make sure that all heat shields, clamps and guards are installed correctly to avoid excessive heat, vibration or rubbing against other parts during operation. Shields that protect against oil spray onto hot exhaust components in event of a line, tube or seal failure, must be installed correctly.
20. Relieve all pressure in air, oil or water systems before any lines, fittings or related items are disconnected or removed. Always make sure all raised components are blocked correctly and be alert for possible pressure when disconnecting any device from a system that utilizes pressure.
21. Do not operate a truck if any rotating part is damaged or contacts any other part during operation. Any high speed rotating component that has been damaged or altered should be checked for balance before reusing.

## HOW TO READ THIS MANUAL

### 1. Service data in the text

Example:

A: Standard value    B: Repair or service limit

Unit: mm (in.)

Clearance between cylinder and piston	A	0.020 to 0.105 (0.00079 to 0.00413)
	B	0.15 (0.0059)

### 2. Symbols or abbreviations

OP ..... Option

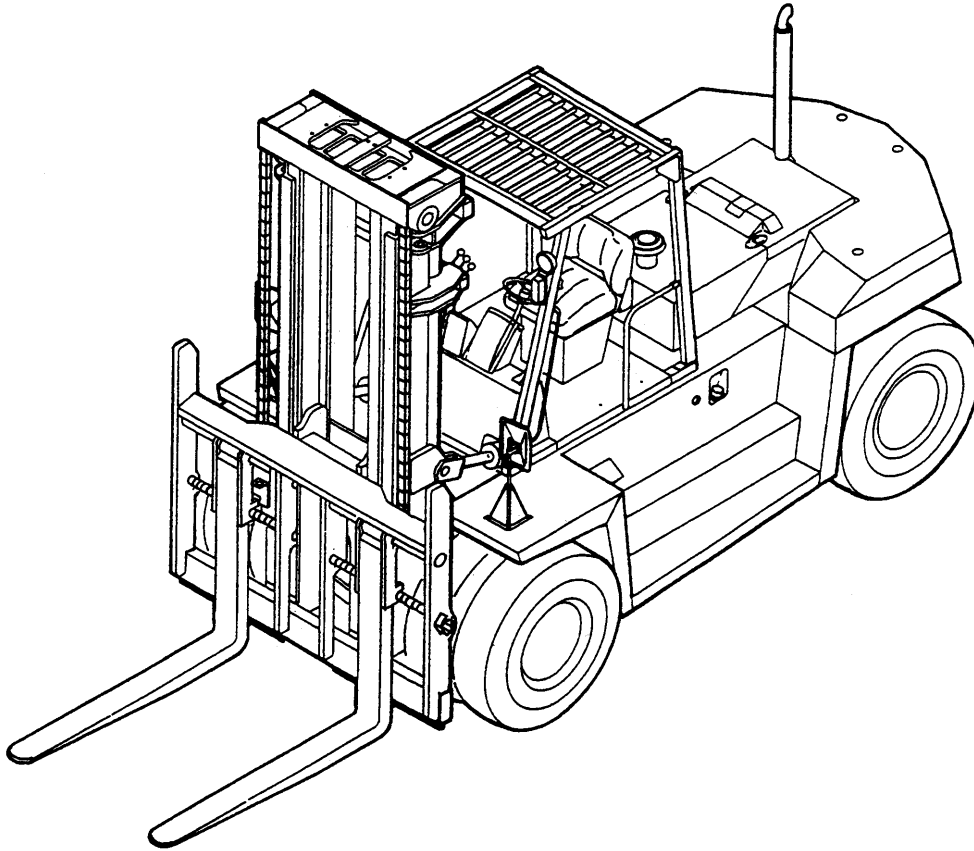
R1/4 ..... Taper pipe thread (external) 1/4 inch (formerly PT1/4)

Rc1/8 ..... Taper pipe thread (internal) 1/8 inch (formerly PT1/8)

G1/4A ..... Straight pipe thread (external) 1/4 inch (formerly PF1/4-A)

Rp1/8 ..... Straight pipe thread (internal) 1/8 inch (formerly PS1/8)

## Model View



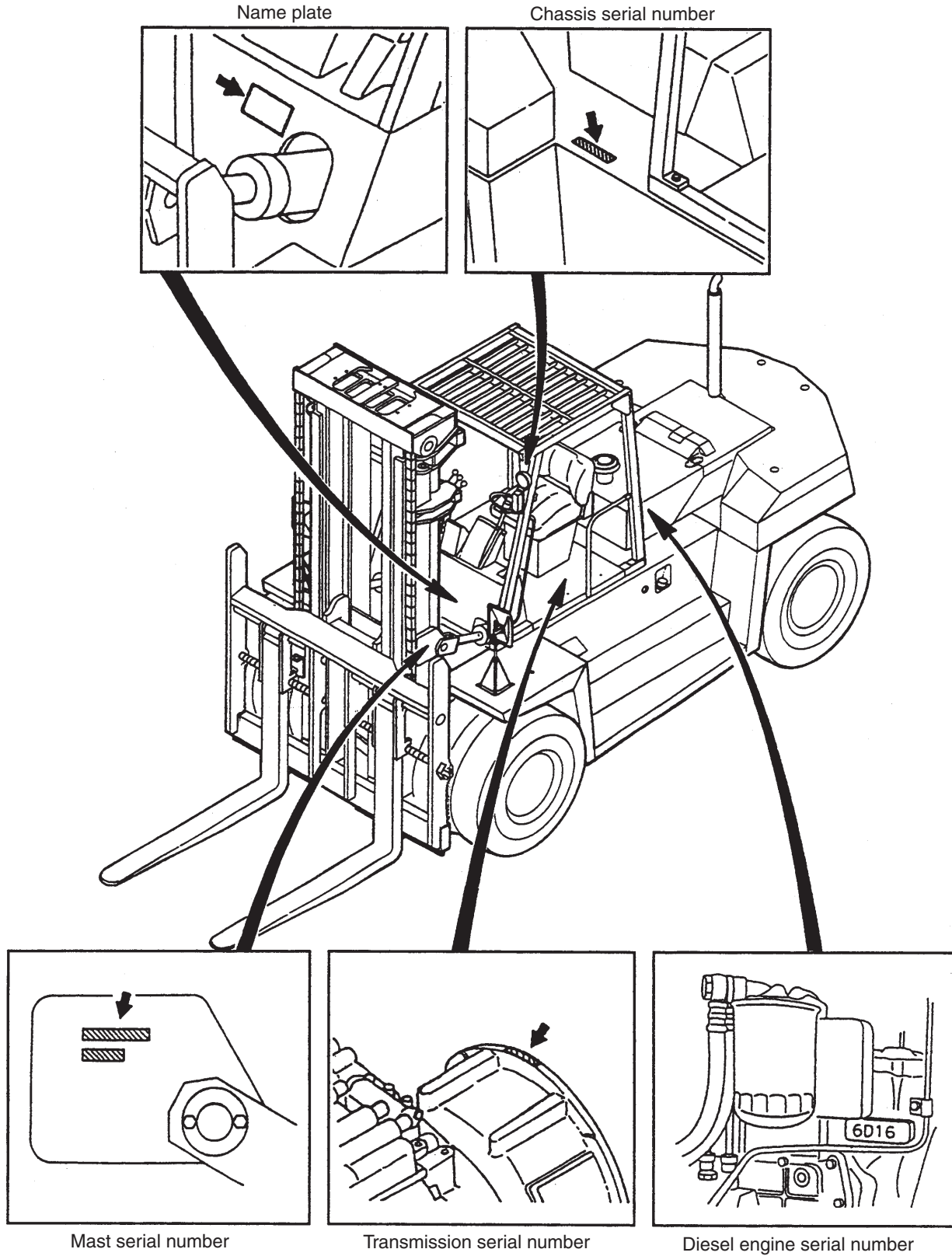
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## Truck Models Covered

This Service Manual furnishes servicing and maintenance information for the following trucks:

Truck model	Transmission	Designation – Serial number	Engine mounted
DP100	Powershift	3DP – 10011- up	Mitsubishi 6D16TL diesel engine
DP115	Powershift	4DP – 10011- up	Mitsubishi 6D16TL diesel engine
DP135	Powershift	5DP – 10011- up	Mitsubishi 6D16TL diesel engine
DP150	Powershift	6DP – 10011- up	Mitsubishi 6D16TL diesel engine

## Serial Number Locations

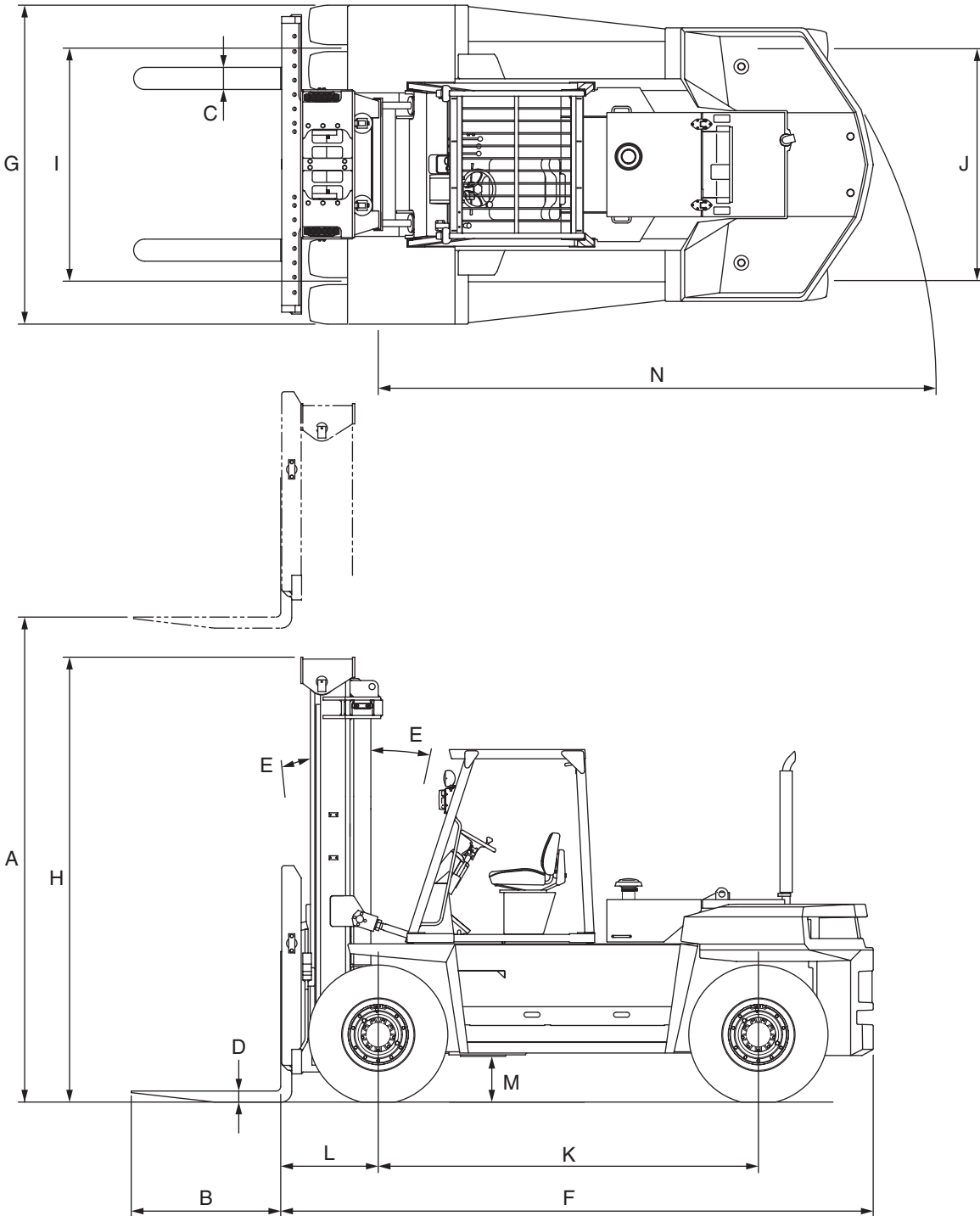


**Technical Data**

Item		Truck Model			
		DP100	DP115	DP135	DP150
Designation		3DP	4DP	5DP	6DP
Type		Standard (with 3-speed powershift transmission)			
General	Capacity/load center kgf/mm (lbf/in.)	10000/600 (22000/24)	11500/600 (25000/24)	13500/600 (30000/24)	15000/600 (33000/24)
	Lift mm (in.)	3000 (120)		3300 (130)	
	Lift speed (unloaded/loaded) mm/sec (fpm)	360/300 (71/65)	360/340 (71/67)	310/290 (61/57)	310/280 (61/55)
	Lowering speed (unloaded/loaded) mm/sec (fpm)	500/450 (98/89)		420/380 (83/75)	
	Tilt angle (forward – backward)	15° – 12°			
	Free lift mm (in.)	0			
Performance	Travel speeds (unloaded/ loaded) km/h (mph)	Forward	31.5/24.5 (20/15)		33.0/22.0 (20/14)
		Reverse			
	Minimum turning radius mm (in.)	4000 (157)	4060 (160)	4160 (164)	4550 (179)
	Turning angle	Inside	78°27'		
		Outside	51°14'		
Minimum intersecting aisle mm (in.)	3550 (140)	3590 (141)	3680 (145)	3830 (151)	
Tires	Gradeability (rated load)	At 1.6 km/h (1 mph)	32%	29%	23%
		At 2 km/h (1.2 mph)	21%	19%	15% 14%
	Size of tires (front and rear)	10.00-20- 14PR (I)	10.00-20- 16PR (I)	12.00-20-18PR (I)	
	Inflation pressure of tires (front and rear) kPa (kgf/cm <sup>2</sup> ) [psi]	700 (7.0) [101]	800 (8.0) [116]	800 (8.0) [116]	
Weight and axle loading (unloaded)	Weight kg (lb)	14450 (31860)	15330 (33800)	17320 (38190)	17760 (39160)
	Front axle loading kg (lb)	7090 (15630)	6950 (15320)	7460 (16450)	7940 (17510)
	Rear axle loading kg (lb)	7360 (16230)	8380 (18480)	9860 (21740)	9820 (21650)



**Dimensions (Approximate)**



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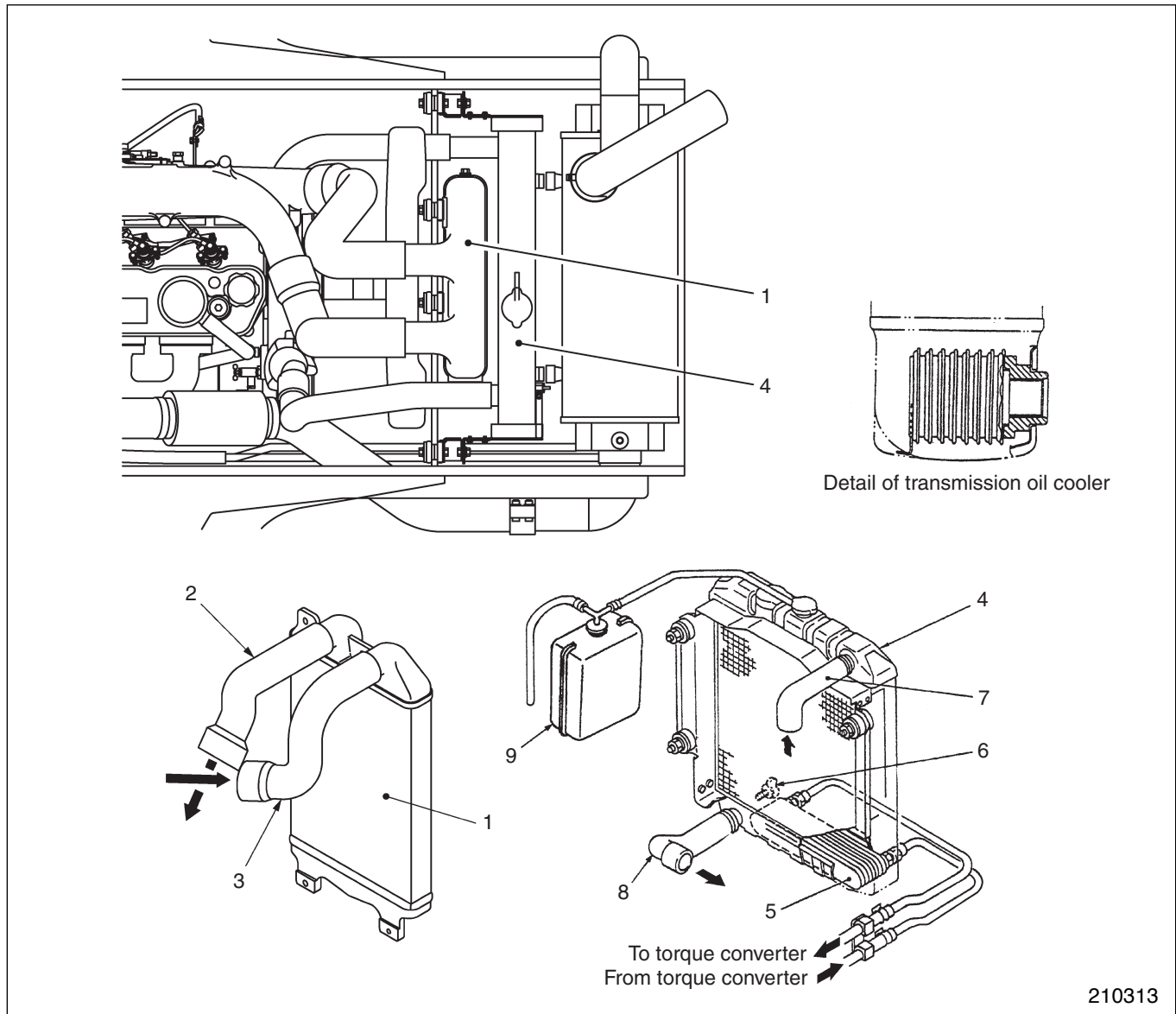
Unit: mm (in.)

Ref. No.	Item	Truck Model			
		DP100	DP115	DP135	DP150
A	Lift	3300 (130)			
B	Fork length	1220 (48)			
C	Fork width	180 (7.1)			
D	Fork thickness	70 (2.8)		90 (3.5)	
E	Tilt angle (forward – backward)	15° – 12°			
F	Overall length	4293 (169)	4371 (172)	4528 (178)	4830 (190)
G	Overall width (outside of tires)	2514 (99)		2599 (102)	
H	Overall height (to top of mast lowered)	3137 (124)		3483 (137)	
I	Tread (front)	1900 (75)		1906 (75)	
J	Tread (rear)	1930 (76)		1890 (74)	
K	Wheelbase	2800 (110)			3100 (122)
L	Front overhang	754 (29.7)	759 (29.9)	792 (31.2)	794 (31.3)
M	Ground clearance (at frame)	340 (13.4)		380 (15.0)	
N	Minimum turning radius	4000 (157)	4060 (160)	4160 (164)	4550 (179)

**Specifications**

Item	Truck Model	DP100	DP115	DP135	DP150
Type	Forced circulation				
Radiator type	Corrugated fin with pressure cap (with built-in transmission oil cooler)				
Oil cooler type	Plate fin type				
Capacity (complete system)	liter (U.S. gal.)	23 (6.1)			

**Description**



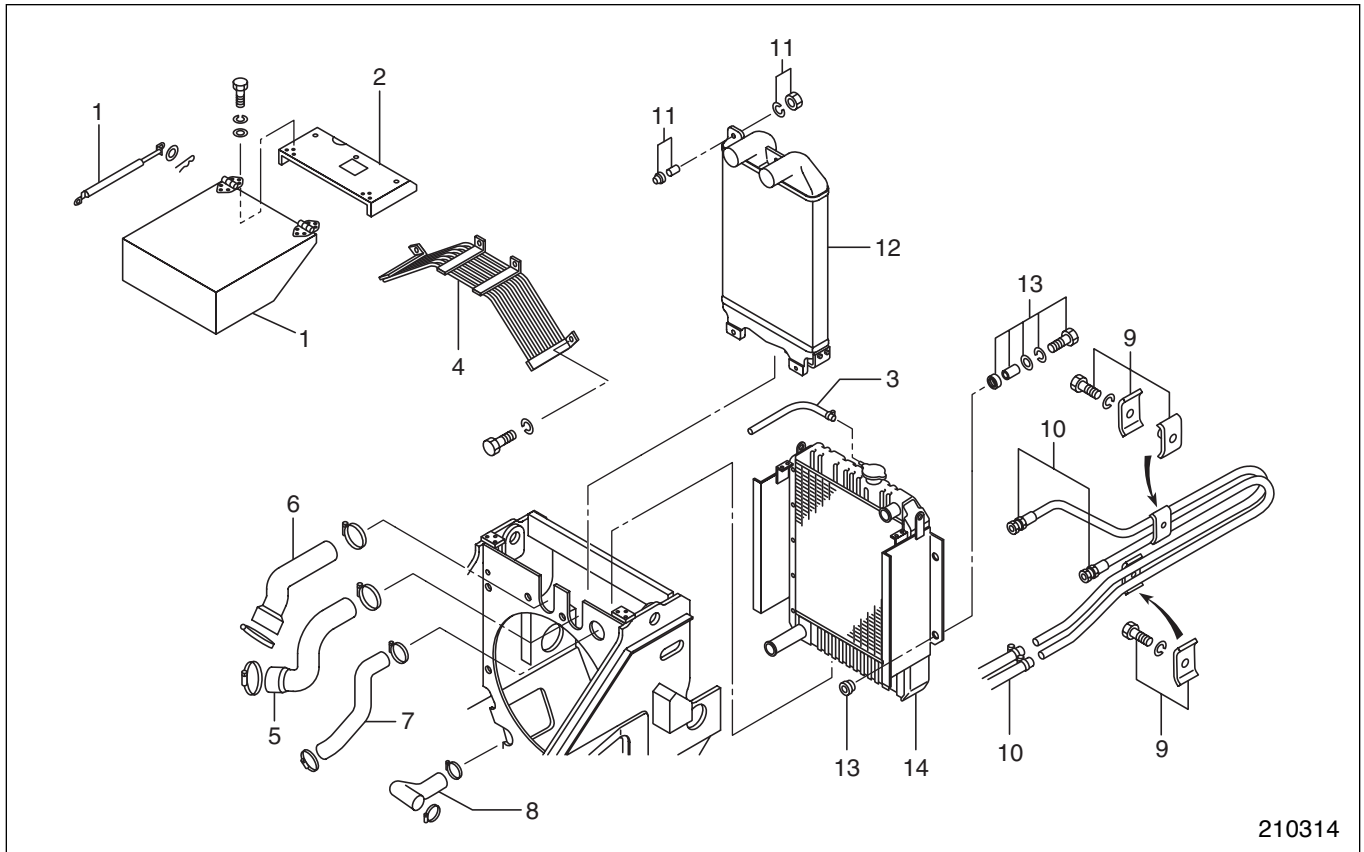
- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>1. Intercooler</li> <li>2. Intake hose (intercooler)</li> <li>3. Outlet hose (intercooler)</li> <li>4. Radiator</li> <li>5. Transmission oil cooler</li> </ul> | <ul style="list-style-type: none"> <li>6. Drain cock</li> <li>7. Upper hose (radiator)</li> <li>8. Lower hose (radiator)</li> <li>9. Reserve tank</li> </ul> |
|---|--|

The radiator with a tube-and-fin type core comes standard. The fins are corrugated. The cooling fan is of pusher type and has eight blades to provide high cooling efficiency. The lower tank has a built-in transmission oil cooler which, in operation, is constantly removing heat from the transmission oil returning from the torque converter.

## Removal and Installation

### Radiator and Intercooler

#### Removal



#### Sequence

- |                             |   |
|-----------------------------|---|
| 1. Engine cover, Gas spring | 8. Radiator hose (lower)                        |
| 2. Radiator cover           | 9. Clamp  |
| 3. Reserve tank hose        | 10. Oil cooler pipe                             |
| 4. Fan guard                | 11. Intercooler mount, Grommet, Collar, Washers |
| 5. Intercooler intake hose  | 12. Intercooler                                 |
| 6. Intercooler outlet hose  | 13. Radiator mount, Grommet, Collar, Washers    |
| 7. Radiator hoses (upper)   | 14. Radiator                                    |

#### Start by:

Loosen the radiator drain cock to drain coolant from the radiator.



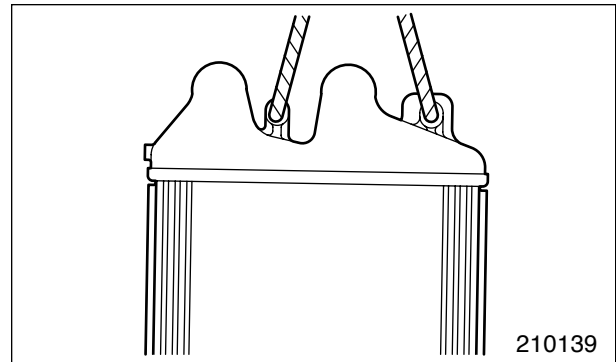
**Make sure the coolant temperature is cool before opening the drain cock.**

**Suggestions for Removal**

**1. Intercooler**

- (1) Install eyebolts in the bracket mounting bolt holes.
- (2) Hitch a sling into the eyebolts and lift the intercooler with a crane to remove.

Weight of intercooler	9 kg (20 lb)
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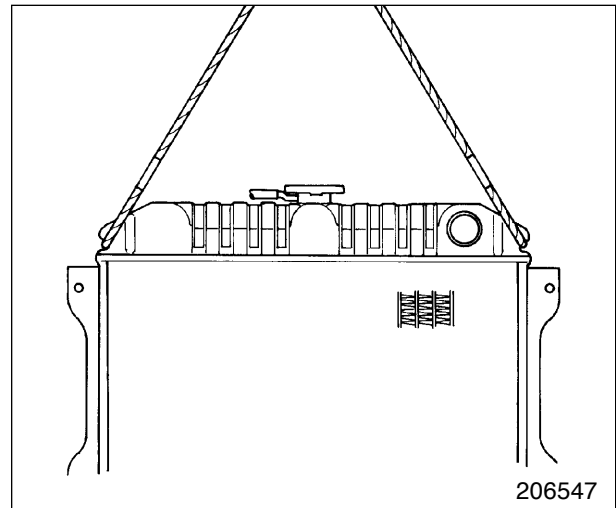


**2. Radiator**

- (1) Hitch a sling to the radiator and support the radiator.

Weight of radiator	30 kg (66 lb)
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- (2) Remove the radiator mounts (at 4 places) and lift off the radiator.



**Inspection**

**1. Intercooler**

- (1) Replace the mounting rubber if it lacks elasticity or if it is hardened.
- (2) If foreign substances such as insects or dust adhere to the core fins, blow compressed air from the opposite direction to remove them, taking care not to damage the fins.
- (3) Replace the intercooler if corrosion and rusting are remarkable or if the fins are unrepairable.
- (4) Check the intercooler hoses (upper and lower) for expansion and damage to the hose clamp. Replace them if any abnormality is found.

**2. Radiator**

- (1) Blow dirt and bugs, if any, from the radiator fins with compressed air. Be careful not to bend the fins because this will decrease cooling efficiency.

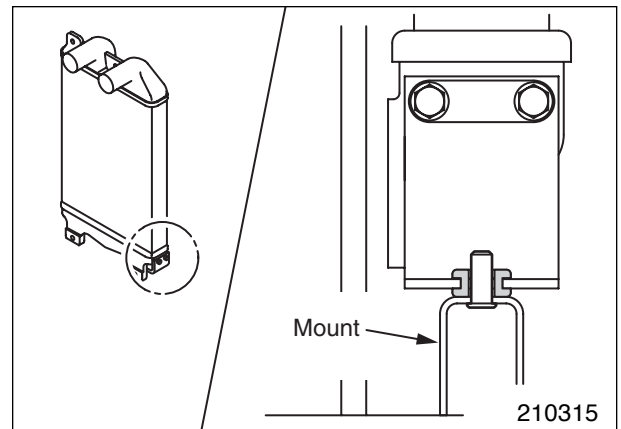
- (2) Replace the radiator if the fins are damaged beyond repair.
- (3) Check the rubber cushions of the radiator mounts and replace them if damaged or deteriorated.
- (4) Check the radiator hoses, upper and lower, and replace them if damaged or deteriorated.

## Installation

To install, follow the reverse of removal sequence and do the following steps:

### 1. Intercooler

Lower the intercooler, aligning the lower mount with the mounting pin of the frame mount.

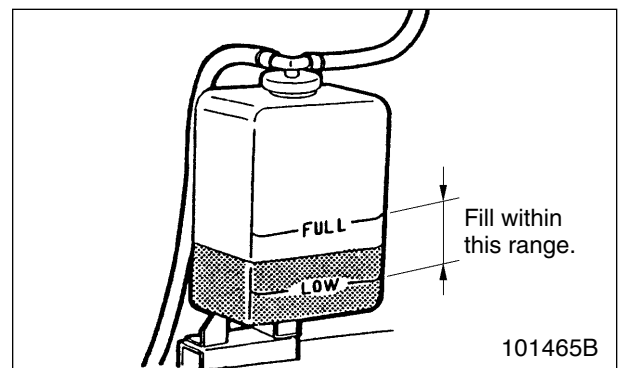
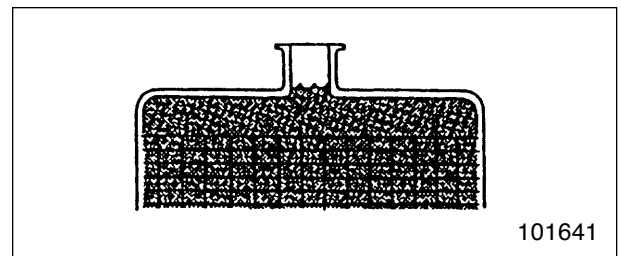


### 2. Hose

When connecting a hose to the intercooler or radiator, insert it fully to the base. Securely tighten the clamp and make sure that it stops at the flair of the base and that it does not come out.

### 3. Antifreeze and Coolant

- (1) Mix antifreeze with distilled water to the specified concentration and fill the mixed solution to the radiator neck.
- (2) Likewise, fill the mixed solution to the specified level in the reserve tank.
- (3) Start the engine and warm it up with attention to noise.
- (4) If coolant in the reserve tank decreases, fill the mixed solution to the specified level.



## Troubleshooting

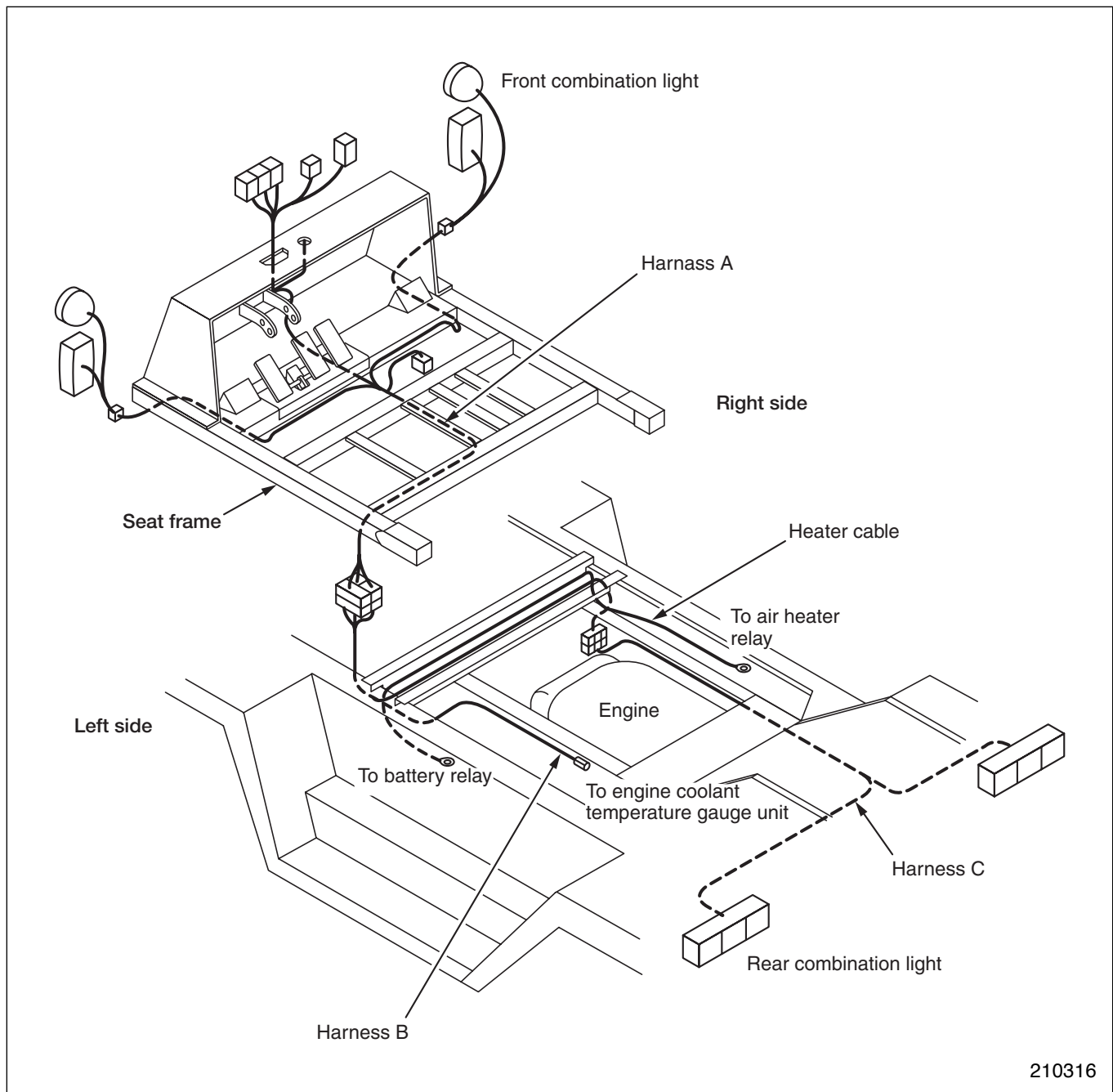
Coolant leaks from radiator	Radiator corroded	— Repair or replace.
	Hose clamps loose	— Retighten or replace.
	Upper or lower hose deteriorated due to aging	— Replace.
	Drain cock defective	— Replace.
	Cracks in coolant passage in engine	— Check and repair.
Cooling system overheats	Debris in radiator fin	— Clean.
	Radiator fins distorted	— Repair or replace.
	Water pump belt loose	— Readjust. Check for elongation or cracks due to aging and replace if necessary.
	Thermostat defective	— Repair or replace.
Oil leaks from oil cooler hose	Hose clamps loose	— Retighten or replace.
	Oil cooler corroded	— Repair or replace.



## Specifications

Item		Truck Model	DP100	DP115	DP135	DP150
Battery	Model nomenclature – No. of batteries		95E41R – 2			
	Voltage	V	12			
	Capacity	Ah	80			
Transmission shift lever			Electric			
Console box			With OK monitor			
Automatic transmission controller			Electronic Control Unit (ECU)			
Starter switch			Anti-restart type			
Lamps			See “Lamp Bulb Specifications.”			

## Location of Components



210316

For the components to which harnesses A, B and C are connected, see the pages which follow.

**CAUTION**

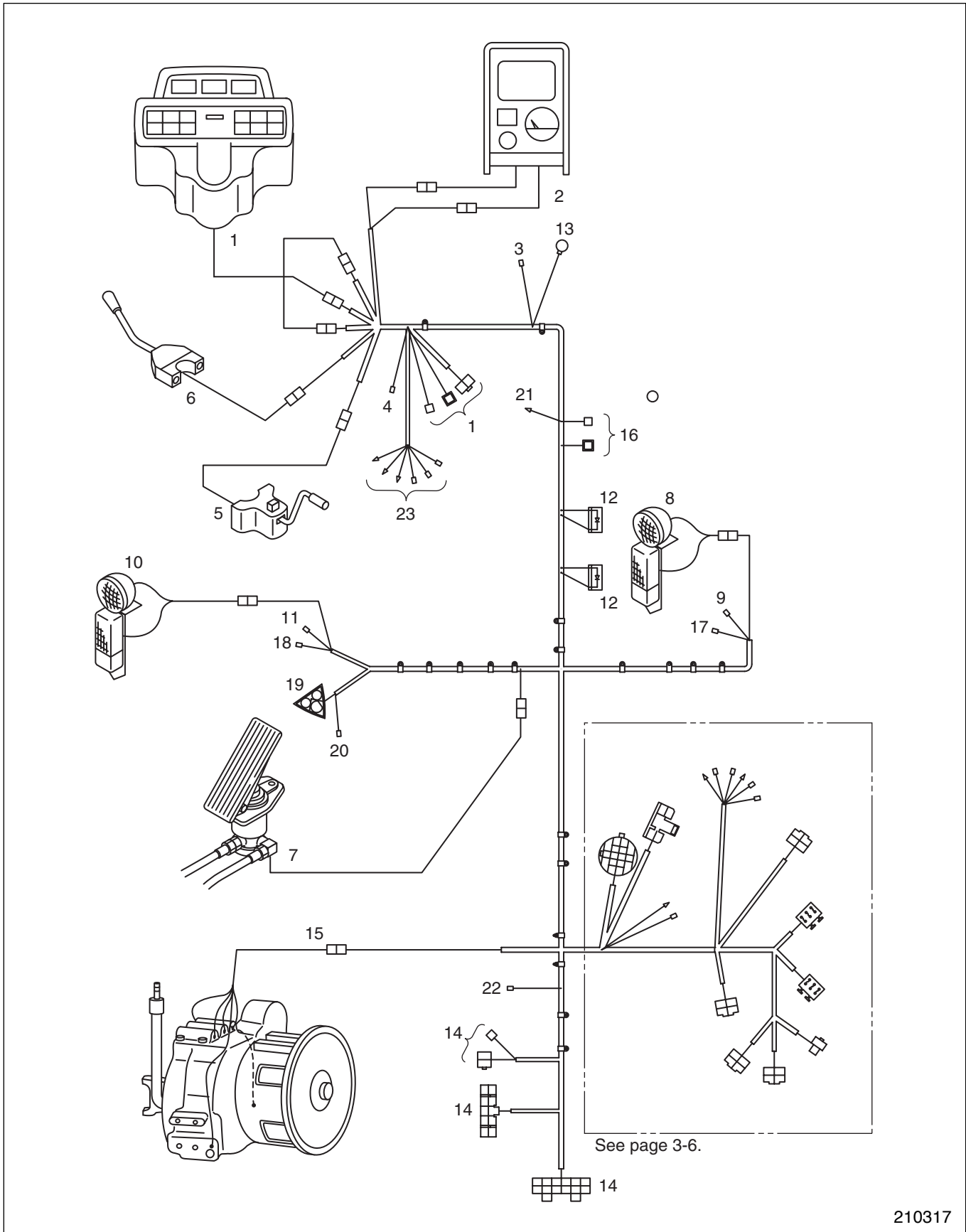
Clamp the harnesses away from moving parts or sharp edges. Repair a frayed harnesses with vinyl tape.

Memo

**BUY NOW**

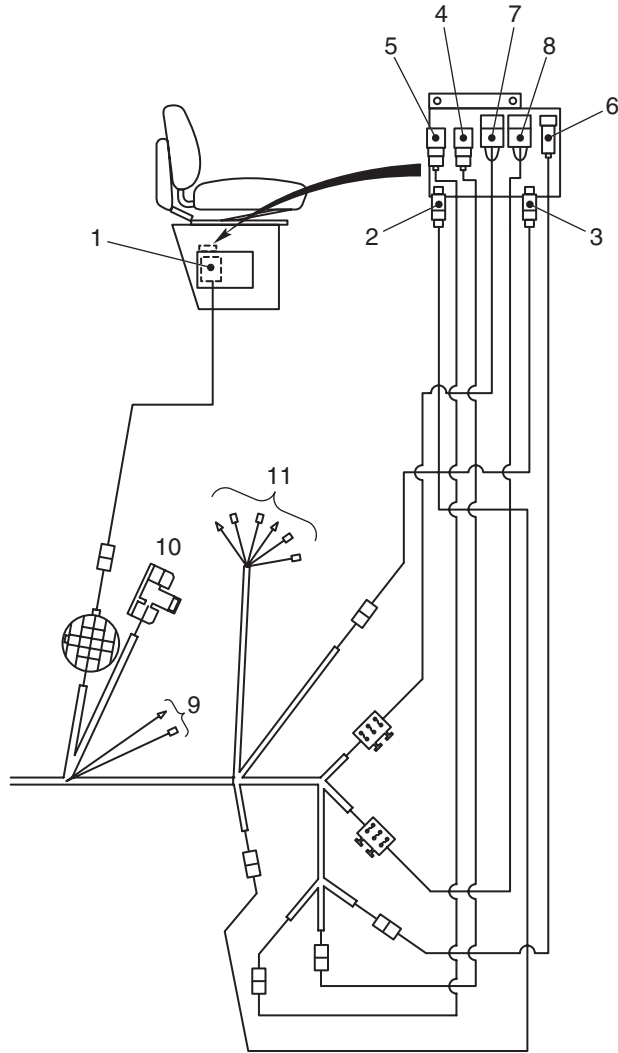
**Then Instant Download  
the Complete Manual  
Thank you very much!**

Harness A (located under the seat frame) Part 1



1. Console box
2. Sub-meter
3. Steering column
4. Horn switch
5. Transmission shift lever
6. Turn signal switch
7. Stop lamp switch
8. RH front combination lamp
9. RH high beam
10. LH front combination lamp
11. LH high beam
12. Diode
13. Ground point
14. To harness B
15. To transmission harness
16. Junction connector
17. RH working lamp (option)
18. LH working lamp (option)
19. Cab power supply (option)
20. Front revolving light (option)
21. High beam (option)
22. Air conditioner/car heater power supply  
(option)
23. Option terminal

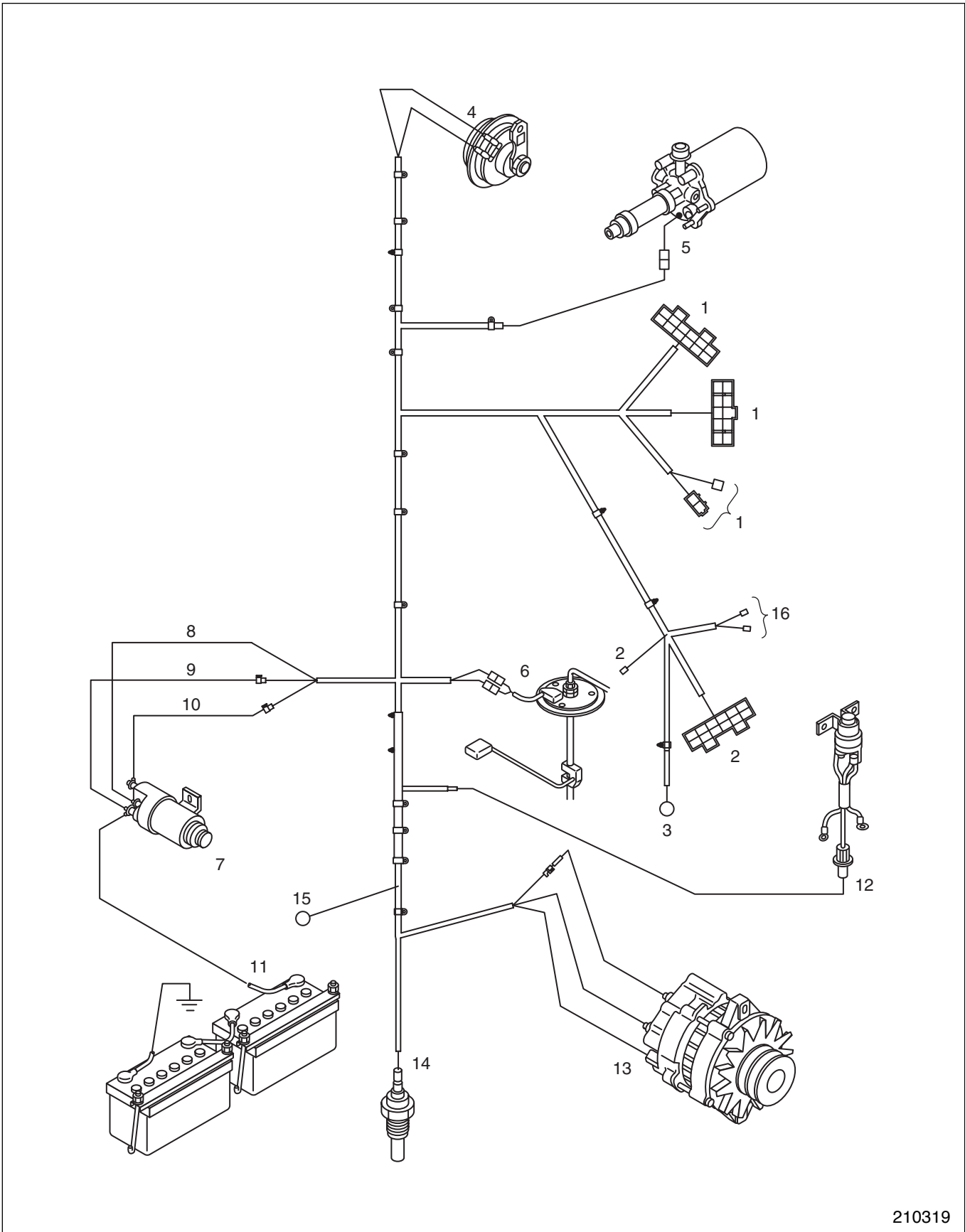
Harness A (located under the seat frame) Part 2



1. ECU
2. Relay for battery relay
3. Relay for air dryer
4. F signal relay
5. R signal relay
6. Battery fuse
7. Fuse holder A
8. Fuse holder B
9. Speedometer power supply (option)
10. Speedometer signal (option)
11. Option terminal

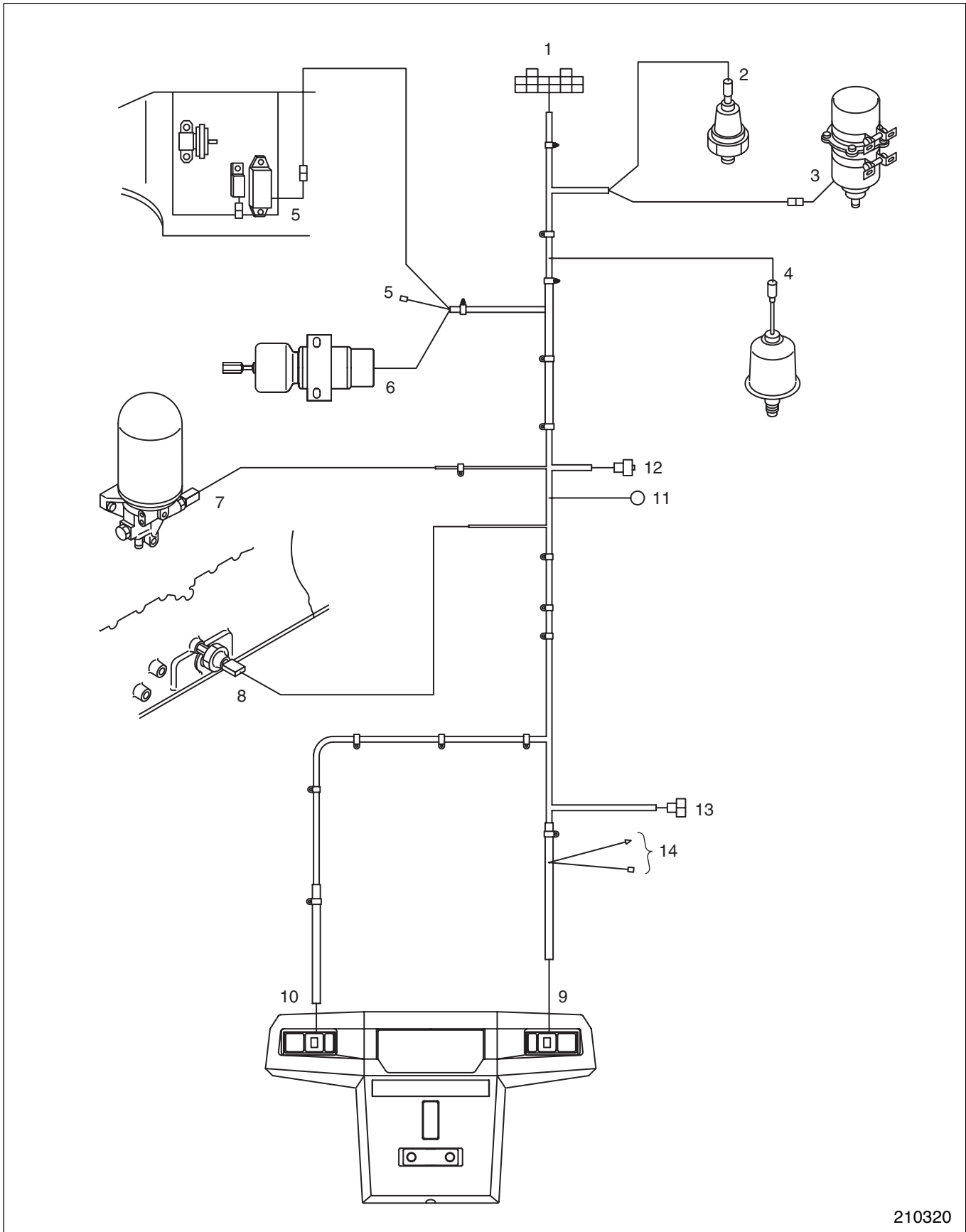


Harness B (located at the left of engine compartment)



1. To harness A
2. To harness C
3. Glow plug
4. Electronic horn
5. Lining wear detection switch
6. Fuel tank unit
7. Battery relay
8. M5 terminal
9. Battery side terminal
10. Frame side terminal
11. Battery
12. Starter relay
13. Alternator
14. Engine coolant temperature gauge unit
15. Ground point
16. Earphone switch (option)

Harness C (located at the right of engine compartment)

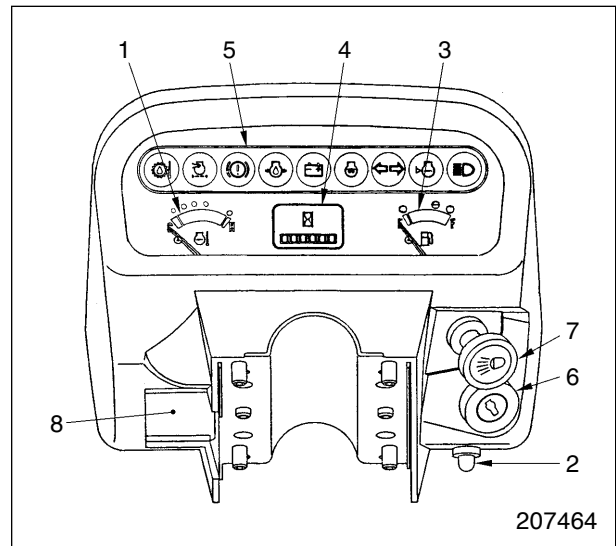


1. To harness B
2. Low air pressure switch
3. Air dryer
4. Air pressure gauge unit
5. Engine stop control timer
6. Engine stop solenoid
7. Oil bypass alarm switch
8. Engine oil pressure switch
9. RH rear combination lamp
10. LH rear combination lamp
11. Ground point
12. Air cleaner dust indicator (option)
13. Working and license plate lamp (option)
14. Back-up buzzer (option)

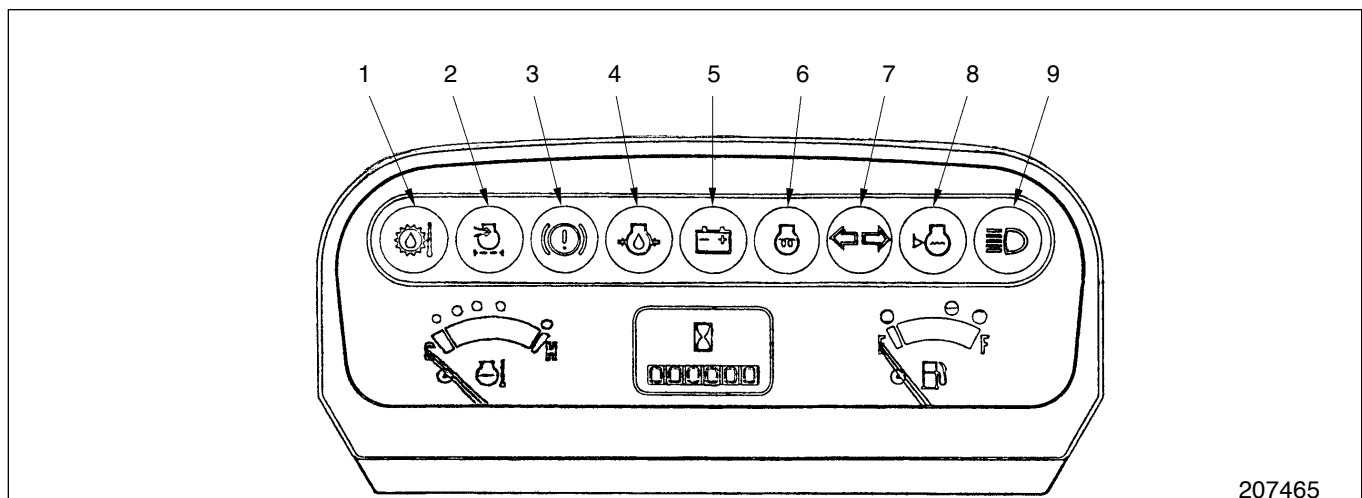
## Description

### Console Box

1. Engine coolant temperature gauge
2. Travel speed select switch
3. Fuel gauge
4. Service hourmeter
5. OK monitor
6. Starter switch
7. Lighting switch
8. Fuse box



### OK Monitor



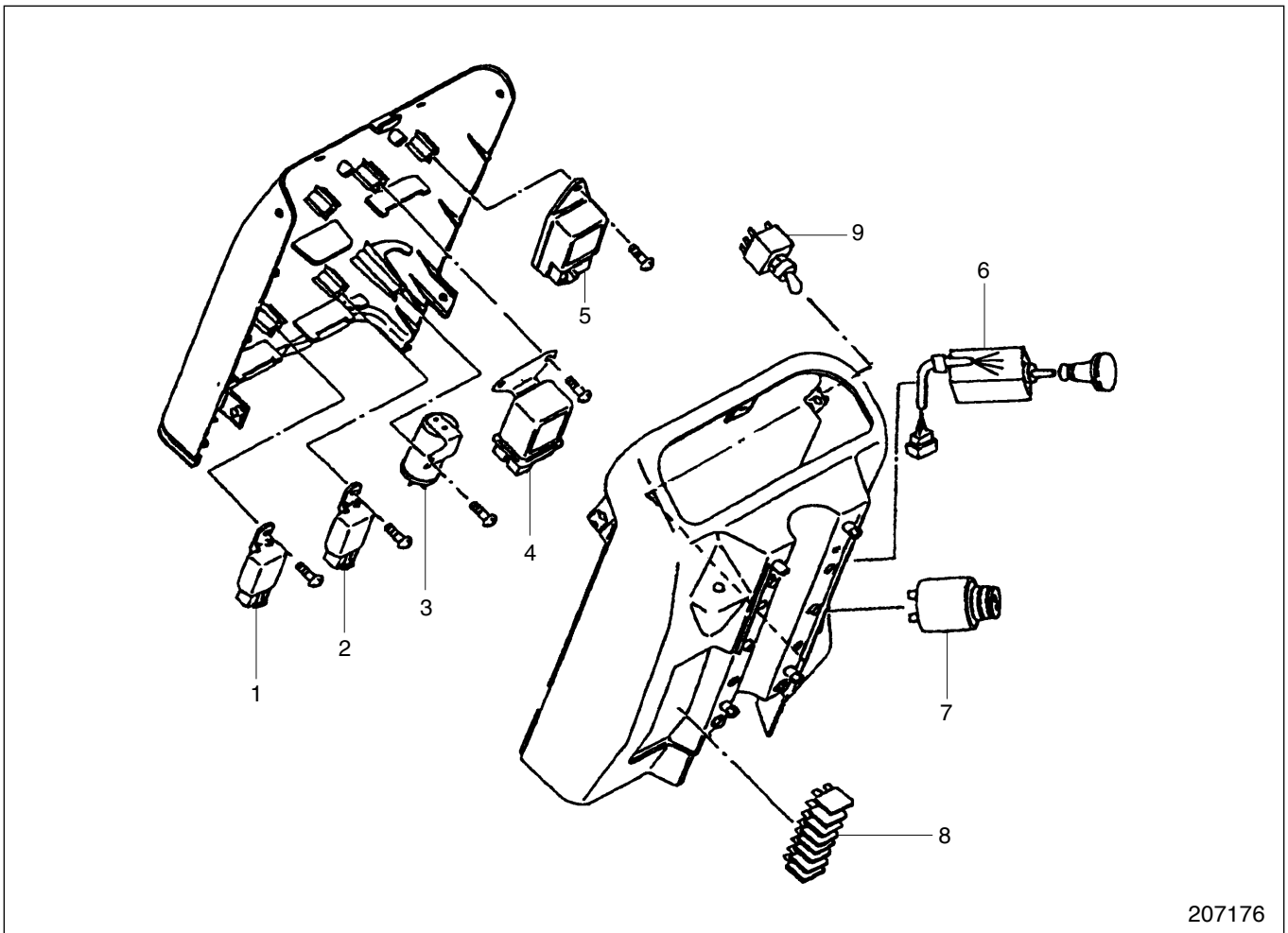
### Function

No.	Indicator light	OFF	ON or flickering	Remarks
1	Powershift transmission oil temp. indicator light	Normal	Overheating	
2	Air cleaner element indicator light	Normal	Clogged	Option
3	Brake fluid level indicator light	Normal	Low	
4	Engine oil pressure indicator light	Normal	Low	
5	Alternator not charging indicator light	Normal	Abnormal	
6	Glow plug indicator light	Heating completed	Heating	
7	Turn signal indicator light	Turn signal OFF	Turn signal ON	
8	Engine coolant level indicator light	Normal	Low	Option
9	Headlamp beam indicator light	Low	High	Option

### How to check indicator light bulbs

The bulbs are normal if the indicator lights 1, 2, 3 and 8 come ON when the starter switch key is turned to I (ON) position. (The indicator lights will go OFF when the engine starts.)

## Components



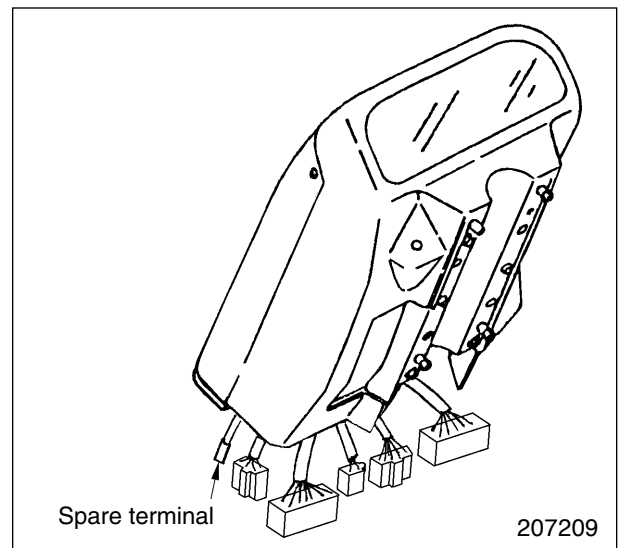
- |                      |                    |                               |
|----------------------|--------------------|-------------------------------|
| 1. Power relay       | 4. Glow plug relay | 7. Starter switch             |
| 2. Power relay       | 5. Glow plug timer | 8. Fuses                      |
| 3. Turn signal relay | 6. Lighting switch | 9. Travel speed select switch |

## Spare Terminals

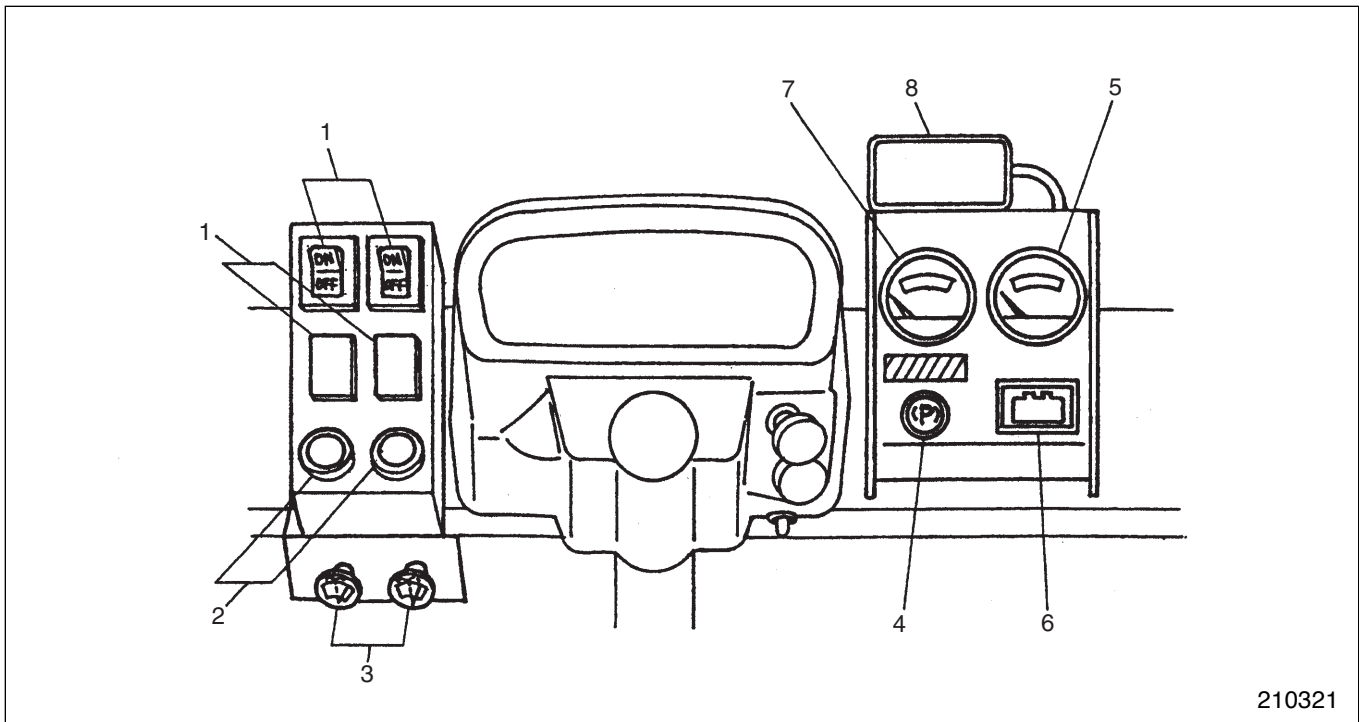
The spare terminal cord extends from the fuse box in the console box. (Another spare terminal is in the chassis-side main harness.)

Color code	Lg (light green)
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Removing the console box rear panel will permit you to gain access to this spare terminal which is taped to the harness protector.



Side Instrument Panels

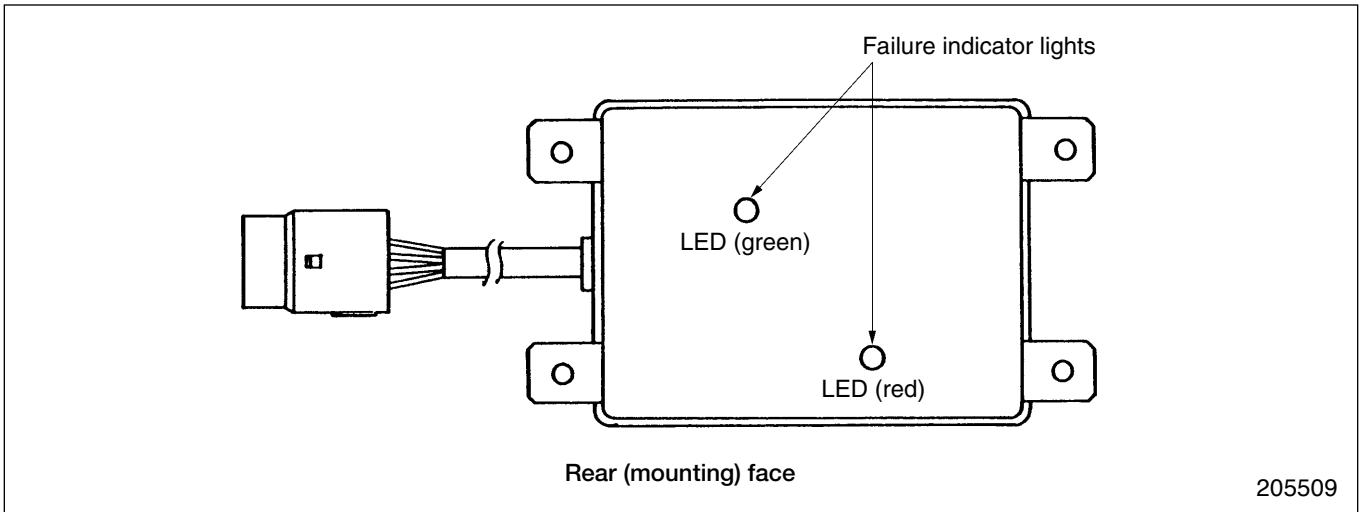


- 1. Working lamp switches (option)
- 2. Working lamp indicators (option)
- 3. Windshield wiper switches (option)
- 4. Brake lining wear indicator

- 5. Brake air pressure gauge
- 6. Battery switch
- 7. Powershift transmission oil temperature gauge
- 8. Speedometer (option)

## Major Components

### Electronic Control Unit (ECU)



The Electronic Control Unit (ECU) has a built-in 1-chip microcomputer. This computer processes signals from the travel speed sensor for actuating the 2-speed automatic transmission.

The ECU has “self-diagnostic” failure indicator lights which come on when any problem occurs in the electrical system, thereby allowing the operator to locate the problem. It has the following fail-safe

systems so that failure of power, control circuit, or other components will not endanger the operator.

**NOTE**

The failure indicator lights are located on the rear (mounting) face of the ECU. This makes it necessary to remove the ECU from the truck to observe these lights.

### Fail-safe Systems

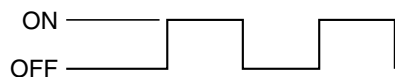
Failure	Function
Solenoid output signal circuit open	Turns OFF the power line and causes an indicator light to come on when the solenoid output signal circuit is open.
Travel speed sensor circuit open	Allows the truck to run at the present travel speed but causes an indicator light to come on.

### Failure Indicator Light Flashing Patterns

Failure	Flashing pattern
Travel speed sensor circuit open	
2-speed automatic transmission control circuit open	

204697



NOTE: The failure indicator lights come ON and go OFF as shown below:




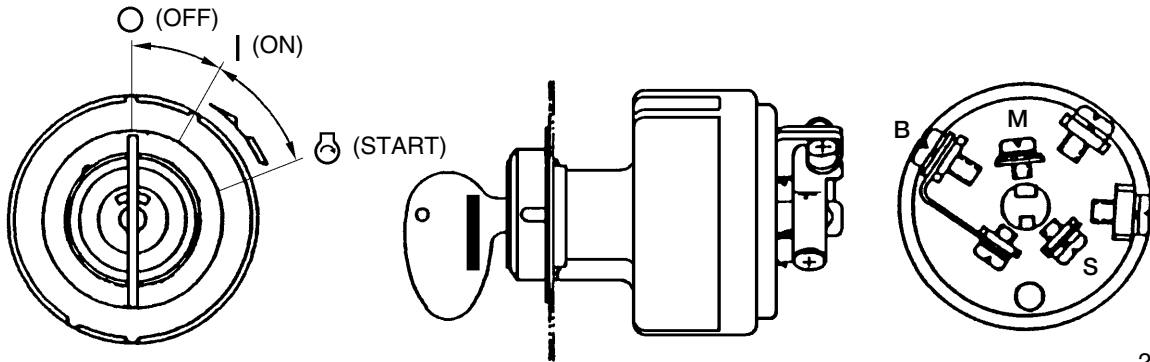
204668



**Starter Switch (Anti-restart Type)**













This switch has a built-in mechanical lockout. This lockout restrains the key from turning to  (START) position from  (ON) position (as when the engine is

running) to help prevent damage to the starter pinion or flywheel ring gear. The  (ON) position of the switch is for energizing the glow plugs.

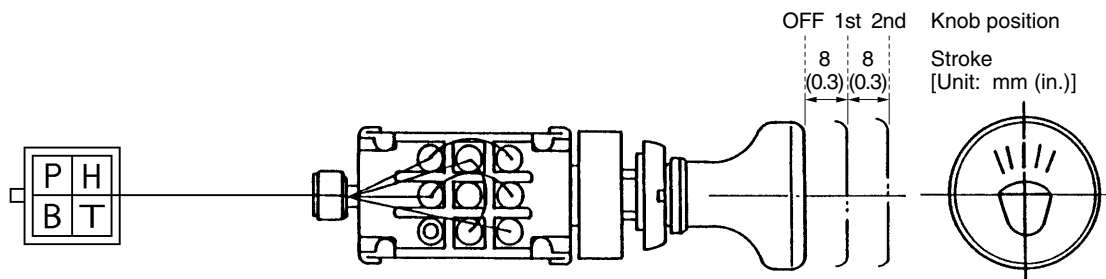


203561A

**Connection Chart**












Terminal	B	M	S	
Key position	Component	Fuse box, batteries, alternator, glow plugs	Fuse box, engine stop control timer, glow plug timer and relay	Transmission shift lever, glow plug timer
 (OFF)				
 (ON)	 — 			
 (START)	 — 	 — 		

**Lighting Switch**

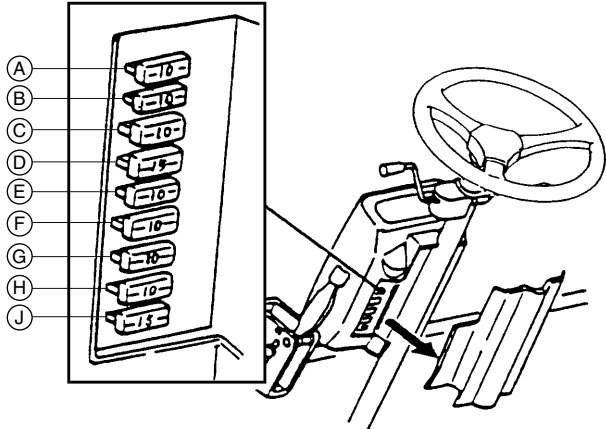


206481

**Connection Chart**

Terminal	B	T	H	P
Knob position	Component	Tail lamps, license plate lamp (option), instrument panel lamp	Headlamps	Front combination lamps
 (OFF)				
1st position	 — 			
2nd position	 — 	 — 		

Fuse Box

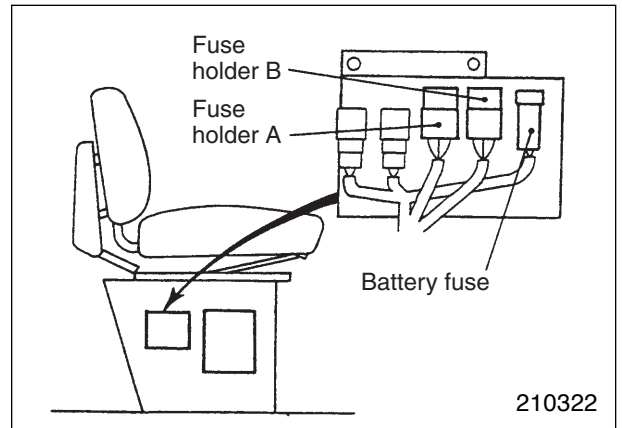


Symbol	Capacity	Circuit
A	10 A	Transmission shift lever
B	10 A	Instrument panel lamp, turn signals
C	10 A	Spare terminal
D	15 A	Lamps
E	10 A	Horn
F	10 A	Spare
G	10 A	Transmission controller, vacuum buzzer, stop lamps
H	10 A	Back-up lamps
J	15 A	Spare

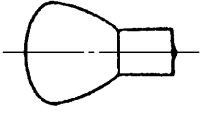
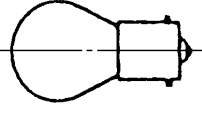

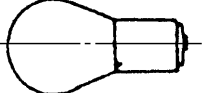
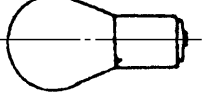
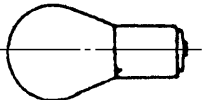
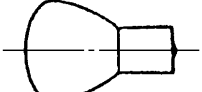

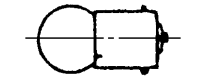
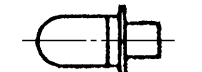
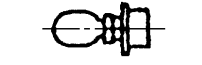
101441F

Optional fuses

Fuse	Capacity	Circuit
Battery fuse	15 A	
Fuse holder A	15 A	Working lamps
	10 A	Revolving lamp
	10 A	Air dryer relay
Fuse holder B	15 A	Air conditioner
	5 A	Car heater
	20 A	Windshield wiper
	10 A	Cab



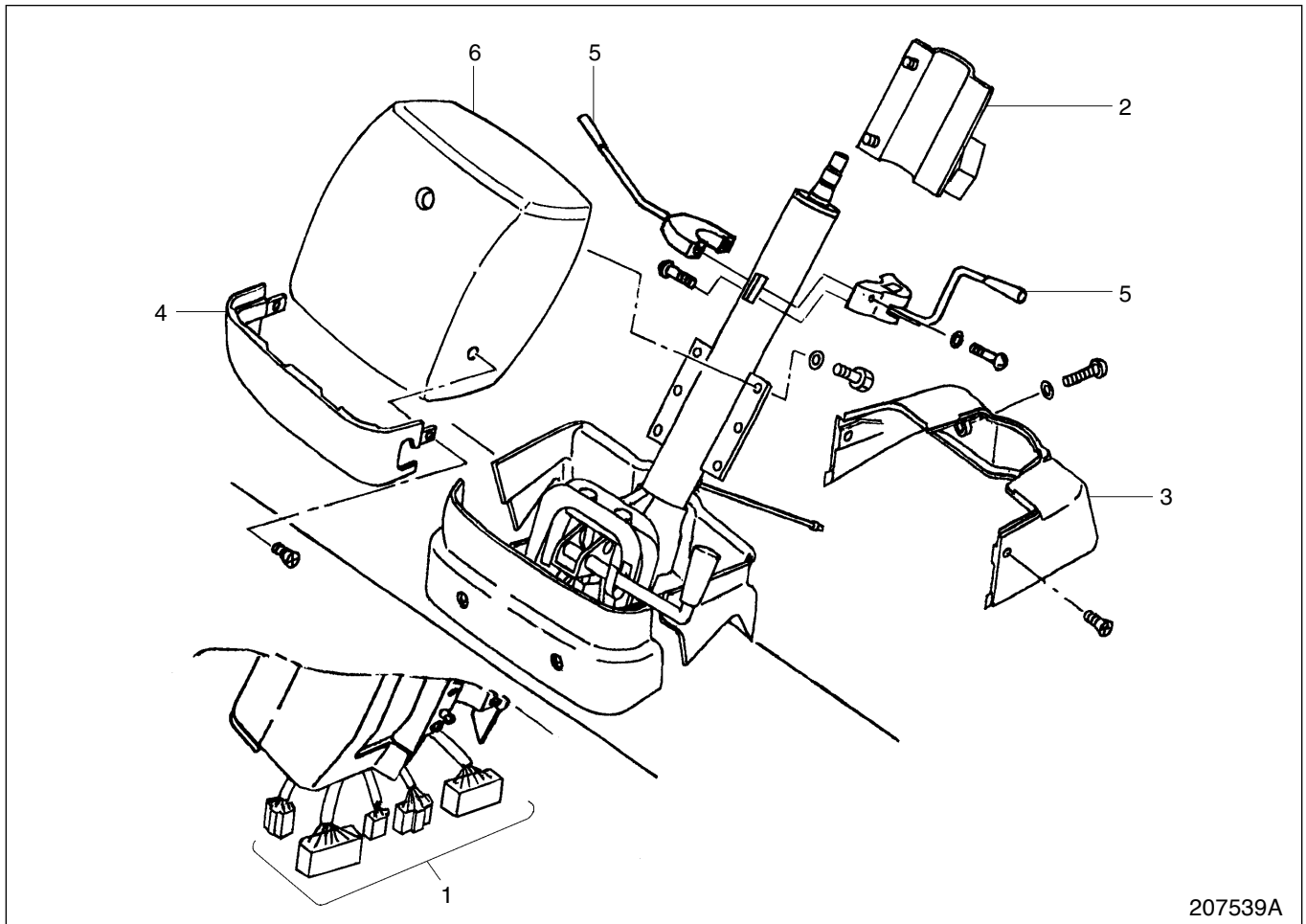
## Lamp Bulb Specifications

Item Type of lamp		Quantity of bulbs	Color of lens	Bulb		Remarks
				For 24V system	Schematic drawing	
Headlamps		2	Frosted	60W		60/60W (option)
Combination lamps (front)	Turn signal lamps	2	Amber	25W		Standard (mounted on overhead guard)
	Clearance lamps	2	Frosted	12W		
Combination lamps (rear)	Stop and tail lamps	2	Red	10W/25W		
	Turn signal lamps	2	Amber	25W		
	Back-up lamps	2	Frosted	25W		
Working lamps (front)		2	Frosted	60W/60W		Option
Working lamps (rear)		2	Frosted	60W/60W		Option
License plate lamp		1	Frosted	12W		Option
Instrument panel lamps		2	Frosted	3W		For combination meter
OK monitor indicator lamps		5	Frosted	3W		

## Removal and Installation

### Console Box

#### Removal



#### Start by:

- (a) Turn off the starter switch, and disconnect the negative (grounding) cable from the battery.
- (b) Remove nut and washer on steering wheel, and remove the steering wheel.

#### Suggestions for Removal

1. Disconnect the electrical wires at connectors 1.
2. Remove screws on cover 2 using a flat-tip screwdriver, and remove the cover.
3. Remove screws on cover (U-RE) 3, and remove the cover.
4. Remove screws on cover (U-FR) 4, and remove the cover.

5. Disconnect the electrical wires at connectors, and remove transmission shift lever and turn signal lever 5.
6. Remove bolts on console box assembly 6, and remove the console box assembly.

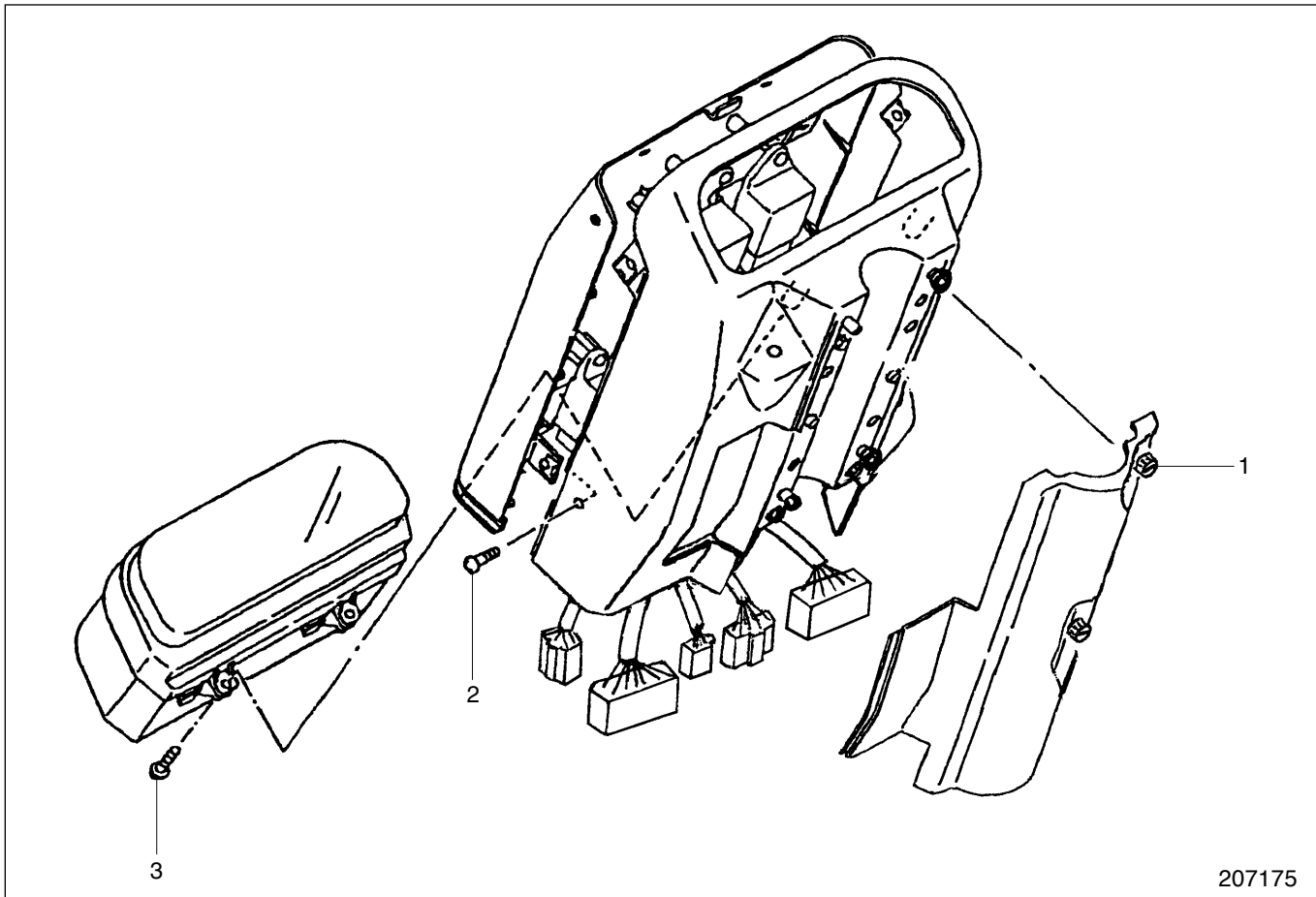
#### Installation

To install, follow the reverse of removal sequence.

## Disassembly and Reassembly

### Console Box

#### Disassembly



#### Suggestions for Disassembly

1. Remove two screws 1 securing the cover. (Use a flat-tip screwdriver.)
2. Remove six screws 2 and separate the front and rear panels.
3. Remove four screws 3 securing the instrument panel.

#### Reassembly

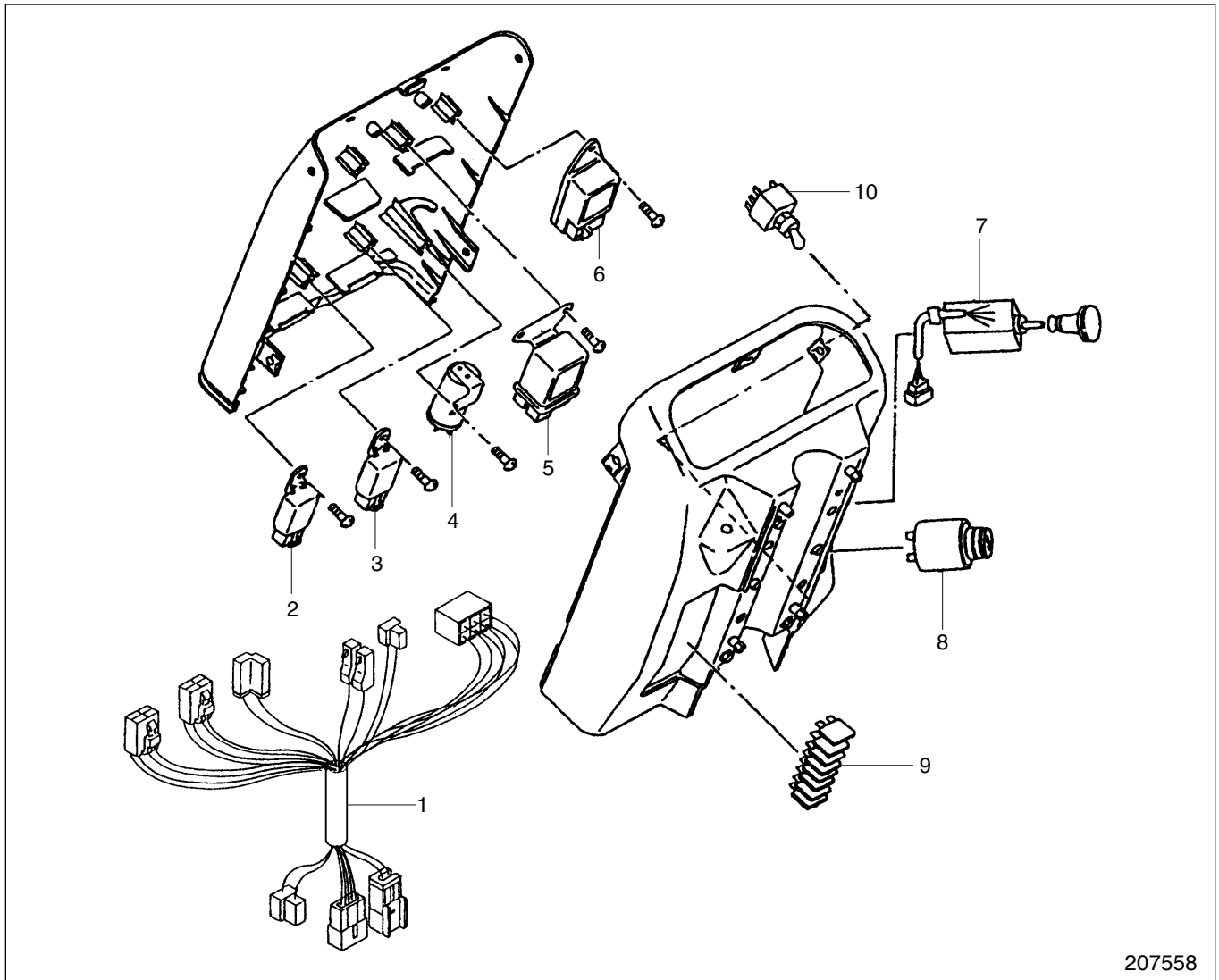
To reassemble the console box, follow the reverse of disassembly sequence.

#### NOTE

To replace the instrument panel bulbs, remove screws 2 and 3.

## Components in Console Box

### Disassembly



207558

### Sequence

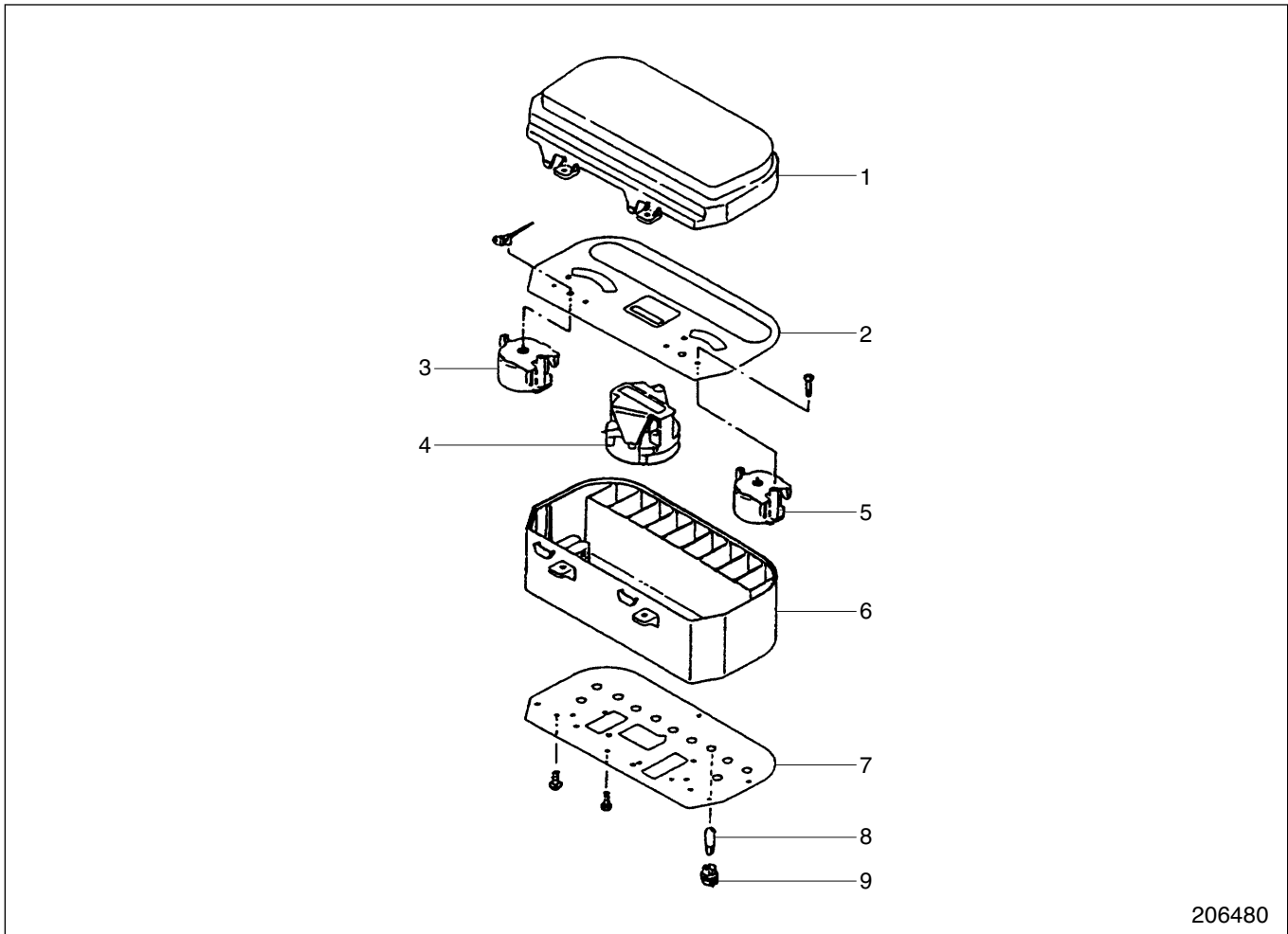
- |                      |                                |
|----------------------|--------------------------------|
| 1. Harness           | 6. Glow plug timer             |
| 2. Power relay       | 7. Lighting switch             |
| 3. Power relay       | 8. Starter switch              |
| 4. Turn signal relay | 9. Fuses                       |
| 5. Glow plug relay   | 10. Travel speed select switch |

### Reassembly

To reassemble the console box, follow the reverse of disassembly sequence.

## Combination Meter

### Disassembly



206480

### Sequence

- |                                     |                          |
|-------------------------------------|--------------------------|
| 1. Instrument panel                 | 6. Meter case            |
| 2. Dial                             | 7. Printed circuit plate |
| 3. Engine coolant temperature gauge | 8. Bulb                  |
| 4. Service hourmeter                | 9. Socket                |
| 5. Fuel gauge                       |                          |

**CAUTION**

Be careful not to damage the printed circuit plate when disassembling the combination meter.

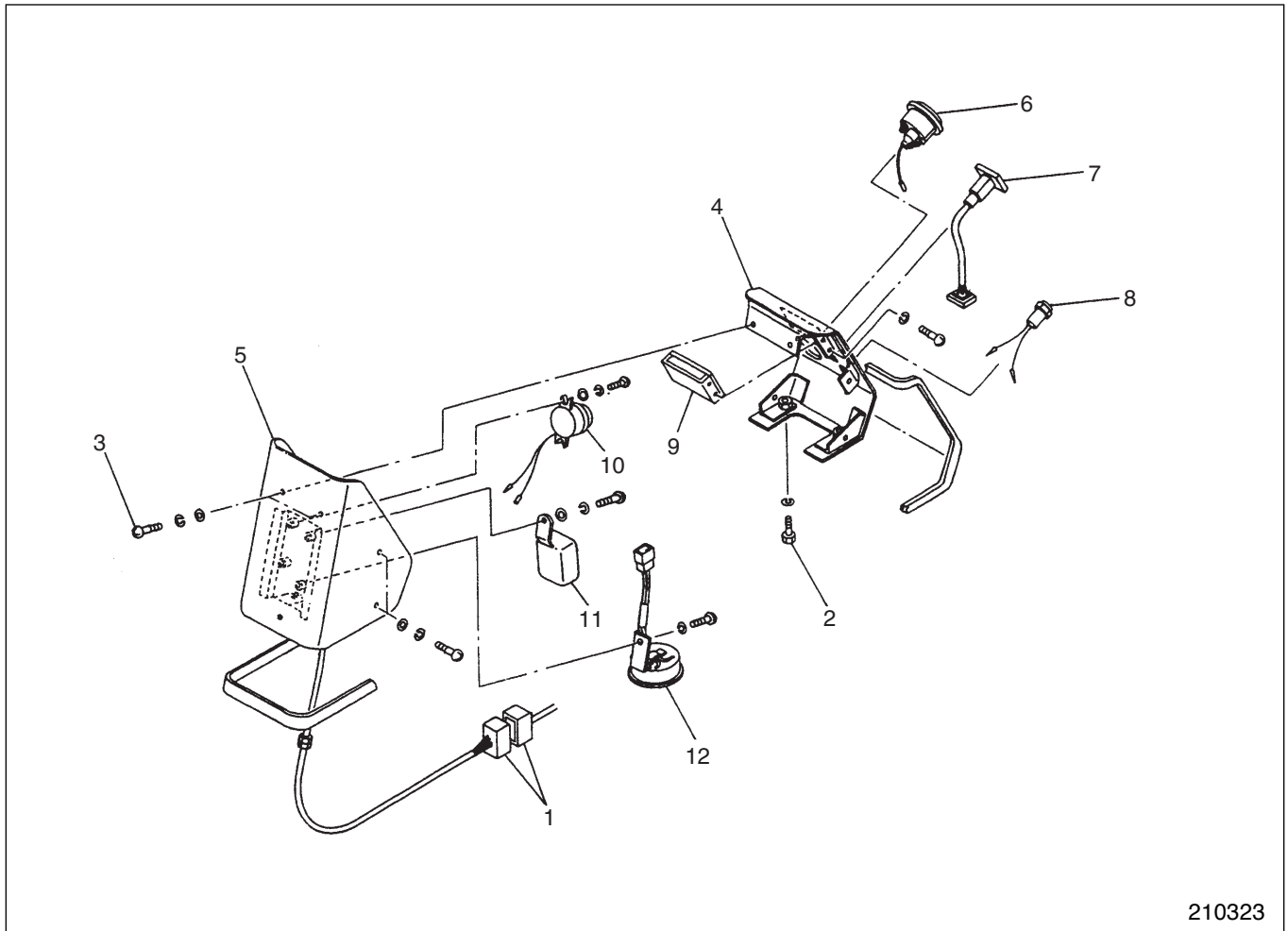
### Bulb replacement

For bulb replacement, remove the socket from the printed circuit plate by turning it counterclockwise. For configuration of the indicator lights, refer to “OK Monitor.”

### Reassembly

To reassemble the combination meter, follow the reverse of disassembly sequence.

## Sub-Meter Disassembly



210323

### Sequence

1. Disconnect the harness at connectors 1.
2. Remove three bolts 2 that hold the side instrument panel, and remove the instrument panel from the seat frame.
3. Remove four screws 3 and separate panel 4 from cover 5.
4. Remove the following components:
  6. Brake air pressure gauge
  7. Battery switch
  8. Brake lining wear indicator
  9. Powershift transmission temperature gauge
  10. Low air pressure buzzer
  11. Power relay
  12. Brake lining wear buzzer

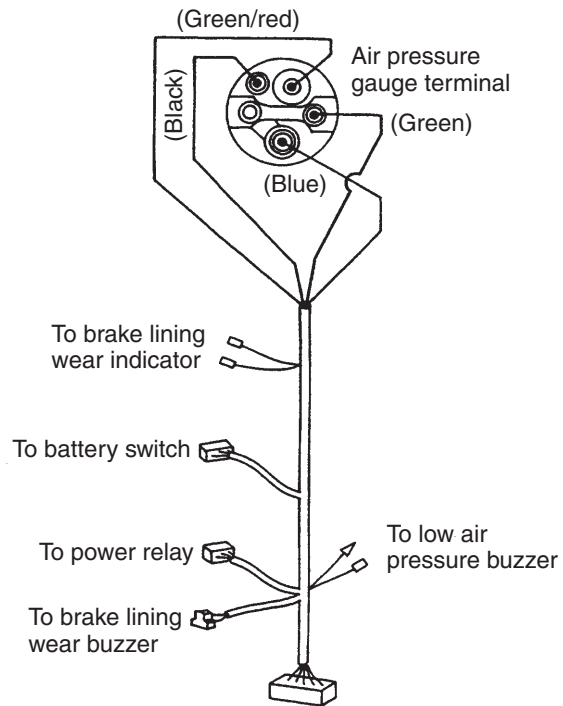


### Reassembly

Follow the reverse of disassembly sequence.

**NOTE**

Connect the air pressure gauge harness to the correct terminal.



210324