

# Operation & Maintenance Manual

# 830E-1AC

**SOUND ATTENUATION PACKAGE**

SERIAL NUMBERS **A30500 & UP**

**KOMATSU®**



## FOREWORD

This manual is written for use by the operator and/or the service technician and is designed to help these persons to become fully knowledgeable of the truck and all its systems in order to keep it operating safely and efficiently.

All operators and maintenance personnel must read and understand the materials in this manual before operating the truck or performing maintenance and/or operational checks on the truck. All safety notices, warnings and cautions are to be understood and followed when operating or accomplishing repairs on the truck.

The first section is an introduction to the manual and contains a table of contents to locate specific areas of interest. Other sections include Safety, Maintenance and Specifications.

The illustrations used in this manual are TYPICAL of the component shown and may not be an exact reproduction of what is found on the truck.

A product identification plate is located on the frame in front of the right side front wheel and designates the truck model number, product identification number (vehicle serial number), and maximum GVW (Gross Vehicle Weight) rating.

The KOMATSU truck model designation consists of three numbers and one letter (i.e. 830E).

The three numbers represent the basic truck model.

The letter "M", when present, designates a Mechanical drive system;

The letter "E", when present, designates an Electrical wheel motor drive system.

The product identification number (vehicle serial number) contains information which will identify the original manufacturing bill of material for this unit. This complete number will be necessary for proper ordering of many service parts and/or warranty consideration.

### **▲WARNING**

**Unsafe use of this machine may cause serious injury or death. Operators and maintenance personnel must read this manual before operating or maintaining this machine. This manual should be kept in or near the machine for reference and periodically reviewed by all personnel who come in contact with it.**

## ALERTS PAGE



*The ALERT symbol is used with the signal words, CAUTION, DANGER, and WARNING in this manual to alert the reader to hazards arising from improper operating and maintenance practices.*

### **DANGER**

*DANGER identifies a specific potential hazard  
WHICH WILL RESULT  
in either INJURY OR DEATH  
if proper precautions are not taken.*

### **WARNING**

*WARNING identifies a specific potential hazard  
WHICH COULD RESULT  
in either INJURY OR DEATH  
if proper precautions are not taken.*

### **CAUTION**

*CAUTION is used for general reminders  
of proper safety practices  
OR  
to direct the reader's attention to avoid unsafe  
or improper practices which may result  
in damage to the machine.*

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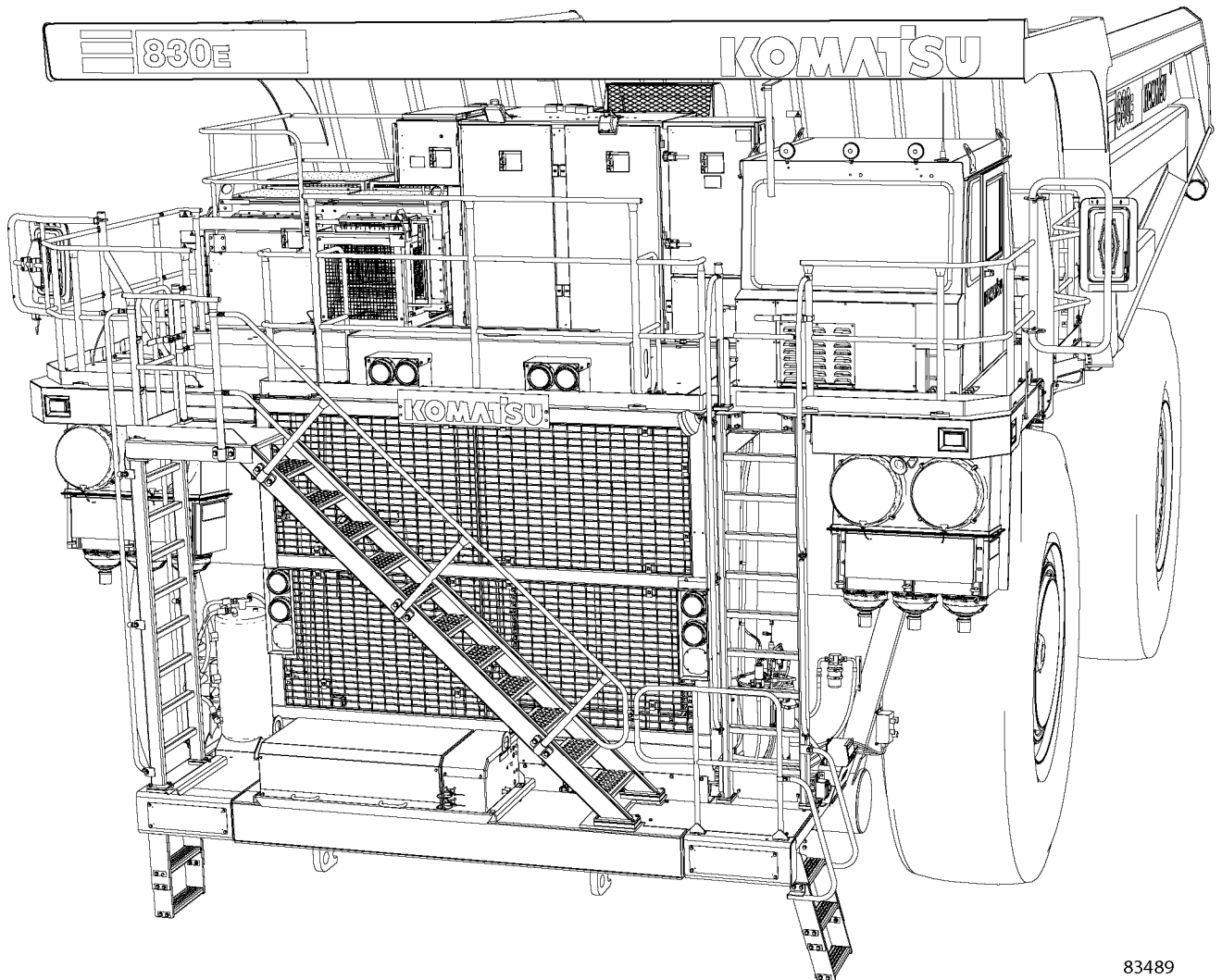
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# TRUCK MODEL ILLUSTRATION



83489

## KOMATSU MODEL 830E-AC DUMP TRUCK

## ABOUT THIS MANUAL

This manual is written for use by the operator and/or the service technician. It is designed to help these persons learn how to operate the truck and its systems in order to keep it operating safely and efficiently. All operators and maintenance personnel must read and understand the materials in this manual before operating the truck or performing maintenance and/or operational checks on the truck. All safety notices, warnings, and cautions should be understood and followed when operating or performing repairs on the truck.

The front cover of this manual includes a form number. This form number should be referenced when ordering additional copies of this manual, or for any other correspondence regarding the coverage in this manual.

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This first section is an introduction to the manual and contains the table of contents to locate specific areas of interest.

When searching for a specific area of interest, go first to the table of contents to locate the section in which the subject might generally be included. Then, go to that section of the table of contents to find a subject description that most closely describes the specific area of interest to find a page number and go to that page. Section numbers and page numbers are located at the top, outside corner of the page.

At the top, inside corner of the page is a document (module) number. If there is ever a question regarding the information in a particular section, refer to the document (module) number, the manual form number, and use the address shown above to correspond. If there is a date (month/year) behind the document (module) number, that indicates the latest revision date of that page.

The illustrations used in this manual are *TYPICAL* of the component shown and *may not* be an *exact* reproduction of what is found on the truck.

This manual shows dimensioning of U.S. standard and metric (SI) units throughout. All references to "right", "left", "front", or "rear" are made with respect to the operator's normal seated position, unless specifically stated otherwise.

When assembly instructions are provided without references to torque values, standard torque values should be assumed. Standard torque requirements are shown in torque charts on the following pages of this section, and in the General Information section of the truck shop manual. Individual torques when provided in the text are in bold face type, such as **135 N.m (100 ft lbs)**. All torque specifications have  $\pm 10\%$  tolerance unless otherwise specified.

## TORQUE TABLES AND CONVERSION CHARTS



This manual provides dual dimensioning for many specifications. Metric units are specified first, with U.S. standard units in parentheses. When torque values are not specified in the assembly instructions contained in this manual, use the standard torque value for the hardware being used. Standard value torque tables are contained in this chapter for metric and SAE hardware.

***References throughout the manual to standard torques or other standard values will be to one of the following tables. Do not use standard values to replace specific torque values in assembly instructions.***

*NOTE: This truck is assembled with both metric and SAE (U.S.) hardware. Reference the correct table when determining the proper torque value.*

For values not shown in any of the charts or tables, standard conversion factors for most commonly used measurements are provided in the following tables.

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### EFFECT OF SPECIAL LUBRICANTS On Fasteners and Standard Torque Values

The Komatsu engineering department does not recommend the use of special friction-reducing lubricants, such as Copper Coat, Never-Seez®, and other similar products, on the threads of standard fasteners where standard torque values are applied. The use of special friction-reducing lubricants will significantly alter the clamping force being applied to fasteners during the tightening process.

If special friction-reducing lubricants are used with the standard torque values listed in this chapter, excessive stress and possible breakage of the fasteners may result.

Where the torque tables specify “Lubricated Threads” for the standard torque values listed, these standard torque values are to be used with simple lithium base chassis grease (multi-purpose EP NLGI) or a rust-preventive grease (see below) on the threads and seats unless specified otherwise.

*NOTE: Ensure the threads of fasteners and tapped holes are free of burrs and other imperfections before assembling.*

#### Suggested\* Sources for Rust Preventive Grease:

- American Anti-Rust Grease #3-X from Standard Oil Company (also American Oil Co.)
- Gulf NoRust #3 from Gulf Oil Company.
- Mobilarma 355, Product No. 66705 from Mobil Oil Corporation.
- Rust Ban 326 from Humble Oil Company.
- Rustolene B Grease from Sinclair Oil Co.
- Rust Preventive Grease - Code 312 from the Southwest Grease and Oil Company.

*NOTE: This list represents the current engineering approved sources for use in Komatsu manufacture. It is not exclusive. Other products may meet the same specifications of this list.*

### STANDARD TIGHTENING TORQUES For Class 10.9 Cap screws & Class 10 Nuts

The following specifications apply to required assembly torques for all metric class 10.9 finished hexagon head cap screws and class 10 nuts.

- Cap screw threads and seats shall not be lubricated when assembled. These specifications are based on all cap screws, nuts, and hardened washers being phosphate and oil coated.

If zinc-plated hardware is used, each piece must be lubricated with simple lithium base chassis grease (multi-purpose EP NLGI) or a rust preventive grease (see list, this page) to achieve the same clamping forces provided below.

- Torques are calculated to give a clamping force of approximately 75% of proof load.
- The maximum torque tolerance shall be within  $\pm 10\%$  of the torque value shown.
- In the following table under “Cap Screw Size”, the first number represents the shank diameter (mm). The second number represents threads per millimeter.

Example: M20 x 2.25

M20 = shank diameter (20 mm)

2.25 = thread pitch in millimeters



Cap Screw Size	Torque N•m	Torque ft lb	Torque kg•m
M6 x1	12	9	1.22
M8 x 1.25	30	22	3.06
M10 x 1.5	55	40	5.61
M12 x 1.75	95	70	9.69
M14 x 2	155	114	15.81
M16 x 2	240	177	24.48
M20 x 2.25	465	343	47.43
M24 x 3	800	590	81.6
M30 x 3.5	1600	1180	163.2
M36 x 4	2750	2028	280.5

### STANDARD TIGHTENING TORQUES For SAE Grade 5 and Grade 8 Cap screws

The following specifications apply to required assembly torques for all grade 5 and grade 8 cap screws.

- Cap screw threads and seats shall be lubricated when assembled.

Unless instructions specifically recommend otherwise, these standard torque values are to be used with simple lithium base chassis grease (multi-purpose EP NLGI) or a rust- preventive grease (see list, previous page) on the threads.

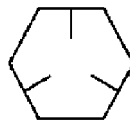
- Torques are calculated to give a clamping force of approximately 75% of proof load.

- The maximum torque tolerance shall be  $\pm 10\%$  of the torque value shown.
- In the following table under Cap Screw Size, the first number represents the shank diameter (in.). The second number represents threads per inch.

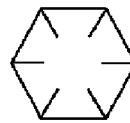
Example: 7/16 - 20

7/16 = shank diameter (7/16 inch (0.438 inch))

20 = threads per inch



GRADE 5



GRADE 8

TABLE 2.  
Standard Tightening Torque  
for SAE Hex Head Cap Screw And Nut Assembly

Cap Screw Size	Torque - Grade 5			Torque - Grade 8			Cap Screw Size	Torque - Grade 5			Torque - Grade 8		
	N-m	ft lb	kg-m	N-m	ft lb	kg-m		N-m	ft lb	kg-m	N-m	ft lb	kg-m
1/4-20	9.5	7	0.97	13.6	10	1.38	3/4-16	319	235	32.5	454	335	46.3
1/4-28	10.8	8	1.11	14.9	11	1.52	7/8-9	475	350	48.4	678	500	69.2
5/16-18	20.3	15	2.07	28	21	2.90	7/8-14	508	375	51.9	719	530	73.3
5/16-24	22	16	2.21	30	22	3.04	1.0-8	712	525	72.6	1017	750	103.7
3/8-16	34	25	3.46	47	35	4.84	1.0-12	759	560	77.4	1071	790	109.3
3/8-24	41	30	4.15	54	40	5.5	1.0-14	773	570	78.8	1085	800	110.6
7/16-14	54	40	5.5	79	58	8.0	1 1/8-7	881	650	89.9	1424	1050	145
7/16-20	61	45	6.2	84	62	8.57	1 1/8-12	949	700	96.8	1546	1140	158
1/2-13	88	65	9	122	90	12.4	1 1/4-7	1234	910	125.9	2007	1480	205
1/2-20	95	70	9.7	129	95	13.1	1 1/4-12	1322	975	134.8	2142	1580	219
9/16-12	122	90	12.4	169	125	17.3	1 3/8-6	1627	1200	166	2630	1940	268
9/16-18	129	95	13.1	183	135	18.7	1 3/8-12	1776	1310	181	2874	2120	293
5/8-11	169	125	17.3	237	175	24.2	1 1/2-6	2142	1580	219	3471	2560	354
5/8-18	183	135	18.7	258	190	26.2	1 1/2-12	2305	1700	235	3756	2770	383
3/4-10	298	220	30.4	420	310	42.8							

1 ft. lb. = 0.138 kg-m = 1.356 N.m

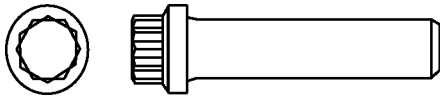
## STANDARD TIGHTENING TORQUES For SAE Grade 9 Cap screws

The following specifications apply to required assembly torques for all 12-point, grade 9 (170,000 psi minimum tensile), cap screws.

- Cap screw threads and seats shall be lubricated when assembled.

*Unless instructions specifically recommend otherwise, these standard torque values are to be used with simple lithium base chassis grease (multi-purpose EP NLGI) or a rust- preventive grease (see list, this page) on the threads.*

- Torques are calculated to give a clamping force of approximately 75% of proof load.
- The maximum torque tolerance shall be  $\pm 10\%$  of the torque value shown.



Cap Screw Size*	Torque N-m	Torque ft lb	Torque kg-m
0.250 - 20	16	12	1.7
0.312 - 18	33	24	3.3
0.375 - 16	57	42	5.8
0.438 -14	95	70	9.7
0.500 -13	142	105	14.5
0.562 - 12	203	150	20.7
0.625 - 11	278	205	28.3
0.750 - 10	488	360	49.7
0.875 - 9	780	575	79.4
1.000 - 8	1166	860	119
1.000 - 12	1240	915	126
1.125 - 7	1670	1230	170
1.125 - 12	1800	1330	184
1.250 - 7	2325	1715	237
1.250 - 12	2495	1840	254
1.375 - 6	3080	2270	313
1.375 - 12	3355	2475	342
1.500 - 6	4040	2980	411
1.500 - 12	4375	3225	445

\* Shank Diameter (in.) - Threads per inch

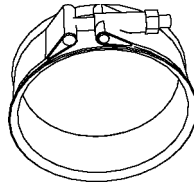


TABLE 4. Tightening Torque For T-Bolt Type Hose Clamp (SAE J1508 Type TB)			
Thread Size	Band Width	Newton meters (N·m)	Inch Pounds (in. lb)
0.25-28 UNF	19.05 mm (0.75 in.)	8.5 ± 0.6 N·m	75 ± 5 in lb

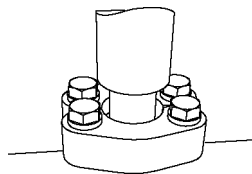


TABLE 5. Tightening Torque For Split Flange Clamp Bolts				
Cap Screw Thread Diameter (mm)	Width Across Flat (mm)	Newton meters (N·m) Tolerances ±10%	Foot Pounds (ft lb) Tolerances ±10%	Kilogram meters (kg·m) Tolerances ±10%
10	14	66	48	6.7
12	17	112	83	11.5
16	22	279	206	28.5

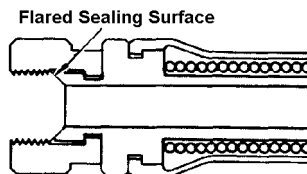
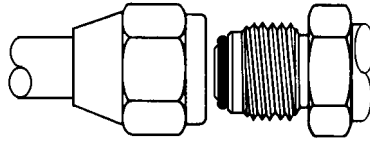
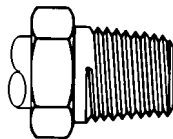


TABLE 6. Tightening Torque For Flared Tube And Hose Fittings				
Thread Diameter of Nut (mm)	Width Across Flat (mm)	Newton meters (N·m) Tolerances ±10%	Foot Pounds (ft lb) Tolerances ±10%	Kilogram meters (kg·m) Tolerances ±10%
14	19	25	18	2.5
18	24	50	36	5
22	27	80	58	8
24	32	140	101	14
30	36	175	130	18
33	41	195	145	20
36	46	245	180	25
42	55	295	215	30



**TABLE 7.**  
**Torque Chart For JIC 37° Swivel Nuts**  
**With Or Without O-ring Seals**

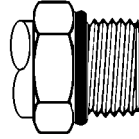
Size Code	Tube Size (OD)	Threads UNF-2B	Newton meters (N·m)	Foot Pounds (ft lb)
- 2	0.125	0.312 - 24	5 ± 1	4 ± 1
- 3	0.188	0.375 - 24	11 ± 4	8 ± 3
- 4	0.250	0.438 - 20	16 ± 4	12 ± 3
- 5	0.312	0.500 - 20	20 ± 4	15 ± 3
- 6	0.375	0.562 - 18	24 ± 7	18 ± 5
- 8	0.500	0.750 - 16	40 ± 7	30 ± 5
- 10	0.625	0.875 - 14	54 ± 7	40 ± 5
- 12	0.750	1.062 - 12	75 ± 7	55 ± 5
- 14	0.875	1.188 - 12	88 ± 7	65 ± 5
- 16	1.000	1.312 - 12	108 ± 7	80 ± 5
- 20	1.250	1.625 - 12	136 ± 14	100 ± 10
- 24	1.500	1.875 - 12	163 ± 14	120 ± 10
- 32	2.000	2.500 - 12	312 ± 27	230 ± 20



**TABLE 8.**  
**Torque Chart For**  
**Pipe Thread Fittings**

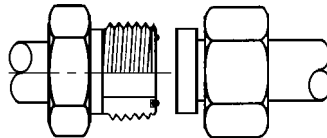
Size Code	Pipe Thread Size	With Sealant N·m	With Sealant ft lb	Without Sealant N·m	Without Sealant ft lb
- 2	0.125 - 27	20 ± 4	15 ± 3	27 ± 7	20 ± 5
- 4	0.250 - 18	27 ± 7	20 ± 5	34 ± 7	25 ± 5
- 6	0.375 - 18	34 ± 7	25 ± 5	48 ± 7	35 ± 5
- 8	0.500 - 14	48 ± 7	35 ± 5	61 ± 7	45 ± 5
- 12	0.750 - 14	61 ± 7	45 ± 5	75 ± 7	55 ± 5
- 16	1.000 - 11.50	75 ± 7	55 ± 5	88 ± 7	65 ± 5
- 20	1.250 - 11.50	95 ± 7	70 ± 5	108 ± 7	80 ± 5
- 24	1.500 - 11.50	108 ± 7	80 ± 5	129 ± 14	95 ± 10
- 32	2.000 - 11.50	129 ± 14	95 ± 10	163 ± 14	120 ± 10





**TABLE 9.**  
**Torque Chart For**  
**O-ring Boss Fittings**

Size Code	Tube Size (OD)	Threads UNF-2B	Newton meters (N·m)	Foot Pounds (ft lb)
- 2	0.125	0.312 - 24	4 ± 3	4 ± 2
- 3	0.188	0.375 - 24	7 ± 3	5 ± 2
- 4	0.250	0.438 - 20	11 ± 4	8 ± 3
- 5	0.312	0.500 - 20	14 ± 4	10 ± 3
- 6	0.375	0.562 - 18	18 ± 4	13 ± 3
- 8	0.500	0.750 - 16	33 ± 7	24 ± 5
- 10	0.625	0.875 - 14	43 ± 7	32 ± 5
- 12	0.750	1.062 - 12	65 ± 7	48 ± 5
- 14	0.875	1.188 - 12	73 ± 7	54 ± 5
- 16	1.000	1.312 - 12	98 ± 7	72 ± 5
- 20	1.250	1.625 - 12	109 ± 7	80 ± 5
- 24	1.500	1.875 - 12	109 ± 7	80 ± 5
- 32	2.000	2.500 - 12	130 ± 14	96 ± 10



**TABLE 10.**  
**Torque Chart For**  
**O-ring Face Seal Fittings**

Size CodeE	Tube Size (O.D.)	Threads UNF-2B	Newton meters (N·m)	Foot Pounds (ft lb)
- 4	0.250	0.438 - 20	15 ± 1	11 ± 1
- 6	0.375	0.562 - 18	24 ± 3	18 ± 2
- 8	0.500	0.750 - 16	48 ± 5	35 ± 4
- 10	0.625	0.875 - 14	69 ± 7	51 ± 5
- 12	0.750	1.062 - 12	96 ± 10	71 ± 7
- 16	1.000	1.312 - 12	133 ± 8	98 ± 6
- 20	1.250	1.625 - 12	179 ± 10	132 ± 7
- 24	1.500	1.875 - 12	224 ± 20	165 ± 15

<b>TABLE11. Common Conversion Multipliers Metric To English</b>		
<b>To Convert From</b>	<b>To</b>	<b>Multiply By</b>
millimeter (mm)	inch (in.)	0.0394
centimeter (cm)	inch (in.)	0.3937
meter (m)	foot (ft)	3.2808
meter (m)	yard (yd)	1.0936
kilometer (km)	mile (mi)	0.6210
square centimeters (cm <sup>2</sup> )	square inch (in. <sup>2</sup> )	0.1550
square centimeters (cm <sup>2</sup> )	square feet (ft <sup>2</sup> )	0.001
cubic centimeters (cm <sup>3</sup> )	cubic inch (in. <sup>3</sup> )	0.061
liters (l)	cubic inch (in. <sup>3</sup> )	61.02
cubic meters (m <sup>3</sup> )	cubic feet (ft <sup>3</sup> )	35.314
liters (l)	cubic feet (ft <sup>3</sup> )	0.0353
grams (g)	ounce (oz)	0.0353
milliliter (ml)	fluid ounce (fl oz)	0.0338
kilogram (kg)	pound (mass)	2.2046
Newton (N)	pounds (lb)	0.2248
Newton meters (N·m)	kilogram meters (kg·m)	0.102
Newton meters (N·m)	foot pounds (ft lb)	0.7376
kilogram meters (kg·m)	foot pounds (ft lb)	7.2329
kilogram meters (kg·m)	Newton meters (N·m)	9.807
kilopascals (kPa)	pounds/square inch (psi)	0.1450
megapascals (MPa)	pounds/square inch (psi)	145.038
kilograms/cm <sup>2</sup> (kg/cm <sup>2</sup> )	pounds/square inch (psi)	14.2231
kilograms/cm <sup>2</sup> (kg/cm <sup>2</sup> )	kilopascals (kPa)	98.068
kilogram (kg)	short ton (tn)	0.0011
metric ton	short ton (tn)	1.1023
liters (l)	quart (qt)	1.0567
liters (l)	gallon (gal)	0.2642
Watts (W)	horsepower (hp)	0.00134
kilowatts (kW)	horsepower (hp)	1.3410

<b>TABLE 12. Common Conversion Multipliers English to Metric</b>		
<b>To Convert From</b>	<b>To</b>	<b>Multiply By</b>
inch (in.)	millimeter (mm)	25.40
inch (in.)	centimeter (cm)	2.54
foot (ft)	meter (m)	0.3048
yard (yd)	meter (m)	0.914
mile (mi)	kilometer (km)	1.61
square inch (in. <sup>2</sup> )	square centimeters (cm <sup>2</sup> )	6.45
square feet (ft <sup>2</sup> )	square centimeters (cm <sup>2</sup> )	929
cubic inches (in. <sup>3</sup> )	cubic centimeters (cm <sup>3</sup> )	16.39
cubic inches (in. <sup>3</sup> )	liters (l)	0.016
cubic feet (ft <sup>3</sup> )	cubic meters (m <sup>3</sup> )	0.028
cubic feet (ft. <sup>3</sup> )	liters (l)	28.3
ounce (oz)	kilogram (kg)	0.028
fluid ounce (fl oz)	milliliter (ml)	29.573
pound (lb)	kilogram (kg)	0.454
pound (lb)	Newton (N)	4.448
inch pounds (in. lb)	Newton meters (N·m)	0.113
foot pounds (ft lb)	Newton meters (N·m)	1.356
foot pounds (ft lb)	kilogram meters (kg·m)	0.138
kilogram meters (kg·m)	Newton meters (N·m)	9.807
pounds/square inch (psi)	kilopascals (kPa)	6.895
pounds/square inch (psi)	megapascals (MPa)	0.007
pounds/square inch (psi)	kilograms/square centimeter (kg/cm <sup>2</sup> )	0.0704
short ton (tn)	kilogram (kg)	907.2
short ton (tn)	metric ton (t)	0.0907
quart (qt)	liters (l)	0.946
gallon (gal)	liters (l)	3.785
horsepower (hp)	Watts (w)	745.7
horsepower (hp)	kilowatts (kw)	0.745

**TABLE 13.**  
**Temperature Conversions**  
 Formula:  $F^{\circ} - 32 \div 1.8 = C^{\circ}$  or  $C^{\circ} \times 1.8 + 32 = F^{\circ}$

Celsius C°		Fahrenheit F°	Celsius C°		Fahrenheit F°	Celsius C°		Fahrenheit F°
121	250	482	63	145	293	4	40	104
118	245	473	60	140	284	2	35	95
116	240	464	57	135	275	- 1	30	86
113	235	455	54	130	266	- 4	25	77
110	230	446	52	125	257	- 7	20	68
107	225	437	49	120	248	- 9	15	59
104	220	428	46	115	239	- 12	10	50
102	215	419	43	110	230	- 15	5	41
99	210	410	41	105	221	- 18	0	32
96	205	401	38	100	212	- 21	- 5	23
93	200	392	35	95	203	- 23	- 10	14
91	195	383	32	90	194	- 26	- 15	5
88	190	374	29	85	185	- 29	- 20	- 4
85	185	365	27	80	176	- 32	- 25	- 13
82	180	356	24	75	167	- 34	- 30	- 22
79	175	347	21	70	158	- 37	- 35	- 31
77	170	338	18	65	149	- 40	- 40	- 40
74	165	329	15	60	140	- 43	- 45	- 49
71	160	320	13	55	131	- 46	- 50	- 58
68	155	311	10	50	122	- 48	- 55	- 67
66	150	302	7	45	113	- 51	- 60	- 76

*NOTE: The numbers in the unmarked columns refer to temperature in either degrees Celsius (C°) or Fahrenheit (F°). Select a number in this unmarked column and read to the left to convert to degrees Celsius (C°) or read to the right to convert to degrees Fahrenheit (F°). If starting with a known temperature (either C° or F°), find that temperature in the marked column and read the converted temperature in the center, unmarked column.*

## GENERAL SAFETY

Safety records of most organizations will show that the greatest percentage of accidents are caused by unsafe acts of persons. The remainder are caused by unsafe mechanical or physical conditions. Report all unsafe conditions to the proper authority.

The following safety rules are provided as a guide for the operator. However, local conditions and regulations may add many more to this list.



***Read and follow all safety precautions. Failure to do so may result in serious injury or death.***

### Safety Rules

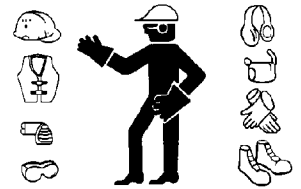
- Only trained and authorized personnel can operate and maintain the machine.
- Follow all safety rules, precautions and instructions when operating or performing maintenance on the machine.
- When working with another operator or a person on work site traffic duty, ensure all personnel understand all hand signals that are to be used.

### Truck Safety Features

- Ensure all guards and covers are in their proper position. Repair any damaged guards and covers. (See Walk-Around Inspection, later in this section.)
- Learn the proper use of safety features such as safety locks, safety pins, and seat belts. Always use these safety features, properly.
- Never remove any safety features. Always keep safety features in good operating condition.
- Improper use of safety features may result in serious bodily injury or death.

### Clothing And Personal Items

- Avoid wearing loose clothing, jewelry, and loose long hair. They can catch on controls or in moving parts and cause serious injury or death. Additionally, never wear oily clothes as they are flammable.



- Wear a hard hat, safety glasses, safety shoes, a mask and gloves when operating or maintaining a machine. Always wear safety goggles, a hard hat and heavy gloves if your job involves scattering metal chips or minute materials. This is particularly important when driving pins with a hammer or when cleaning air cleaner elements with compressed air. Also, ensure that the work area is free of other personnel during such tasks.

### Unauthorized Modification

- Any modification made to this vehicle without authorization from Komatsu America Corp. can possibly create hazards.
- Before making any modification, consult your authorized regional Komatsu America Corp. distributor. Komatsu will not be responsible for any injury or damage caused by any unauthorized modification.

### Leaving The Operator's Seat

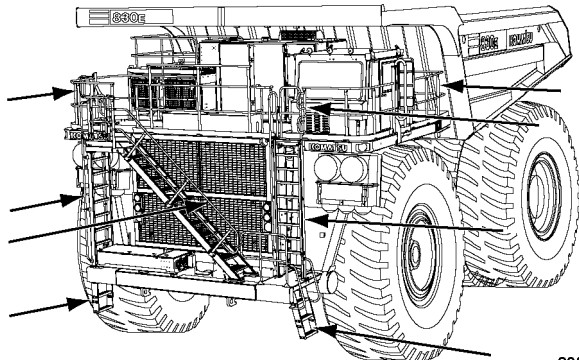
While leaving the operator's seat, DO NOT touch any controls. To prevent accidental operations from occurring, always perform the following:

- Move the directional control lever to the PARK position (this will apply the parking brake). DO NOT apply the wheel brake lock.
- Lower the dump body, and move the hoist control lever to the FLOAT position.
- Turn the key switch to the OFF position and wait for the engine to stop.
- After the engine has stopped, wait two minutes before exiting the cab. If any warning lights are illuminated or warning horns are sounding, DO NOT leave the cab and notify maintenance personnel immediately. When exiting the machine, always lock compartments, and take the keys with you to prevent entry from unauthorized persons.

## Mounting And Dismounting

- Never jump on or off the machine. Never climb on or off a machine while it is moving.
- When climbing on or off a machine, face the machine and use the hand-hold and steps.
- Never hold any control levers when getting on or off a machine.
- Always maintain three-point contact with the hand-holds and steps to ensure that you support yourself.
- When bringing tools up to the operating deck, always pass them by hand or pull them up by rope.
- If there is any oil, grease, or mud on the hand-holds or steps, wipe them clean immediately. Always keep these components clean. Repair any damage and tighten any loose bolts.
- Use the handrails and steps marked by arrows in the diagram below when getting on or off the machine.

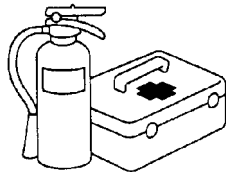
*NOTE: Some trucks may be equipped with different boarding equipment than shown in the figure below.*



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## Fire Extinguishers And First Aid Kits

- Ensure fire extinguishers are accessible and proper usage techniques are known.
- Provide a first aid kit at the storage point.
- Know what to do in the event of a fire.
- Keep the phone numbers of persons you must contact in case of an emergency on hand.



## Precautions For High Temperature Fluids

- Immediately after machine operation, engine coolant, engine oil, and hydraulic oil are at high temperatures and are pressurized. If the cap is removed, the fluids drained, the filters are replaced, etc., there is danger of serious burns. Allow heat and pressure to dissipate before performing such tasks and follow proper procedures as outlined in the service manual.
- To prevent hot coolant from spraying:
  1. Stop the engine, and wait for the coolant temperature to decrease.
  2. Depress the pressure relief button on the radiator cap.
  3. Turn the radiator cap slowly to allow pressure to dissipate.
- To prevent hot engine oil spray:
  1. Stop the engine.
  2. Wait for the oil temperature to cool down.
  3. Turn the cap slowly to allow pressure to dissipate.



## Asbestos Dust Hazard Prevention

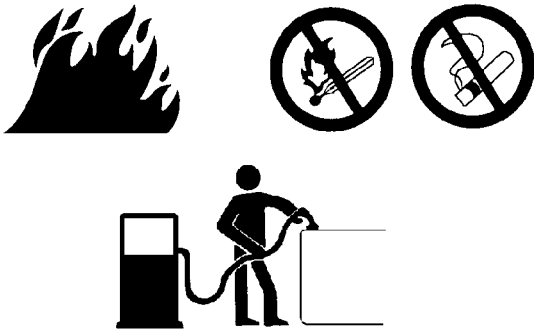
Asbestos dust is hazardous to your health when inhaled. If you handle materials containing asbestos fibers, follow the guidelines below:



- Never use compressed air for cleaning.
- Use water for cleaning and to control dust.
- Operate the machine or perform tasks with the wind to your back, whenever possible.
- Use an approved respirator, when necessary.

### Fire Prevention For Fuel And Oil

- Fuel, oil, and antifreeze can be ignited by a flame. These fluids are extremely flammable and hazardous.
- Keep flames away from flammable fluids.
- Stop the engine while refueling.
- Never smoke while refueling
- Tighten all fuel and oil tank caps securely.
- Refuel and maintain oil in well ventilated areas.
- Keep oil and fuel in a designated location. DO NOT allow unauthorized persons to enter.



### ROPS Precautions

- The Rollover Protection Structure (ROPS) must be properly installed for machine operation.

The ROPS is intended to protect the operator if the machine rolls over. It is designed not only to support the load of the machine, but also to absorb the energy of the impact.

- ROPS structures installed on equipment manufactured and designed by Komatsu fulfill all of the regulations and standards for all countries. If it is modified or repaired without authorization from Komatsu, or is damaged when the machine rolls over, the strength of the structure will be compromised and will not be able to fulfill its intended purpose. Optimum strength of the structure can only be achieved if it is repaired or modified as specified by Komatsu.

- When modifying or repairing the ROPS, always consult your nearest Komatsu distributor.
- Even with the ROPS installed, the operator must always use the seat belt when operating the machine.

### Preventing Injury From Work Equipment

- Never position any part of your body between movable parts such as the dump body, chassis or cylinders. If the work equipment is operated, clearances will change and may cause serious bodily injury or death.

### Precautions For Optional Attachments

- When installing and using optional equipment, read the instruction manual for the attachment and the information related to attachments in this manual.
- DO NOT use attachments that are not authorized by Komatsu, or the authorized regional Komatsu distributor. Use of unauthorized attachments could create a safety problem and adversely affect the proper operation and useful life of the machine.
- Any injuries, accidents, and product failures resulting from the use of unauthorized attachments will not be the responsibility of Komatsu America Corp., or the authorized regional Komatsu distributor.

### Precautions When Starting The Machine

- Start the engine from the operator's seat, only.
- Never attempt to start the engine by shorting across the starter terminals. This may cause fire, or serious injury or death to anyone in the machine's path.



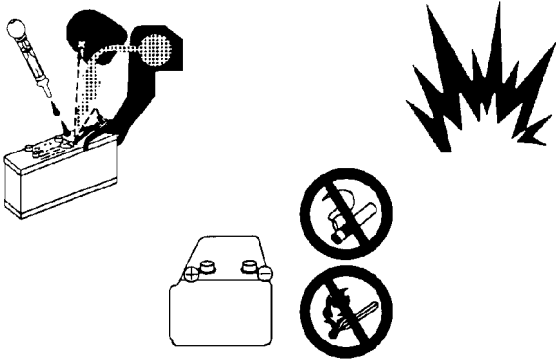
## WORKING NEAR BATTERIES

### Battery Hazard Prevention

Battery electrolyte contains sulfuric acid and can quickly burn the skin and eat holes in clothing. If electrolyte comes in contact with skin, immediately flush the area with water.

Battery acid can cause blindness if splashed into the eyes. If acid gets into the eyes, flush them immediately with large quantities of water and see a doctor immediately.

- If acid is accidentally ingested, drink a large quantity of water, milk, beaten eggs or vegetable oil. Call a doctor or poison prevention center immediately.
- Always wear safety glasses or goggles when working with batteries.



- Batteries generate hydrogen gas. Hydrogen gas is very **EXPLOSIVE**, and is easily ignited with a small spark or flame.
- Before working with batteries, stop the engine and turn the key switch to the OFF position. Wait two minutes after the engine has stopped, and if no warning lights illuminate, then turn the battery disconnect switches to the OFF position.
- Avoid short-circuiting the battery terminals through accidental contact with metallic objects, such as tools, across the terminals.

- When removing or installing a battery, positively identify the positive (+) terminal and negative (-) terminal and use precautions not to short circuit between the terminals.
- This truck is equipped with a master disconnect switch (3, Figure 20-2) on the battery ground circuit. When disconnecting battery cables, always move the master disconnect switch to the OFF position (1, Figure 20-1). First, disconnect the positive (+) battery cables, then the negative (-) battery cables last.

*NOTE: If the master disconnect switch is OFF, and a wrench on the negative (-) terminal touches the battery box frame, a spark will occur if any electrical component on the truck was left in the ON position.*

- When connecting battery cables, always move the master disconnect switch (3, Figure 20-2) to the OFF position. Then connect the negative (-) cables first, then the positive cables (+) last.
- Tighten battery terminals securely. Loose terminals can generate sparks and could lead to an explosion.
- Tighten battery caps securely.

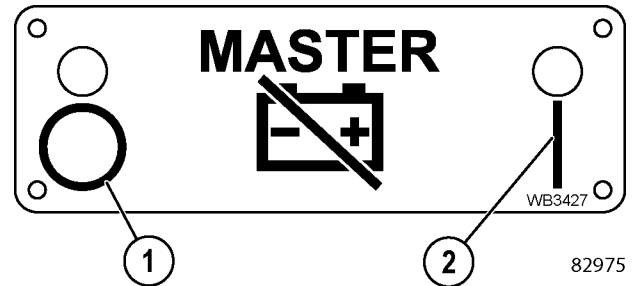


FIGURE 20-1. MASTER DISCONNECT SWITCH  
1. Off                      2. On



## PRECAUTIONS FOR MAINTENANCE

### BEFORE PERFORMING MAINTENANCE

#### Stopping The Engine Before Service

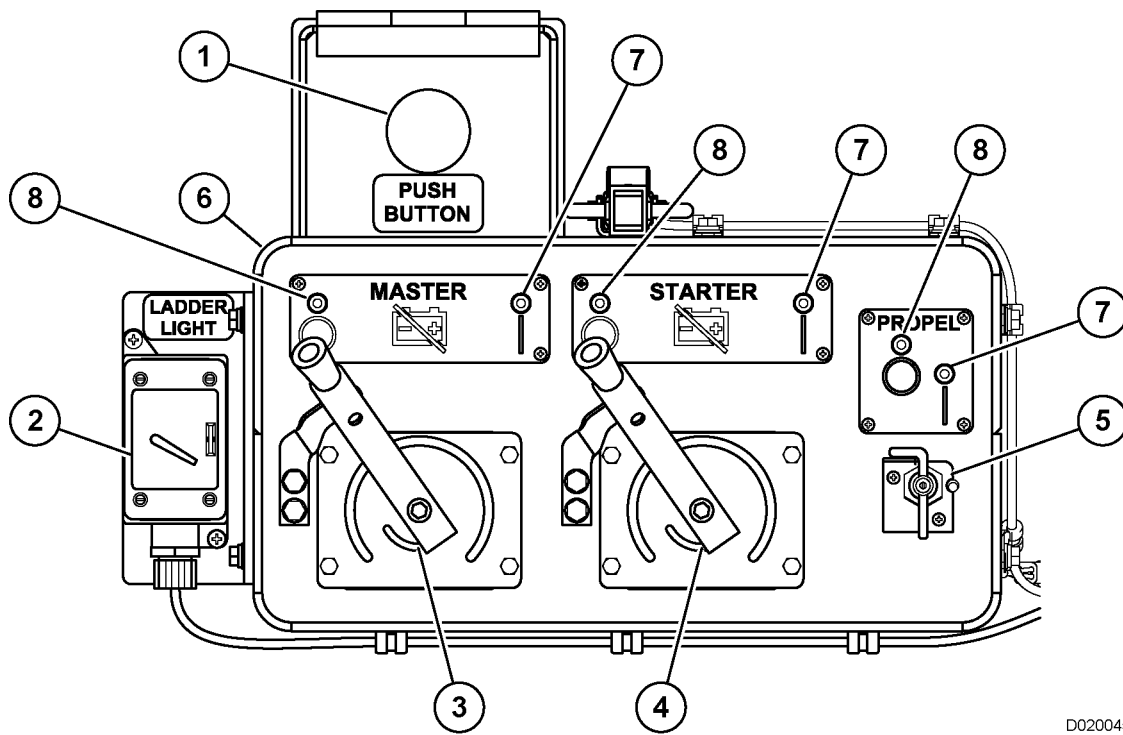
- Before performing inspections or maintenance, stop the machine on firm, flat ground. Lower the dump body, place the directional control lever to the PARK position (this will apply the parking brake), and turn the key switch to the OFF position and wait for the engine to stop.
- Wait two minutes after the engine has stopped, and if no warning lights illuminate, then turn the battery disconnect switches to the OFF position. Verify that the disconnects are functioning.
- Place wheel chocks around the wheels to prevent the truck from rolling.
- If the engine must be operated during maintenance, always move the directional control lever to the PARK position (this will apply the parking brake). Always perform this work with two people. One person must be in the operator's seat to stop the engine if necessary. Never move any controls not related to the task at hand during these situations. Apply the propel lockout lever (5, Figure 20-2) to prevent the truck from moving if the engine must operate during maintenance. When the propel lockout lever is in the OFF position and LED light (8) is illuminated, the drive system is locked out and the truck will not propel. When the propel lockout lever is in the ON position and LED light (7) is illuminated, the drive system is active and the truck can be driven.
- When servicing the machine, use care not to touch any moving parts. Never wear loose clothing.
- When performing service with the dump body raised, always place the dump lever in the HOLD position, and apply the lock (if equipped). Install the body-up safety cable securely.

#### Electrical Systems Isolation

- Isolation box (6, Figure 20-2) contains master disconnect switch (3), starter disconnect switch (4) and propel lockout lever (5). The isolation box is located on top of the front bumper, on the left hand side. Move both disconnect switches and the propel lockout lever to the OFF position to disable the 24VDC electrical system, starters and the AC electric drive system. When the switches and propel lockout lever are in the OFF position, LED lights (8) will be illuminated. The battery disconnect switches and propel lockout lever can be padlocked in the OFF position to prevent unauthorized truck operation. When the switches and the propel lockout lever are in the ON position, LED lights (7) will be illuminated. Refer to the following table to ensure the correct disconnect is used to isolate a desired circuit or system.

*NOTE: This is the recommended usage of the battery disconnect and propel lockout switches. Local regulations may be different.*

Action	Recommended Isolation
24V Electrical Troubleshooting	Starter Lockout
24V Electrical Maintenance/Repair	Master Lockout
High Voltage/Propulsion Troubleshooting	None
High Voltage Maintenance/Repair	Master Lockout
Hydraulic Troubleshooting	Propel Lockout
Hydraulic Maintenance/Repair	Starter Lockout
Engine Troubleshooting	Propel Lockout
Engine Repair	Master Lockout
Mechanical Repair	Starter Lockout
Weld Repair	Master Lockout & Alternator Isolation
Fueling	Starter Lockout
Lube/General Maintenance	Starter Lockout
Shift Change Walk Around	Starter Lockout
Oil Sample Collection	Propel Lockout



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FIGURE 20-2. ISOLATION BOX ASSEMBLY (COVERS REMOVED)

- |                               |                              |                     |
|-------------------------------|------------------------------|---------------------|
| 1. Engine Shutdown Switch     | 3. Master Disconnect Switch  | 6. Isolation Box    |
| 2. Access Ladder Light Switch | 4. Starter Disconnect Switch | 7. LED Lights (on)  |
|                               | 5. Propel Lockout Lever      | 8. LED Lights (off) |

**Warning Tag**

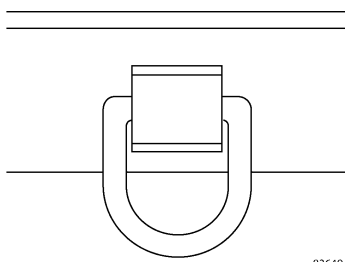
- Never start the engine or operate the controls while a person is performing maintenance. Serious injury or death may result.
- Always attach a warning tag to the control lever in the operator's cab to alert others that you are working on the machine. Attach additional warning tags around the machine, if necessary.
- These tags are available from your Komatsu distributor. Part No. 09963-03001

**Proper Tools**

- Use only tools suited to the task. Using damaged, low quality, faulty, or makeshift tools can cause personal injury.
- Extra precaution must be used when grinding, welding, and using a sledge-hammer.

**Use of Tie-Off Anchor During Maintenance**

While working at heights during assembly, maintenance or repair of the haul truck, workers should wear an appropriate fall protection harness and attach it to a tie-off anchor or tie-off point. Komatsu anchor (58B-98-75190) is available for use with fall protection harnesses. Carefully read and understand the harness maker's instructions before using any fall protection harness. The load carrying capacity of anchor (58B-97-75190) is 2 270kg (5,000lbs).



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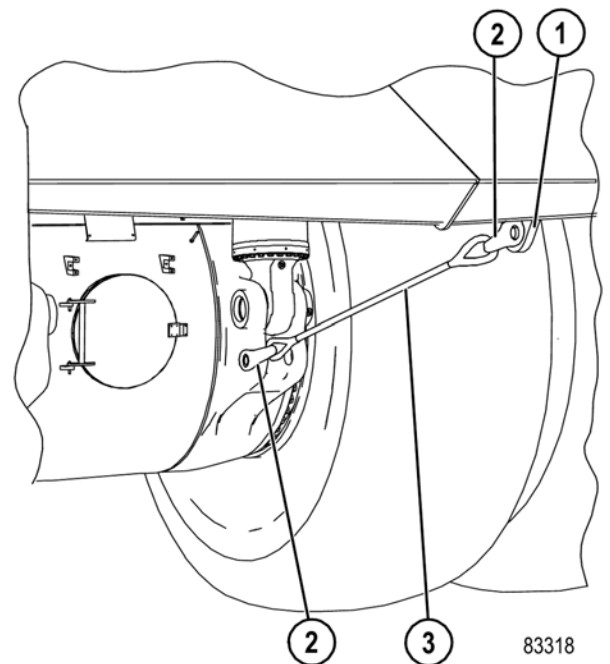
**NOTE:** The anchor must not be used for lifting.

**Securing The Dump Body**

**To avoid serious personal injury or death, the body retention sling must be installed whenever personnel are required to perform maintenance on the truck while the dump body in the raised position.**

**The Komatsu body-up safety sling can only be used with a Komatsu body. Non-OEM body may not accommodate the Komatsu body-up safety sling. The end user must ensure that a proper cable/sling is used.**

1. To hold the dump body in the up position, raise the body to it's maximum height.
2. Install two shackles (2, Figure 20-3) and body retention sling (3) between rear body ear (1) and the axle housing.
3. Secure the shackle pins with cotter pins.
4. Move the hoist lever to the FLOAT position to slowly lower the body until the cable is supporting the full weight of the body. Then move the hoist lever to the HOLD position.
5. After maintenance work is completed, return the sling to stored position.



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**FIGURE 20-3. BODY RETENTION SLING INSTALLATION**

- |                    |                         |
|--------------------|-------------------------|
| 1. Rear Body Ear   | 3. Body Retention Sling |
| 2. Shackle And Pin |                         |

## DURING MAINTENANCE

### Personnel

- Only authorized personnel can service and repair the machine.

### Attachments

- Place attachments that have been removed from the machine in a safe place and manner to prevent them from falling.



### Working Under The Machine

- Always lower all movable work equipment to the ground or to their lowest position before performing service or repairs under the machine.
- Always block the tires of the machine securely.
- Never work under the machine if the machine is poorly supported.



### Keeping The Machine Clean



*If equipped, DO NOT aim high pressure spray equipment at or near the Retractable Ladder System (RLS) power pack, actuator box, bearings or electrical harnesses. Moisture introduced in the electrical harnesses may result in uncontrolled ladder movement.*

- Spilled oil, grease, scattered tools, etc. can cause you to slip or trip. Always keep your machine clean and tidy.
- If water gets into the electrical system, there is danger that the machine may move unexpectedly and/or damage to components may occur. DO NOT use water or steam to clean any sensors, connectors, or the inside of the operator's compartment.



- Use extreme care when washing the electrical control cabinet. DO NOT allow water to enter the control cabinet around the doors or vents. DO NOT allow any water to enter the cooling air inlet duct above the electrical control cabinet. If water enters the control cabinet (through any opening or crevice) major damage to the electrical components may occur.
- Never spray water into the rear wheel electric motor covers. Damage to the wheel motor armatures may occur.
- DO NOT spray water into the retarding grids. Excess water in the retarding grids can cause a ground fault, which will prevent propulsion.

### Use Of Lighting

- When checking fuel, oil, coolant, or battery electrolyte, always use lighting with anti-explosion specifications. If lighting without this protection is used, there is a danger of explosion.



### Precautions With The Battery

- Before repairing the electrical system or when performing welding, turn the key switch to the OFF position. Wait two minutes after the engine has stopped, and if no warning lights illuminate, then turn the master disconnect switch (3, Figure 20-2) and starter disconnect switch (4) located in the isolation box (6) to the OFF position. When the switches are in the OFF position, LED lights (8) will be illuminated.



### Handling High Pressure Hoses

- DO NOT bend high-pressure hoses or hit them with hard objects. DO NOT use any bent or cracked piping, tubes or hoses. They may burst during use.
- Always repair any loose or broken hoses. Fuel and/or oil leaks may result in a fire.

### Precautions With High Pressure Oil

- Always remember that work equipment circuits are always under pressure.
- DO NOT add oil, drain oil, or perform maintenance or inspections before completely releasing the internal pressure.



- Small, high pressure pin-hole leaks are extremely dangerous. The jet stream of high-pressure oil can pierce the skin and eyes. Always wear safety glasses and thick gloves. Use a piece of cardboard or a sheet of wood to check for oil leakage.
- If you are hit by a jet of high-pressure oil, consult a doctor immediately for medical attention.

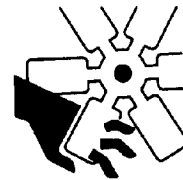
### Maintenance Near High Temperatures And High Pressures

- Immediately after stopping the truck, the engine coolant and operating oils are at high temperature and under high pressure. In these conditions, opening the system or replacing filters may result in burns or other injury. Wait for the temperature to cool and pressure to subside before performing the inspection and/or maintenance as outlined in the service manual.



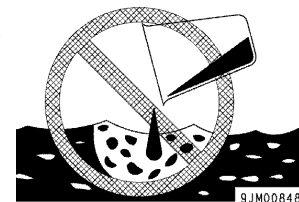
### Rotating Fan And Belts

- Keep a safe distance from rotating parts such as the radiator fan and fan belts.
- Serious bodily injury may result from direct or indirect contact with rotating parts and flying objects.



### Waste Materials

- Never dump oil or other harmful fluids into a sewer system, rivers, etc.
- Obey appropriate laws and regulations when disposing of harmful objects such as oil, fuel, coolant, solvent, filters, batteries, and others.
- Always put fluids drained from your machine in appropriate containers. Never drain fluids directly onto the ground.
- The machine may be equipped with optional high intensity discharge lamps which contain mercury. These lamps must be reused, recycled or properly disposed of in accordance with applicable local, state and federal laws.



## WHEN REPAIRS ARE NECESSARY

1. Only qualified maintenance personnel who understand the systems being repaired must attempt repairs.
2. Many components on the Komatsu truck are large and heavy. Ensure that lifting equipment - hoists, slings, chains, lifting eyes - are of adequate capacity to handle the lift.
3. DO NOT stand under a suspended load. DO NOT work under raised body unless body safety cables, props, or pins are in place to hold the body in up position.
4. DO NOT repair or service the truck while the engine is running, except when adjustments can only be made under such conditions. Keep a safe distance from moving parts.
5. When servicing any air conditioning system with refrigerant, wear a face shield and cold resistant gloves for protection against freezing. Ensure all current regulations for handling and recycling refrigerants are followed.
6. Follow package directions carefully when using cleaning solvents.
7. If an auxiliary battery assist is needed, refer to Jump Starting With Booster Cables or Jump Starting With Receptacles earlier in this section.
8. Before performing any welding on the truck, always turn the battery disconnect switches to the OFF position and disconnect the alternator positive cable. Failure to do so may seriously damage the battery and electrical equipment. It is not necessary to disconnect or remove any control circuit cards on electric drive dump trucks or any of the Alarm Indicating Device (AID) circuit control cards.

Always fasten the welding machine ground (-) lead to the piece being welded; the grounding clamp must be attached as near as possible to the weld area. Never allow welding current to pass through ball bearings, roller bearings, suspensions, or hydraulic cylinders. Always avoid laying welding cables over or near the vehicle electrical harnesses. Welding voltage could be induced into the electrical harness and cause damage to components.

9. If a truck is to be towed for any reason, use a rigid tow bar. Check the truck cab for decals for special towing precautions. (Also refer to section 30 - Towing.)
10. Drain, clean and ventilate fuel tanks and/or hydraulic tanks before making any welding repairs.

### **WARNING**

***Any operating fluid, such as hydraulic oil or brake fluid escaping under pressure, can have sufficient force to enter a person's body by penetrating the skin. Serious injury and possibly death may result if proper medical treatment by a physician familiar with this injury is not received immediately.***

11. Relieve pressure in lines or hoses before making any disconnects.
12. After adjustments or repairs, replace all shields, screens and clamps.
13. Working near tires can be dangerous. Use extreme caution when working around tires.

### **WARNING**

***DO NOT stand in front of a rim and locking ring when inflating a tire mounted on the machine. Observers must not be permitted in the area.***

***DO NOT weld or apply heat to the rim assembly with the tire mounted on the rim. Resulting gases inside the tire may ignite, causing explosion of the tire and rim.***

14. Only a qualified operator or experienced maintenance personnel who are also qualified in operation can move the truck under its own power in the repair facility or during road testing after repairs are complete.

## SPECIAL PRECAUTIONS FOR WORKING ON AN 830E-AC TRUCK

### Preliminary Procedures before Welding or Performing Maintenance

Prior to welding and/or repairing an 830E-AC dump truck, maintenance personnel must attempt to notify a Komatsu service representative. Only qualified personnel, specifically trained for servicing the AC drive system, must perform this service.

If it is necessary to perform welding or repair to the truck without the field engineer present, the following procedures must be followed to ensure that the truck is safe for maintenance personnel to work on and to reduce the chance for damage to equipment.



***Anytime the engine is operating:***

- ***DO NOT open any of the cabinet doors or remove any covers.***
- ***DO NOT use any of the power cables for hand holds or foot steps.***
- ***DO NOT touch the retarding grid elements.***



***Before opening any cabinets or touching a grid element or a power cable, the engine must be shutdown and the red drive system warning lights must not be illuminated.***

### Engine Shutdown Procedure before Welding or Performing Maintenance

Normal operation of the drive system at shutdown will leave the system safe to maintain. However, in the event of a system failure, performing the following procedure prior to any maintenance activities will ensure that no hazardous voltages are present in the AC drive system.

1. Before shutting down the engine, verify the status of all the drive system warning lights on the overhead display panel. Use the lamp test switch to verify that all lamps are functioning properly.

If any of the red drive system warning lights remain on, DO NOT attempt to open any cabinets, disconnect any cables, or reach inside the retarder grid cabinet without a trained drive system technician present - even if engine is off.

Only qualified personnel, specifically trained for servicing the A-C drive system, must perform this service.

2. If all red drive system warning lights are off, follow all of the instructions for "Parking The Machine."
3. After the engine has been off for at least five minutes, inspect the link voltage lights on the exterior of the main control cabinet and rear of the center console. If all lights are off, the retard grids, wheel motors, alternator, and related power cables are safe to work on.
4. Locate the GF cut-out switch in the front access panel on the left side of the main control cabinet. Place the switch in the CUTOUT position. This will prevent the alternator from re-energizing and creating system voltage until the switch is returned to the previous position.
5. Ensure both battery disconnect switches are in the OFF position. Verify that the battery disconnects are functioning.
6. Before doing any welding on the truck, always disconnect the battery charging alternator lead wire.

7. DO NOT weld on the rear of the control cabinet! The metal panels on the back of the cabinet are part of capacitors and cannot be heated.
8. DO NOT weld on the retard grid exhaust louvers - they are made of stainless steel. Some power cable panels throughout the truck are also made of aluminum or stainless steel. They must be repaired with the same material or the power cables may be damaged.
9. Power cables must be cleated in wood or other non-ferrous materials. DO NOT repair cable cleats by encircling the power cables with metal clamps or hardware. Always inspect power cable insulation prior to servicing the cables and prior to returning the truck to service. Discard cables with broken insulation.
10. Power cables and wiring harnesses must be protected from weld spatter and heat.

Always fasten the welding machine ground (-) lead to the piece being welded; the grounding clamp must be attached as near as possible to the weld area.

Always avoid laying welding cables over or near the vehicle electrical harnesses. Welding voltage could be induced into the electrical harness and cause damage to components.

Never allow welding current to pass through ball bearings, roller bearings, suspensions, or hydraulic cylinders.

11. If the red lights on the exterior of the control cabinet and/or the back wall of the center console continue to be illuminated after following the above procedure, a fault has occurred.

Leave all cabinet doors in place; DO NOT touch the retard grid elements; DO NOT disconnect any power cables, or use them as hand or foot holds.



***Notify your Komatsu service representative, immediately. Only qualified personnel, specifically trained for servicing the A-C drive system, must perform this service.***

12. Replace all covers and doors and place the GF cutout switch and battery disconnect switches in their original positions. Reconnect all harnesses prior to starting the truck.

Leave the drive system in the rest mode until the truck is to be moved.



## CAPACITOR DISCHARGE SYSTEM

The control cabinets are equipped with two capacitor charge lights, one on the exterior of the cabinet and one in the interior. The capacitor charge lights, when off, indicate to service personnel that the drive system is safe to work on. Certain drive system failures, however, can result in a condition where one or more capacitors can remain in a charged state even though the capacitor charge lights are off.

Because a danger can still exist with the capacitor charge lights off, it is necessary to adhere to the following instructions before touching or servicing drive system components. Only authorized service personnel are allowed to service the drive system.

Refer to the shop manual for rules when servicing the drive system. Adhere to the proper procedures for disabling the drive system.

### Necessary Tools

- 2000 VDC meter (Figure 20-4)  
(Komatsu Kit p/n 58B-06-00800  
(Bierer RCDC 1000 or equivalent))



FIGURE 20-4. VOLT METER

- Personal Protective Equipment (PPE) for working with 2000 VDC meter  
(safety shoes, high voltage gloves, and safety glasses)
- Multimeter for ground resistance measurement
- Grounding stick pair (Figure 20-5)  
(Komatsu Kit p/n 58B-06-00800)  
(HVR Advanced Power Components MAS-000039 Ground Stick Pair or equivalent)

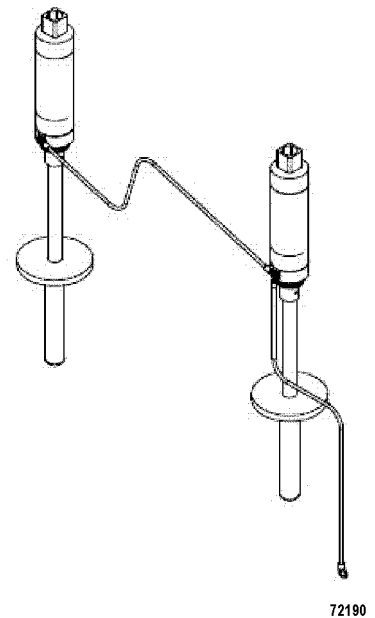


FIGURE 20-5. GROUNDING STICKS

## Warnings And Cautions

All applicable local mine, government, and industry rules for working with high voltage must be followed. Required personal protective equipment, including but not limited to safety shoes, high voltage gloves, and safety glasses must be worn.

Safety cautions and warnings appear throughout the instructions. WARNING indicates the potential for personal injury and CAUTION indicates the potential for equipment damage. Read the following warnings prior to working on this drive system.

### **WARNING**

*Hazardous voltages are present in this equipment. Ensure that the Control Power Switch (CPS) is in the OFF position and that the Generator Field Contactor (GFCO) switch is in the CUT-OUT position before attempting any work on the drive system components. Check that Capacitor Charge Lights (CCL's) are not illuminated.*

*Use measurement and protective equipment rated for 2000 VDC minimum to verify that no voltage is present before touching any terminal.*

*Verify functionality of the measurement equipment using site-approved procedures both before and after performing control group measurements.*

*Failure to observe these precautions may result in death or serious personal injury.*

### **WARNING**

*Verify that the Capacitor Charge Light (CCL) above the high voltage contactor area is not illuminated before opening the doors to the high voltage area or the high voltage contactor area.*

*Use measurement and protective equipment rated for 2000 VDC minimum to verify that no voltage is present before touching any terminal.*

*Verify functionality of the measurement equipment using site-approved procedures both before and after performing control group measurements.*

*Failure to observe these precautions may result in death or serious personal injury.*

### **WARNING**

*Hazardous voltages are present in this equipment. Avoid touching any energized equipment when the door to the low voltage area is open.*

*Failure to do so may result in personal injury and equipment damage.*

### **WARNING**

*Hazardous voltages may be present in this equipment even if the engine and capacitor charge lights are off.*

*Use measurement and protective equipment rated for 2000 VDC minimum to verify that no voltage is present before touching any terminal.*

*Verify functionality of the measurement equipment using site-approved procedures both before and after performing control group measurements.*

*Failure to observe these precautions may result in death or serious personal injury.*

### **WARNING**

*Voltages in excess of 1500 VDC may be present. Any measurement and/or protective equipment used must be rated at 2000 VDC minimum.*

*Verify functionality of the measurement equipment using site-approved procedures both before and after performing control group measurements.*

*Failure to observe these precautions may result in death or serious personal injury.*

## MANUAL DC LINK CAPACITOR DISCHARGE PROCEDURE

### Preparation

Follow any and all local and site specific procedures and requirements for working on off-highway mining equipment.

Verify that:

- The engine is off and the parking brake is on.

- The generator field is cut out via GF cutout switch (2, Figure 20-6) in the low voltage area of the control cabinet.

- Apply control power for a minimum of 30 seconds. Then, turn off control power using control power switch (1) on the switch panel.

With control power on, an RP contactor closes and discharges the DC link through the retarding grids in less than 10 seconds.

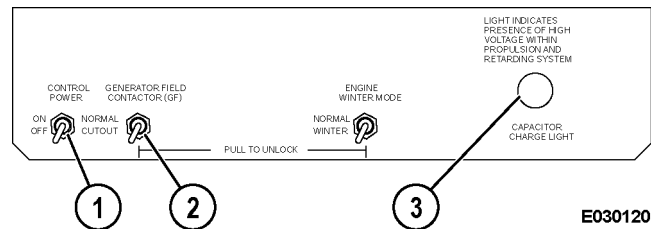
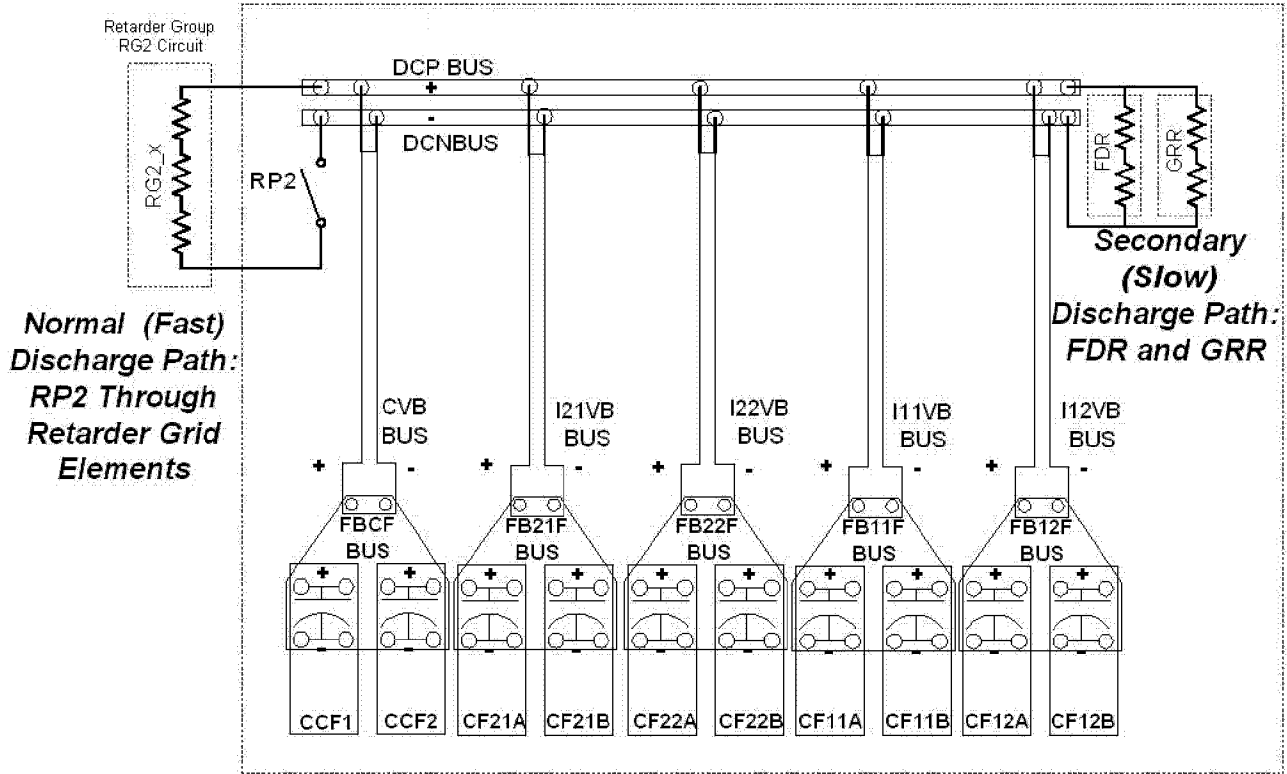


FIGURE 20-6. INFORMATION DISPLAY PANEL

- Control Power Switch
- GF Cutout Switch
- Capacitor Charge Light

In most control cabinets, RP2 is the normal discharge path. In groups containing an RP3 contactor, RP2 and RP3 are alternated as the normal discharge path. Refer to Figure 20-7.



83456

FIGURE 20-7. DISCHARGE PATHS

**CAPACITOR CHARGE LIGHTS**

Observe both capacitor charge lights (CCL1, CCL2). CCL1 is on the outside of the contactor box. CCL2 is on the switch panel inside the low voltage area. The lights will stay illuminated as long as the voltage on the DC link is greater than 50 VDC. Refer to Figure 20-8.



**Hazardous voltages may be present in this equipment even if the engine and capacitor charge lights are off.**

**Use measurement and protective equipment rated for 2000 VDC minimum to verify that no voltage is present before touching any terminal.**



**Verify functionality of the measurement equipment using site-approved procedures both before and after performing control group measurements.**

**Failure to observe these precautions may result in death or serious personal injury.**

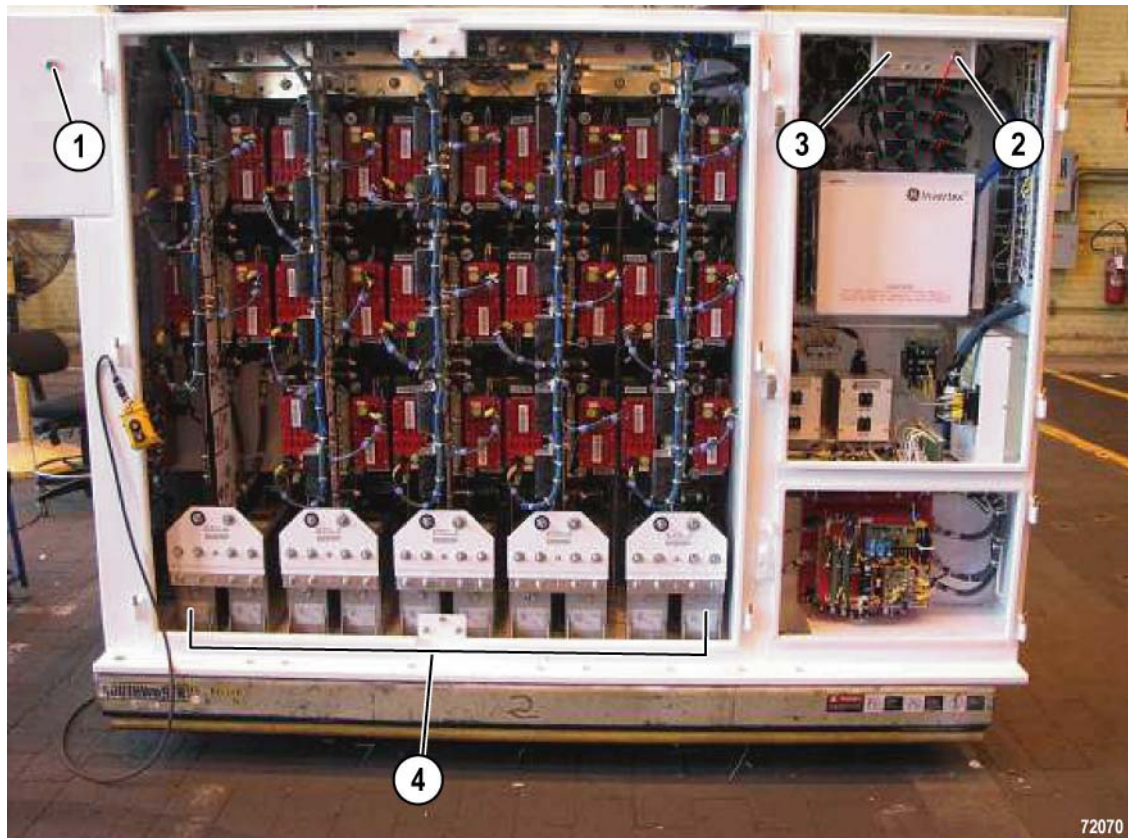


FIGURE 20-8. CAPACITOR CHARGE LIGHTS

- |   |                              |
|---|------------------------------|
| 1. Exterior Capacitor Charge Light (CCL2) | 3. Information Display Panel |
| 2. Interior Capacitor Charge Light (CCL1) | 4. DC Link Capacitors        |

## FAILURE OF DISCHARGE SYSTEM

If the capacitor charge lights remain illuminated, a failure of the normal (fast) capacitor discharge system (RP discharge path) has likely occurred. The slow discharge resistors that are hard wired across the DC link should then discharge the capacitors. The slow discharge resistors will discharge the DC link to less than 1 VDC in under 7.5 minutes. If after 7.5 minutes, the capacitor charge lights are still illuminated, it must be assumed that the automatic discharge system is not working and that high voltage is present in the high voltage area.

### Measuring Dc Voltage On Capacitors

1. Open the high voltage area doors.
2. With a suitable high voltage meter rated for at least 2000 VDC, such as PC3186 or equivalent, plus suitable protective equipment, measure the voltage across each of the DC link capacitors. Place one meter lead on the positive (+) capacitor terminal, and the other meter lead on the negative (-) capacitor terminal, and observe the voltage. See Figure 20-9 and Figure 20-10. If the voltage is less than 1.0 V the capacitor is sufficiently discharged. Repeat on all DC Link capacitors. If the voltage of any capacitor is above 1.0 V, manually discharge the capacitor as described in "MANUAL DISCHARGE OF CAPACITORS" on page 19.



FIGURE 20-9. DC METER ON CAPACITOR

72184



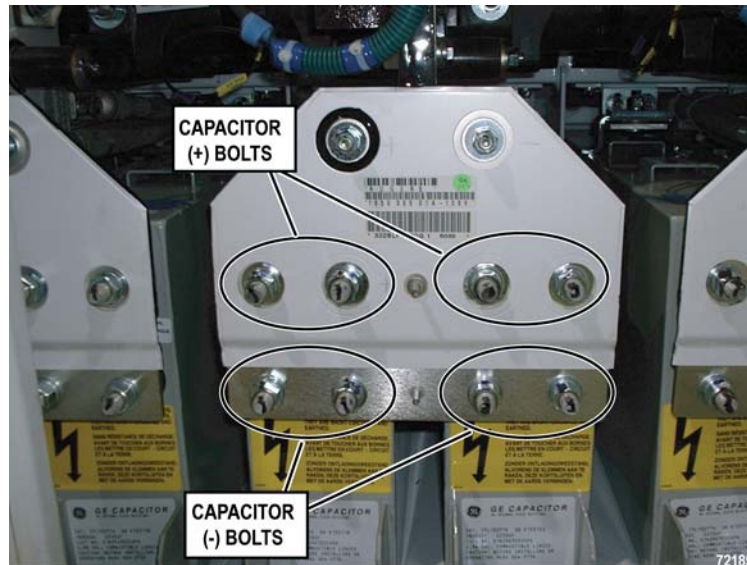


FIGURE 20-10. CAPACITOR TERMINAL POLARITY

## MANUAL DISCHARGE OF CAPACITORS

If the voltage is greater than 1V on any of the capacitors, the capacitor must be manually discharged. With a suitable capacitor discharge device, such as ground stick pair (PC3299), discharge the capacitors where needed per the following instructions:

1. With the control cabinet high voltage compartment doors closed, connect the ground stick pair ground lead to ground. The most convenient location is the middle top bolt that attaches the door center post to the control cabinet frame.
2. Verify the ground connection and ground stick resistance levels. Measure the resistance between each individual ground stick tip to either the GND1 or GND2 ground block in the low voltage compartment of the control cabinet using a multimeter (Figure 20-11). Ensure that the resistance is within the manufacturer's specifications for the ground sticks.

For PC3299 grounding sticks, the valid range is 80 to 125 ohms per stick.

3. Discharge the relevant capacitors. Open the door(s) and place one grounding stick on one of the positive (+) capacitor terminals and the other on the diagonally located negative (-) terminal. Refer to Figure 20-10 and Figure 20-12. Attempt to minimize the time between application of the positive stick and the negative stick so that the current flow will be positive to negative rather than either to ground. Leave sticks in place until capacitors are discharged. Refer to Figure 20-12.

*NOTE: On the capacitors located behind the door post, it is difficult to access diagonal terminals on the same capacitor. If using adjacent terminals, use care to keep the tips separated while discharging or else use a positive terminal on one capacitor and negative terminal of the adjacent capacitor on the same bus bar.*

For PC3299 grounding sticks, the discharge times from 2000 volts are:

- 15 seconds (maximum) for 2 capacitors
- 75 seconds (maximum) for 10 capacitors

## **⚠ WARNING**

**Hazardous voltages are present in this equipment. Avoid touching any energized equipment when the door to the low voltage area is open. Failure to do so may result in personal injury and equipment damage.**

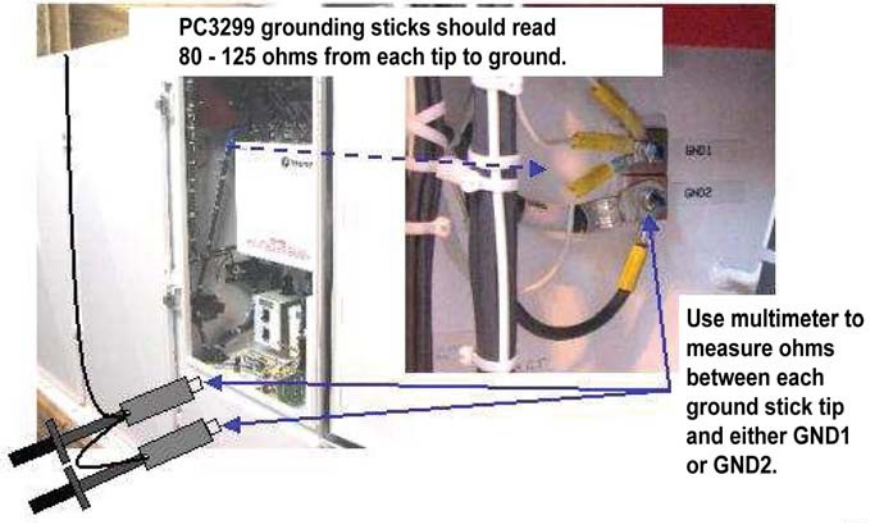


FIGURE 20-11. GROUNDING STICK LEAD CONNECTION AND CHECK



**⚠ WARNING**

***Voltages in excess of 1500 VDC may be present. Any measurement and/or protective equipment used must be rated at 2000 VDC minimum.***

***Verify functionality of the measurement equipment using site-approved procedures both before and after performing control group measurements.***

***Failure to observe these precautions may result in death or serious personal injury.***

4. Measure voltage on all capacitors as described in "Measuring Dc Voltage On Capacitors" on page 18. Discharge any capacitors that show voltage.
5. If all capacitors read discharged, verify that the meter is functioning correctly using site-approved procedures. If so, proceed to the next section.

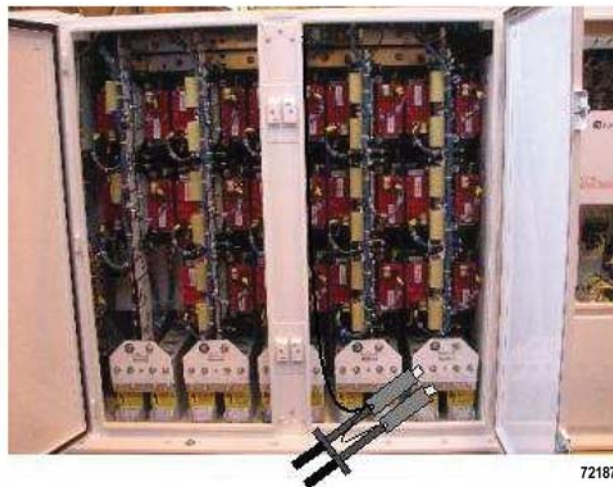


FIGURE 20-12. APPLICATION OF GROUNDING STICKS TO CAPACITOR TERMINALS

## SHORT ISOLATED CAPACITOR TERMINALS



*Hazardous voltages may be present in this equipment even if the engine and Capacitor Charge lights are off.*

*Use measurement and protective equipment rated for 2000 VDC minimum to verify that no voltage is present before touching any terminal.*

*Verify functionality of the measurement equipment using site-approved procedures both before and after performing control group measurements.*

*Failure to observe these precautions may result in death or serious personal injury.*

Any capacitor that is isolated from the DC link and confirmed discharged must have its terminals electrically shorted together to prevent static charge build up. Use bare wire to jumper all four terminals on the capacitor. See Figure 20-13. Proceed to troubleshoot and repair the control group to restore it to original functionality.

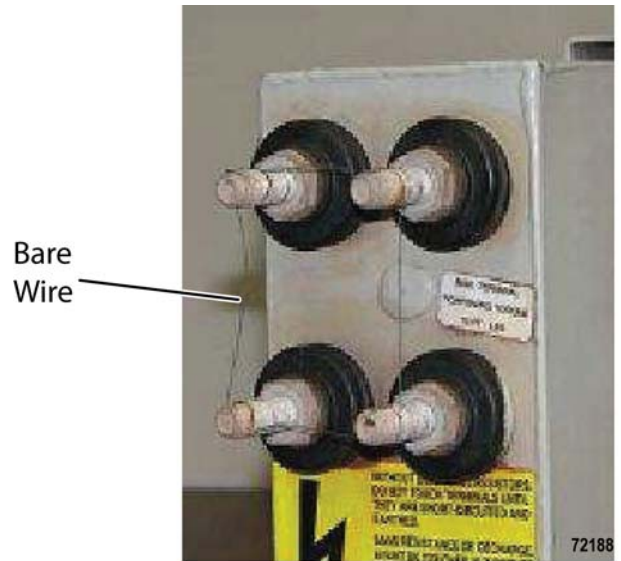
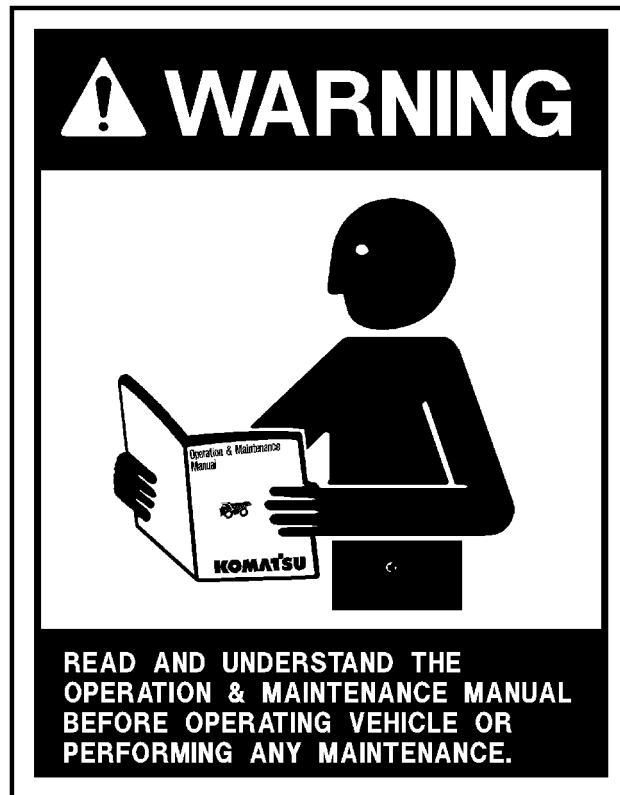


FIGURE 20-13. JUMPER ALL TERMINALS ON ISOLATED CAPACITOR



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# NOTES:

## CHASSIS SOUND ATTENUATION SYSTEM

### OVERVIEW

#### Preparing For Operation

The safest trucks are those which have been properly prepared for operation. At the beginning of each shift, a careful check of the truck must be made by the operator before starting the engine.

#### Safety Is Thinking Ahead

Prevention is the best safety program. Prevent a potential accident by knowing the employer's safety requirements, all necessary job site regulations, as well as use and care of the safety equipment on the truck. Only qualified operators or technicians can operate or maintain a Komatsu truck.

Safe practices start before the operator gets to the equipment!

- Wear the proper clothing. Loose fitting clothing, unbuttoned sleeves and jackets, jewelry, etc., can catch on a protrusion and cause a potential hazard.
- Always use the personal safety equipment provided for the operator such as hard hats, safety shoes, safety glasses or goggles. There are some conditions when protective hearing devices must also be worn for operator safety.
- When walking to and from the truck, maintain a safe distance from all machines, even if the operator is visible.

#### Components

This document gives instructions about the maintenance of a sound suppression kit for an 830E-1AC rear dump truck.

There are up to 12 main parts to the system (depending upon specification):

- Engine side panels
- Engine belly pan
- Radiator attenuator
- Rear-exiting exhaust
- Rear engine compartment enclosure
- Centre deck lining
- Front panel assembly below radiator attenuator
- Grille and hood seals
- Alternator air intake silencer
- Retarding grid attenuation package
- Upper horse collar panels
- Blower duct cover and hoses

#### General

Proper service and repair of the sound attenuation components is extremely important for meeting sound power noise targets. Some techniques require the use of tools specially designed for the specific purpose of servicing the machine. Before carrying out any servicing or repairs, read all the safety labels attached to the machine. For the locations of the safety labels and detailed explanation of the precautions, refer to the truck Operation and Maintenance Manual.

#### Maintenance

Refer to the Sound Attenuation System Service Intervals section for scheduled maintenance intervals.



***Do not pressure wash the sound attenuation surfaces. Malfunction and damage may occur, reducing the effectiveness of the attenuators.***

Measure sound levels of machine during work every 10,000 hours. The sound levels will depend upon the specification of the attenuation kit. If the reading is greater than specified, thoroughly inspect all sound attenuation parts for damage or incorrect installation, fixing where necessary. If this does not lower the sound level to an acceptable level, replace perforated sheeting and acoustic insulation on applicable panels. Always use the specified absorption material, use of inappropriate material may reduce effectiveness and increase risk.

For replacement parts or part numbers, refer to the parts book for the sound attenuation kit.

## Exhaust System

### General

The exhaust system on a sound suppressed truck exits from the back of the machine. There are two exhaust pipes wrapped with heat blankets (1, Figure 30-1) that carry the exhaust to muffler (2), located in between the chassis rails. The muffler is designed to allow for more sound attenuation.

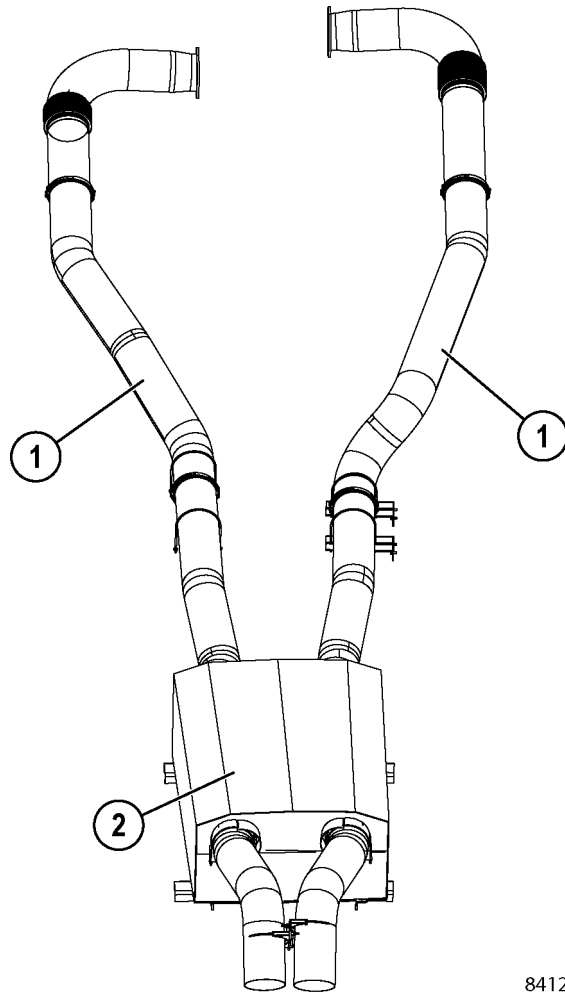
The exhaust system will be hot after engine has been running. Wait until the exhaust system and other hot parts have had sufficient time to cool before performing any work to the exhaust system.

### Maintenance

Refer to the Sound Attenuation System Service section for service requirements.

### Approximate weights

Primary Muffler - 528 kg (1,164 lb)



84124

FIGURE 30-1. EXHAUST SYSTEM

- 1. Exhaust Pipes with Blankets
- 2. Muffler

## Attenuators

### General

Attenuators are fitted in various places around the engine compartment to muffle the noise. A typical attenuator is made of up numerous perforated splitters (2, Figure 30-2). Each splitter is filled with a special insulation pillow (3, Figure 30-3).

Periodically, the attenuators need to be inspected and disassembled for maintenance. Refer to Sound Attenuation System Service for inspection and maintenance intervals.

The insulation pillow should have a protective cloth between the insulation and the perforated cover. The insulation should be clean, soft, and free from debris. The insulation should be of consistent density, and fill the cavity completely, not slumping to the bottom. Remove any debris, oil, or grease present in the system as required. Never use a pressure washer to clean an attenuator, as damage to the protective cloth and the insulation may result.



**Do not pressure wash the sound attenuation surfaces. Malfunction and damage may occur, reducing the effectiveness of the attenuators.**

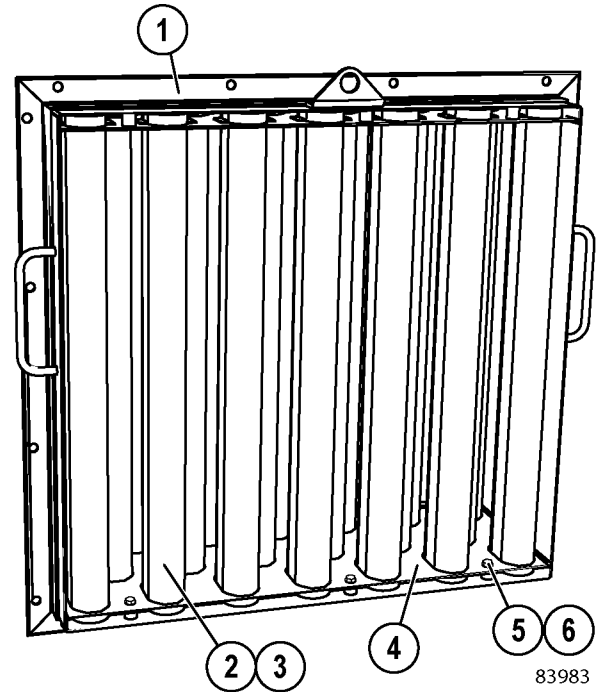


FIGURE 30-2. TYPICAL ATTENUATOR ASSEMBLY

- |                          |              |
|--------------------------|--------------|
| 1. Housing               | 4. Baffle    |
| 2. Splitter (Perforated) | 5. Spacer    |
| 3. Insulation            | 6. Cap Screw |

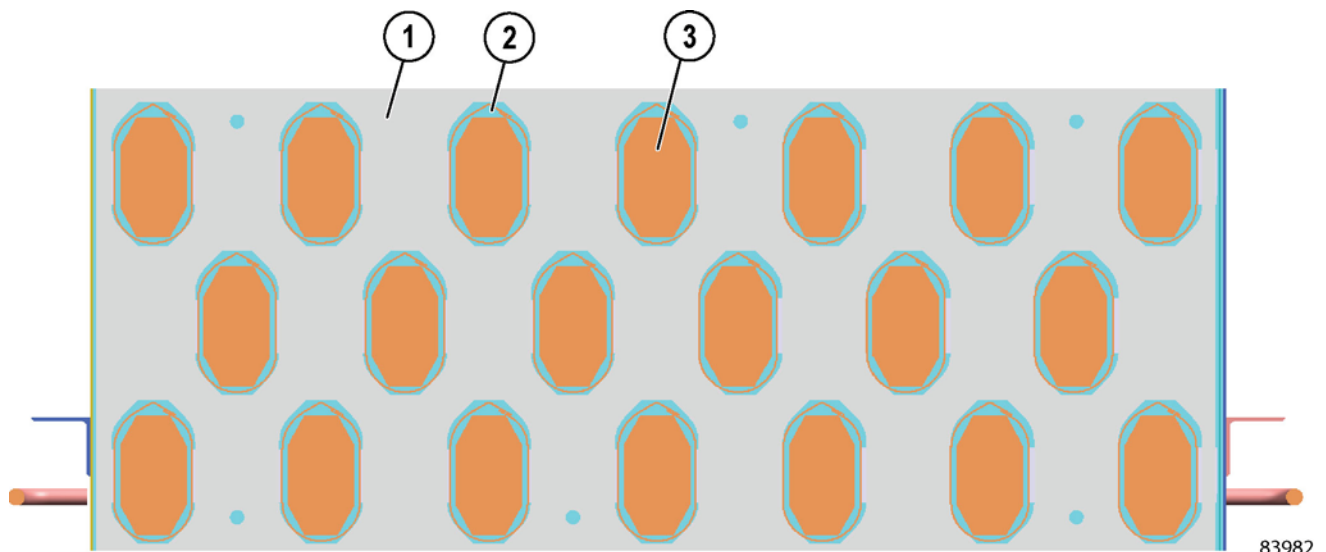


FIGURE 30-3. ATTENUATOR CROSS SECTION VIEW

- |                          |                      |
|--------------------------|----------------------|
| 1. Housing               | 3. Insulation Pillow |
| 2. Splitter (Perforated) |                      |

## Engine Side Panels

### General

Both sides of the engine bay have been enclosed with attenuator panels (8, Figure 30-4), and access doors (7) for maintenance personnel.

### Maintenance

Refer to the Sound Attenuation System Service section for periodic inspection requirements.



***Do not pressure wash the sound attenuation surfaces. Malfunction and damage may occur, reducing the effectiveness of the attenuators.***

Periodically, the attenuators need to be disassembled for maintenance. Refer to Sound Attenuation System Service for maintenance intervals. Follow the steps below to service the attenuators.

1. Remove the attenuator housing (8, Figure 30-4). Once on the ground, the splitter packs can be removed as a unit.
2. Remove the perforated cover to gain access to the insulation pillow and remove the pillow. The pillow should have a protective cloth between the insulation and the perforated cover. The insulation should be clean, soft, and free from debris. The insulation should be of consistent density, and fill the cavity completely, not slumping to the bottom.

***NOTE: If a significant amount of damage or soiling of any of the parts has been observed, replacement insulation pillows must be installed to ensure correct performance of the parts.***

3. With the insulation pillows removed, use a pressure washer only on the metal parts. Remove all of the debris, oil, or grease present on the parts.
4. Reassemble and reinstall the pack. Repeat for the remaining packs.

### Approximate weights



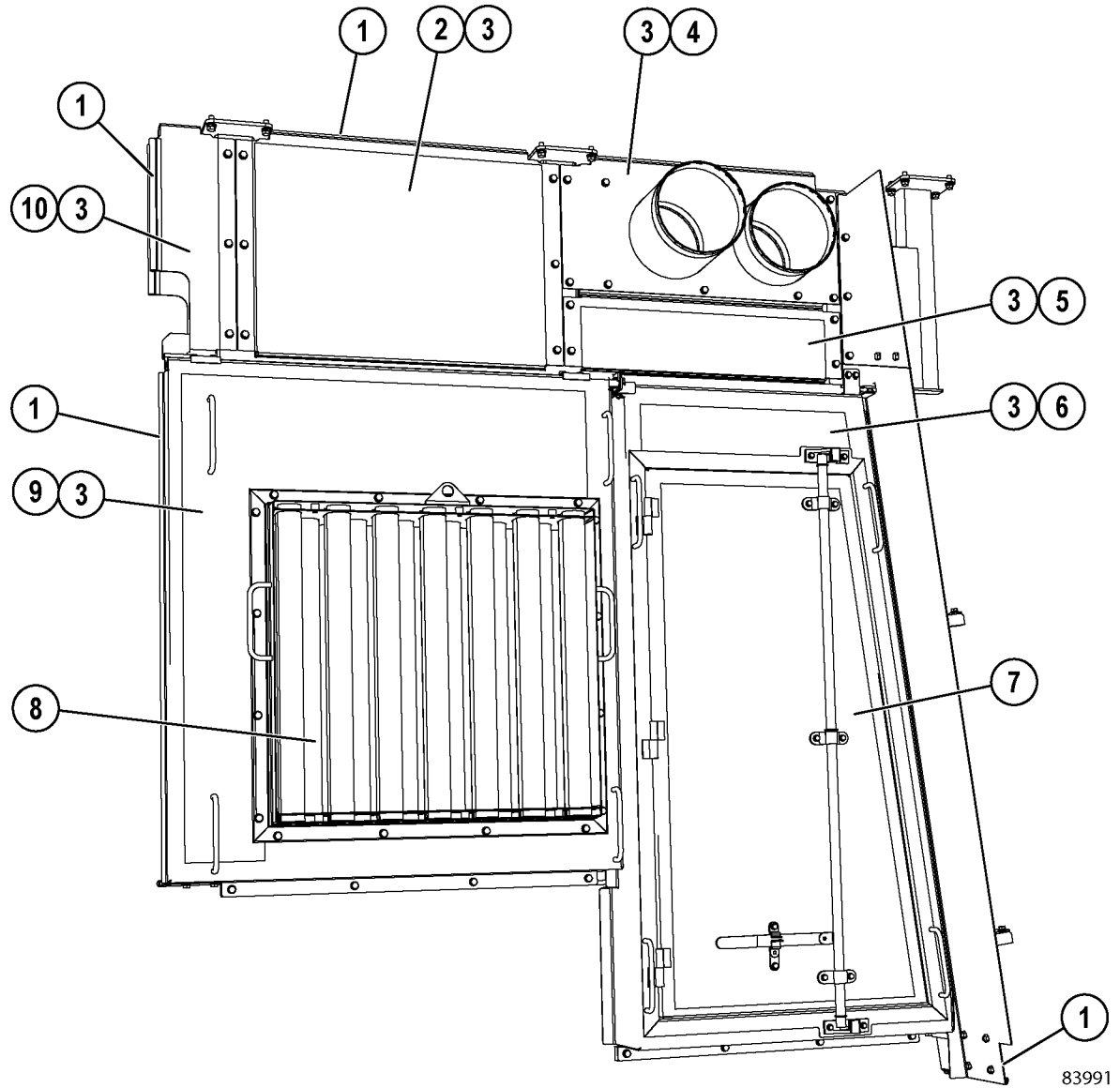
***Always use a lifting device that can handle the load safely. Lifting lugs are fitted to the top of the attenuator housings (8).***

Access Door Assembly - 54 kg (119 lb)

Side Exhaust Attenuator LH - 81 kg (179 lb)

Side Exhaust Attenuator RH - 70 kg (154 lb)





83991

FIGURE 30-4. ENGINE SIDE PANEL ASSEMBLY

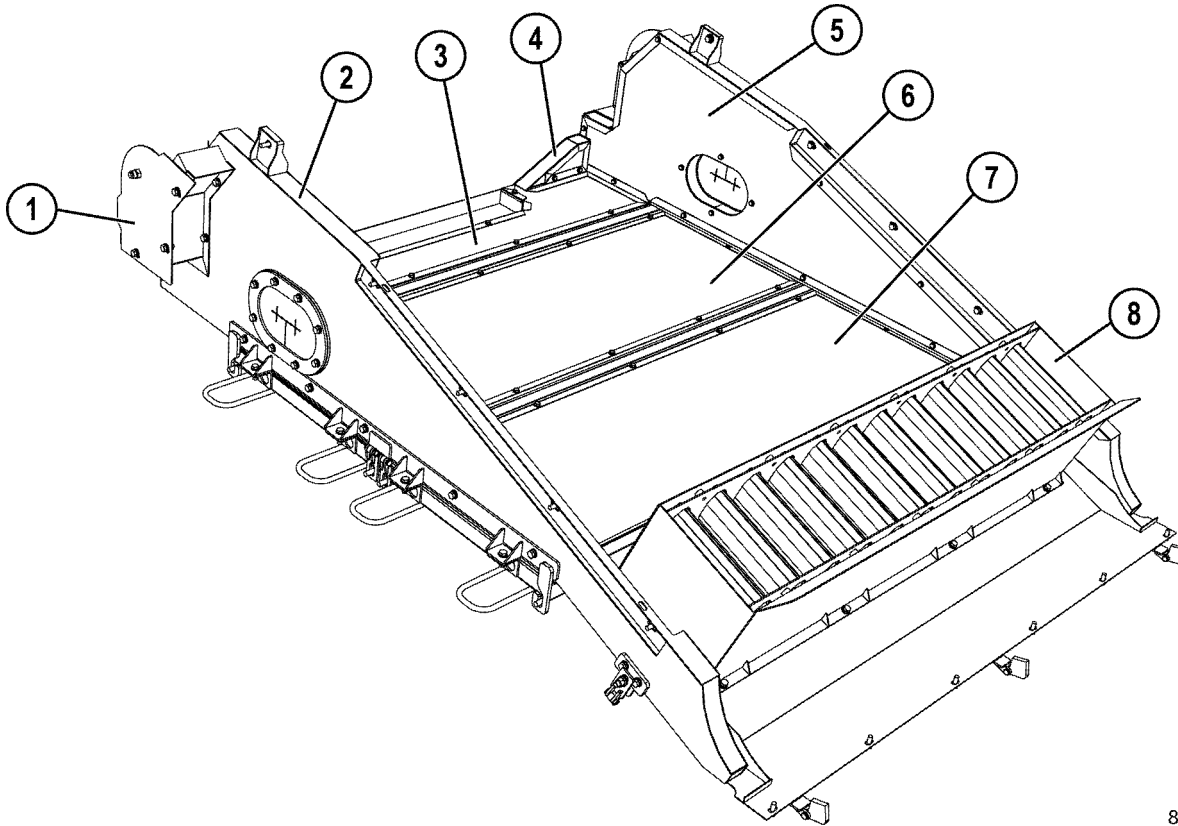
- |   |                             |
|---|-----------------------------|
| 1. Seals                                | 6. Panel (Perforated Sheet) |
| 2. Upper Panel (Perforated Sheet)       | 7. Access Door Assembly     |
| 3. Insulation                           | 8. Attenuator Assembly      |
| 4. Bulkhead Panel Assembly              | 9. Panel Assembly           |
| 5. Upper Front Panel (Perforated Sheet) | 10. Panel Assembly          |

## Engine Belly Pan Assembly

### General

The engine belly pan (Figure 30-5) is fitted below the engine bay. The engine belly pan includes two doors (6) and (7) for maintenance personnel access.

The acoustic insulation in the doors and panels have a protective sheathing to reduce oil and grease penetration into the insulation. An attenuator (8) is also installed in the belly pan to allow hot air to exit the engine compartment.



83997

FIGURE 30-5. ENGINE BELLY PAN ASSEMBLY

- |                          |                              |
|--------------------------|------------------------------|
| 1. Cover Assembly        | 5. Side Panel Assembly       |
| 2. Side Panel Assembly   | 6. Rear Door Assembly        |
| 3. Center Panel Assembly | 7. Front Door Assembly       |
| 4. Corner Assembly       | 8. Front Attenuator Assembly |

**Maintenance**

Refer to the Sound Attenuation System Service section for inspection requirements.



**Do not pressure wash the sound attenuation surfaces. Malfunction and damage may occur, reducing the effectiveness of the attenuators.**

Periodically, the attenuators need to be disassembled for maintenance. Refer to Sound Attenuation System Service for maintenance intervals. Follow the steps below to service the attenuators.

1. Remove the cap screws securing the front attenuator assembly to the frame. Then allow it to swing down, then remove it by lifting it out of the hinge. Once on the ground, the splitter packs can be removed as a unit.
2. Remove the perforated cover to gain access to the insulation pillow. The pillow should have a protective cloth between the insulation and the perforated cover.
3. The insulation should be clean, soft, and free from debris. The insulation should be of consistent density, and fill the cavity completely, not slumping to the bottom.

*NOTE: If a significant amount of damage or soiling of any of the parts has been observed, replacement parts must be installed to ensure correct performance of the parts.*

4. With the insulation pillows removed, use a pressure washer only on the metal parts. Remove all of the debris, oil, or grease present on the parts.
5. Reassemble and reinstall the pack. Repeat for the remaining packs.
6. Position the attenuator assembly below the truck, then raise it so it is hanging on the hinges. Then swing the unit up into place. When closing the attenuator assembly, a hand crush hazard is present in between the door and body. Be aware of hand position when closing the doors. Install mounting hardware securely.

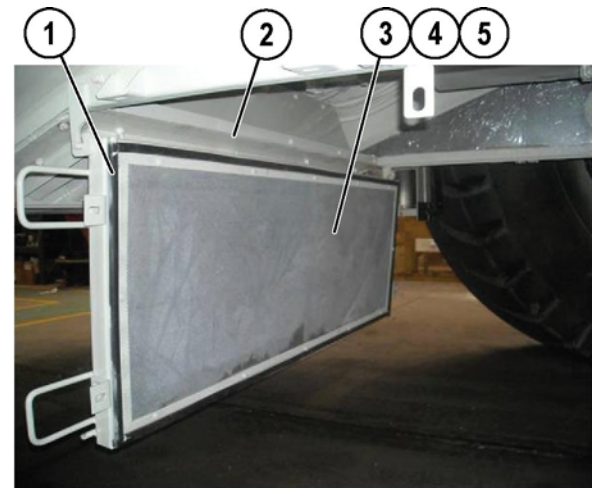
**Approximate weights**

**Always use a lifting device that can handle the load safely. Lifting lugs are fitted to the top of the attenuator housings (8).**

Front Door Assembly (7) - 38 kg (84 lb)

Rear Door Assembly (6) - 41 kg (90 lb)

Front Attenuator Assembly (8) - 104 kg (229 lb)



83984

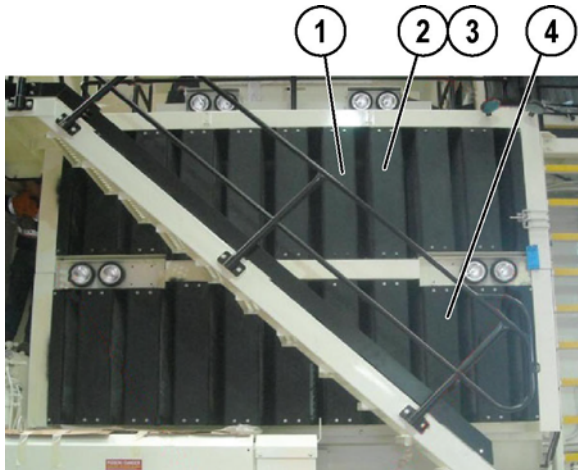
FIGURE 30-6. ENGINE BELLY PAN DOOR  
OPEN

- |                       |               |
|-----------------------|---------------|
| 1. Seal               | 4. Mylar      |
| 2. Hinge              | 5. Insulation |
| 3. Cover (Perforated) |               |

## Radiator Silencer

### General

Sound attenuators have been added to the front of the radiator. The ladder has been brought forward, which has meant the front bumper has been extended forward to accommodate.



83985

FIGURE 30-7. RADIATOR SILENCER

- |                   |                     |
|-------------------|---------------------|
| 1. Top Attenuator | 3. Insulation       |
| 2. Splitter       | 4. Lower Attenuator |

### Maintenance

Refer to the Sound Attenuation System Service section for inspection requirements.



**Do not pressure wash the sound attenuation surfaces. Malfunction and damage may occur, reducing the effectiveness of the attenuators.**

Periodically, the attenuators need to be disassembled for maintenance. Refer to Sound Attenuation System Service for maintenance intervals. Follow the steps below to service the attenuators.

1. Remove the four cap screws on the front of a splitter and remove the cover. The covers should be compact enough for easy handling.
2. Remove the cover to gain access to the insulation pillow. The pillow should have a protective cloth between the insulation and the perforated cover. The insulation should be clean, soft, and free from debris. The insulation should be of consistent density, and fill the cavity completely, not slumping to the bottom.

*NOTE: If a significant amount of damage or soiling of any of the parts has been observed, replacement parts must be installed to ensure correct performance of the parts.*

3. With the insulating pillow removed, use a pressure washer only on the metal parts. Remove all of the debris, oil, or grease present on the parts.
4. Reassemble and reinstall the splitter pack. Repeat for the remaining splitter packs.

### Approximate weights



**Always use a lifting device that can handle the load safely. The radiator attenuators require a crane for installation & removal.**

Lifting eyes are provided on top of the radiator underneath the cover, and between the top and bottom rows of attenuators behind where the lights are installed.

Upper Radiator Attenuator - 525 kg (1,157 lb)

Lower Radiator Attenuator - 525 kg (1,157 lb)

## Rear Engine Compartment Enclosure

### General

There are acoustic panels located on the lower structure (4, Figure 30-8) and a discharge attenuator (3) fitted into the horse collar opening. The entire assembly is isolated from the engine module.

### Maintenance

Refer to the Sound Attenuation System Service section for inspection requirements.



**Do not pressure wash the sound attenuation surfaces. Malfunction and damage may occur, reducing the effectiveness of the attenuators.**

Periodically, the attenuators need to be disassembled for maintenance. Refer to Sound Attenuation System Service for maintenance intervals. Follow the steps below to service the attenuators.

1. Remove the attenuator housing. Once on the ground, the splitter packs can be removed as a unit.
2. Remove the perforated cover to gain access to the insulation pillow. The pillow should have a

protective cloth between the insulation and the perforated cover. The insulation should be clean, soft, and free from debris. The insulation should be of consistent density, and fill the cavity completely, not slumping to the bottom. Remove any debris, oil, or grease present in the system as required.

*NOTE: If a significant amount of damage or soiling of any of the parts has been observed, replacement parts must be installed to ensure correct performance of the parts.*

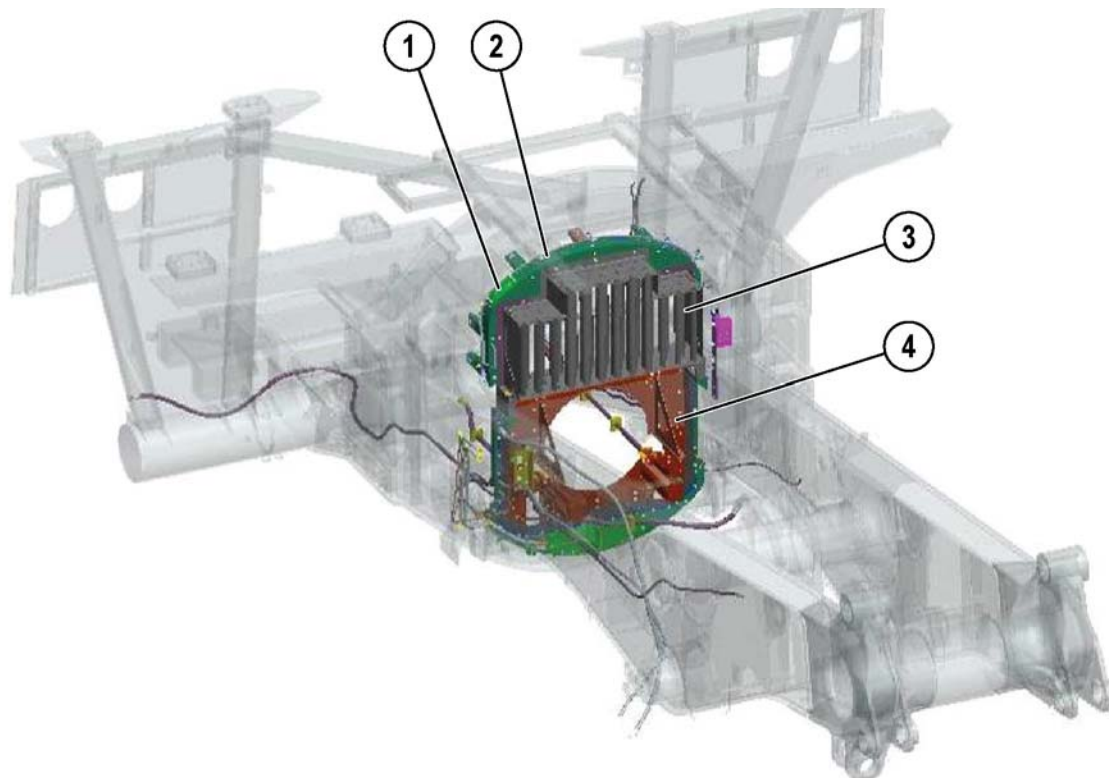
3. With the insulation pillow removed, Use a pressure washer only on the metal parts. Remove all of the debris, oil, or grease present on the parts.
4. Reassemble and reinstall the splitter. Repeat for the remaining splitters.

### Approximate weights



**Always use a lifting device that can handle the load safely. Lifting lugs are fitted to the top of the attenuator housings.**

Rear engine discharge attenuator - 151 kg (332 lb)



83986

FIGURE 30-8. REAR ENGINE ENCLOSURE

- |             |                    |
|-------------|--------------------|
| 1. Mud Flap | 3. Attenuator      |
| 2. Seals    | 4. Lower Structure |

## Center Deck Lining

### General

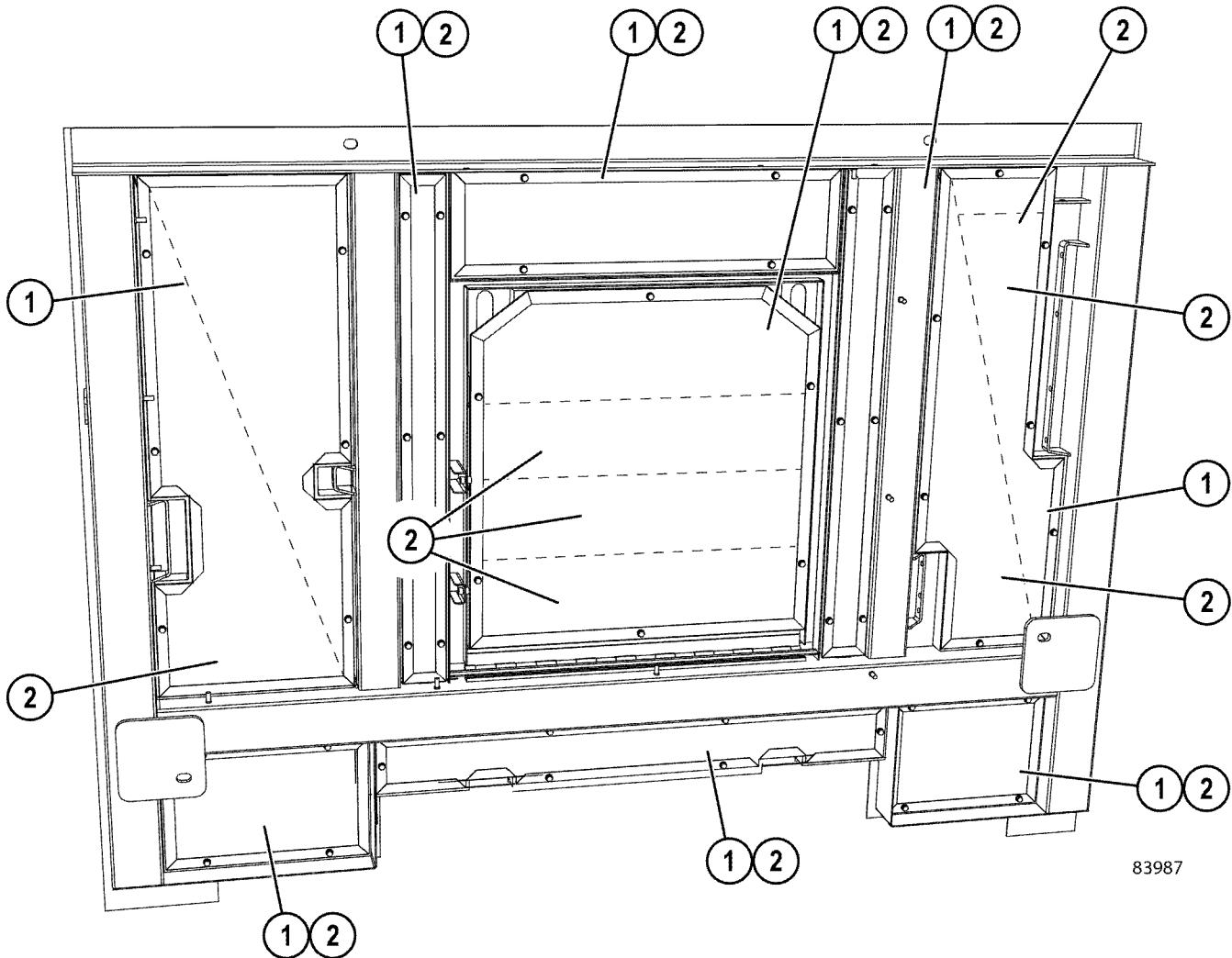
The underside of the cabin deck has been lined with acoustic insulation.

### Maintenance

Refer to the Sound Attenuation System Service section for inspection requirements.



*Do not pressure wash the sound attenuation surfaces. Malfunction and damage may occur, reducing the effectiveness of the attenuators.*



83987

FIGURE 30-9. CENTER DECK

1. Perforated Sheet

2. Insulation



## Front Panel Assembly Below Radiator

### General

Acoustic panelling has been installed below the radiator attenuator.



**Always use a lifting device that can handle the load safely. Once the centre panel is installed, it should be opened & closed by 2 people. When installing or removing the centre panel assembly, a pinch point is present between the front panel flange and the tapped pad. Be mindful of hand position.**

**Do not pressure wash the sound attenuation surfaces. Malfunction and damage may occur, reducing the effectiveness of the attenuators.**

### Approximate weights

Centre Panel Assembly- 50 kg (110 lb)

### Maintenance

Refer to the Sound Attenuation System Service section for inspection requirements.

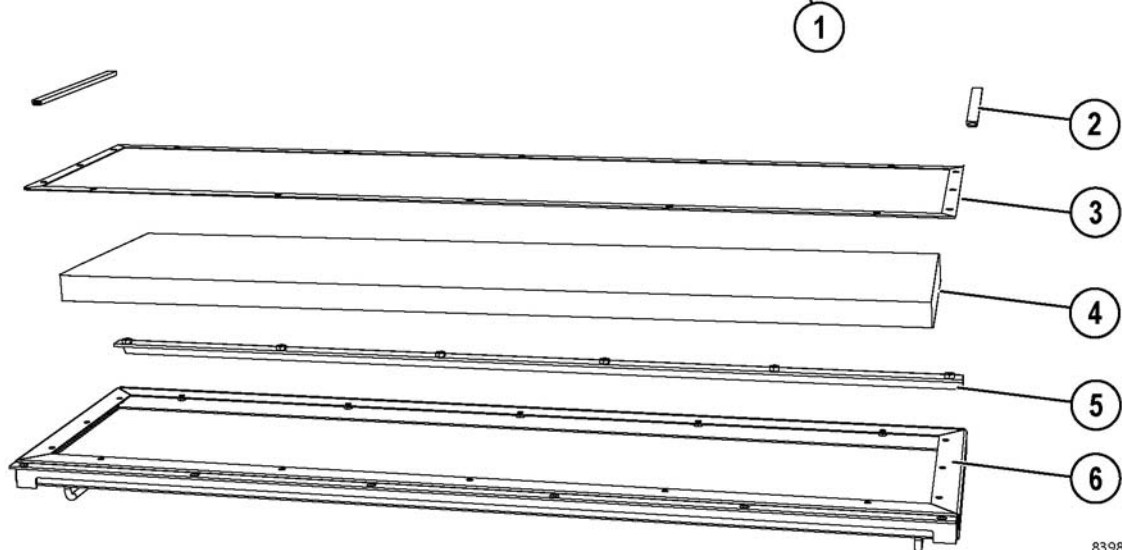
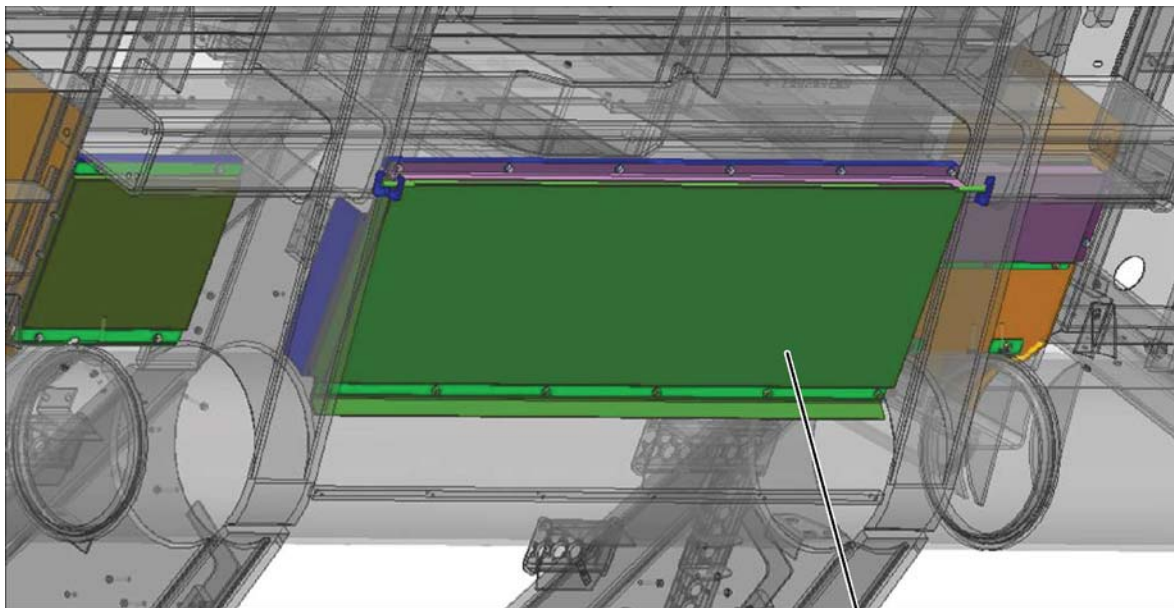


FIGURE 30-10. LOWER PANEL (BELOW RADIATOR)

- |                |                     |               |
|----------------|---------------------|---------------|
| 1. Lower Panel | 3. Perforated Sheet | 5. Plate      |
| 2. Seal        | 4. Insulation       | 6. Door Frame |

83988

## Hood Seals

Acoustic panels, sheet metal, and seals (2, 3 & 4, Figure 30-11) have been fitted to the grille structure, firewall and grille hood.

## Maintenance

Refer to the Sound Attenuation System Service section for inspection requirements.



*Do not pressure wash the sound attenuation surfaces. Malfunction and damage may occur, reducing the effectiveness of the attenuators.*

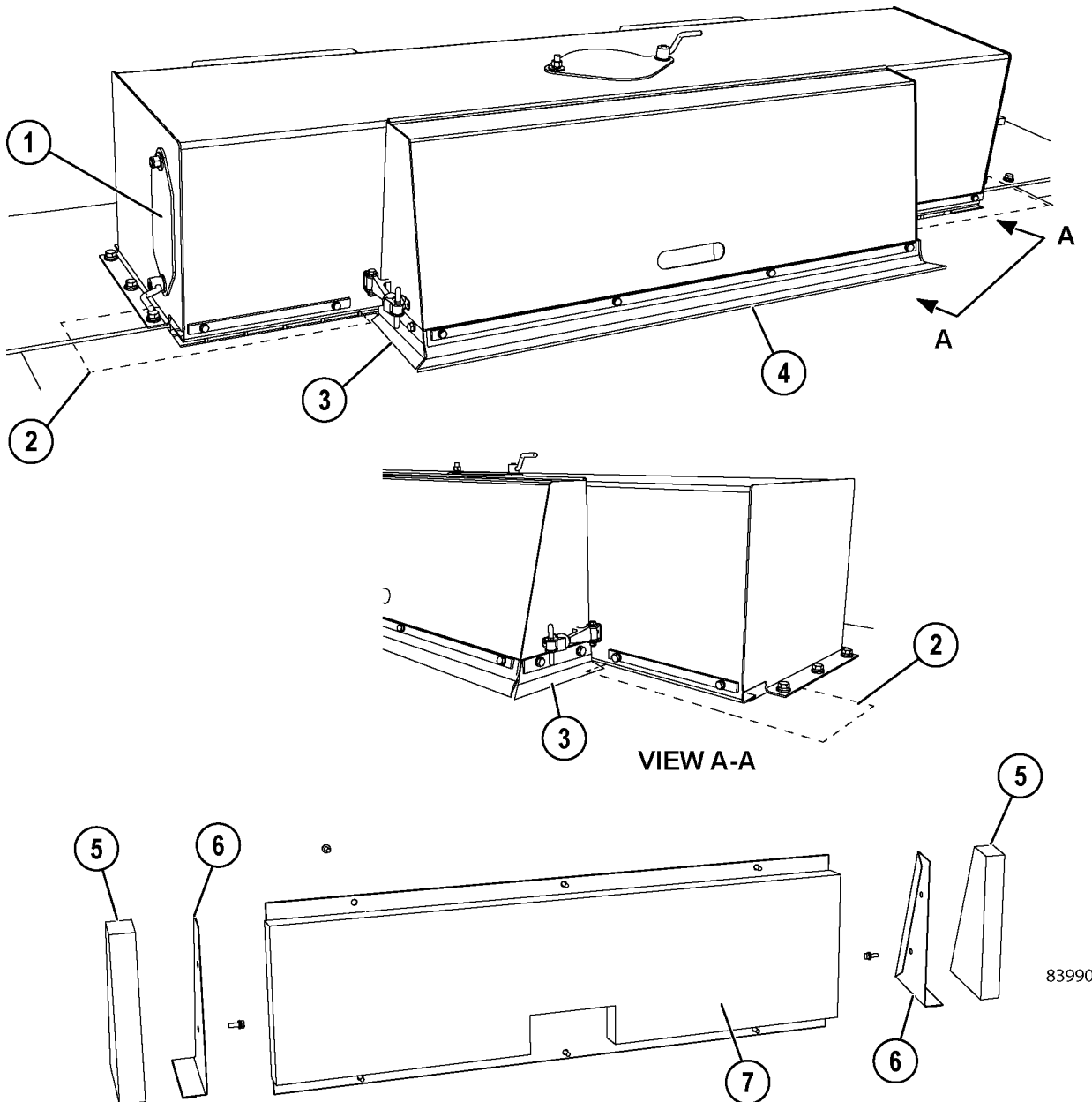


FIGURE 30-11. HOOD SEALS

- |                |               |               |
|----------------|---------------|---------------|
| 1. Cover Plate | 4. Seal       | 6. Cover      |
| 2. Seal        | 5. Insulation | 7. Insulation |
| 3. Seal        |               |               |



## Upper Horse Collar Panels

Acoustic panels (3, Figure 30-12) sheet metal (1) and seals (2) and (4) have been fitted under the control cabinet and around the top of the horse collar.



***Do not pressure wash the sound attenuation surfaces. Malfunction and damage may occur, reducing the effectiveness of the attenuators.***

### Maintenance

Refer to the Sound Attenuation System Service section for inspection requirements.

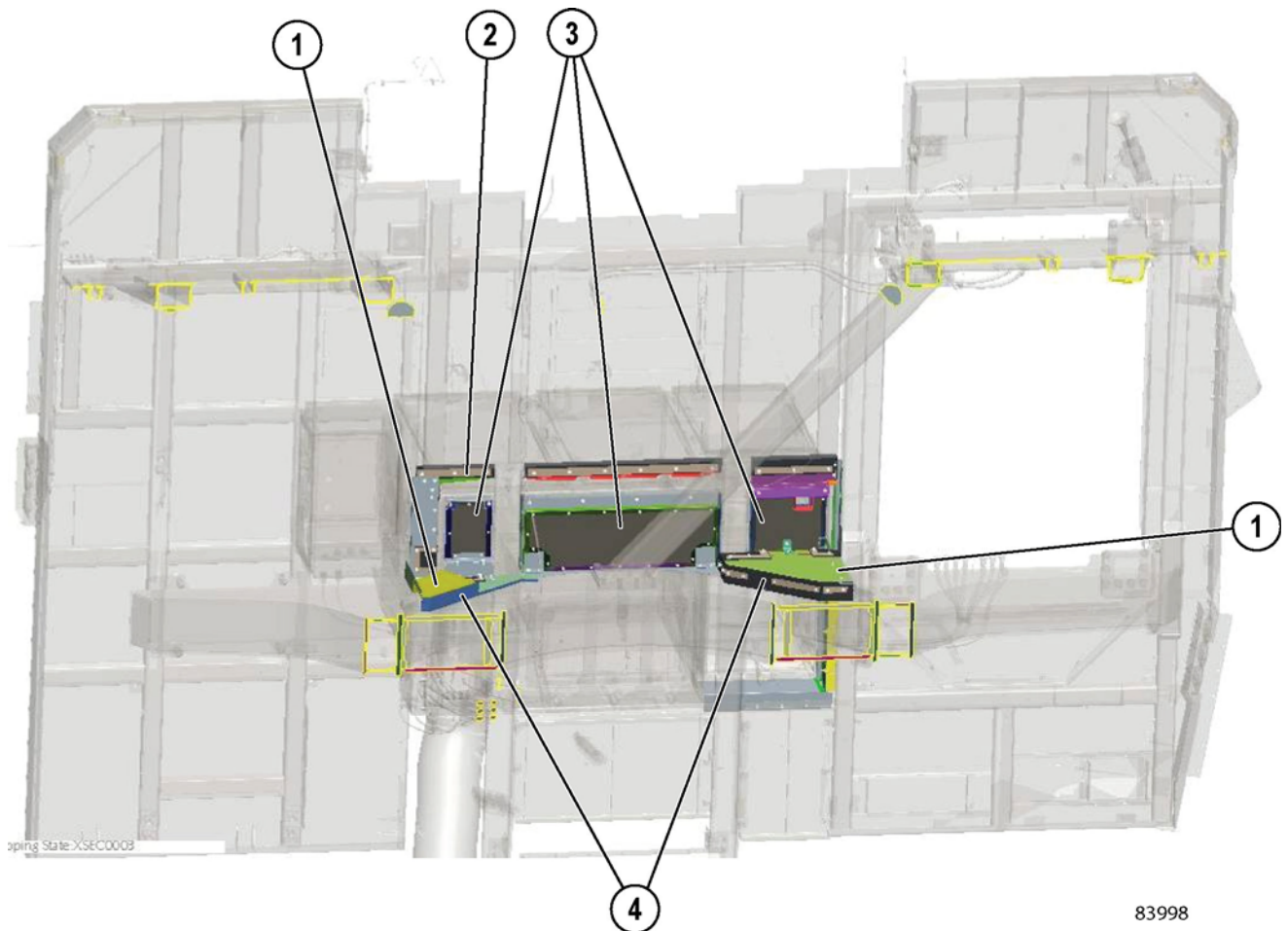


FIGURE 30-12. UPPER HORSE COLLAR PANELS

- |                  |           |
|------------------|-----------|
| 1. Filler Panels | 3. Panels |
| 2. Seals         | 4. Seals  |

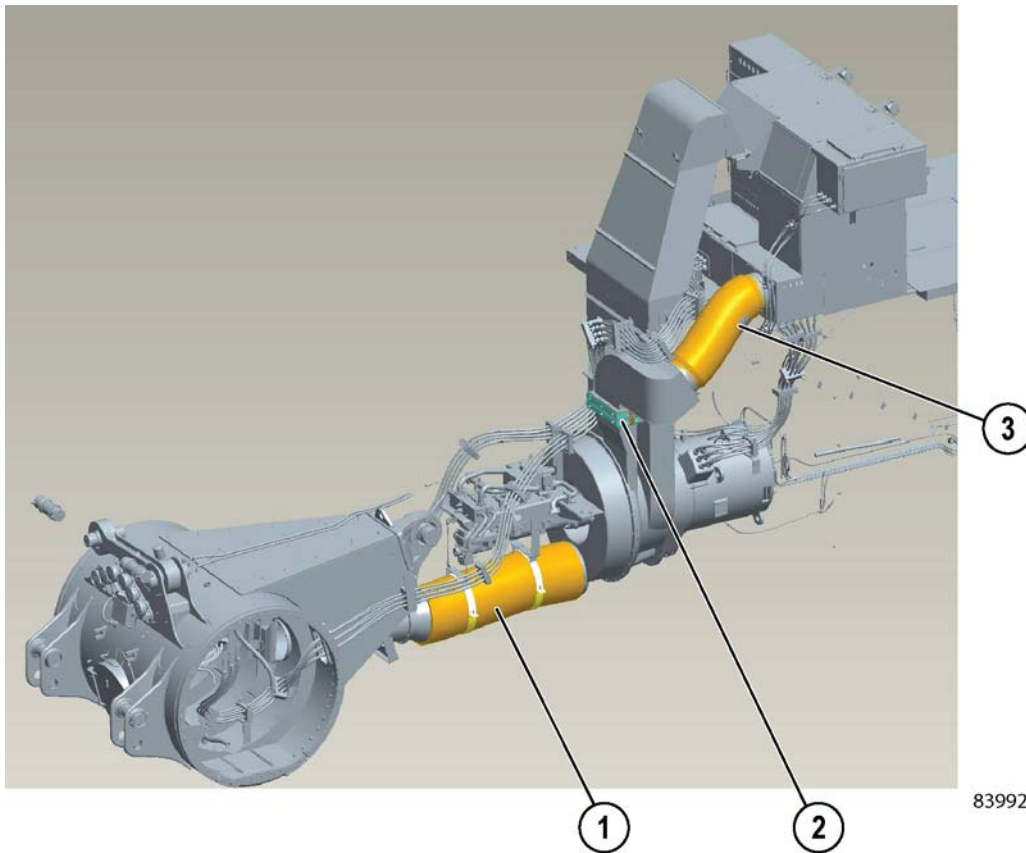
## Blower Duct Cover & Hoses

### General

Insulated blower hoses (1 & 2, Figure 30-13) have been installed between the axle box & fan housing and in between the transition duct and control cabinet. An acoustic wrap has also been installed over the "flex" duct between the transition duct and upper fan housing outlet duct.

### Maintenance

Refer to the Sound Attenuation System Service section for inspection requirements.



83992

FIGURE 30-13. BLOWER DUCT COVER AND HOSES

- 1. Insulation (Axle Blower Hose)
- 2. Insulation (Duct)

- 3. Insulation (Air Intake Hose)

## DRIVE SYSTEM SOUND ATTENUATION SYSTEM

### RETARDING GRID ATTENUATION PACKAGE

#### General

The retarding grids have been modified with sound attenuation devices attached to the inlet & exhaust ports as shown in Figure 32-1.

## **⚠ DANGER**

*The retarding grid assembly will be hot after the truck has been in operation. Wait until the retarding grid and other hot parts have had sufficient time to cool before performing any maintenance work.*

#### Approximate weights

## **⚠ WARNING**

*Always use a lifting device that can handle the load safely.*

Refer to Figure 32-1 for the items listed below.

Top inlet attenuator (1) - 100 kg (220 lb)

Top inlet air duct (2) - 18 kg (40 lb)

Rear inlet cover (3) - 8 kg (18 lb)

Inboard inlet cover (4) - 7 kg (15 lb)

Front inlet air duct (5) - 10 kg (22 lb)

Front inlet attenuator (6) - 63 kg (139 lb)

Exhaust attenuator (7) - 61 kg (134 lb)

Retarder grid with sound attenuation - 2 540 kg (5,600 lb)

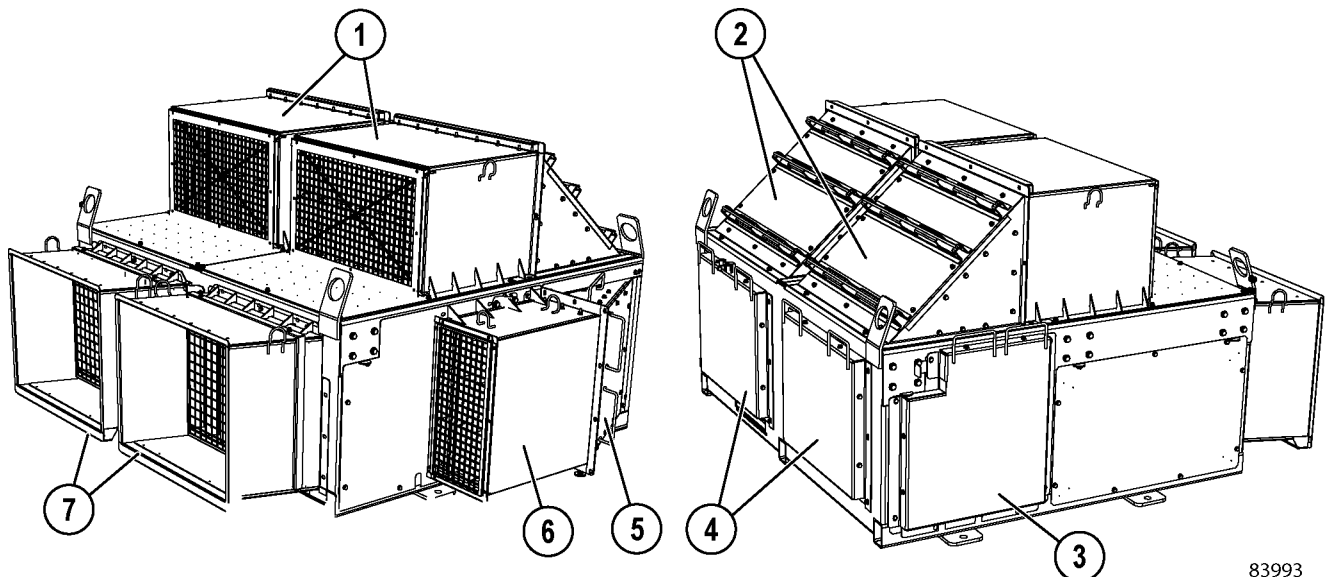
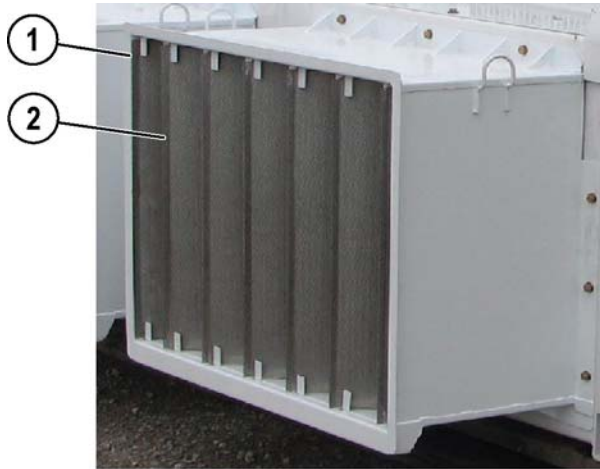


FIGURE 32-1. RETARDING GRID SILENCER PACKAGE

1. Top Inlet Attenuators
2. Top Inlet Ducts
3. Rear Inlet Cover
4. Inboard Inlet Cover

5. Front Inlet Air Duct
6. Front Inlet Attenuators
7. Exhaust Attenuators

83993



83995

FIGURE 32-2. EXHAUST ATTENUATOR

1. Housing

2. Baffles

### Maintenance

Refer to the Sound Attenuation System Service section for inspection requirements. The exhaust attenuators can not be serviced. If damaged, replace the entire exhaust attenuator.



*Do not pressure wash inside the inlets or exhausts areas. Malfunction and damage may occur.*

## Alternator Air Intake Silencer

There is an alternator air intake silencer (2, Figure 32-3) fitted to the intake of the alternator blower fan ducting.

### Maintenance

Refer to the Sound Attenuation System Service section for inspection requirements. The air intake silencer can not be serviced. If damaged, replace the entire intake silencer.



**Do not pressure wash the sound attenuation surfaces. Malfunction and damage may occur, reducing the effectiveness of the attenuators.**

Lifting lugs are fitted to top inlet duct (1, Figure 32-3) intake silencer (2) and lower inlet duct (3). Removal of the silencer can be accomplished by lifting it in conjunction with the top inlet duct.

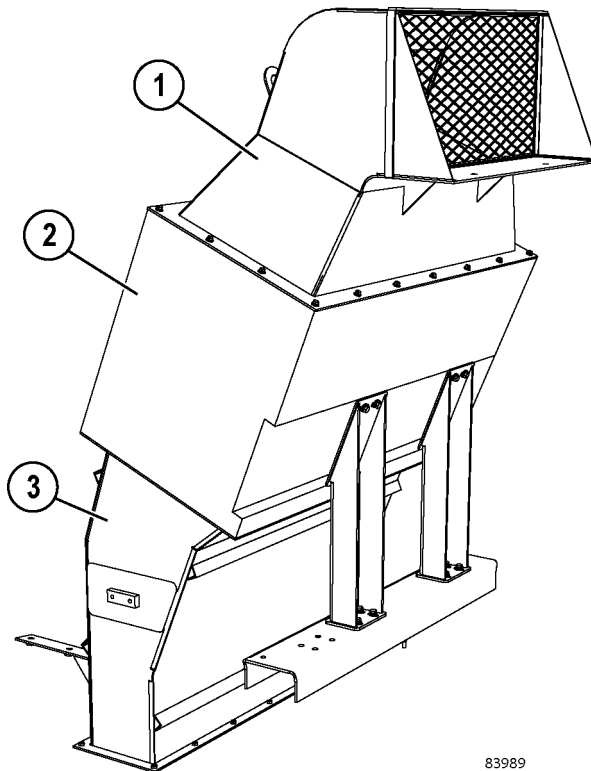


FIGURE 32-3. INTAKE SILENCER

- |                    |                     |
|--------------------|---------------------|
| 1. Top Inlet Duct  | 3. Lower Inlet Duct |
| 2. Intake Silencer |                     |

### Approximate weights



**Always use a lifting device that can handle the load safely.**

Refer to Figure 32-1 for the items listed below.

Top Inlet Duct (1) 79 kg (174 lb)

Intake Silencer (2) 202 kg (445 lb)

Lower Inlet Duct (3) 130 kg (287 lb)

Air Intake Silencer Assembly (with both ducts attached) 550 kg (1,213 lb).



83996

FIGURE 32-4. INTAKE SILENCER BAFFLES

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# NOTES:

## SOUND ATTENUATION SYSTEM SERVICE INTERVALS

Recommended preventive maintenance will contribute to the long life and dependability of the truck and its components. The use of proper checks and adjustments at the recommended intervals is most important.

The service intervals presented here are in hours of operation. However, if the truck is being operated under extreme conditions, some or all, of the intervals may need to be shortened and the service performed more frequently.

### 10 HOUR (DAILY) INSPECTION CHECKS

EVERY 10 HOUR (DAILY) MAINTENANCE	
Item	Task
Exhaust System	Inspect exhaust blankets for incorrect placement or damage. Re-install correctly or replace blankets if any signs of damage. Inspect the exhaust for signs of significant exhaust leaks or cracks. Cracks can be welded or the part can be replaced if cracking is extensive.
Retarding Grid	Inspect visible air flow paths for debris or mud. Do not remove any baffles to perform inspection. Remove any debris found in the air flow paths. Screens may be removed to remove the debris. Screen mounting hardware torque is (30 ft lb). DO NOT use an impact wrench to tighten.
Alternator Air Intake Silencer	Inspect visible air flow paths for debris or mud. Replace silencer element if any defects are found. Do not remove any baffles or screens to perform inspection.

## 500 HOUR INSPECTION CHECKS

EVERY 500 HOUR INSPECTION	
Item	Task
Engine Side Panels	Inspect panels for damage and repair or replace where necessary.
	Inspect door seals for damage or misalignment and repair or replace where necessary.
	Inspect the acoustic insulation and perforated steel covers for damage or soil build-up and repair or replace where necessary. The acoustic insulation should completely fill the void and be free of mud and excessive dust build-up. It should be soft and of consistent density. Replace if necessary.
	Inspect door hinges and latches for damage and repair or replace where necessary. Lubricate when required.
	Inspect attenuator splitters for damage or excessive soiling and repair or replace when necessary.
Engine Belly Pan	Inspect all panels for damage and repair or replace where necessary.
	Inspect hinges, latches, and grab handles for damage. Repair or replaces where necessary.
	Inspect seals for damage or misalignment. Repair or replace where necessary.
	Inspect the acoustic insulation and perforated steel covers for damage or soil build-up and repair or replace where necessary. The acoustic insulation should completely fill the void and be free of mud and excessive dust build-up. It should be soft and of consistent density. Replace if necessary.
	Inspect the protective sheathing for damage. If the protective sheathing has been ripped, torn or is otherwise damaged, it should be replaced.
Radiator Silencer	Inspect radiator attenuator for excess amounts debris, oil, or grease. Remove debris as required. Wipe oil or grease off with a clean rag as soon as practical.
Rear Engine Compartment Enclosure	Inspect panels for damage and repair or replace where necessary.
	Inspect rubber flaps and seals for damage or misalignment, repair or replace where required.
	Inspect the insulation and perforated steel covers for damage or soil build-up and repair or replace where necessary. The acoustic insulation should completely fill the void and be free of mud and excessive dust build-up. It should be soft and of consistent density. Replace if necessary.
Front Panel Assembly Below Radiator Attenuator	Inspect panels for damage. Inspect the insulation and perforated steel covers for damage or soil build-up and repair or replace where necessary.
	The acoustic insulation should completely fill the void and be free of mud excessive dust build-up. It should be soft and of consistent density. Replace if necessary.
Hood Seals	Inspect panels for damage and repair or replace where necessary.
	Inspect seals for damage or misalignment and repair or replace where necessary.
	Inspect the acoustic insulation and perforated steel covers for damage or soil build-up and repair or replace where necessary. The acoustic insulation should completely fill the void and be free of mud and excessive dust build-up. It should be soft and of consistent density. Replace if necessary.



EVERY 500 HOUR INSPECTION (Continued)	
Item	Task
Upper Horse Collar Panels	Inspect panels for damage and repair or replace where necessary.
	Inspect seals for damage or misalignment and repair or replace where necessary.
	Inspect the acoustic insulation and perforated steel covers for damage or soil build-up and repair or replace where necessary. The acoustic insulation should completely fill the void and be free of mud and excessive dust build-up. It should be soft and of consistent density. Replace if necessary.
Blower Duct Cover & Hoses	Inspect the rear axle blower hose, transition duct blower hose and transition flex duct acoustic wrap for damage and repair or replace where necessary. The blow hose insulation should be soft and uniform consistency along the entire length of the hose, with no slumping or crushed areas. <i>NOTE: Each of the blower hoses have an internal tube wrapped with insulation and an external fabric casing. This inner tube should also be inspected for damage.</i>
Retarding Grid	Inspect visible air flow paths for any debris or mud. Do not remove any baffles to perform inspection. Remove any debris found in the air flow paths. Screens may be removed to remove debris. Screen mounting hardware torque is 40 N·m (30 ft lb). DO NOT use an impact wrench to tighten.
	Inspect the mounting hardware between each element, supporting duct work, and covers. Look for any cracks forming around the mounting hardware. Replace any loose, broken, or missing hardware. Replace any silencer element that has cracking.
	Inspect each silencer element case, supporting duct work, covers for cracks. Pay particular attention to weld seams. Replace silencer element if any defects are found.
	Inspect visible baffles for cracks along their connection joints or damage to the main surfaces. Do not remove any baffles to perform inspection. Replace silencer element if any defects are found.

<b>EVERY 500 HOUR INSPECTION (Continued)</b>	
<b>Item</b>	<b>Task</b>
Alternator Air Intake Silencer	Inspect visible air flow paths for any debris or mud. Replace silencer element if any defects are found. Do not remove any baffles or screens to perform inspection.
	Inspect the mounting hardware between each element, supporting duct work, and mounting posts. Look for any cracks forming around the mounting hardware. Replace any loose, broken, or missing hardware. Replace the silencer element if cracking is found.
	Inspect the silencer element case for cracks. Pay particular attention to weld seams. Replace silencer element if any defects are found. Note: The mounting configuration of the alternator silencer blocks visibility to the internal components. Do not disassemble duct work, mounting hardware, or casings around the silencer element to perform inspections. If the duct work is removed for other maintenance reasons perform the inspection below.
	Inspect visible baffles for cracks along their connection joints or damage to the main surfaces. Do not remove any baffles or screens to perform inspection. Replace silencer element if any defects are found.

## 6000 HOURS MAINTENANCE CHECKS

Maintenance for 500 hour Inspection Checks should also be performed at this time.

<b>EVERY 6000 HOUR MAINTENANCE</b>	
<b>Item</b>	<b>Task</b>
Engine Side Panels	Remove the attenuators for inspection and cleaning. Refer to Engine Side Panels in the Chassis Sound Attenuation System section for detailed service instructions.
Engine Belly Pan	Remove the attenuators for inspection and cleaning. Refer to Engine Belly Pan in the Chassis Sound Attenuation System section for detailed service instructions.
Radiator Silencer	Remove the attenuators for inspection and cleaning. Refer to Radiator Silencer in the Chassis Sound Attenuation System section for detailed service instructions.
Rear Engine Compartment Enclosure	Remove the attenuators for inspection and cleaning. Refer to Rear Engine Compartment Enclosure in the Chassis Sound Attenuation System section for detailed service instructions.

## 10,000 HOURS LUBRICATION AND MAINTENANCE CHECKS

<b>EVERY 10,000 HOUR MAINTENANCE</b>	
<b>Item</b>	<b>Task</b>
Measure Machine Sound Level	Measure the sound levels of the machine while working. Refer to Chassis Sound Attenuation System section for detailed instructions.

## MAJOR COMPONENT DESCRIPTION

### SPECIFICATIONS

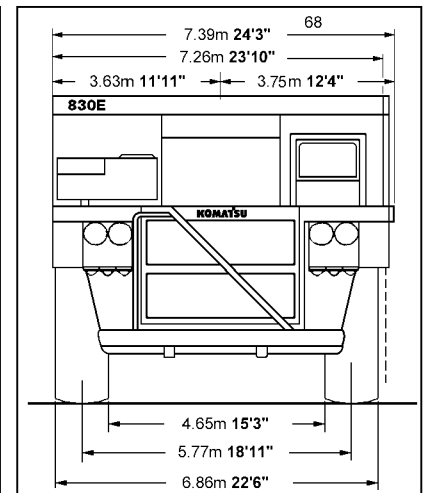
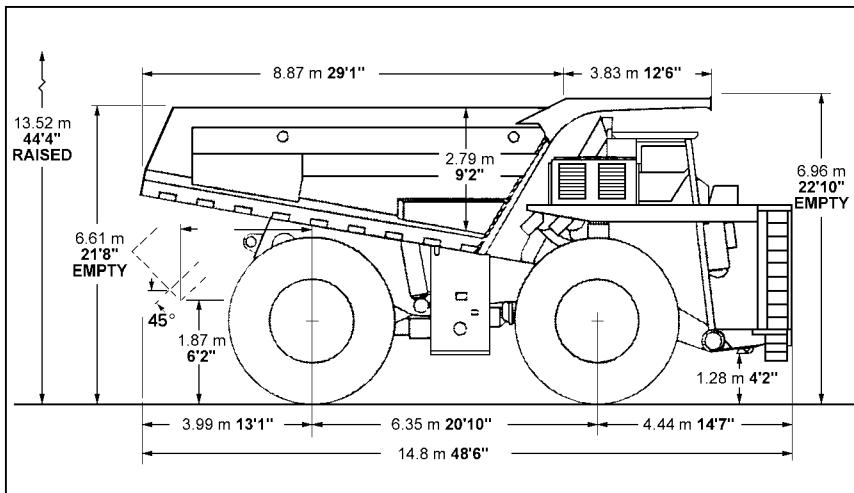
These specifications are for the standard Komatsu 830E-AC Truck equipped with the Sound Attenuation System.

### WEIGHT DISTRIBUTION

<b>Empty Vehicle</b> .....	<b>Kilograms</b> ...	<b>(Pounds)</b>
Front Axle .....	88 467 ...	(195,036)
Rear Axle .....	82 315 ...	(181,473)
Total (100% Fuel) .....	170 782 ...	(376,509)
Standard Komatsu Body .....	27 669 ...	(61,000)
Standard tire weight .....	21 081 ...	(46,476)

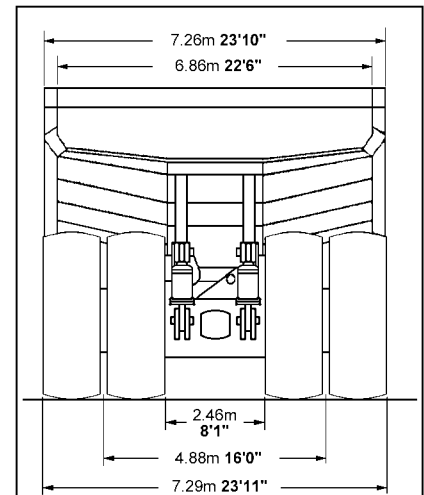
<b>Loaded Vehicle</b> .....	<b>Kilograms</b> ...	<b>(Pounds)</b>
Front Axle .....	131 958 ...	(290,918)
Rear Axle .....	253 890 ...	(559,732)
Total .....	385 848 ..	(850,650)
Nominal Payload* (237 U.S. Ton)	215 067 ..	(474,141)

\*Nominal payload is defined by Komatsu America Corporation's payload policy documentation. In general, the nominal payload must be adjusted for the specific vehicle configuration and site application. The figures above are provided for basic product description purposes. Please contact your Komatsu distributor for specific application requirements.



### OVERALL TRUCK DIMENSIONS (Empty with Standard Body)

Length .....	14.4 m (47 ft. 3 in.)
Width .....	7.32 m (24 ft. 0 in.)
Height with Canopy .....	6.96 m (22 ft. 10 in.)
Height with Dump Body Up .....	13.52 m (44 ft. 4 in.)
Turning Circle (on front track) .....	28.4 m (93 ft. 0 in.)



# NOTES:



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