

PARTS & SERVICE NEWS

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(C)

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SUBJECT: RETARDING GRID RESISTOR REPLACEMENT

PURPOSE: To outline and clarify guidelines for retarding grid resistor replacement.

APPLICATION: Komatsu Electric Drive Dump Trucks:
 930E-3: A30304 & Up;
 930E-2: A30012, A30098, A30121 & Up;
 930E: 32604 - 32816, A30019, A30026 - A30120;
 830E: 31320-32825, A30544 & Up;
 730E: 32530-32845, A30079 & Up;
 630E (190 ton): 31678-32848, A31431 & Up;
 630E (170 ton): 31670-32866, A31435 & Up;
 685E: 31402 & Up;
 510E: 31222-32259, 31682-32865;
 445E: 32210-32972, 31202-31736, A511001-A511037

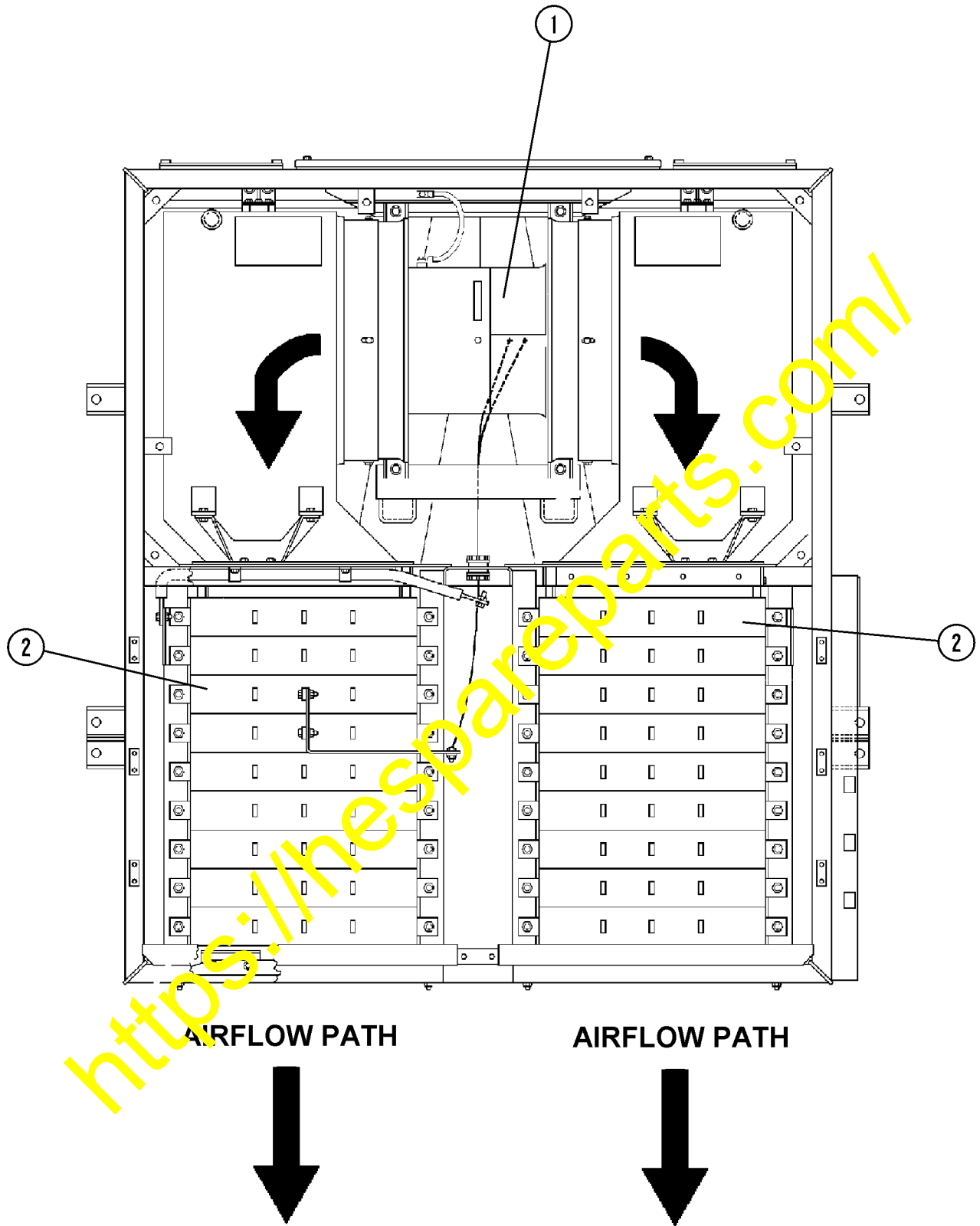
FAILURE CODE: 0842Z9

DESCRIPTION:

Some trucks in operation may experience retarding grid resistor failures immediately after replacing a resistor. These immediate failures may be attributed to incorrect air flow patterns caused by selecting incorrect replacement parts. It is extremely important when replacing resistors that the correct replacement part is chosen.

Throughout the years there have been different styles of resistors that have been provided for use on electric trucks. The differences in design between resistor styles effects the airflow properties. Note the differences in appearances among the different types of resistors. Refer to Figures 2-5. If the wrong style resistor is inserted into an airflow path, the disruption in airflow can cause resistor damage and subsequent failures. Mixing and matching different types of resistors is allowable only in certain situations. The different combinations of allowable resistor types are outlined in this bulletin.

Refer to Figure 1 for a diagram of an airflow path. The illustration shows an 18 element grid from a 730E dump truck. A single blower motor supplies cooling air for each column of resistors or "airflow paths". Each column of resistors constitutes an airflow path.



1. Blower

2. Resistor (9 Per Airflow Path)

FIGURE 1. AIRFLOW DIAGRAM

B Resistors

B type resistors originally came on several model trucks ranging from 445E to 830E.

⚠ IMPORTANT ⚠

Because of airflow properties, a B type resistor cannot be used in the same airflow path with any other type of resistor.

An airflow path, as illustrated in Figure 1, consists of the direct path from the blower, through a single column of resistors, and out the vent louvers to the atmosphere. Intermixing B type resistors with other types of resistors in the same airflow path will cause a heat buildup, resulting in resistor failure. If a B resistor must be replaced, refer to Table 1 for replacement parts.

NOTE: B resistors without replacement part numbers must be converted to H type. This means that every resistor in that airflow path must be replaced. Under no circumstances should a B resistor be used in a path containing other style resistors. Contact your area Komatsu service representative for parts information for the conversion.

| Original Part Number | Replacement Part Number |
|----------------------|--------------------------------------|
| PB6463 | EG0087 |
| PB6331 | EG0085 |
| PB6332 | EG0086 |
| VE6951 | N/A - Convert airflow path to H type |
| PB6464 | N/A - Convert airflow path to H type |



FIGURE 2. B TYPE RESISTOR
(Original)

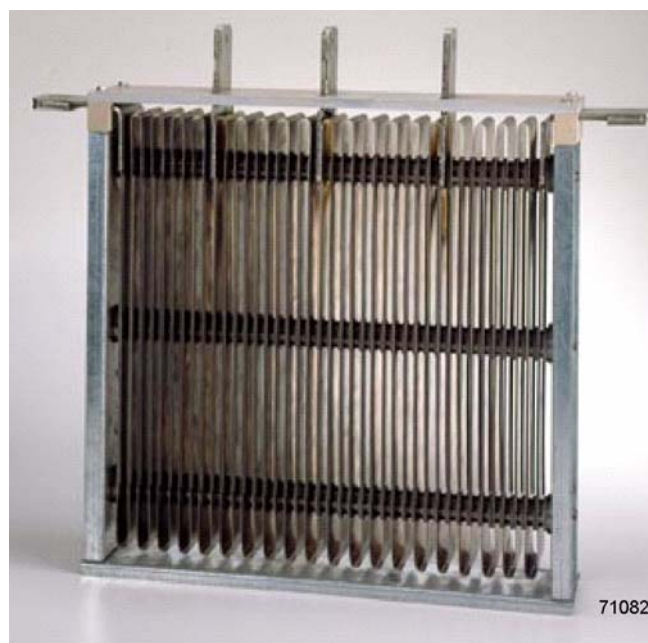


FIGURE 3. B TYPE RESISTOR
(Replacement)

H Resistors

H type resistors originally came on several model trucks ranging from 445E to 830E. Refer to Table 2 for a list of original H resistor part numbers, as well as replacement part numbers. The original part numbers are still available, in addition to the replacement part numbers.

| TABLE 2. H TYPE RESISTOR REPLACEMENTS | |
|---------------------------------------|-------------------------|
| Original Part Number | Replacement Part Number |
| PB9492 | PC0573 |
| PC0395 | PC0573 |
| PB9493 | PC0574 |
| PB9494 | PC0575 |
| PB9495 | PC0576 |
| PB9496 | PC0577 |
| PB9497 | PC0578 |

H type resistors are also recommended as a means of converting B resistor airflow paths. If a B resistor airflow path is to be converted, the whole path must be converted to the H type. Under no circumstances should a B resistor be used in the same airflow path with an H resistor.

A special resistor developed by Komatsu, known as the X resistor, can be used in the same airflow path as H resistors. Refer to X Resistors for applicable part numbers.

NOTE: K type resistors can be used in the same airflow path as H resistors, however, this practice is not recommended by General Electric.



FIGURE 4. H TYPE RESISTOR

K Resistors

K type resistors were installed originally on trucks ranging from the 445E to 930E. K type resistors are the only type of resistor to come on the 930E.

A special resistor developed by Komatsu, known as the X type resistor, can be used in the same airflow path as K resistors. Refer to X Resistors for applicable part numbers.

NOTE: H type resistors can be used in the same airflow path as K resistors, however, this practice is not recommended by General Electric.

Under no circumstances is a B resistor to be inserted into an airflow path of K resistors. Inter-mixing B resistors with K resistors in the same airflow path will cause a heat buildup, resulting in resistor failure.

| Original Part Number | Replacement Part Number |
|----------------------|----------------------------|
| GE0022 | N/A - Refer to X Resistors |
| GE0025 | N/A - Refer to X Resistors |
| GE0026 | N/A - Refer to X Resistors |
| GE0435 | N/A - Refer to X Resistors |
| EJ2073 | N/A - Refer to X Resistors |
| EJ2074 | N/A - Refer to X Resistors |
| EJ2075 | N/A - Refer to X Resistors |



FIGURE 5. K TYPE RESISTOR

X Resistors

X resistors have been developed by Komatsu and are interchangeable with H & K resistors, making it more versatile than previous types. Other benefits of this resistor include the following:

- Half-height grid elements for reduced warping and short
- Woven resistors for eliminating weld cracks
- No ceramic parts to crack
- Improved airflow for reduced air temperatures and reduced backflow pressure on blower
- MIG welded electrical connections for less resistance
- Stainless steel terminals
- Compression molded insulating plates incorporating the latest technology
- Shock resistant up to 3 g's



FIGURE 6. X TYPE RESISTOR

Under no circumstances is a B resistor to be inserted into an airflow path of X resistors. Intermixing B resistors with X resistors in the same airflow path will cause a heat buildup, resulting in resistor failure.

Refer to Table 4 for interchangeable part numbers.

| TABLE 4. X TYPE RESISTOR REPLACEMENTS | |
|--|------------------------|
| Original Part Number | X Resistor Part Number |
| GE0026 (K Resistor) | GE1258 |
| GE0025 (K Resistor) | GE1259 |
| GE0022 (K Resistor) | GE1260 |
| GE0435 (K Resistor) | GE1261 |
| EJ2073 (K Resistor) | XA2372 |
| EJ2074 (K Resistor) | XA2354 |
| EJ2075 (K Resistor) | XA2355 |
| PB9492 (H Resistor) OR PC0395 OR PC0573 (H Resistor) | XA2377 |
| PB9493 (H Resistor) OR PC0574 (H Resistor) | XA2354 |
| PB9494 (H Resistor) OR PC0575 (H Resistor) | XA2355 |
| PB9495 (H Resistor) OR PC0576 (H Resistor) | XA2383 |
| PB9496 (H Resistor) OR PC0577 (H Resistor) | XA2384 |
| PB9497 (H Resistor) OR PC0578 (H Resistor) | XA2385 |

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