

HSP SERIES POWER SUPPLY MODULE INSTALLATION

The following guidelines are provided to ensure proper insertion of HSP series power supplies into RA 60 series plug-in rack adapters.

1. UNPACKING

Following the instructions as they appear in the Operator’s Manual, examine the power supply packaging prior to opening. If any significant damage or mishandling is evident, file a claim with the transporter or carrier.

Open the box at the end so marked and carefully remove the power supply module and its packing. Remove the packing inserts and retain with the original shipping container for reuse in the event that the power supply must subsequently be shipped elsewhere. Remove the power supply from the poly bag and place it on a clean surface which provides sufficient room to maneuver the product for subsequent inspection. Remove and retain the dust cover from the I/O connector located on the power supply’s rear panel. Place the poly bag and connector dust cover with the shipping container.

2. VISUAL EXAMINATION

Visually examine the power supply for evidence of physical damage to the connectors or chassis. Referring to Figure 1 below, verify that the metal shell surrounding the I/O connector is smooth and free of burrs, and that the two parallel edges are essentially flat along their entire length and not bowed inward toward the connector pins. The output bus bars should be straight and essentially perpendicular to the rear panel and flat along the major surfaces. The leading edges of the bus bars should be straight, tapered and free of burrs.

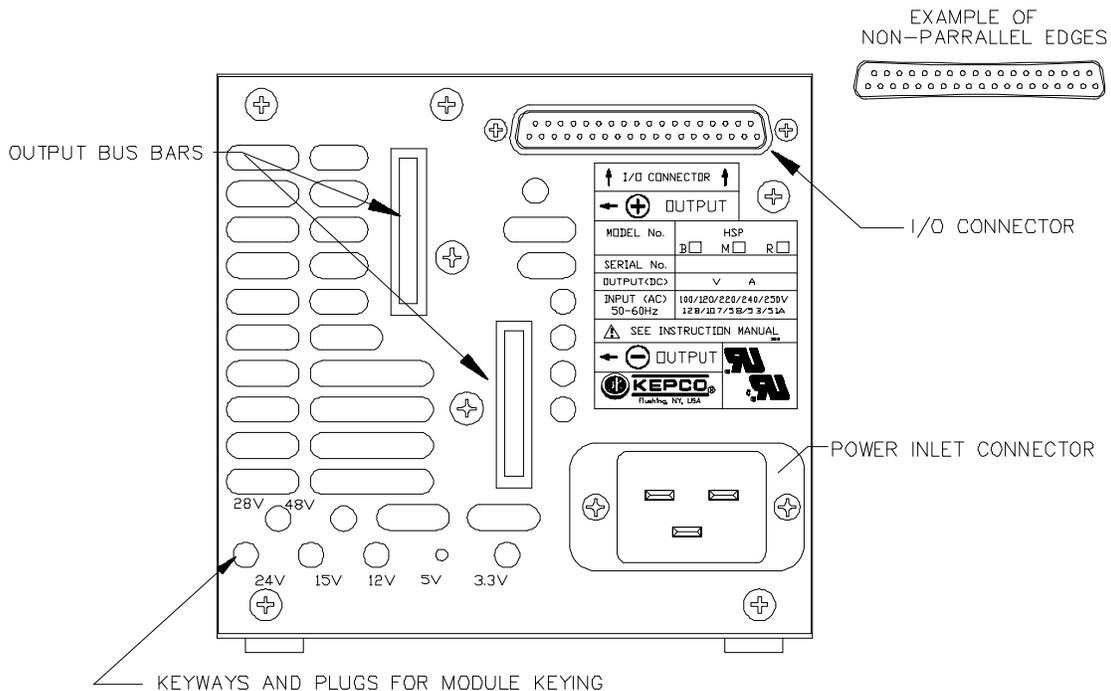


FIGURE 1. HSP MODULE, COMPONENT LOCATIONS

CAUTION: Do not attempt to insert the power supply module into the rack adapter if either is bent or otherwise damaged in any way; a bent or out-of-square chassis may result in misalignment of the rear panel connectors with their mates located on the rack adapter intermediate plate.

CAUTION: Do not attempt to insert the module into the rack adapter if visual inspection shows any signs of damage, especially in the area of the I/O connector. Contact Kepco Sales for further assistance.

3. INSERTION OF HSP INTO RACK ADAPTER

Introduction. Inspect the two retaining latches located on the front panel of the power supply module and ensure that they are both fully retracted; this is the position recommended for shipping and any handling outside the rack adapter. If the front panel retaining latches are not retracted, module insertion will be stopped approximately 1/2 inch short of full engagement. If necessary, loosen the cap head screw approximately 1/2 turn using a 5/32" hex key, slide the latch up as far as possible, and retighten until snug; do not overtighten. Verify that the front panel circuit breaker is in the OFF position (down).

Select the rack adapter position into which the module will be inserted, and verify that the keying of the rack adapter and module match. Power supply modules are factory-keyed by voltage; this keying must not be changed by the user. Rack adapter keying is selected by locating the screw-in key pins in the appropriate position for the HSP model desired in each position; Kepco recommends that rack adapter keying be set before installation of the rack adapter in the next equipment level. If power supply module and rack adapter slot keying do not match, module insertion will be stopped approximately 1-1/2 inches short of full engagement.

Grasp the front panel handle with one hand and gently tilt the power supply module back approximately 30 degrees. Slide the other hand under the module as close to the rear panel as possible, then lift the module using both hands to support it.

CAUTION: Do not use abrupt or excessive insertion force, especially during connector engagement, as this can result in damage to connectors on both the power supply module and the rack adapter.

CAUTION: Do not apply power via the module circuit breaker unless the module is fully inserted, or over-voltage shutdown of the module may occur.

CAUTION: Prior to insertion, be sure the dust cover has been removed from the DSUB I/O connector.

Procedure. Referring to Figures 2 through 7, insert the power supply module into the rack adapter as follows:

A. Tilting the front of the module slightly lower than the rear, set the two rear-most plastic feet of the module on the front lip of the rack adapter opening (see Figure 2).

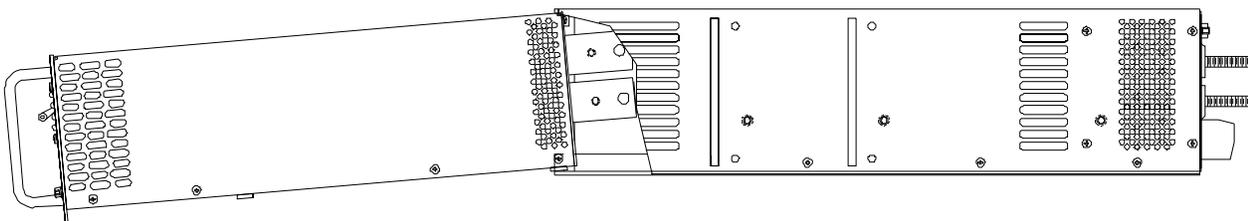


FIGURE 2. MODULE INSERTION, STEP A

B. Lift the front of the module until the bottom is approximately parallel to the bottom of the rack adapter and gently begin sliding in the module, maintaining support with both hands as needed to prevent the bottom of the module from scraping against the lip of the rack adapter (see Figure 3).

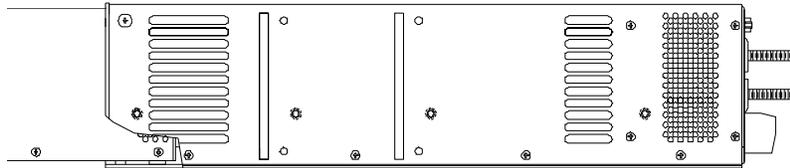


FIGURE 3. MODULE INSERTION, STEP B

- C. Once the module has been inserted approximately 1 inch, apply a slight upward pressure at the handle, allowing the module to slide against the inside of the rack adapter cover (see Figure 4).

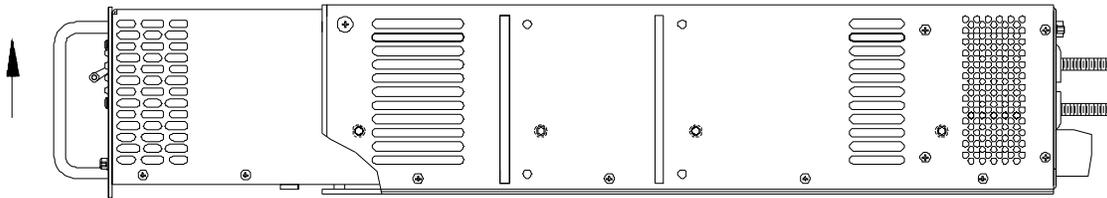


FIGURE 4. MODULE INSERTION, STEP C

- D. Continue to apply upward pressure while inserting module until the front-most pair of plastic feet clear the front lip of the rack adapter, then release the upward pressure and allow the module weight to be fully supported by the four feet (see Figure 5)

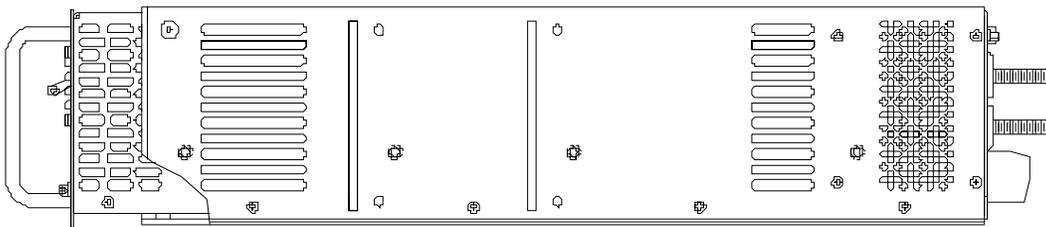


FIGURE 5. MODULE INSERTION, STEP D

- E. Continue to slide the module in by applying forward pressure to the handle. Slight resistance will be felt as the module connectors engage with the mating connectors on the rack adapter intermediate plate. Continue to apply steady but firmer pressure to overcome the insertion force of the various connectors. It is recommended that once connector engagement commences the installer should apply pressure using equal force with the thumbs of both hands to ensure that excessive force is not applied (Figure 6).

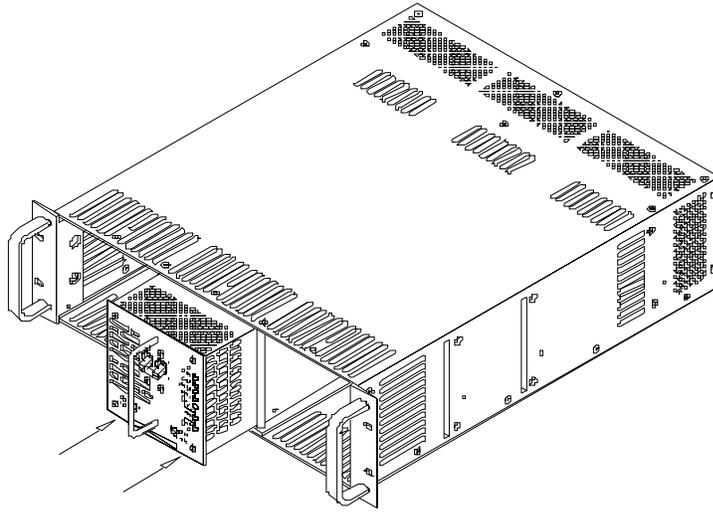


FIGURE 6. MODULE INSERTION, STEP E

- F. The module is fully seated with all connectors engaged when the front panel is aligned flush with the front surface of the mounting ears or adjacent fully seated modules (Figures 7 and 8). Set the front panel retaining latches to the closed position to prevent inadvertent module removal. Only then should the front panel circuit breaker of the power supply module be turned on.

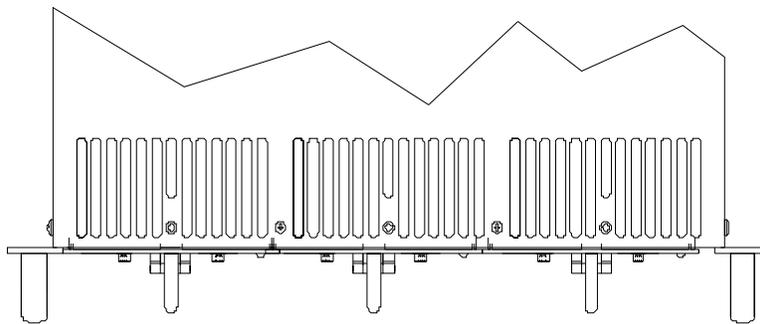


FIGURE 7. MODULE INSERTION, STEP F

- G. If the module cannot be inserted fully using this type of force, remove the power supply and reinspect both the power supply module rear panel and rack adapter intermediate plate for obstruction or damage. Figure 9 shows a module improperly inserted, and gives a hint as to where the trouble may be based on the gap between the RA 60 chassis and the HSP front panel. Figure 10 shows typical examples of good vs. damaged RA 60 and HSP connectors. Note that inserting an HSP module with a damaged connector can cause damage to the RA 60 connector. Once the RA 60 connector is damaged, previously undamaged HSP connectors will be damaged by subsequent insertion.

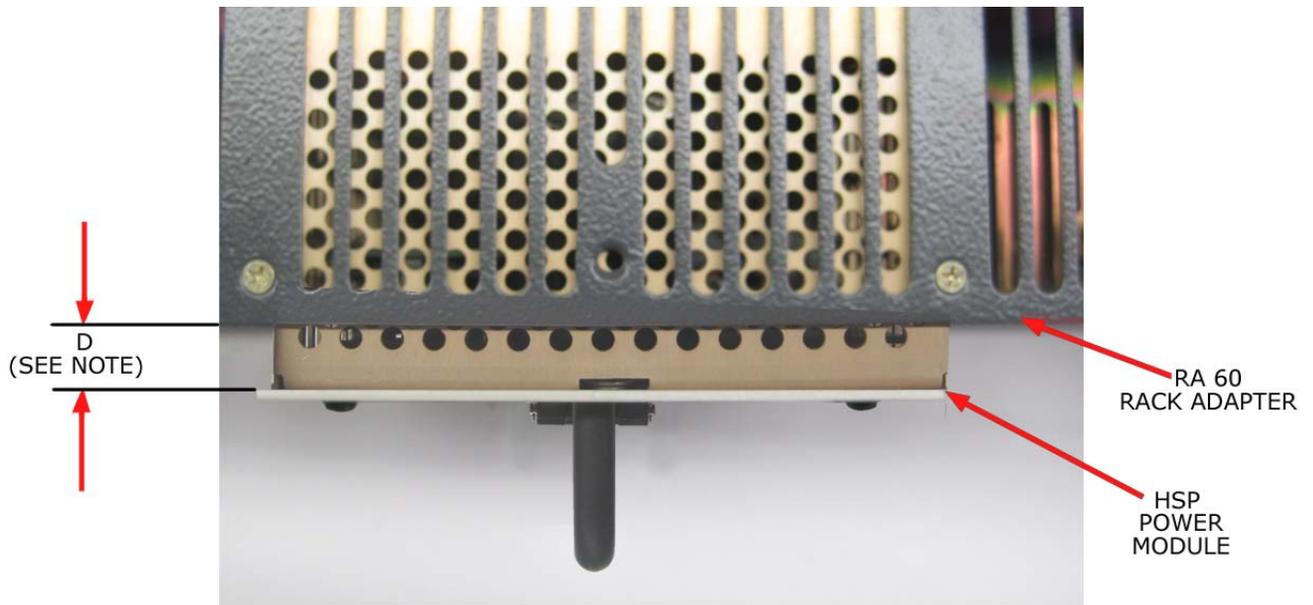
If damage cannot be isolated, return both power supply module and rack adapter to Kepco along with a complete description of the problems encountered and any actions taken. This will be invaluable assistance in tracing the root cause of the problem.

4. REMOVAL

To remove a power supply module from its rack adapter slot the insertion process should be performed in an exact reversal of the insertion procedure, starting with turning off the circuit breaker and ending with reinstallation of the DSUB I/O connector dust cover and repackaging of the power supply in its original shipping container to protect the module connectors from damage. **CAUTION: To avoid non-parallel edges of the DSUB connector as shown in Figure 1, do not squeeze the edges together.**



FIGURE 8. MODULE PROPERLY INSERTED



NOTE:

When improperly inserted, a gap (D) will be present between the edge of the HSP front panel and the RA 60 Rack Adapter. The size of the gap is an indication of what might be wrong.

D = 3/8" usually means the DSUB I/O connector did not engage properly.

D = 9/16" usually means either the Power Inlet connector is misaligned or the front panel latches are not retracted.

D = 1-1/2" usually means the rack adapter slot keying does not match the power module.

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FIGURE 9. MODULE NOT PROPERLY INSERTED

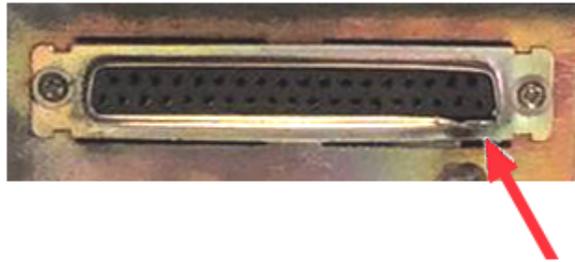
RA 60 CONNECTORS

GOOD



3044410

DAMAGED



HSP CONNECTORS

GOOD



3044411

DAMAGED

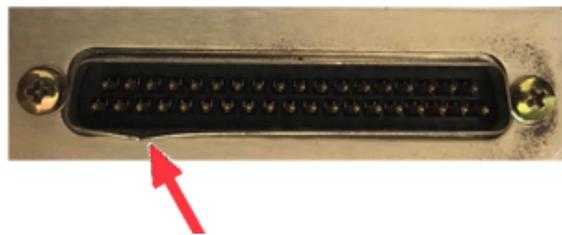


FIGURE 10. RA 60 AND HSP CONNECTORS