

# Energite® III



## Meets NCHRP 350 Test Level 3

The Energite® III System meets NCHRP 350, Test Level 3 criteria for *non-redirective* crash cushions when placed in appropriately designed arrays. It features many advantages, including a one-piece barrel design and a snap-on lid. The tapered shape allows easy stacking for storage and transport. The cone inserts are used to adjust sand capacities and ensure that the center-of-mass is at the proper elevation to discourage ramping.

## Fewer Parts and Less Assembly

The cone inserts for the 90 and 180 kg (200 and 400 lb) modules have been combined into a *single* insert to be used with both modules. This reduction in parts saves in replacement part inventories and improves ease of installation.



MODEL 640



MODEL 960



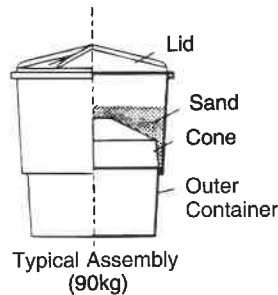
MODEL 90/180 Cone



Lid



MODEL 320 Cone



Typical Assembly (90kg)

Nominal Mass		Outer Container Model	Cone Model	Lid
kg	lbs			
90	200	640	90/180	x
180	400	640	90/180	x
320	700	640	320	x
640	1400	640	—	x
960	2100	960	—	x

## Energite III Details

The Energite III System is a non-redirective, easy-to-install crash cushion consisting of a number of sand-filled, polyethylene plastic modules that are installed in a specific geometric array in front of a hazard.

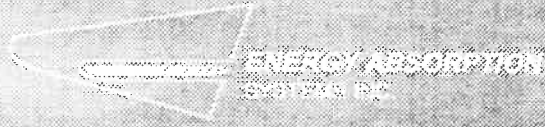
Each module in the array consists of a one-piece barrel, a lid and, in some modules, a cone insert. The cone insert is used to adjust the sand height or center-of-mass and the overall weight of the barrel. The barrel's weight requirement is determined by its place within the array.

The Energite III modules are available in 90, 180, 320, 640 and 960 kg (200, 400, 700, 1400 and 2100 lb) sizes. The 90, 180 and 320 kg modules consist of a Model 640 barrel, a cone and a lid. The 640 kg module consists of a Model 640 barrel and a lid. And the 960 kg module consists of a Model 960 barrel and a lid.



**ENERGY ABSORPTION SYSTEMS, INC.**

**Saving Lives by Design**

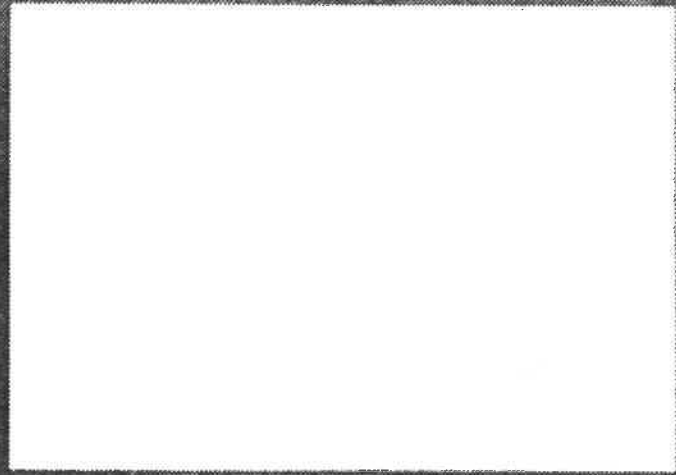


# **ENERGITE® III**

## **SYSTEM**

### **MAINTENANCE**

### **MANUAL**



# OPERATIONAL EXPLANATION

## SYSTEM DESCRIPTION

The ENERGITE® III System provides an economical crash cushion for low-frequency impact areas. The ENERGITE III System can offer a low cost alternative for assuring motorist safety for very wide hazards such as "T" intersections or wide gores, and for areas of less frequent impacts.

Consisting of a planned array of sand-filled plastic containers, the ENERGITE III System is designed to break up on impact. As the vehicle passes through the array, its speed is slowed by the transfer of its momentum to the sand, allowing for a safe, uniform deceleration.

### CAUTION

**PROPER MAINTENANCE OF THE ENERGITE III SYSTEM IS ESSENTIAL TO ASSURE PROPER IMPACT PERFORMANCE. TAKE THE TIME TO REVIEW THE MAINTENANCE INSTRUCTIONS AND PRODUCT LIMITATIONS THOROUGHLY BEFORE PERFORMING NECESSARY WORK.** Do not attempt to install any crash cushion without the proper plans and installation manual from the manufacturer. Energite III System manuals are available by calling the Energy Absorption Systems Customer Service Department at (312) 467-6750.

With proper placement, the ENERGITE III System can safely decelerate vehicles for a wide range of design velocities during head-on impacts.

The ENERGITE III System Features:

- Low initial cost
- Easy to assemble
- Nestable components
- Ideal for wide hazards
- No assembly required for individual parts

Inertial barriers are not recommended for sites where redirective capabilities are warranted. Contact Energy Absorption Systems, Inc. for other systems.

# MAINTENANCE CHECKLIST

## VISUAL DRIVE-BY INSPECTION

- 1) Check the modules to see if any are damaged.
- 2) Check the lids to see if any are missing or ajar.
- 3) Check for debris around modules that could cause ramping.
- 4) Check for objects on top of the modules.
- 5) Note the location, condition of the Energite ® III System array and date of the visual drive-by inspection. Drive-by inspections are recommended as needed based upon volume of traffic and frequency of impacts. If any of the above conditions are noticed, a walk-up inspection is warranted. Required corrections must be made as soon as

possible.

## WALK-UP INSPECTION

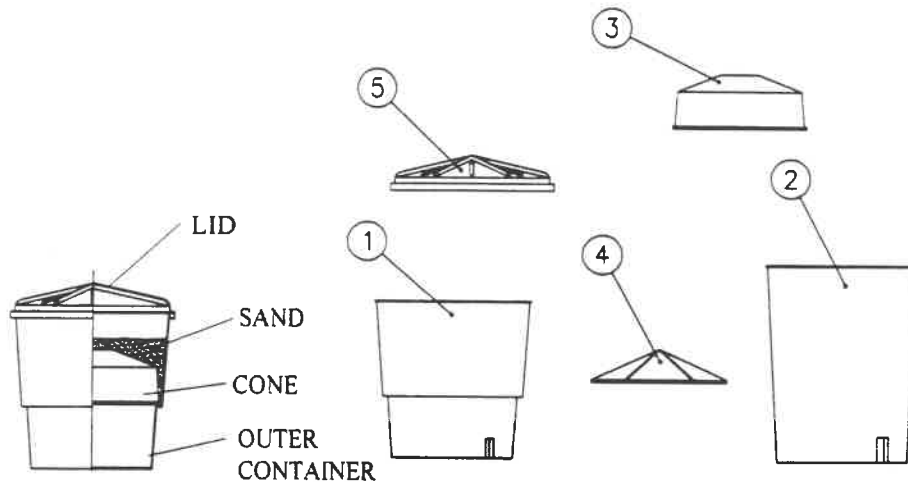
- 1) Be sure lids are firmly in place.
- 2) Be sure lids are not dished downward.
- 3) Be sure modules are not tilted or leaning
- 4) Be sure modules are not cracked and outer shells are not damaged.
- 5) Be sure modules have not been moved from their proper position.
- 6) Note the location, the condition of the array and any maintenance done in Energite III System Maintenance Log (see page 7) under the date of this inspection. If further repair is necessary, note repair request date in log. Physical inspections are recommended as needed based upon volume of traffic and impact history. Refer to Post Impact Repositioning Instructions on next page for more information.

# POST-IMPACT REPOSITIONING INSTRUCTIONS

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- 1) Place traffic-control devices.
- 2) Using brooms, shovels and other equipment, remove sand and debris from site. Sand may be used later for filling the replacement modules.
- 3) Place the new ENERGITE® III System modules in their proper positions. Use the markings on the roadway surface or the site plans to locate the centers of the new modules. At the time of the original installation, a number indicating the location for each model type should have been painted on the roadway surface. Reconfigure the array following the markings at the site. To ensure proper impact performance the array should not be modified unless authorization is received from the design engineer. Refer to the original plans.
- 4) Fill replacement modules with sand. If sand from the original array is used, first remove any broken plastic pieces or other debris found in the sand. Fill the modules to the level indicated on the decal located on the inside surface of the outer module. Note: Add 5% rock salt by weight if modules are located where freezing might occur. The rock salt should be evenly dispersed throughout the sand. Suggestion: An efficient method of quickly filling ENERGITE III System modules is to use a sand filled cement mixer.
- 5) Secure the lids on the modules.
- 6) Perform any final debris clean-up of the site.
- 7) The ENERGITE III System array is now ready for use.

# PART LIST AND ORDERING PROCEDURE



ITEM	PART NO.	DESCRIPTION
1	2731191-0100	ENERGITE® III, 640(1400), OUTER CONTAINER
2	2731261-0100	ENERGITE III, 960(2100), OUTER CONTAINER
3	2731201-0000	ENERGITE III, 90/180(200/400), INNER CONE
4	2731271-0000	ENERGITE III, 320(700), INNER CONE
5	2731241-0000	ENERGITE III, LID, BLACK

1. Damaged parts should be replaced in-kind using the part numbers and full descriptions given above.

2. Contact Energy Absorption Systems' Customer Service Department at (312) 467-6750 to order parts or to get answers to questions.

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## LIMITATIONS AND WARNINGS

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The Energite® III System has been tested and evaluated per the recommendations of the National Cooperative Highway Research Program (NCHRP) Report 350\* for TL-3 non-redirective impact conditions. The Energite III System, as currently designed, with the proper array, is capable of decelerating and stopping light and heavy weight vehicles (820 to 2000 kg [1810 to 4410 lbs.]) when impacted head-on at 100 km/h (62 mph). Tests were conducted on slopes less than 5% and without curbs.

The Energite III System is a non-redirective crash cushion and should be used appropriately.

Excessive curb height may create a vehicle ramping condition, which could cause an unsafe vehicle trajectory.

Impacts that exceed the design capabilities described in this manual (vehicle weight, speed and impact angle) may not result in acceptable crash performance as described in NCHRP 350 relative to structural adequacy, occupant risk and vehicle trajectory factors.

\*Copies may be obtained from:

Transportation Research Board  
National Research Council  
2101 Constitution Avenue, NW.  
Washington, D.C. 20418



ENERGITE III SYSTEM MAINTENANCE LOG				
DATE	LOCATION	CONDITION (PARTS NEEDED/QTY)	REPAIR REQUEST DATE	WORK DONE