



Service Repair Manual

Models

E70 EXCAVATOR

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Product: EXCAVATOR

Model: E70 EXCAVATOR 3BG

Configuration: E70 HYDRAULIC EXCAVATOR 3BG00001-UP (MACHINE) POWERED BY 4D31 ENGINE

Disassembly and Assembly Seal Installation

Media Number -UENR3262-00

Publication Date -01/11/2018

Date Updated -30/10/2012

i04966249

Duo-Cone Seals - Install

SMCS - 7561-012

DUO CONE SEALS



Illustration 1

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Background

To reduce the risk of leaks or failures, assemble the duo cone seals correctly. This document applies to cast, formed, conventional, and inverted Duo-Cone seals and to installations on factory assembly lines, at dealer shops, and in the field.

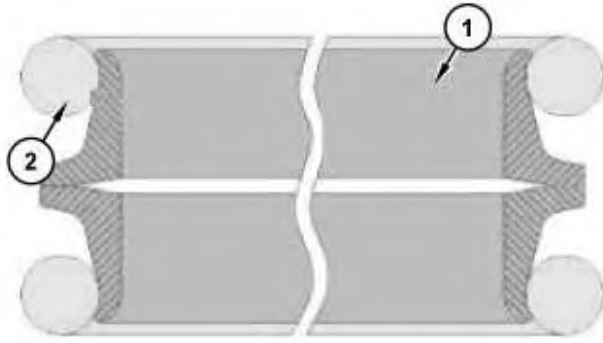


Illustration 2 g03150396
 Duo-Cone seal
 (1) Seal ring
 (2) Rubber toric

The two main components of a Duo-Cone seal are shown in Illustration 2.

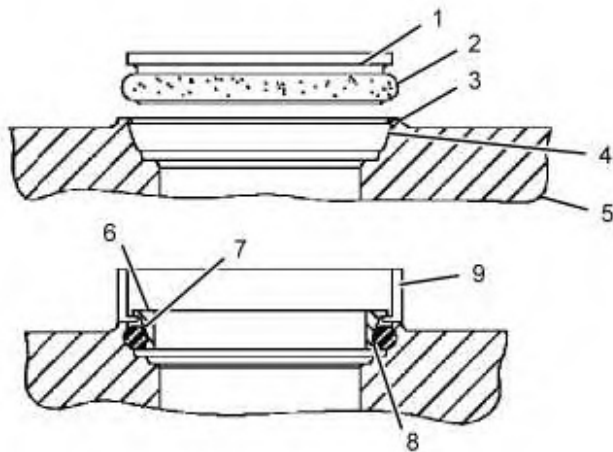


Illustration 3 g03150397
 Duo-Cone seal assembly

The standard naming nomenclatures for Duo-Cone seals are listed below.

(1) Seal Ring - The metal component of a seal group.

(2) Rubber Toric (Load Ring) - Elastomeric component of a seal group that applies a face load in the application. This o-ring style seal retains oil and excludes debris.

(3) Housing (Retainer) Lip - The lip inside the housing (retainer) that helps to retain the seal ring/rubber toric during installation.

(4) Housing Ramp - The angled ramp that is located on the housing. Maintaining the proper surface finish is critical.

(5) Housing Retainer - The recess in which a seal ring and a load ring are installed.

(6) Seal Face - The “active surface” of the seal. In a finished seal the face contains the seal band, seal band to taper radius, and taper.

(7) Seal Ramp - The inclined surface on the exterior of the Duo-Cone seal ring that positions the toric between the seal ring and the housing.

(8) Seal Retaining Lip - The function of the retaining lip is to provide a seat for the toric. This radius allows the toric to stay on the ring for ease of assembly.

(9) Installation Tool - Assembly tool used to install the Duo-Cone seal into housing.

(10) Seal Assembled Height (not shown in Illustration 2) - The final installation height of Duo-Cone seal once installed into the housing (retainer). Assembled height measured in three places approximately 120 degrees apart. Not to exceed 1.0 mm (0.04 inch) variation.

For a full Duo-Cone seal assembly there are three components that comprise a full assembly:

- (1) Seal ring
- (2) Rubber toric
- (5) Housing retainer

These three components help create three separate and distinct sealing areas. If one aspect of the seal assembly goes wrong, then a leak path may occur at one or more of following sealing locations.

- Metal-to-Metal Face
- Metal Seal Ring-to-Toric
- Toric-to-Housing

GENERAL INFORMATION

Recommended Cleaning Wipes

Refer to Table for approved lint free wipes.

Cleaners used should not be oil-based products.

Table 1

Lint Free Wipe Crib	IBM Number	CAT Part Number
Chemtool CT Clean 15861 Wipe With Cleaner	3-0124698	169-5420
Chemtool Lint-Free Wipes	3-0080298	265-2256
Kimtex Lint-Free Polypropylene Towels	3-0039125	
New Pig Low-Lint Wipes	WIP230 WIP232	

Service Kits

Service kits and products are available. A list of approved Duo-Cone seal service items is listed below in Table 2.

Table 2

Dealer Service Network Part Number	Dealer Service Network Description	Description	Manufacturer	CAT IBM Crib Part Number
169-5418	Cat Seal Lubricant	1 Gallon Seal Lubricant	Chemtool	None
169-5420	Cat Duo-Cone Seal Cleaner	1 Gallon Seal Cleaner	Chemtool	None
169-0503	Duo-Cone Seal Installation Kit	Seal Installation Kit	CAT	None

STORAGE

Seal and Seal Ring Storage

Contamination Storage Requirements - Regardless of size or shape, seals and gaskets must be stored in such a manner that prevents contamination and maintains cleanliness. The seals and gaskets should be stored in original packaging until installed.

Best Practice Storage - Best-practice storage requires two methods of limiting contamination direct to the seal or seal ring. If one level of protection is easily frayed or fray-able (rubbed or worn into fibers), (for example: wood/cardboard) the storage container must have an internal layer of protection (for example: polybag). Any storage container (lid or bag) must be resealed after each use.

Minimum Acceptable Storage - Minimum acceptable storage practices would include one method of limiting contamination direct to the seal or seal ring.

Unacceptable Storage - Storing seals or seal rings without any means of limiting contamination or with the storage container (lid/bag) open/unsealed is an unacceptable practice. Seals should not be stored in direct sunlight.

Housing Storage - Store housings in a manner that will prevent contamination, rust, or damage to the component.

CLEANLINESS

Refer to the Contamination Control Guidelines, PEBJ0002, "Caterpillar Dealer Contamination Control Compliance Guide".

Use only an approved lint-free wipe to remove all contamination from the seal ring, rubber toric, and housing.

Seals, Seal Rings, and Housing Cleanliness

Seals and seal rings must be kept free from contamination sources. Examples may include but are not limited to, airborne dust and dirt, metal chips, and liquids such as fuels, oils, greases, and solvents.

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