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Title: A26 Connecting Rod Replacement Process

Applies To: All A26 engines built

## DESCRIPTION

The purpose of this article is to describe all aspects of the A26 Connecting Rod Replacement Repair Process.

To address the A26 connecting rod supplier quality spill, Navistar is streamlining another quality repair strategy to help avoid customer disturbance.

Navistar is implementing connecting rod replacements which results in less excessive downtime and damage avoidance

## SPECIAL TOOL(S) / SOFTWARE

Tools listed below should be available and in good working condition prior to the start of the repair to avoid any delays in the completion of the work.

Tool Description	Tool Number	References
Cylinder Kit Puller Tool	12-192-01	<a href="#">TL1200005</a>
Snap-On Digital Torque Wrench	CTECH3R250A	<a href="#">IK1201391</a>
Cylinder Head Lifting Bracket	12-342-03	
Engine Barring Tool	12-102-02	
Socket, Con. Rod Bolt (E18 TORX)	ZTSE4835	
Socket, Head Bolt (E24 TORX)	ZTSE4787	
Head Bolt Bottoming Tap	ZTSE4855	
Gauge, Cylinder Liner Height	ZTSE2515A	
Liner Protrusion Hold Down Clamps	ZTSE4825	

## SERVICE PARTS INFORMATION

The following parts are required for Connecting Rod Replacement Repair:

Kit Description	Part Number	Quantity
Kit, Cylinder Head Removal & Installation	2517038C91	1
Kit, Reduced Power Cylinder	2522946C92	6
Gasket, Oil Pan	3003425C2	1
Seal, O-Ring (Pick up tube)	06569361612	1
Kit, Oil Filter	3007498C94	1

The following parts are in inventory, but repair guidance will be given by Navistar personnel

Description	Part Number	Notes	Visual Description
<b>POWER CYLINDER KITS</b>			
Kit, Reduced Power Cylinder	2522946C92	1. RETAINER, PISTON PIN 2. ROD ASSEMBLY, CONNECTING 3. BEARING, CONNECTING ROD UPPER	

		<p>4. SHELL, BEARING LOWER STANDARD</p> <p>5. O-RING, CYLINDER SLEEVE 139.4 X 3.95</p>	
A26 Power Cylinder Kit (Assembled)	2517649C93	Power Cylinder Assembly is Pre-Assembled with New Components	
A26 REMANUFACTURED POWER CYLINDER KIT (Assembled)	5012252R91	Power Cylinder Assembly is Pre-Assembled with New Components and a Remanufactured Piston	
<b>CYLINDER HEAD REMOVAL KITS</b>			
Reduced Cylinder Head Removal Kit	2517038C91	Contains Components Required for Cylinder Head Removal and Installation	
Full Cylinder Head Removal Kit	2517611C92	Contains Components Required for Cylinder Head Replacement	

## REPAIR STEP(s)

**WARNING!** To prevent property damage, personal injury, and / or death, park vehicle on a hard, flat surface, turn the engine off, set the parking brake, and install wheel chocks to prevent the vehicle from moving in either direction.

**WARNING!** To prevent property damage, personal injury, and / or death, if the vehicle must be raised, do not work under the vehicle supported only by jacks. Jacks can slip or fall over.

**WARNING!** To prevent personal injury and / or death, always wear safe eye protection when performing vehicle maintenance.

**WARNING!** To prevent property damage, personal injury, and / or death, keep flames or sparks away from vehicle and do not smoke while servicing the vehicle's batteries. Batteries expel explosive gases.

**WARNING!** To prevent property damage, personal injury, and / or death, remove the ground cable from the negative terminal of the battery box before disconnecting any electrical components. Always connect the ground cable last.

1. Park vehicle on a flat surface

2. Shift transmission into Park or Neutral and set parking brake
3. Turn ignition to Key OFF position
4. Install wheel chocks
5. Remove Cylinder Head (Only components required for R&I):

i. [Cylinder Head Removal Service Manual \(Draft 1\)](#)

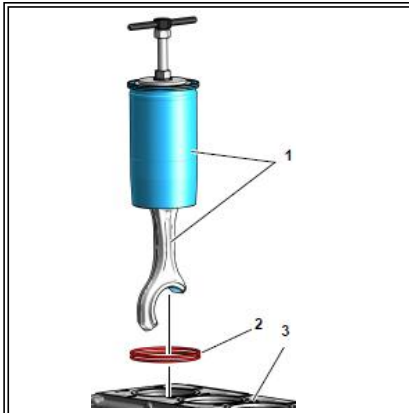
ii. 0000870980 2017 International A26 Engine Service Manual - Nov 2021

Engine Component Replacement Procedures> Cylinder Head, Camshaft and Valve Train> Cylinder Head Assembly

6. Replace 6 Connecting Rods utilizing Cylinder Kit Puller Tool and Reduced Power Cylinder Kit (2522946C92):

i. [Instructions 4328817R1](#)

ii. [Power Cylinder Assembly Removal Service Manual \(Draft 1\)](#)



**Figure #: Power Cylinder Assembly and Cylinder Puller Kit**

Item 1: Power Cylinder Assembly  
Item 2: Cylinder Sleeve O-rings  
Item 3: Engine Block

7. Install Cylinder Head:

i. [Cylinder Head Installation Service Manual \(Draft 1\)](#)

ii. 0000870980 2017 International A26 Engine Service Manual - Nov 2021

Engine Component Replacement Procedures> Cylinder Head, Camshaft and Valve Train> Cylinder Head Assembly

8. Follow Engine Assembly procedures (Oil priming, fluid levels, break-in procedure)

9. Install ECM Template

**NOTE:** A parameter template must be installed in the engine ECM via NED after the repair is complete. This must be done before the truck is returned to service. Reference [NED Parameter Templates- IK1200603](#)

i. **Download Template-** [Knock Detection Template](#)

**NOTE:** Template is currently a zip file. Open the zip file and extract the template to your desktop before trying to load it into NED.

ii. **ApplyTemplate**

iii. **Look up parameter 39001 and verify it is 0 = disabled**

TID	Name	Value	Customer Programmable	Undo	Write Access
39001	Connecting Rod Strategy Enable	Knock detection disabled			Engineering
39010	Force Fan On With AISC Active Feature	Auto Control			Fleets
39020	AISC State to Inhibit HC DeSorb	Inhibit DeSorb when AISC is controll...			Fleets
39030	Smart Torque Enable	Disable			Program Support
39040	Substall Detection	Disable			Engineering
39050	Vehicle Speed Source Selection When Split Shaft is Active	Wheel Speed Selected When Split Sha...			Fleets

**Figure #: Parameter 39001- Connecting Rod Strategy Enable**

## 10. Package Parts for Blue Tag Return

**NOTE:** Navistar requires the following components to be returned to Navistar PSC (Woodridge, IL). A Blue Tag request will be made through a case file

- Connecting Rod
- Connecting Rod Bearings and Bolts

**NOTE: Total weight of all components is ~60lbs**

**NOTE: Every individual connecting rod should be labeled with the ESN and CYL # - See examples below**



## BEST REPAIR PRACTICES

### Shop Environment:

- Work area must be clean. Contamination to following components can lead to premature engine failure:
  - Crankshaft, Cylinder Sleeve
  - Engine Lubrication and High-Pressure Fuel Systems
  - Front and Rear Gear-Train

### Steam Clean Engine and Engine Compartment:

- Prior to engine disassembly, remove contaminants that are built up around the EGR Cooler, Exhaust Manifold, Cylinder Head, Fuel System, and Oil Pan
- Properly cover electronics and open entrances

### Engine Block and Cylinder Head Preparation for Assembly:

- Do **NOT** use an abrasive disc or wire wheel
- Utilize recommended tools to clean cylinder head, block deck surface, liner flanges, and counterbores
  - 3M Roloc Bristle cleaning disc "Green" or "Yellow" to clean surfaces
  - 3M Scotch Brite "Maroon" pads

### Engine Preparation and Assembly:

- Clean components with brake cleaner or solvent
  - Do **NOT** use brake cleaner or solvents to clean NEW Connecting Rod Bearings
  - Air or blow dry components
- Clean oil and residue from the backside of the connecting rod bearings and saddle surfaces of the connecting rods
- If required, store cleaned components in plastic bags to reduce contamination
- Utilize the proper lubrication
  - Utilize **P-80 LUBRICANT** to lubricate Cylinder Sleeve and new Cylinder Sleeve O-rings
  - Utilize **LUBRIPLATE 105** to lubricate new Connecting Rod Bearings

### Connecting Rod Cap Installation:

- Ensure proper torque wrench settings are programmed prior to use. Reference [IK1201391](#)
- Add clean engine oil to the first 3 to 4 threads and washer surface of each new connecting rod bolt
- Initially seat the connecting rod cap and install bolts by hand. Alternate back and forth to seat the cap flush prior to torquing
- Alternate back and forth starting with: 2x each 22 (ft-lb), 77 (ft-lb), 90 degrees
- Anytime connecting rod bolts are replaced the connecting rod cap needs to be removed and ensure the connecting rod cap are centered

### Torque Wrench Operation:

- Ensure your torque wrench has been calibrated by an authorized Snap-On repair facility. Reference [IK1201391](#)
- Torque wrench calibration / Snap-On repair center. Reference [TL2900164](#)

**Torque Wrench Data Review (Connecting Rod Bolts):**

- Ensure (36) lines of data is recorded. Reference [IK1201391](#)> Section [Viewing Torque Wrench Data](#)
- If an over-torque occurs at 22 or 77 ft-lb both Connecting Rod Bolts can be backed off and retorqued
  - Ensure retorque process begins at 22 ft-lb
- If an over-torque occurs at 90 degrees both Connecting Rod Bolts need to be replaced
  - Connecting Rod Bolts are torque to yield. **DO NOT REUSE**

**Post Repair & Road-test:**

- Ensure knock calibration has been disabled
- Prior to engine start-up perform Engine Oil Priming Procedure listed within A26 engine service manual
- Vacuum test cooling system prior to fill
- Fill cooling and engine oil to proper levels
- Monitor oil pressure gauge for the first minute
- Idle engine for 30 minutes, no excessive RPM changes
- Listen for unusual noises
- Prior to road-test inspect engine for coolant and oil leaks
- Road-test vehicle for 60 minutes
- After proper engine operation has been verified, inspect engine for leaks
- Perform post repair Health Report

**WARRANTY INFORMATION**

- All connecting rods, connecting rod bearings, and connecting rod bolts need to be returned to Navistar PSC for review. A Blue Tag request will be made through corresponding case file
- Refer to WPL2800136 for Digital Torque Wrench policy
  - Issues with wrench, reference [TL2900164](#)

**Standard Repair Time(s):**

Labor Op	Labor Description	HRs	Elemental Steps	Notes
LT12-1146UV-20	Connecting Rod, Replace	23.4	<a href="#">Link</a>	<ul style="list-style-type: none"> <li>• Utilizing CYL KIT PULLER</li> <li>• Utilizing Reduced PWR CYL KIT</li> <li>• Torque Data Upload</li> <li>• Includes packaging Blue Tag parts</li> </ul>
RH12-1146UV-20	Connecting Rod, Replace	23.4	<a href="#">Link</a>	<ul style="list-style-type: none"> <li>• Utilizing CYL KIT PULLER</li> <li>• Utilizing Reduced PWR CYL KIT</li> <li>• Torque Data Upload</li> <li>• Includes packaging Blue Tag parts</li> </ul>
	ECM Template	0.5		Only if required

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