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Title: A26 Connecting Rod Replacement Process

Applies To: All A26 engines built prior to 11/2019

CHANGE LOG

11/07/2022 - Updated: Authorized Dealer List / Updated Repair Instruction Flow / Transition from Blue Tag to Warranty Return
 05/17/2022 - Updated Authorized Dealer List

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

Navistar shipped Cylinder Kit Puller 12-192-01 to high A26 traffic dealer locations. These dealers are considered authorized dealers

Authorized Dealer List as of 11/1/2022 (Subject to expand): [Authorized Dealer](#)

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.

Note: Other tools are required, refer to the service manual for the detailed list

Tool Description	Tool Number	References
Cylinder Kit Puller Tool	12-192-01	TL1200005
Snap-On Digital Torque Wrench	CTECH3FR250A	IK1201391
Cylinder Head Lifting Bracket	12-342-03	
Engine Barring Tool	12-102-02	
Socket, ConRod Bolt (E18 TORX)	ZTSE4835	
Socket, Head Bolt (E24 TORX)	ZTSE4787	
Head Bolt Bottoming Tap	ZTSE4855	
Gauge, Cylinder Liner Height	ZTSE2515A	
Liner Protrusion Clamps	ZTSE4825	

SERVICE PARTS INFORMATION

The following parts are required for Connecting Rod Replacement Repair:

Kit Description	Part Number	Quantity	Notes
Kit, Cylinder Head Removal & Installation	2517038C92	1	
Kit, Power Cylinder	Repair Dependent	6	Proactive : 2522946C92 Reactive : 2517649C93
Gasket, Oil Pan	3003425C2	1	

Seal, O-Ring (Pick up tube)	06569361612	1	
Kit, Oil Filter	3007498C94	1	

Below table displays the differences between the parts kits:

NOTE: Reduced Power Cylinder Kit 2522946C91 will require QTY 1 of 62965010534

NOTE: CYLINDER HEAD R&I Kit 2517038C91 will require QTY 1 of 3014964C91

NOTE: To install Power Cylinder Assembly, Red Cylinder Cap Plug 2523516C1 is available in PDC

Description	Part Number	Notes	Visual Description	Instructions
POWER CYLINDER KITS				
Kit, Reduced Power Cylinder	2522946C92	1. RETAINER, PISTON PIN 2. ROD ASSEMBLY, CONNECTING 3. BEARING, CONNECTING ROD UPPER 4. SHELL, BEARING LOWER STANDARD 5. O-RING, CYLINDER SLEEVE 139.4 X 3.95		4328817R1
A26 Power Cylinder Kit (Assembled)	2517649C93	Power Cylinder Assembly is Pre-Assembled with New Components		Disassembly: Power Cylinder Assembly Removal
A26 REMANUFACTURED POWER CYLINDER KIT (Assembled)	5012252R91	Power Cylinder Assembly is Pre-Assembled with New Components and a Remanufactured Piston		Assembly: 2017 A26 Manual > Power Cylinder Assembly > Installation
CYLINDER HEAD REMOVAL KITS				
Reduced Cylinder Head Removal Kit	2517038C92	Contains Components Required for Cylinder Head Removal and Installation (R&I)		
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.

Refer to TIPs video for best practices [A26 Power Cylinder Installation and Best Practices](#)

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 [0000870980 2017 A26 Engine Service Manual](#)
6. Replace 6 Connecting Rods:

If equipped with Cylinder Kit Puller 12-192-01: Follow [Power Cylinder Assembly Removal Service Manual \(Draft 1\)](#)

- i. Proactive Repairs: Reduced Power Cylinder Kit (2522946C92) [Instructions 4328817R1](#)
- ii. Reactive Repairs: Assembled Power Cylinder Kit (2517649C93) [2017 A26 Manual > Power Cylinder Assembly > Installation](#)

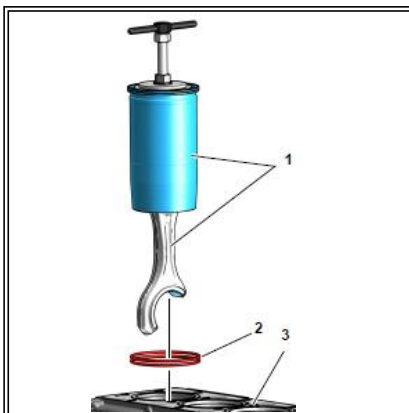


Figure #: Power Cylinder Assembly and Cylinder Puller Kit

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

CAUTION:

Ensure Piston, Connecting Rods, Piston Pin Retainer, and Connecting Rod Bearings **ORIENTATION** is correct prior to assembly

7. Install Cylinder Head [0000870980 2017 A26 Engine Service Manual](#)
8. Follow Engine Assembly procedures (Oil priming, fluid levels, MAF calibration, break-in procedure)

9. Install ECM Template

NOTE: A parameter template must be installed in the engine ECM via **NEDs** 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



The screenshot shows the 'Navistar Engine Diagnostics - Programming' interface. A table lists various parameters. The row for parameter 39001 is highlighted, showing its name, value, and write access.

T ID	Name	Value	Customer Programmable	Undo	Write Access
39001	Connecting Rod Strategy Enable	Knock detection disabled	<input type="checkbox"/>	<input type="checkbox"/>	Engineering
39010	Force Fan On With AISC Active Feature	Auto Control	<input type="checkbox"/>	<input type="checkbox"/>	Fleets
39020	AISC State to Inhibit HC DeSox	Inhibit DeSox when AISC is controll...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fleets
39030	Smart Torque Enable	Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Program Support
39040	Bobtail Detection	Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Engineering
39050	Vehicle Speed Source Selection When Split Shaft is Active	Wheel Speed Selected When Split Shaf...	<input type="checkbox"/>	<input type="checkbox"/>	Fleets

Figure #: Parameter 39001- Connecting Rod Strategy Enable

10. Package Parts for Navistar PRC Warranty Review

As of 11/7/22 - Discontinuation of Blue Tag returns and transition to Navistar Product Review Center (PRC) Warranty part return process

Please retain connecting rods and bearings only until the appropriate Return Authorization (RA) form is available within the Warranty Claim Processing Portal (currently iClaim)

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 6 connecting rods is ~60lbs

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



Figure #: Connecting Rod Labeling for Blue Tag Return

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: IF REQUIRED

- 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 all 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

FAQ

- 1. Will this repair be exempted from the Repair Velocity metrics?**
 - a. The repair is being handled the same as engine replacement, which are not removed. The Repair Velocity target was set with engine replacement volume included.
- 2. How are parts orders managed for the connecting rods?**
 - a. Once the repair path is determined, the parts will be sent automatically, no need to order connecting rods.
 - b. Our parts expeditors use a Child Case File and the PO for the parts shipment is the Connecting Rod replacement Case File.
- 3. Is the oil replacement covered through the warranty claim?**
 - a. Yes, oil is covered.
- 4. Can you change the connecting rods from the bottom of the engine without removing the cylinders?**
 - a. No, there is not enough room to remove the wrist pin.

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	Link	<ul style="list-style-type: none"> Utilizing CYL KIT PULLER Utilizing <u>Reduced_PWR</u> CYL KIT Torque Data Upload Includes packaging Blue Tag parts
RH12-1146UV-20	Connecting Rod, Replace	23.4	Link	<ul style="list-style-type: none"> Utilizing CYL KIT PULLER Utilizing <u>Reduced_PWR</u> CYL KIT Torque Data Upload Includes packaging Blue Tag parts
LT12-1146UV-22	Complete Power Cylinder Assembly, Replace	21.7	Link	<ul style="list-style-type: none"> Utilizing CYL KIT PULLER Utilizing <u>Assembled_PWR</u> CYL KIT Torque Data Upload Includes packaging Blue Tag parts
RH12-1146UV-22	Complete Power Cylinder Assembly, Replace	21.7	Link	<ul style="list-style-type: none"> Utilizing CYL KIT PULLER Utilizing <u>Assembled_PWR</u> CYL KIT Torque Data Upload Includes packaging Blue Tag parts
	ECM Template	0.5		Only if required

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