ENGINE SERVICE

Accessible Engine Components

Components serviceable with engine installed:

- Flywheel
- Alternator (Stator)
- Starter Motor/Drive
- Cylinder Head / Valves
- Camshaft / Camshaft Carrier
- Rocker Arms
- Water Pump

Components that require engine removal for service:

- Counterbalance Shaft(s)
- Piston / Rings
- Connecting Rod
- Crankshaft / Main Bearings
- Oil Pump
- Crankcase
- Crankshaft End Seals (Use Driver PA-49320)

Top-End Service (Engine in Chassis)

The top-end of the engine can be serviced while the engine is mounted in the chassis. A removable upper right-hand frame support allows access to the valve cover and cylinder head.

To service the top-end of the engine refer to the "Valve Clearance Adjustment" procedure in Chapter 2, which provides detailed steps to access the valve cover.

Crankcase Cylinder Service Information

IMPORTANT: Identify which engine you are servicing before replacing components such as the pistons.

It is important to note that two types of engine crankcases were produced for the 2009 Sportsman XP 850. Some of the engines produced have NiCaSil plated cylinder walls, while others have iron lined cylinder walls.

The crankcase differences can be easily recognized by their physical appearance.

- A dull, dark gray color identifies the NiCaSil plated.
- A shinny metallic color identifies the iron lined.

The crankcase differences can also be identified by viewing the engine designation portion of the vehicle's model number.

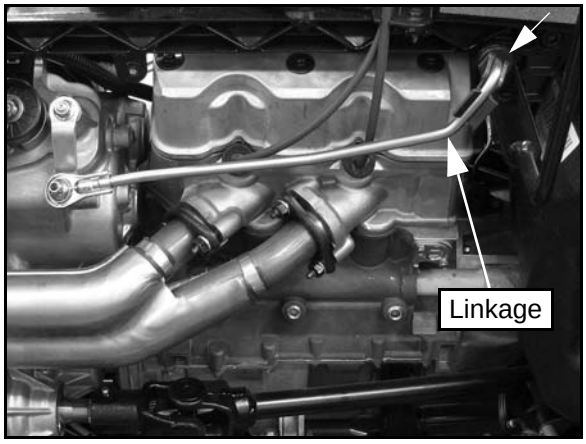
- NiCaSil Plated: A09ZN85
- Iron Lined: A09ZN8X.

Engine Removal

IMPORTANT: Some engine repair procedures can be performed without removing the engine from the vehicle. Refer to "Accessible Engine Components" for further information.

NOTE: Upon engine removal, use a mechanical lift or have an assistant help remove the engine from the vehicle to prevent personal injury or damage to vehicle components.

1. If vehicle was recently operated, allow it to cool down before attempting to perform any work.
2. Thoroughly clean the engine and chassis.
3. Clean your work area
4. Drain the engine oil (see Chapter 2 "Maintenance").
5. Remove the following body components. Refer to Chapter 9 "Body / Frame" for component removal.
   - Seat
   - Side Panels (upper and lower)
   - Footwells
   - Mud Guards (both sides)
6. Disconnect negative (-) battery cable.
7. Pull the shift linkage rod straight outward while pushing on the two ears of the snap retainer to disconnect the rod from the shift lever. Allow the linkage to hang down out of the way.



ADC / 4X4 / 2X4 SWITCH

Function Test

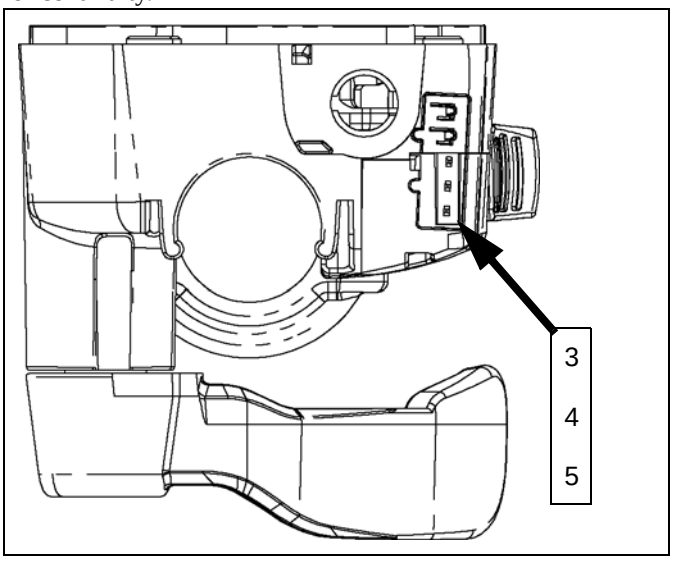
Use a multimeter to test for continuity between the 2 sets of switch outputs (ADC / 4x4).

NOTE: Selecting 2x4 drive mode does not complete any circuits. All circuits should be OL when 2x4 is selected.

ADC / AWD / 2x4 Switch Test

	3	4	5
4x4 ADC	●	●	●
4x4 (AWD)	●	●	
2x4			

Move the drive selector switch to each drive mode, and then test for continuity.



If any of the tests fail, replace the RH throttle / switch assembly.

OFF / RUN LH SWITCH

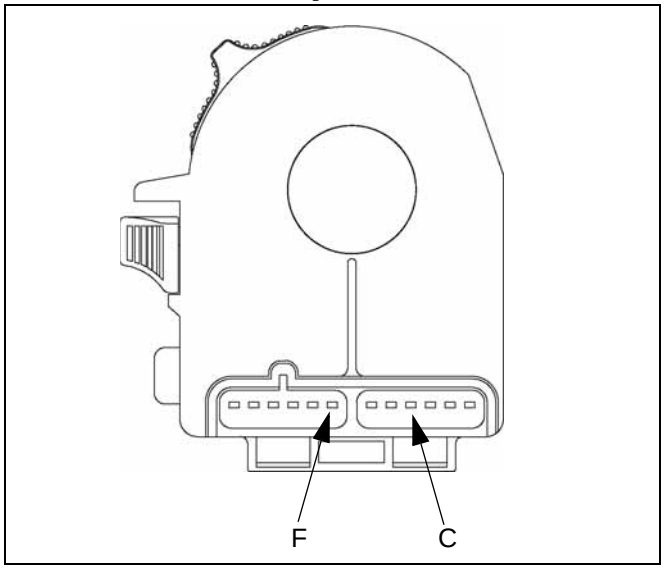
Function Test

Use a multimeter to test for continuity when the LH switch is moved to the RUN position.

Off / Run Switch Test

	F (Left Connector)	C (Right Connector)
OFF		
RUN	●	●

Move the switch to the RUN position and test.



If the test fails, replace the LH control assembly.