

# SERVICE MANUAL

## **T8.320 / T8.350 / T8.380 / T8.410 / T8.380 SmartTrax™ / T8.410 SmartTrax™ Powershift Transmission (PST) Tractor**

*PIN ZFRE03123 and above*

Part number 47917993

1<sup>st</sup> edition English  
October 2015





## **SERVICE MANUAL**

**T8.320 PST TIER 4B [ZFRE03123 - ] , T8.350 PST TIER 4B [ZFRE03123 - ]  
 , T8.380 PST TIER 4B [ZFRE03123 - ] , T8.380 SmartTrax™ PST TIER 4B  
 [ZFRE03123 - ] , T8.410 PST TIER 4B [ZFRE03123 - ] , T8.410 SmartTrax™  
 PST TIER 4B [ZFRE03123 - ]**

# Contents

---

## INTRODUCTION

<b>Engine</b> .....	<b>10</b>
[10.001] Engine and crankcase .....	10.1
[10.101] Cylinder heads .....	10.2
[10.202] Air cleaners and lines .....	10.3
[10.216] Fuel tanks .....	10.4
[10.218] Fuel injection system.....	10.5
[10.254] Intake and exhaust manifolds and muffler .....	10.6
[10.304] Engine lubrication system.....	10.7
[10.310] Aftercooler.....	10.8
[10.400] Engine cooling system .....	10.9
[10.414] Fan and drive .....	10.10
[10.500] Selective Catalytic Reduction (SCR) exhaust treatment.....	10.11
<b>Power coupling</b> .....	<b>19</b>
[19.100] Drive shaft.....	19.1
[19.110] Flywheel damper .....	19.2
[19.120] Drive shaft shield assembly .....	19.3
<b>Transmission</b> .....	<b>21</b>
[21.105] Powershift transmission lubrication system .....	21.1
[21.113] Powershift transmission .....	21.2
[21.135] Powershift transmission external controls.....	21.3
[21.155] Powershift transmission internal components.....	21.4
[21.200] Dropbox .....	21.5
[21.900] Hydraulic pump drive.....	21.6
<b>Four-Wheel Drive (4WD) system</b> .....	<b>23</b>
[23.202] Electro-hydraulic control .....	23.1

**<https://www.ebooklibonline.com>**

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

**<https://www.ebooklibonline.com>**

[23.314] Drive shaft.....	23.2
<b>Front axle system .....</b>	<b>25</b>
[25.100] Powered front axle .....	25.1
[25.102] Front bevel gear set and differential .....	25.2
[25.108] Final drive hub, steering knuckles, and shafts .....	25.3
[25.122] Axle suspension control.....	25.4
<b>Rear axle system.....</b>	<b>27</b>
[27.100] Powered rear axle.....	27.1
[27.106] Rear bevel gear set and differential.....	27.2
[27.120] Planetary and final drives .....	27.3
[27.610] Rear axle track yoke assembly .....	27.4
<b>Power Take-Off (PTO).....</b>	<b>31</b>
[31.104] Rear electro-hydraulic control.....	31.1
[31.110] One-speed rear Power Take-Off (PTO) .....	31.2
[31.114] Two-speed rear Power Take-Off (PTO) .....	31.3
[31.146] Front Power Take-Off (PTO) .....	31.4
<b>Brakes and controls .....</b>	<b>33</b>
[33.110] Parking brake or parking lock .....	33.1
[33.202] Hydraulic service brakes .....	33.2
[33.220] Trailer brake hydraulic control.....	33.3
[33.224] Trailer brake pneumatic control .....	33.4
[33.240] Emergency brake .....	33.5
<b>Hydraulic systems.....</b>	<b>35</b>
[35.000] Hydraulic systems.....	35.1
[35.102] Pump control valves.....	35.2
[35.106] Variable displacement pump .....	35.3
[35.114] Three-point hitch control valve .....	35.4
[35.124] Three-point hitch hydraulic adjustment .....	35.5

[35.204] Remote control valves .....	35.6
[35.300] Reservoir, cooler, and filters.....	35.7
[35.304] Combination pump units .....	35.8
<b>Hitches, drawbars, and implement couplings.....</b>	<b>37</b>
[37.110] Rear three-point hitch .....	37.1
[37.162] Front hitch .....	37.2
<b>Steering.....</b>	<b>41</b>
[41.101] Steering control .....	41.1
[41.200] Hydraulic control components.....	41.2
[41.206] Pump .....	41.3
[41.432] Autoguidance steering .....	41.4
[41.910] Auxiliary steering .....	41.5
<b>Wheels .....</b>	<b>44</b>
[44.520] Rear wheels .....	44.1
<b>Tracks and track suspension.....</b>	<b>48</b>
[48.100] Tracks .....	48.1
[48.130] Track frame and driving wheels.....	48.2
[48.134] Track tension units .....	48.3
[48.138] Track rollers .....	48.4
<b>Cab climate control .....</b>	<b>50</b>
[50.100] Heating .....	50.1
[50.200] Air conditioning.....	50.2
[50.300] Cab pressurizing system .....	50.3
<b>Electrical systems .....</b>	<b>55</b>
[55.000] Electrical system .....	55.1
[55.010] Fuel injection system.....	55.2
[55.012] Engine cooling system .....	55.3

[55.013] Engine oil system .....	55.4
[55.014] Engine intake and exhaust system.....	55.5
[55.015] Engine control system.....	55.6
[55.024] Transmission control system .....	55.7
[55.045] Front axle control system .....	55.8
[55.046] Rear axle control system.....	55.9
[55.050] Heating, Ventilation, and Air-Conditioning (HVAC) control system.....	55.10
[55.051] Cab Heating, Ventilation, and Air-Conditioning (HVAC) controls.....	55.11
[55.100] Harnesses and connectors.....	55.12
[55.130] Rear three-point hitch electronic control system .....	55.13
[55.201] Engine starting system .....	55.14
[55.301] Alternator.....	55.15
[55.302] Battery.....	55.16
[55.408] Warning indicators, alarms, and instruments .....	55.17
[55.512] Cab controls.....	55.18
[55.513] Cab transmission controls.....	55.19
[55.518] Wiper and washer system.....	55.20
[55.640] Electronic modules .....	55.21
[55.988] Selective Catalytic Reduction (SCR) electrical system .....	55.22
[55.DTC] FAULT CODES.....	55.23

**Platform, cab, bodywork, and decals .....** 90

[90.100] Engine hood and panels .....	90.1
[90.102] Engine shields, hood latches, and trims .....	90.2
[90.124] Pneumatically-adjusted operator seat.....	90.3
[90.150] Cab.....	90.4
[90.151] Cab interior.....	90.5
[90.160] Cab interior trim and panels.....	90.6



# INTRODUCTION

# Contents

---

## INTRODUCTION

Foreword - Important notice regarding equipment servicing .....	3
Safety rules .....	4
Safety rules - General maintenance safety .....	5
Safety rules - Personal Protective Equipment (PPE) .....	6
Safety rules - Do Not Operate tag .....	7
Safety rules - Ecology and the environment .....	8
Torque - Minimum tightening torques for normal assembly .....	9
Capacities .....	14
Product identification .....	15

---

## **Foreword - Important notice regarding equipment servicing**

All repair and maintenance work listed in this manual must be carried out only by qualified dealership personnel, strictly complying with the instructions given, and using, whenever possible, the special tools.

Anyone who performs repair and maintenance operations without complying with the procedures provided herein shall be responsible for any subsequent damages.

The manufacturer and all the organizations of its distribution chain, including - without limitation - national, regional, or local dealers, reject any responsibility for damages caused by parts and/or components not approved by the manufacturer, including those used for the servicing or repair of the product manufactured or marketed by the manufacturer. In any case, no warranty is given or attributed on the product manufactured or marketed by the manufacturer in case of damages caused by parts and/or components not approved by the manufacturer.

The information in this manual is up-to-date at the date of the publication. It is the policy of the manufacturer for continuous improvement. Some information could not be updated due to modifications of a technical or commercial type, or changes to the laws and regulations of different countries.

In case of questions, refer to your NEW HOLLAND Sales and Service Networks.

## Safety rules


### Personal safety





This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

 DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

**FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.**

### Machine safety

**NOTICE:** Notice indicates a situation that, if not avoided, could result in machine or property damage.

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

### Information

**NOTE:** Note indicates additional information that clarifies steps, procedures, or other information in this manual.

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

---

## Safety rules - General maintenance safety

### General maintenance safety

Keep the area used for servicing the machine clean and dry. Clean up spilled fluids.

Service the machine on a firm, level surface.

Install guards and shields after you service the machine.

Close all access doors and install all panels after servicing the machine.

Do not attempt to clean, lubricate, clear obstructions, or make adjustments to the machine while it is in motion or while the engine is running.

Always make sure that working area is clear of tools, parts, other persons and pets before you start operating the machine.

Unsupported hydraulic cylinders can lose pressure and drop the equipment, causing a crushing hazard. Do not leave equipment in a raised position while parked or during service, unless the equipment is securely supported.

Jack or lift the machine only at jack or lift points indicated in this manual.

Incorrect towing procedures can cause accidents. When you tow a disabled machine follow the procedure in this manual. Use only rigid tow bars.

Stop the engine, remove the key, and relieve pressure before you connect or disconnect fluid lines.

Stop the engine and remove the key before you connect or disconnect electrical connections.

Scalding can result from incorrect removal of coolant caps. Cooling systems operate under pressure. Hot coolant can spray out if you remove a cap while the system is hot. Allow the system to cool before you remove the cap. When you remove the cap, turn it slowly to allow pressure to escape before you completely remove the cap.

Replace damaged or worn tubes, hoses, electrical wiring, etc.

The engine, transmission, exhaust components, and hydraulic lines may become hot during operation. Take care when you service such components. Allow surfaces to cool before you handle or disconnect hot components. Wear protective equipment when appropriate.

When welding, follow the instructions in the manual. Always disconnect the battery before you weld on the machine. Always wash your hands after you handle battery components.



# **SERVICE MANUAL**

## **Engine**

**T8.320 PST TIER 4B [ZFRE03123 - ] , T8.350 PST TIER 4B [ZFRE03123 - ]  
 , T8.380 PST TIER 4B [ZFRE03123 - ] , T8.380 SmartTrax™ PST TIER 4B  
 [ZFRE03123 - ] , T8.410 PST TIER 4B [ZFRE03123 - ] , T8.410 SmartTrax™  
 PST TIER 4B [ZFRE03123 - ]**

# Contents

---

## Engine - 10

[10.001] Engine and crankcase .....	10.1
[10.101] Cylinder heads .....	10.2
[10.202] Air cleaners and lines .....	10.3
[10.216] Fuel tanks .....	10.4
[10.218] Fuel injection system.....	10.5
[10.254] Intake and exhaust manifolds and muffler .....	10.6
[10.304] Engine lubrication system.....	10.7
[10.310] Aftercooler.....	10.8
[10.400] Engine cooling system .....	10.9
[10.414] Fan and drive .....	10.10
[10.500] Selective Catalytic Reduction (SCR) exhaust treatment.....	10.11



## **Engine - 10**

### **Engine and crankcase - 001**

**T8.320 PST TIER 4B [ZFRE03123 - ] , T8.350 PST TIER 4B [ZFRE03123 - ]  
 , T8.380 PST TIER 4B [ZFRE03123 - ] , T8.380 SmartTrax™ PST TIER 4B  
 [ZFRE03123 - ] , T8.410 PST TIER 4B [ZFRE03123 - ] , T8.410 SmartTrax™  
 PST TIER 4B [ZFRE03123 - ]**

# Contents

---

## Engine - 10

### Engine and crankcase - 001

#### FUNCTIONAL DATA

##### Engine

Overview .....	3
Overview - Special Tools .....	33

#### SERVICE

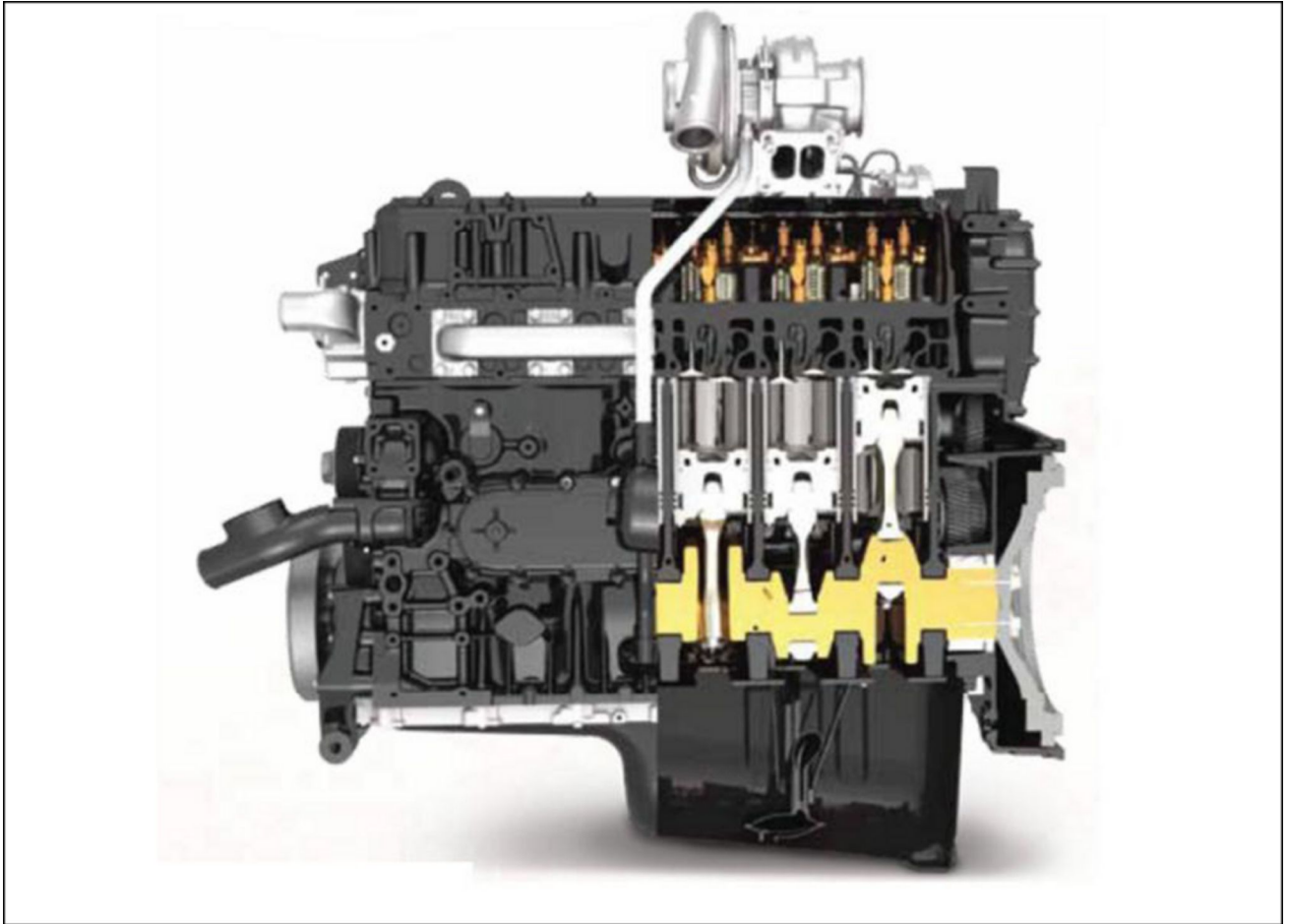
##### Engine

Remove .....	41
Install .....	50

---

## Engine - Overview

### The Cursor® 9



RAIL15TR00417GA 1

The **Cursor® 9** is a state of the art engine developed by Fiat Powertrain Technologies (FPT). The **Cursor® 9** used in the T8. tractors has some significant internal and external differences from **Cursor® 9** engines used in other CNH products. There are procedures specific to the T8. engines that are different from the **Cursor® 9** used in other CNH applications. These changes were made to fit the engine into the T8. series frames without losing our featured visibility around the hood and chassis.

The **Cursor® 9** engine was introduced in the CNH combines in 2006 and migrated into the T9. series tractors. It has proven itself to be a consistent reliable performer. The introduction in the T8. series brings it to new heights with up to **275 kW (374 Hp)** (rated) and **316 kW (429 Hp)** in power boost mode.

- 6 cylinder, 24 valve, turbocharged and aftercooled
- Single overhead cam with roller rocker arms
- Wastegate turbo/Electronic Variable Geometry Turbocharger (EVGT)
- High pressure common rail fuel system
- Selective Catalytic Reduction (SCR) emissions control
- TIER 4B compliant without internal or external Exhaust Gas Recirculation (EGR)



**Suggest:**

**If the above button click is invalid.**

**Please download this document**

**first, and then click the above link**

**to download the complete manual.**

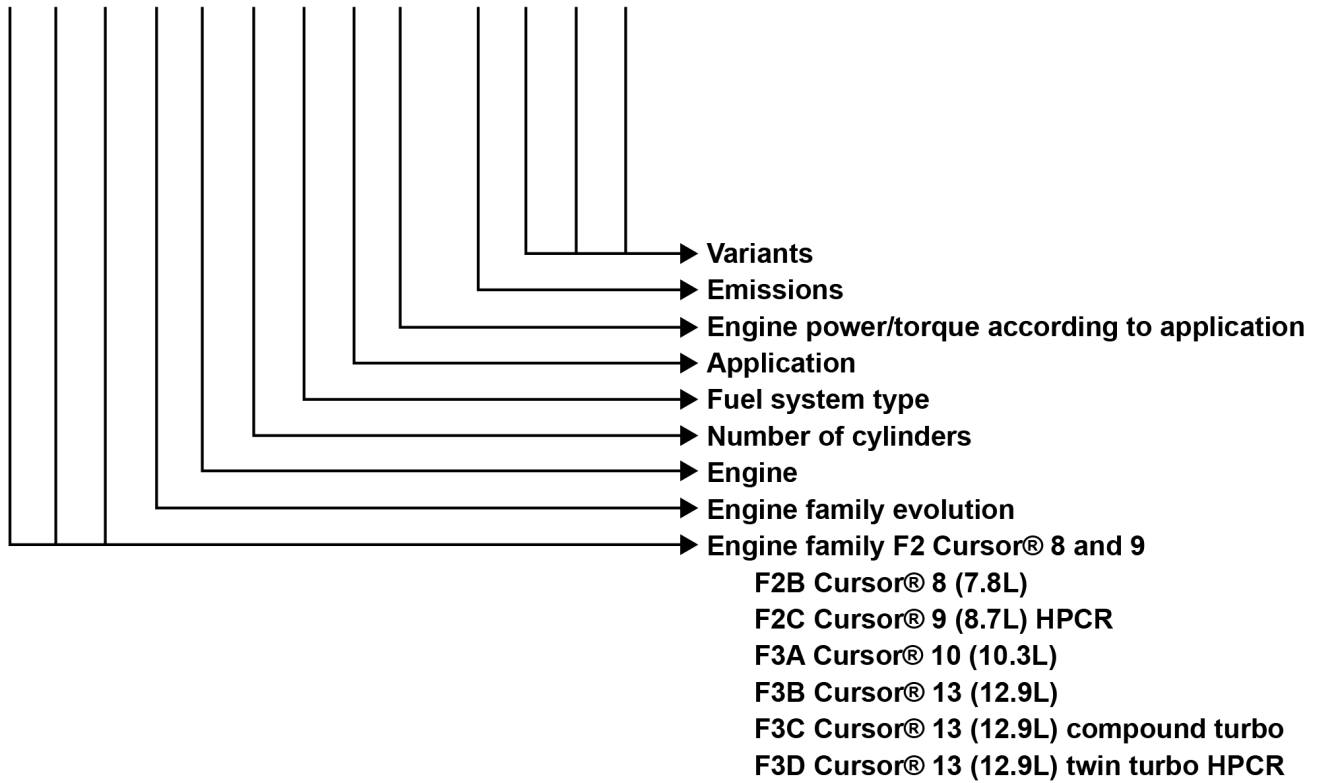
**Thank you so much for reading**

---

## FPT model number designation

**NOTE:** The FPT engine designation code has evolved over the years. This is the best current information and may not be applicable to previous FPT engines.

**F 2 C F E 6 1 3 C \* B 0 0 0**



RAIL15TR01380GA 2

**<https://www.ebooklibonline.com>**

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

**<https://www.ebooklibonline.com>**