580ST
590ST
695ST
Stage IIIB
Tractor Backhoe Loader

SERVICE MANUAL

Part number 47847146
English
June 2015
Replaces part number 84568047A

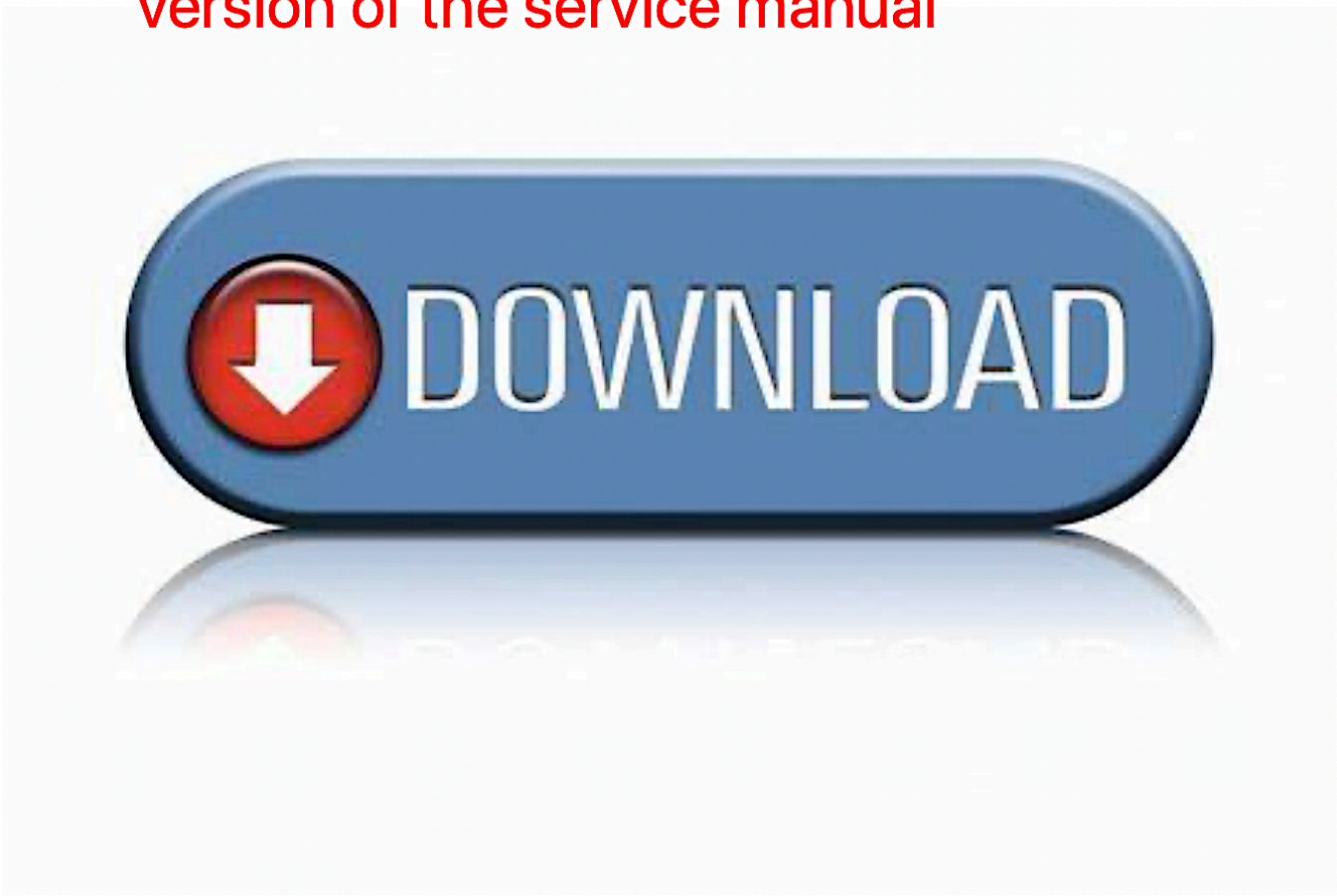
CASE
CONSTRUCTION

CASE CONSTRUCTION

SERVICE MANUAL

580ST T4
590ST T4
695ST T4

Click on the image link below for the full version of the service manual



Link Product / Engine

Product	Market Product	Engine
580ST T4	Europe	F5HFL413C*A001
590ST T4	Europe	F5HFL413B*A002
695ST T4	Europe	F5HFL413B*A002

Contents

INTRODUCTION

Machine completion and equipment 05

[05.102] Machine completion 05.1

Engine 10

[10.001] Engine and crankcase 10.1

[10.501] Exhaust Gas Recirculation (EGR) - Diesel Particulate Filter (DPF) exhaust treatment 10.2

[10.400] Engine cooling system 10.3

[10.304] Engine lubrication system 10.4

Transmission 21

[21.112] Power shuttle transmission 21.1

[21.134] Power shuttle transmission external controls 21.2

[21.104] Power shuttle transmission lubrication system 21.3

[21.154] Power shuttle transmission internal components 21.4

[21.113] Powershift transmission 21.5

[21.135] Powershift transmission external controls 21.6

[21.105] Powershift transmission lubrication system 21.7

[21.155] Powershift transmission internal components 21.8

[21.145] Gearbox internal components 21.9

Four-Wheel Drive (4WD) system 23

[23.314] Drive shaft 23.1

Front axle system 25

[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

Rear axle system 27

[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
Brakes and controls 33
[33.202] Hydraulic service brakes 33.1
[33.110] Parking brake or parking lock 33.2
Hydraulic systems 35
[35.000] Hydraulic systems 35.1
[35.300] Reservoir, cooler, and filters 35.2
[35.104] Fixed displacement pump 35.3
[35.106] Variable displacement pump 35.4
[35.102] Pump control valves 35.5
[35.350] Safety and main relief valves 35.6
[35.128] Auxiliary hydraulic function control 35.7
[35.355] Hydraulic hand control 35.8
[35.352] Hydraulic swing system 35.9
[35.724] Front loader hydraulic system control 35.10
[35.701] Front loader arm hydraulic system 35.11
[35.723] Front loader bucket hydraulic system 35.12
[35.726] Excavator and backhoe hydraulic controls 35.13
[35.736] Boom hydraulic system 35.14
[35.737] Dipper hydraulic system 35.15
[35.738] Excavator and backhoe bucket hydraulic system 35.16
[35.739] Swing arm hydraulic system 35.17
[35.703] Stabilizer hydraulic system 35.18
[35.740] Telescopic arm hydraulic system 35.19
Frames and ballasting 39
[39.100] Frame 39.1

[39.140] Ballasts and supports 39.2
Steering 41
[41.101] Steering control 41.1
[41.106] Tie rods 41.2
[41.200] Hydraulic control components 41.3
[41.206] Pump 41.4
[41.216] Cylinders 41.5
Wheels 44
[44.511] Front wheels 44.1
[44.520] Rear wheels 44.2
Cab climate control 50
[50.100] Heating 50.1
[50.104] Ventilation 50.2
[50.200] Air conditioning 50.3
Electrical systems 55
[55.100] Harnesses and connectors 55.1
[55.201] Engine starting system 55.2
[55.301] Alternator 55.3
[55.302] Battery 55.4
[55.011] Fuel tank system 55.5
[55.012] Engine cooling system 55.6
[55.640] Electronic modules 55.7
[55.512] Cab controls 55.8
[55.047] Steering control system 55.9
[55.408] Warning indicators, alarms, and instruments 55.10
[55.991] Telematics 55.11
[55.DTC] FAULT CODES 55.12
Front loader and bucket 82

[82.100] Arm 82.1
[82.300] Bucket 82.2
Booms, dippers, and buckets 84
[84.114] Boom pivoting support 84.1
[84.910] Boom 84.2
[84.912] Dipper arm 84.3
[84.100] Bucket 84.4
Platform, cab, bodywork, and decals 90
[90.105] Machine shields and guards 90.1

INTRODUCTION

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 manufacturer reserves the right to make improvements in design and changes in specifications at any time without notice and without incurring any obligation to install them on units previously sold. Specifications, descriptions, and illustrative material herein are as accurate as known at time of publication but are subject to change without notice.

In case of questions, refer to your CASE CONSTRUCTION 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 safety rules ⚠

Use caution when you operate the machine on slopes. Raised equipment, full tanks and other loads will change the center of gravity of the machine. The machine can tip or roll over when near ditches and embankments or uneven surfaces.

Never permit anyone other than the operator to ride on the machine.

Never operate the machine under the influence of alcohol or drugs, or while you are otherwise impaired.

When digging or using ground-engaging attachments, be aware of buried cables. Contact local utilities to determine the locations of services.

Pay attention to overhead power lines and hanging obstacles. High voltage lines may require significant clearance for safety.

Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin, causing serious injury or infection.

- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper.
- Stop the engine, remove the key, and relieve the pressure before you connect or disconnect fluid lines.
- Make sure that all components are in good condition. Tighten all connections before you start the engine or pressurize the system.
- If hydraulic fluid or diesel fuel penetrates the skin, seek medical attention immediately.
- Continuous long term contact with hydraulic fluid may cause skin cancer. Avoid long term contact and wash the skin promptly with soap and water.

Keep clear of moving parts. Loose clothing, jewelry, watches, long hair, and other loose or hanging items can become entangled in moving parts.

Wear protective equipment when appropriate.

DO NOT attempt to remove material from any part of the machine while it is being operated or while components are in motion.

Make sure that all guards and shields are in good condition and properly installed before you operate the machine. Never operate the machine with shields removed. Always close access doors or panels before you operate the machine.

Dirty or slippery steps, ladders, walkways, and platforms can cause falls. Make sure these surfaces remain clean and clear of debris.

A person or pet within the operating area of a machine can be struck or crushed by the machine or its equipment. DO NOT allow anyone to enter the work area.

Raised equipment and/or loads can fall unexpectedly and crush persons underneath. Never allow anyone to enter the area underneath raised equipment during operation.

Never operate the engine in enclosed spaces as harmful exhaust gases may build up.

Before you start the machine, be sure that all controls are in neutral or park lock position.

Start the engine only from the operator’s seat. If you bypass the safety start switch, the engine can start with the transmission in gear. Do not connect or short across terminals on the starter solenoid. Attach jumper cables as described in the manual. Starting in gear may cause death or serious injury.

Always keep windows, mirrors, all lighting, and Slow-Moving Vehicle (SMV) emblem or Speed Identification Symbol (SIS) clean to provide the best possible visibility while you operate the machine.

Operate controls only when seated in the operator’s seat, except for those controls expressly intended for use from other locations.

SERVICE MANUAL

Engine

580ST T4
590ST T4
695ST T4