

Rowtrac™ 370 / 420 / 470 / 500
Steiger® 370 / 420 / 470 / 500 / 540 / 580 / 620
Quadtrac® 470 / 500 / 540 / 580 / 620
Tier 4B (final)
Tractor

PIN ZFF308001 and above

SERVICE MANUAL

Part number 47924539

1st edition English

September 2015



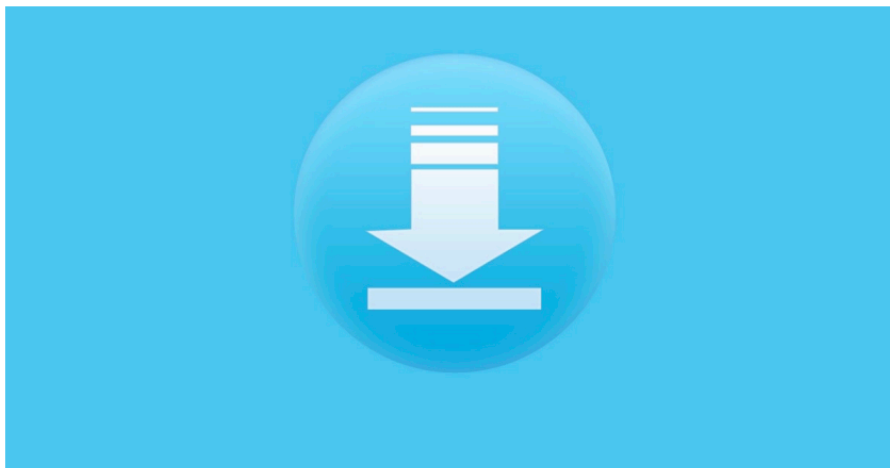
Link Product / Engine

Product	Market Product	Engine
QuadTrac® 470 Quadtrac® [ZFF308001 -]	North America	F3HFE613D*B001
QuadTrac® 540 Quadtrac® [ZFF308001 -]	North America	F3DFE613J*B001
QuadTrac® 540 Quadtrac® scraper [ZFF308001 -]	North America	F3DFE613J*B001
QuadTrac® 580 Quadtrac® [ZFF308001 -]	North America	F3DFE613G*B001
QuadTrac® 580 Quadtrac® scraper [ZFF308001 -]	North America	F3DFE613G*B001
QuadTrac® 620 Quadtrac® [ZFF308001 -]	North America	F3DFE613F*B001
RowTrac™ 370 Rowtrac™ [ZFF308001 -]	North America	F2CFE614A*B
RowTrac™ 420 Rowtrac™ [ZFF308001 -]	North America	F3HFE613G*B001
RowTrac™ 470 Rowtrac™ [ZFF308001 -]	North America	F3HFE613D*B001
RowTrac™ 500 Rowtrac™ [ZFF308001 -]	North America	F3HFE613B*B001
Steiger® 370 Standard wheeled [ZFF308001 -]	North America	F2CFE614A*B
Steiger® 370 Heavy duty wheeled [ZFF308001 -]	North America	F2CFE614A*B
Steiger® 420 Heavy duty wheeled [ZFF308001 -]	North America	F3HFE613G*B001
Steiger® 470 Heavy duty wheeled [ZFF308001 -]	North America	F3HFE613D*B001
Steiger® 470 Wheeled scraper [ZFF308001 -]	North America	F3HFE613D*B001
Steiger® 500 Heavy duty wheeled [ZFF308001 -]	North America	F3HFE613B*B001
Steiger® 500 Wheeled scraper [ZFF308001 -]	North America	F3HFE613B*B001
Steiger® 500 QT Quadtrac® [ZFF308001 -]	North America	F3HFE613B*B001
Steiger® 500 QT Quadtrac® scraper [ZFF308001 -]	North America	F3HFE613B*B001
Steiger® 540 Heavy duty wheeled [ZFF308001 -]	North America	F3DFE613J*B001
Steiger® 540 Wheeled scraper [ZFF308001 -]	North America	F3DFE613J*B001
Steiger® 580 Heavy duty wheeled [ZFF308001 -]	North America	F3DFE613G*B001
Steiger® 580 Wheeled scraper [ZFF308001 -]	North America	F3DFE613G*B001

Product	Market Product	Engine
Steiger® 620 Heavy duty wheeled [ZFF308001 -]	North America	F3DFE613F*B001
Steiger® 620 Wheeled scraper [ZFF308001 -]	North America	F3DFE613F*B001

Thank you for choosing
CasetractorManuals

Please click the following link to
download and purchase



Contents

INTRODUCTION

Engine.....	10
[10.001] Engine and crankcase	10.1
[10.216] Fuel tanks	10.2
[10.202] Air cleaners and lines	10.3
[10.310] Aftercooler.....	10.4
[10.400] Engine cooling system	10.5
[10.414] Fan and drive	10.6
[10.500] Selective Catalytic Reduction (SCR) exhaust treatment.....	10.7
Power coupling.....	19
[19.110] Flywheel damper	19.1
Transmission.....	21
[21.113] Powershift transmission	21.1
[21.135] Powershift transmission external controls.....	21.2
[21.155] Powershift transmission internal components.....	21.3
Front axle system	25
[25.100] Powered front axle	25.1
[25.102] Front bevel gear set and differential	25.2
[25.310] Final drives	25.3
[25.500] Front axle track yoke assembly	25.4
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
[27.610] Rear axle track yoke assembly	27.4
Power Take-Off (PTO).....	31

[31.104] Rear electro-hydraulic control	31.1
[31.110] One-speed rear Power Take-Off (PTO)	31.2
[31.220] Gearbox	31.3
Brakes and controls	33
[33.110] Parking brake or parking lock	33.1
[33.202] Hydraulic service brakes	33.2
Hydraulic systems.....	35
[35.000] Hydraulic systems.....	35.1
[35.102] Pump control valves.....	35.2
[35.105] Charge pump.....	35.3
[35.106] Variable displacement pump	35.4
[35.204] Remote control valves	35.5
[35.220] Auxiliary hydraulic pump and lines	35.6
[35.300] Reservoir, cooler, and filters.....	35.7
[35.304] Combination pump units	35.8
[35.600] High flow hydraulics	35.9
Hitches, drawbars, and implement couplings.....	37
[37.100] Drawbars and towing hitches	37.1
Frames and ballasting	39
[39.100] Frame	39.1
[39.110] Drawbar and hitch assembly	39.2
Steering.....	41
[41.101] Steering control	41.1
[41.200] Hydraulic control components.....	41.2
[41.206] Pump	41.3
Wheels	44
[44.511] Front wheels.....	44.1

[44.520] Rear wheels	44.2
Tracks and track suspension	48
[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
Cab climate control	50
[50.104] Ventilation	50.1
[50.200] Air conditioning	50.2
[50.300] Cab pressurizing system	50.3
Electrical systems	55
[55.000] Electrical system	55.1
[55.100] Harnesses and connectors	55.2
[55.301] Alternator	55.3
[55.302] Battery	55.4
[55.010] Fuel injection system	55.5
[55.014] Engine intake and exhaust 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
[55.048] Rear Power Take-Off (PTO) control system	55.10
[55.050] Heating, Ventilation, and Air-Conditioning (HVAC) control system	55.11
[55.051] Cab Heating, Ventilation, and Air-Conditioning (HVAC) controls	55.12
[55.404] External lighting	55.13
[55.522] Cab Power Take-Off (PTO) controls	55.14
[55.640] Electronic modules	55.15
[55.035] Remote control valve electric control	55.16
[55.130] Rear three-point hitch electronic control system	55.17

[55.988] Selective Catalytic Reduction (SCR) electrical system	55.18
[55.DTC] FAULT CODES.....	55.19
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



INTRODUCTION

Contents

INTRODUCTION

Foreword - Important notice regarding equipment servicing (*)	3
Safety rules (*)	4
Safety rules - Ecology and the environment (*)	5
Torque - Minimum tightening torques for normal assembly (*)	6
Torque - Standard torque data for hydraulics (*)	9
Basic instructions - Shop and assembly (*)	11
Hydraulic contamination (*)	13
Capacities (*)	14
General specification (*)	15

(*) See content for specific models

Foreword - Important notice regarding equipment servicing

STEIGER®	
----------	--

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 IH Sales and Service Networks.

Safety rules

STEIGER®	
----------	--


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 - Ecology and the environment

STEIGER®	
----------	--

Soil, air, and water quality is important for all industries and life in general. When legislation does not yet rule the treatment of some of the substances that advanced technology requires, sound judgment should govern the use and disposal of products of a chemical and petrochemical nature.

Familiarize yourself with the relative legislation applicable to your country, and make sure that you understand this legislation. Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, anti-freeze, cleaning agents, etc., with regard to the effect of these substances on man and nature and how to safely store, use, and dispose of these substances.

Helpful hints

- Avoid the use of cans or other inappropriate pressurized fuel delivery systems to fill tanks. Such delivery systems may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of these products contain substances that may be harmful to your health.
- Modern oils contain additives. Do not burn contaminated fuels and or waste oils in ordinary heating systems.
- Avoid spillage when you drain fluids such as used engine coolant mixtures, engine oil, hydraulic fluid, brake fluid, etc. Do not mix drained brake fluids or fuels with lubricants. Store all drained fluids safely until you can dispose of the fluids in a proper way that complies with all local legislation and available resources.
- Do not allow coolant mixtures to get into the soil. Collect and dispose of coolant mixtures properly.
- The air-conditioning system contains gases that should not be released into the atmosphere. Consult an air-conditioning specialist or use a special extractor to recharge the system properly.
- Repair any leaks or defects in the engine cooling system or hydraulic system immediately.
- Do not increase the pressure in a pressurized circuit as this may lead to a component failure.
- Protect hoses during welding. Penetrating weld splatter may burn a hole or weaken hoses, allowing the loss of oils, coolant, etc.

Battery recycling

Batteries and electric accumulators contain several substances that can have a harmful effect on the environment if the batteries are not properly recycled after use. Improper disposal of batteries can contaminate the soil, groundwater, and waterways. CASE IH strongly recommends that you return all used batteries to a CASE IH dealer, who will dispose of the used batteries or recycle the used batteries properly. In some countries, this is a legal requirement.



Mandatory battery recycling

NOTE: The following requirements are mandatory in Brazil.

Batteries are made of lead plates and a sulfuric acid solution. Because batteries contain heavy metals such as lead, CONAMA Resolution 401/2008 requires you to return all used batteries to the battery dealer when you replace any batteries. Do not dispose of batteries in your household garbage.

Points of sale are obliged to:

- Accept the return of your used batteries
- Store the returned batteries in a suitable location
- Send the returned batteries to the battery manufacturer for recycling

Torque - Minimum tightening torques for normal assembly

STEIGER®

Decimal hardware

Grade 5 bolts, nuts and studs

Size	Nm	lb in/lb ft
1/4 in	12 - 15 Nm	108 - 132 lb in
5/16 in	23 - 28 Nm	204 - 252 lb in
3/8 in	48 - 57 Nm	420 - 504 lb in
7/16 in	73 - 87 Nm	54 - 64 lb ft
1/2 in	109 - 130 Nm	80 - 96 lb ft
9/16 in	149 - 179 Nm	110 - 132 lb ft
5/8 in	203 - 244 Nm	150 - 180 lb ft
3/4 in	366 - 439 Nm	270 - 324 lb ft
7/8 in	542 - 651 Nm	400 - 480 lb ft
1 in	787 - 944 Nm	580 - 696 lb ft
1-1/8 in	1085 - 1193 Nm	800 - 880 lb ft
1-1/4 in	1519 - 1681 Nm	1120 - 1240 lb ft
1-3/8 in	1980 - 2278 Nm	1460 - 1680 lb ft
1-1/2 in	2631 - 2983 Nm	1940 - 2200 lb ft

Grade 8 bolts, nuts and studs

Size	Nm	lb in/lb ft
1/4 in	16 - 20 Nm	144 - 180 lb in
5/16 in	33 - 39 Nm	288 - 348 lb in
3/8 in	61 - 73 Nm	540 - 648 lb in
7/16 in	95 - 114 Nm	70 - 84 lb ft
1/2 in	149 - 179 Nm	110 - 132 lb ft
9/16 in	217 - 260 Nm	160 - 192 lb ft
5/8 in	298 - 358 Nm	220 - 264 lb ft
3/4 in	515 - 618 Nm	380 - 456 lb ft
7/8 in	814 - 976 Nm	600 - 720 lb ft
1 in	1220 - 1465 Nm	900 - 1080 lb ft
1-1/8 in	1736 - 1953 Nm	1280 - 1440 lb ft
1-1/4 in	2468 - 2712 Nm	1820 - 2000 lb ft
1-3/8 in	3227 - 3688 Nm	2380 - 2720 lb ft
1-1/2 in	4285 - 4827 Nm	3160 - 3560 lb ft

NOTE: Use thick nuts with Grade 8 bolts.

Metric hardware

Grade 8.8 bolts, nuts and studs

Size	Nm	lb in/lb ft
4 mm	3 - 4 Nm	24 - 36 lb in
5 mm	7 - 8 Nm	60 - 72 lb in
6 mm	11 - 12 Nm	96 - 108 lb in
8 mm	26 - 31 Nm	228 - 276 lb in
10 mm	52 - 61 Nm	456 - 540 lb in
12 mm	90 - 107 Nm	66 - 79 lb ft
14 mm	144 - 172 Nm	106 - 127 lb ft
16 mm	217 - 271 Nm	160 - 200 lb ft
20 mm	434 - 515 Nm	320 - 380 lb ft
24 mm	675 - 815 Nm	500 - 600 lb ft
30 mm	1250 - 1500 Nm	920 - 1100 lb ft
36 mm	2175 - 2600 Nm	1600 - 1950 lb ft

Grade 10.9 bolts, nuts and studs

Size	Nm	lb in/lb ft
4 mm	4 - 5 Nm	36 - 48 lb in
5 mm	9 - 11 Nm	84 - 96 lb in
6 mm	15 - 18 Nm	132 - 156 lb in
8 mm	37 - 43 Nm	324 - 384 lb in
10 mm	73 - 87 Nm	54 - 64 lb ft
12 mm	125 - 150 Nm	93 - 112 lb ft
14 mm	200 - 245 Nm	149 - 179 lb ft
16 mm	310 - 380 Nm	230 - 280 lb ft
20 mm	610 - 730 Nm	450 - 540 lb ft
24 mm	1050 - 1275 Nm	780 - 940 lb ft
30 mm	2000 - 2400 Nm	1470 - 1770 lb ft
36 mm	3500 - 4200 Nm	2580 - 3090 lb ft

Grade 12.9 bolts, nuts and studs

Size	Nm	lb in/lb ft
Typically the torque values specified for grade 10.9 hardware can be used satisfactorily on grade 12.9 hardware.		

Steel hydraulic fittings**37° flare fitting**

Tube outside diameter/Hose inside diameter		Thread size	Nm	lb in/lb ft
mm	inch			
6.4 mm	1/4 in	7/16-20 in	8 - 16 Nm	72 - 144 lb in
7.9 mm	5/16 in	1/2-20 in	11 - 22 Nm	96 - 192 lb in
9.5 mm	3/8 in	9/16-18 in	14 - 34 Nm	120 - 300 lb in
12.7 mm	1/2 in	3/4-16 in	20 - 57 Nm	180 - 504 lb in
15.9 mm	5/6 in	7/8-14 in	34 - 79 Nm	300 - 696 lb in
19.0 mm	3/4 in	1-1/16-12 in	54 - 108 Nm	40 - 80 lb ft
22.2 mm	7/8 in	1-3/16-12 in	81 - 135 Nm	60 - 100 lb ft
25.4 mm	1 in	1-5/16-12 in	102 - 158 Nm	75 - 117 lb ft
31.8 mm	1-1/4 in	1-5/8-12 in	169 - 223 Nm	125 - 165 lb ft
38.1 mm	1-1/2 in	1-7/8-12 in	285 - 338 Nm	210 - 250 lb ft

Straight threads with O-ring

Tube outside diameter/Hose inside diameter		Thread size	Nm	lb in/lb ft
mm	inch			
6.4 mm	1/4 in	7/16-20 in	16 - 26 Nm	144 - 228 lb in
7.9 mm	5/16 in	1/2-20 in	22 - 34 Nm	192 - 300 lb in
9.5 mm	3/8 in	9/16-18 in	34 - 54 Nm	300 - 480 lb in
12.7 mm	1/2 in	3/4-16 in	57 - 91 Nm	540 - 804 lb in
15.9 mm	5/6 in	7/8-14 in	79 - 124 Nm	58 - 92 lb ft
19.0 mm	3/4 in	1-1/16-12 in	108 - 174 Nm	80 - 128 lb ft
22.2 mm	7/8 in	1-3/16-12 in	136 - 216 Nm	100 - 160 lb ft
25.4 mm	1 in	1-5/16-12 in	159 - 253 Nm	117 - 187 lb ft
31.8 mm	1-1/4 in	1-5/8-12 in	224 - 357 Nm	165 - 264 lb ft
38.1 mm	1-1/2 in	1-7/8-12 in	339 - 542 Nm	250 - 400 lb ft

Split flange mounting bolts

Size	Nm	lb in/lb ft
5/16-18 in	20 - 27 Nm	180 - 240 lb in
3/8-16 in	27 - 34 Nm	240 - 300 lb in
7/16-14 in	47 - 61 Nm	420 - 540 lb in
1/2-13 in	74 - 88 Nm	55 - 65 lb ft