
SECTION 00 - GENERAL INFORMATION

BOOK 1 - 86705316

CONTENTS

Section	Description	Page
00 000	Precautionary Statements	3
	Safety Precautions	3
	General Considerations	5
	Tractor Identification	12
	Engine Identification	15
	Service Techniques	17
	Minimum Hardware Tightening Torques	18
	Standard Torque Data	20
	Recommended Lubricants and Coolants	22
	Recommended Sealants	24

SECTION 10 - ENGINE

BOOK 1 - 86705316

Chapter 1 - Engine Systems

CONTENTS

Section	Description	Page
	AIR INDUCTION SYSTEM	
	Specifications	3
	Bolt Torque Specifications	4
	Special Tools	6
	Air Induction System - Description and Operation	6
	Introduction	6
	Component Operation	8
	Troubleshooting	10
	Turbocharger Boost Testing	11
	Air Induction System - Removal and Repair of Components	13
	Turbocharger Intake Tube	13
	Turbocharger Outlet Tube	14
	Air Filter Housing, Precleaner, and Air Induction Scoop	15
	Turbocharger	20
	Repair Time Schedule	25
	EXHAUST SYSTEM	
	Specifications	26
	Bolt Torque Specifications	27
	Exhaust System - Description of Operation	27
	Exhaust System Component Removal and Repair	28
	Exhaust Muffler and Stack	28
	Repair Time Schedule	32
	ENGINE	
	Engine Specifications	33
	Torque Values	40
	Special Tools	42
	Description and Operation	44
	Introduction	44
	Cylinder Head Assembly	44
	Camshaft Assembly	46
	Connecting Rods	47
	Pistons	48
	Manifolds	48
	Cylinder Block Assembly	48
	Timing Gears	49

SECTION 10 - ENGINE (CONTINUED)

BOOK 1 - 86705316

Chapter 1 - Engine Systems

Section	Description	Page
	Lubrication System	50
	Troubleshooting	51
	Dynamometer Engine Testing	55
	Dynamometer Engine Break In	59
	Compression Test	60
	Engine Overhaul	62
	Introduction	62
	Engine Removal	62
	Engine Disassembly	76
	Engine Component Disassembly, Inspection, and Assembly	88
	Front Timing Gears, Oil Pan, Camshaft, and Valve Tappets (Lifters)	97
	Pistons and Connecting Rods	99
	Crankshaft and Main Bearings	103
	Oil Pump and Sump Tube	109
	Oil Cooler/Filter Support Assembly	111
	Flywheel	112
	Engine Assembly	113
	Engine Installation	132
	Repair Time Schedule – Engine Overhaul	143
	COOLING SYSTEM	
	Bolt Torque Specifications	154
	Special Tools	150
	Cooling System Description and Operation	151
	Introduction	151
	Individual Component Operation	152
	Cooling System Troubleshooting	157
	Cooling System Testing	158
	Cooling System Tests	158
	Cooling System - Removal and Repair of Components	163
	Radiator	163
	Thermostat	168
	Cooling Fan (North American Models)	171
	Cooling Fan and Viscous Clutch (International Models)	172
	Fan Belt Tensioner	173
	Water Pump	175
	Repair Time Schedule - Cooling System	186

<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>

SECTION 10 - ENGINE

BOOK 1 - 86705316

Chapter 2 - Fuel System

CONTENTS

Section	Description	Page
	FUEL SYSTEM	
	Specifications	2
	TV140 Fuel Injection Pump Test Plan	3
	Special Tools	4
	Fuel System – Description and Operation	5
	Introduction	5
	Fuel Injection Pump	12
	Engine Shutoff	18
	Troubleshooting	19
	Injector Nozzle Testing	20
	Fuel System Service	24
	Bleeding The Fuel Injection System	24
	Fuel Injectors	25
	Bosch VE Fuel Injection Pump	30
	Electric Lift Pump	39
	Fuel Sedimenter	40
	Fuel Filter	43
	Fuel Tanks	46
	Crossover Tube	53
	Cold Start System – North American Models	54
	Cold Start System – International Models	58
	Throttle Cable	59
	Repair Time Schedule – Fuel System	65

SECTION 21 - TRANSMISSIONS

BOOK 2 - 86705317

Chapter 1 - Splitter Box, Hydrostatic Drive, and Drivelines

CONTENTS

Section	Description	Page
	Introduction	2
	Orientation	2
	Splitter Box	2
	Hydrostatic Drive Description	2
	Specifications	3
	Torque Specifications	5
	Special Tools	7
	Safety	10
	Power Flow	12
	Description of Operation	13
	Splitter Box Description	13
	Splitter Box Gear Sets	14
	Hydrostatic and Hydraulic System Components	16
	Hydrostatic Drive Description	18
	Moving a Disabled Tractor	31
	Troubleshooting and Testing	37
	Pressure Testing	44
	Range Select Control Switch and Valve	51
	Overhaul	62
	Removal and Installation	62
	Introduction	62
	Splitter Box	62
	Auxiliary Pump	62
	Disassembly, Inspection, and Repair	65
	Auxiliary Drive Housing	69
	Auxiliary 3/4" Couplers	79
	Articulation Joint Drive Shafts	86
	Upper Drive Shaft	86
	Engine Power Input Shaft	91
	Lower Drive Shaft	94
	Splitter Box Power Input (Top) Shaft	98
	Splitter Box Power Output (Bottom) Shaft	101
	Engine-end Axle Drive Shaft	103
	Splitter Box	107
	Tapered Bearing End Play Check and Adjustment	116
	Hydrostatic Motor	125
	Hydrostatic Pump	133
	FNR Lever Cables	139
	Repair Time Schedule	151

SECTION 25 - ENGINE-END AXLE

BOOK 2 - 86705317

Chapter 1 - Engine-End Axle

CONTENTS

Section	Description	Page
	Specification	3
	Axle Shaft Preload	3
	Axle Shaft Spacer Selection Table	3
	Differential Bearing Preload	3
	Differential Bearing Shim Table	3
	Drive Pinion Preload	4
	Drive Pinion Spacer Table	4
	Tightening Torques	5
	Special Tools	6
	Introduction	7
	Drive Path	8
	Drive Pinion	9
	Differential	11
	Planetary Assembly	12
	Axle Shaft and Trumpet Housing	13
	Differential Lock	14
	Troubleshooting	22
	Disassembly and Repair	27
	Trumpet/Axle Disassembly	28
	Planetary Disassembly	31
	Planetary Inspection	32
	Planetary Reassembly	32
	Planetary Ring Gear Removal	33
	Planetary Ring Gear Installation	34
	Trumpet/Axle Inspection	34
	Trumpet/Axle Reassembly	36
	Pinion Gear Removal	42
	Pinion Gear Disassembly	44
	Pinion Gear Inspection	46
	Center Housing Inspection	46
	Pinion Gear Reassembly	47
	Pinion Bearing Preload	48
	Drive Pinion Spacer Table	49
	Pinion Gear Installation	50
	Differential Disassembly	51

SECTION 25 - ENGINE-END AXLE (CONTINUED)

BOOK 2 - 86705317

Chapter 1 - Engine-End Axle

Section	Description	Page
	Differential Inspection	54
	Differential Reassembly	55
	Differential Bearing Preload	59
	Differential Bearing Shim Table	60
	Differential Lock Internal Operating Components Overhaul	61
	Differential Lock Valve and Tube Removal	62
	Differential Lock Valve and Tube Inspection	62
	Differential Lock Valve and Tube Installation	63
	Oscillating Components	63
	Rear Trunnion Inspection	66
	Rear Trunnion Installation	67
	Front Trunnion Removal	69
	Front Trunnion Inspection	71
	Front Trunnion Installation	72
	Diff Lock Switch Removal	74
	Diff Lock Switch Inspection	75
	Diff Lock Switch Installation	76
	Apply Solenoid and Valve Removal	76
	Apply Solenoid and Valve Inspection	76
	Apply Solenoid and Valve Installation	76
	Breather Removal	77
	Breather Inspection	77
	Breather Installation	77
	Repair Time Schedule	78

SECTION 27 - CAB-END AXLE

BOOK 2 - 86705317

Chapter 1 - Cab-End Axle

CONTENTS

Section	Description	Page
27 000	Specifications	2
	Torque Specifications	2
	Special Tools	4
	Introduction	5
	Overview	5
	Description of Operation	6
	Troubleshooting	19
	Overhaul	24
	Repair Time Schedule	105

SECTION 31 - POWER TAKE-OFF

BOOK 3 - 86705318

Chapter 1 - Cab-End PTO

CONTENTS

Section	Description	Page
	Specifications	2
	Special Tools	3
	Description of Operation	4
	Cab-End PTO Clutch Control Valve Operation	5
	Cab-End Output Drive	8
	Electrical Operation	10
	Cab-End PTO Electrical Circuit	10
	Troubleshooting	14
	Disassembly and Repair	16
	Preliminary Procedures	16
	Cab-End PTO Clutch	17
	Cab-End PTO Shafts and Gears	35
	PTO Switch	51
	Repair Time Schedule	53

SECTION 31 - POWER TAKE-OFF

BOOK 3 - 86705318

Chapter 2 - Engine-End PTO

CONTENTS

Section	Description	Page
	Specifications	2
	Special Tools	2
	Description of Operation	3
	Electrical Operation	4
	Engine-End PTO Electrical Circuit	4
	Engine-End Output Drive	8
	Clutch and Brake Pressure Apply	10
	Lubrication Flow	13
	Breather Lines	15
	Troubleshooting	17
	Testing PTO Gearbox Drain Pump Flow	19
	Disassembly and Repair	22
	Preliminary Procedures	22
	Engine-End PTO Gearbox Overhaul	22
	PTO Transfer Shaft and Coupler	76
	Clutch Pressure Apply Hose	82
	Lube Motor	86
	Lube Circuit Hose	89
	Breather and Hose	99
	Apply Solenoid and Valve	107
	Brake	111
	PTO Switch	115
	Repair Time Schedule	117

SECTION 33 - BRAKES

BOOK 3 - 86705318

Chapter 1 - Brakes

CONTENTS

Section	Description	Page
	Specifications	2
	Special Tools	3
	Introduction	4
	Overview	4
	Description of Operation	5
	Troubleshooting and Testing	15
	Adjustments	19
	Removal and Installation of Components	25
	Brake Disc Components	25
	Foot Pedal Linkage	37
	Master Cylinder	42
	Reservoir	50
	Hose - Reservoir To Master Cylinder	52
	Tubes - Pressure Supply	54
	Park Brake Lever	56
	Park Brake Cables and Links	59
	Brake Pedal Switch	65
	Park Brake Switch	66
	Repair Time Schedule	68

SECTION 35 - HYDRAULIC SYSTEMS

BOOK 4 - 86705319

Chapter 1 - Hydraulics and Steering

CONTENTS

Section	Description	Page
	Specifications	2
	Special Tools	8
	Description and Operation	10
	Auxiliary Hydraulics	10
	Component Identification	11
	Hydraulic Circuits	15
	Description of Operation	36
	Steering Control Valve	65
	Troubleshooting and Testing	83
	Disassembly and Repair	129
	Implement Pump	130
	Implement Valve	146
	Priority (Inlet) Valve Section	150
	Tan (Float) Valve Section	152
	Blue (Detent) Valve Section	162
	Green (Standard) Valve Section	172
	Implement Valve	177
	1/2" Couplers	180
	Implement Valve Control Linkage	185
	Control Lever Cable	186
	Control Pedal Assembly	195
	Control Pedal Cable	196
	Steering Control Valve	201
	In Cab Flow Control Cables	230
	Hydraulic System Hoses	233
	3/4" Couplers	299
	Hydraulic Oil Heater	306
	Engine End Remote Valves	309
	Hydraulic Oil Cooler	322
	Hydraulic Oil Cooler By-pass	327
	Repair Time Schedule	336

SECTION 35- HYDRAULIC SYSTEMS

BOOK 5 - 86705320

Chapter 2 - Cab-End Hitch

CONTENTS

Section	Description	Page
	Specifications	2
	Special Tools	3
	Description of Operation	4
	Three-Point Hitch Electrical Control Components	7
	Three-Point Hitch Electrical Control System	10
	Neutral – Manual Mode	14
	Raise – Manual Mode	17
	Lower – Manual Mode	20
	Raise – Manual Mode – Fender Switches	23
	Lower – Manual Mode – Fender Switches	26
	Neutral – Automatic Mode	29
	Raise – Automatic Mode	32
	Lower – Automatic Mode	35
	Raise – Automatic Mode – Fender Switches	38
	Lower – Automatic Mode – Fender Switches	39
	Float – Automatic Mode	40
	Float Position Control – Automatic Mode	43
	Hydraulic Lift Assembly Control Valve	46
	Troubleshooting	50
	Three-Point Hitch Controller Fault Codes	51
	Electrical	52
	Hydraulics	75
	Adjustments	79
	Calibration Mode	79
	Upper Limit Operating Set Point Adjustment	83
	Removal and Repair of Components	86
	Raise/Lower Switches	86
	Automatic/Manual Switch	88
	Status Light	90
	Depth Control Potentiometer	92
	Lowering Rate Potentiometer	94
	External Three-Point Hitch Controls	96
	Feedback Potentiometer	98
	Hydraulic Lift Cover	99
	Lift Cylinder	112
	Cross Shaft	118
	Control Valve	122
	Upper Lift Link	128
	Lower Lift Link Stabilizer Assembly	131
	Lower Lift Link	134
	Lift Assist Ram	137
	Flexible Link Ends	142
	Link Assembly	143
	Repair Time Schedule	148

SECTION 35 - HYDRAULIC SYSTEMS

BOOK 5 - 86705320

Chapter 3 - Engine-End Hitch

CONTENTS

Section	Description	Page
	Description of Operation	2
	Three-Point Hitch Electrical Control Components	5
	Three-Point Hitch Electrical Control System	8
	Manual Mode	11
	Automatic Mode	20
	Hydraulic Lift Assembly Control Valve	35
	Special Tools	39
	Specifications	40
	Troubleshooting	41
	Electrical	43
	Hydraulics	66
	Adjustments	70
	Calibration Mode	70
	Upper Limit Operating Set Point Adjustment	74
	Removal and Repair of Components	77
	Status Light	81
	Depth Control Potentiometer	83
	Lowering Rate Potentiometer	85
	Feedback Potentiometer	87
	Cross Shaft	91
	Control Valve	99
	Center Lift Link	109
	Stabilizer Assembly	111
	Lower Lift Link	114
	Hydraulic Cylinders	115
	Flexible Link Ends	121
	Lift Link Assembly	122
	Repair Time Schedule	125

SECTION 37 - WHEELS, TIRES, AND BALLASTING

BOOK 6 - 86705321

Chapter 1 - Wheels and Tires

CONTENTS

Section	Description	Page
	Introduction	2
	Proper Jacking	3
	Tire Inflation	4
	Tire and Wheel Options	5

SECTION 37 - WHEELS, TIRES, AND BALLASTING

BOOK 6 - 86705321

Chapter 2 - Ballasting

CONTENTS

Section	Description	Page
	Ballasting and Tires	2
	Wheel Slippage	3
	Ballast Limitations	3
	Ballasting Recommendations	3
	Cast Iron Weights	4
	Liquid Ballast Calculations	5

SECTION 39 - FRAMES

BOOK 6 - 86705321

Chapter 1 - Frames

CONTENTS

Section	Description	Page
	Specifications	2
	Torques	3
	Special Tools	5
	Description of Operation	5
	Introduction	5
	Troubleshooting	6
	Overhaul	7
	Engine Hood	7
	Hood Support Assembly	10
	Side Panels, Right-hand and Left-hand	14
	Front Grille	16
	Cab-end Fenders	18
	Left-hand and Right-hand	18
	Engine-end Fenders	18
	Left-hand and Right-hand	18
	Heatshield	22
	Engine End Drawbar	28
	Cab End Drawbar	33
	Front Axle Support	34
	Frame Side Rails	38
	Steering Pins	42
	Pivot Pins	43
	Front Frame	51
	Rear Frame	60
	Repair Time Schedule	62

SECTION 50 - CLIMATE CONTROL

BOOK 6 - 86705321

Chapter 1 - Climate Control

CONTENTS

Section	Description	Page
	Specifications	2
	Special Tools	2
	Description and Operation	3
	R134a Refrigerant Information	3
	The Basics of Refrigeration	6
	Individual Component Operation	9
	Compressor and Clutch	9
	Condenser	13
	Receiver-drier	15
	Thermal Expansion Valve	18
	Evaporator/Heater Assembly	22
	Blower Motor Assembly	23
	Thermostatic Switch	25
	High and Low Pressure Switches	28
	Heater Control Valve	29
	Switched Power: Fuses and HVAC Relay	31
	Air Filtration	32
	Troubleshooting and Testing	33
	General Safety and Service Precautions	33
	Recovering R134a Refrigerant With OEM1598	36
	System Evacuation and Recharging With OEM1598	40
	Oil Level Check Or Adjustment	45
	Leak Detection	49
	Performance Testing	58
	Pressure/Temperature Relationship Chart	58
	Conditions For Performance Testing	58
	Gauge Readings and Interpretations	59
	Performance Test and Diagnosis Summary	71
	General Troubleshooting Summary	74
	Heating System	74
	Air Conditioning System	74
	Air-conditioning Component Removal and Installation	83
	Thermal Expansion Valve	91
	Evaporator/Heater Assembly	93
	Condenser	97
	High and Low Pressure Switches	99
	Compressor	100
	Compressor Clutch	102
	Receiver-drier	109
	Air Conditioning Hoses	110
	Heater Control Valve	116
	Recirculation Door Control	120
	Blower Speed Control	123
	Heater Hoses	124
	Repair Time Schedule	128



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

SECTION 55 - ELECTRICAL SYSTEM

BOOK 7 - 86705322

Chapter 1 - Electrical System

CONTENT

Section	Description	Page
	Specifications	2
	Fuse and Relay Panel	6
	Torque Specifications	12
	Special Tools	12
	Introduction	13
	Electrical System	14
	Using Schematics	36
	Circuit Troubleshooting	40
	Temporary Wiring Harness Repair	43
	Description of Operation	46
	Batteries	46
	Starting and Charging Systems	47
	Starter	253
	Batteries Troubleshooting	254
	Starter Troubleshooting	279
	EICS Error Codes	286
	EICS Connector Chart	292
	Alarms	303
	Three-Point Hitch Controller	316

<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>