

# Ford 455C 555C 655C Tractor Loader Backhoe Service Repair Shop Manual

#### **Table of Contents**

# Part 1 Engine Systems

#### Chapter 1

3-Cylinder Diesel Engine

3-Cylinder Diesel Engine - Description and Operation

3-Cylinder Diesel Engine - Overhaul

# Chapter 2

4-Cylinder Diesel Engine

4-Cylinder Diesel Engine - Description and Operation

4-Cylinder Diesel Engine - Overhaul

# Chapter 3

Cooling System

Cooling System - 3-Cylinder Engine Description and Operation

Cooling System - 4-Cylinder Engine Description and Operation

Cooling System - Overhaul

# Chapter 4

Troubleshooting, Specifications and Special Tools

Troubleshooting

**Specifications** 

**Special Tools** 

# Part 2 Fuel Systems

#### Chapter 1

Fuel System - General

Fuel System - Description and Operation

Fuel System - Adjustments DPA Distributor Type Fuel Injection Pump

Fuel System - Adjustments DPS Distributor Type Fuel Injection Pump

Fuel System - Fuel Tanks, Filters and Fuel Lines Overhaul

#### Chapter 2

Fuel Injection Pump - DPA Distributor Type

Fuel Injection Pomp - Description and Operation

Fuel Injection Pump - Overhaul

Fuel Injection Pump - ISO Test Conditions

Fuel Injection Pump - Test Procedures

# Chapter 3

Fuel Injection Pump - DPS Distributor Type

Fuel Injection Pump - Description and Operation

Fuel Injection Pump - Overhaul

Fuel Injection Pump - ISO Test Conditions

Fuel Injection Pump - Test Procedure

# Chapter 4

Injectors Ford 455C

Injectors - Description and Operation

Injectors - Overhaul

#### Chapter 5

Injectors Ford 555C and 655C

Injectors - Description and Operation

Injectors - Overhaul

# Chapter 6

Air Cleaners

Dry Type Air Cleaner - Description and Operation

Dry Type Air Cleaner - Overhaul

# Chapter 7

Turbocharger

Turbocharger - Description and Operation

Turbocharger - Overhaul

#### Chapter 8

Troubleshooting, Specifications, Test Plans and Special Tools

Troubleshooting - Diesel Engines

Troubleshooting - Turbocharger

**Specifications** 

**Special Tools** 

**Test Plans** 

# Part 3

#### **Electrical System**

#### Chapter 1

Wiring, Lights and Controls

Wiring, Lights and Controls - Description and Operation

Wiring, Lights and Controls - Fault Finding and Repair

Circuit Diagrams and Wiring Harness

#### Chapter 2

**Battery** 

Battery - Description and Operation Battery - Maintenance and Tests

Chapter 3

Starting System

Starting System - Description and Operation

Starting Motor - Overhaul

# Chapter 4

Charging System - A127 55 Amp Alternator with Integral Regulator

Charging System - A127 55 Amp Alternator with Integral Regulator -

**Description and Operation** 

Charging System - A127 55 Amp Alternator with Integral Regulator -

Service Precautions, Preliminary Checks, Initial Tests and Alternator

Component Tests

Charging System - A127 55 Amp Alternator with Integral Regulator - Overhaul

#### Chapter 5

Troubleshooting, Specifications and Special Tools

Troubleshooting

**Specifications** 

**Special Tools** 

#### Part 4

# **Power Reversing Transmission**

#### Chapter 1

4x4 Fully Synchronized Power Reversing Transmission

Power Reversing Transmission - Description and Operation

Introduction to Overhauling the Transmission

Gear Shift Lever, Modulator Unit and Solenoid Control Valve - Overhaul

Front End Overhaul

Complete Overhaul

Component Overhaul

#### Chapter 2

8X8 Fully Synchronized Power Reversing Transmission

Power Reversing Transmission - Description and Operation

Introduction to Overhauling the Transmission

Gear Shift Lever, Modulator Unit, Lockup Valves and Solenoid Control

Valve - Overhaul

Front End Overhaul

Complete Overhaul

Component Overhaul

# Chapter 3

Troubleshooting, Specifications and Special Tools Troubleshooting Specifications Special Tools

#### Part 5

#### **Rear Axle and Brakes**

Chapter 1

Rear Axle and Wheel Brakes

Rear Axle - Description and Operation

Rear Axle Shaft Assembly - Overhaul

Planetary Reduction Gear Assembly and Axle Housing - Overhaul

Rear Wheel Brake Assembly - Overhaul

Differential and Differential Lock Assembly - Overhaul

Drive Pinion Assembly - Overhaul

Break Pedal Linkage and Cross-Shaft - Overhaul

Differential Lock Linkage - Overhaul

Chapter 2

Handbrake

Transmission Handbrake - Description and Operation

Transmission Handbrake - Overhaul

Twin Cable Handbrake - Description and Operation

Tuan Cable Handbrake - Overhaul

Chapter 3

Specifications and Special Tools

**Specifications** 

**Special Tools** 

#### Part 6

#### **Power Take-Off**

Chapter 1

Independent P.T.O. - Ford 455C

I.P.T.O. - Description and Operation

I.P.T.O. Pressure Regulating Valve and Control Valve - Pressure Tests

I.P.T.O. Pressure Regulating Valve - Overhaul

I.P.T.O. Control Valve - Overhaul

I.P.T.O. Clutch Assembly - Overhaul

I.P.T.O. Shaft - Overhaul

Transmission Mounted Hydraulic Pump - Description and Operation

Transmission Mounted Hydraulic Pump - Overhaul

Chapter 2

Troubleshooting, Specifications and Special Tools Troubleshooting Specifications Special Tools

# Part 7 Steering and Front Axle

Chapter 1 Steering

Steering - Description and Operation
Hydrostatic Steering Motor - Overhaul
Power Steering Pump and Reservoir - Overhaul
Power Steering System Pressure Testing
Reservoir Filter in Hydraulic Tubes
Bleeding the Steering System

Chapter 2

Two Wheel Drive Front Axle
Front Axle - Description
Toe in - Adjustment
Front Wheel Hub and Spindle - Overhaul
Steering Cylinder and Track Control Rod - Overhaul
Front Axle - Overhaul

# Chapter 3

Four Wheel Drive Front Axle Assembly
Four Wheel Drive Front Axle - Description and Operation
Planetary Reduction Assembly and Wheel Hubs - Overhaul
Axle Shaft - Overhaul
Steering Swivel Pin Bearings - Overhaul
Steering Cylinder and Track Rods - Overhaul
Front Axle - Removal and Installation
Differential Crown Wheel and Pinion Assembly - Overhaul
Driveshaft - Overhaul

# Chapter 4

Transferred Gear Assembly
Transferred Gear Assembly - Description and Operation
Transferred Gear Assembly - Overhaul
Transferred Gear Operating Cable - Adjustments

# Chapter 5

Troubleshooting, Specifications and Special Tools Troubleshooting - Steering Specifications - Steering Specifications - Two Wheel Drive Front Axle Specifications - Frontwheel Drive Axle and Transfer Gear Assembly Special Tools

#### Part 8

# **Hydraulic System - Controls and Frame**

Chapter 1

**Hydraulic Circuits** 

Hydraulic Circuits - General Information

Hydraulic Circuits - Description and Operation

#### Chapter 2

Reservoir, Filter and Oil Cooler

Reservoir, Filter and Oil Cooler - Description and Operation

Reservoir - Overhaul

Filter - Overhaul

Oil Cooler - Overhaul

#### Chapter 3

Hydraulic Pump

Hydraulic Pump - Description and Operation

Hydraulic Pump - Overhaul

Hydraulic Pump Driveshaft - Overhaul

#### Chapter 4

Backhoe Hydraulic Control Valve Assembly

Backhoe Control Valve Assembly - Description and Operation

Backhoe Control Valve - Overhaul

#### Chapter 5

Sideshift Backhoe Hydraulic Clamping System

Sideshift Hydraulic Clamping System - Description and Operation

Sideshift Hydraulic Clamping System - Overhaul

#### Chapter 6

Loader Hydraulic Control Valve Assembly

Loader Hydraulic Control Valve Assembly - Description and Operation

Loader Control Valve Overhaul

#### Chapter 7

Swinging System, Hydraulic Cylinders and Flow Restrict or Valves

Swing System - Description and Operation

Hydraulic Cylinders - Description and Operation

Flow Restrictor Valves - Description and Operation

Hydraulic Cylinders - Overhaul

# Chapter 8

Backhoe Frame, Boom, Dipstick and Buckets, Control System, Hoses and Tubes

Backhoe Frame, Boom, Dipstick and Buckets - Description and Operation

Backhoe Control System - Description and Operation

Hoses and Tubes - Description and Operation

Backhoe/Loader Counterweight - Removal and Replacement

Backhoe Boom, Dipstick and Buckets - Overhaul

Backhoe Swing Post, Carriage and Mainframe - Overhaul

Backhoe Extendable Dipstick - Overhaul

Backhoe Control System (Mechanical) - Overhaul

Hoses and Tubes - Overhaul

# Chapter 9

Loader Frame, Buckets, Control System, Hoses and Tubes Loader Frame and Buckets - Description and Operation Loader Lift Arms, Bucket and Subframes - Overhaul Loader Control System (Mechanical) - Overhaul

Hoses and Tubes - Overhaul

# Chapter 10

Hydraulic Troubleshooting and Pressure Testing Troubleshooting and Pressure Testing - Introduction Troubleshooting - Whole Unit Troubleshooting - Backhoe

Troubleshooting - Loader

Troubleshooting - Hydraulic Pump

Hydraulic Pump Performance Testing

Pressure Testing

# Chapter 11 Specifications and Special Tools Specifications

**Special Tools** 

# Part 9 Cab

Cab Glass Installation

Hinged Cab Glass Replacement

Rear Lower Glass Replacement

Bonded Glass Replacement

**ROPS** Headliner

Air Conditioning - Description and Operation

Air Conditioning Process

System Components - Description and Operation

Compressor Pump

Compressor - Operation

Air-Conditioning Filter

Condenser

Receiver/Drier

**Expansion Valve** 

**Expansion Valve - Operation** 

Evaporator

Blower Fan

**Switches and Controls** 

Air Conditioner Temperature Thermostatic Control Switch

Blower Fan Switch

Compressor Protection Switches - High and Low Pressure Cut-Out Switches

Refrigerant Oil

Refrigerant - R-12

Air-Conditioning System - Troubleshooting and Service

Air-Conditioning System - General

Refrigerant R-12 Handling

Refrigerant Can Valve

Screw Type Valve

Flat Type Valve

Preliminary Troubleshooting and Testing

**Diagnosis Chart** 

**Tools** 

Pressure Test Equipment

Manifold Gauge Set

**Operating Precautions** 

Attaching the Gauge Set to the Tractor

Test Procedure - Stabilizing the System

A/C System Performance Tests and Diagnosis Chart

Manifold Gauge Reading and Interpretations

Corrective Procedures

Servicing the Air-Conditioning System

Leak Testing

Discharging the System

Using the Recovery and Recycling System

Flushing the System

Evacuating the System

Charging the System

Refrigerant Can Method

Charging the System - Charging Station

**Evacuating Tips** 

Air-Conditioning Condenser, Receiver/Drier, High and Low Pressure Cut

out Switches, Expansion Valve and Evaporator - Overhaul

Component Removal

Condenser Removal

Inspection and Repair

Installation

Receiver/Drier

High and Low Pressure Switches Removal

Blower Motor and Fanned Assembly Removal

Expansion Valve Removal

**Evaporator Core Removal** 

Air-Conditioning Control Switches Removal

Capillary Tube Removal

Air Conditioning Electrical Controls Operation

Blower Control Switch

Air Conditioning Electrical System Troubleshooting and Testing

Fan Relay and A/C Clutch Relay

Circuit Breaker

Lower Switch

High and Low Cut out Switches

Condenser Fan Motors

Blower Fan Motor

Air Conditioning Specifications

Compressor - Description and Operation

Compressor Clutch

Refrigerant Oil

Handling Refrigerant Oil

Compressor - Overhaul

Oil Level Checks

Component Replacement

Compressor Replacement

Compressor Inspection

Clutch Disassembly

Clutch Reassembly

Shaft Seal Replacement

Shaft Seal Installation

Cylinder Heads Servicing

**Compressor Specifications** 

**Special Tools** 

#### Part 10

# **Separating the Tractor**

Front Cover Oil Pan Removal

Torque Specs

**Engine Removal** 

**Engine Torque Specs** 

Separating the Transmission from the Engine

Reinstalling Torque Converter Bolts

**Torque Converter Torque Specs** 

Separating the Transmission from the Rear Axle Backhoe Removal Rear Axle Removal Reinstallation Tips

# Part 11 Accessories

Cold Start Kit #FP 556

Basic System Operation

Cold-Weather Starting

Service Information

Cleanliness

Fittings and Tubing

Starting Fluid Cylinder Installation

Troubleshooting

Inspection Procedure

Instruction Usage

Safety Precautions

Basic System Information

Parts Information

Additional Parts Required for Naturally Aspirated or Turbocharged Tractors

Additional Parts Required for Turbocharged Equipped Tractors

Common Installation Procedures

Naturally Aspirated Tractor Installation Procedures

**Turbocharged Tractor Installation Procedures** 

Checking the Operation of the Cold Start System

Backup Arm Wiring Kit

4 X 4 or 8 X 8 Power Reversing Transmission

Installation Instructions for Models 250C, 260C, 345C, 445C and 545C

Mounting the Backup Alarm

Installation Instructions for Models 455C, 555C and 655C

Heavy-Duty Seat Suspension Kit Application

Loader Auxiliary Valve Kits

Conversion Kits

**Tractor Preparation** 

**Control Valve Preparation** 

Control Lever Conversion

Two Piece Control Lever Assembly

Control Valve Installation

Control Valve Linkage Installation

Bolts All One and Weld-On Cutting Edges

Instructions for Fit up and Welding Base Plate to Bucket

Cutting/Welding Procedure for the Installation of the New Cutting Edge on a Bucket

Loader Bucket

**Bucket Edge Countersunk Bolt** 

Multipurpose Bucket Forks
Three Lever Backhoe Controls - Foot Swing Conversion Kit
Hand Lever Controls Extendable Dipper Stick Conversion Kit
Reversible Stabilizer Pads
Rear Window Defroster