

# NEW HOLLAND

# REPAIR MANUAL

## TC21DA
## TC24DA
## Tractors

NEW HOLLAND AGRICULTURE

SERVICE

87053135

MidWestTech | New Holland TC21DA, TC24DA Tractor Service Manual | Publication 87053135

Order the manual at mid-west-tech.com >

# TC21DA, TC24DA
# REPAIR MANUAL
# COMPLETE CONTENTS


SECTION 00 - GENERAL INFORMATION ..... 2

SECTION 10 - ENGINE SYSTEMS ..... 3

SECTION 18 - SINGLE CLUTCH ..... 10

SECTION 21 - TRANSMISSION SYSTEMS ..... 11

SECTION 25 - FRONT AXLE - FRONT WHEEL DRIVE ..... 13

SECTION 27 - DIFFERENTIAL AND REAR AXLE ..... 14

SECTION 29 - HYDROSTATIC TRANSMISSION ..... 15

SECTION 31 - POWER TAKE-OFF SYSTEMS ..... 19

SECTION 33 - BRAKES ..... 20

SECTION 35 - HYDRAULIC SYSTEM ..... 21

SECTION 41 - POWER STEERING SYSTEM ..... 24

SECTION 44 - WHEELS AND TIRES ..... 26

SECTION 55 - ELECTRICAL SYSTEM ..... 26

SECTION 90 - PLATFORM ..... 32


**The following pages are the collation of the contents pages from each section and chapter of the TC21DA and TC24DA Repair manual. Complete Repair part # 87053135.**

**The sections used through out all New Holland product Repair manuals may not be used for each product. Each Repair manual will be made up of one or several books. Each book will be labeled as to which sections are in the overall Repair manual and which sections are in each book.**

**The sections listed above are the sections utilized for the TC21DA and TC24DA Tractors.**


© 2004 CNH America LLC
Printed in U.S.A.



87053140 9/04



MidWestTech | New Holland TC21DA, TC24DA Tractor Service Manual | Publication 87053... Order the manual at mid-west-tech.com >

# SECTION 00 - GENERAL INFORMATION

BOOK 1 - 87053136

## Chapter 1 - General Information

CONTENTS


| Section | Description | Page |
|---|---|---|
| | Introduction | 2 |
| | Precautionary Statements | 3 |
| | Safety | 4 |
| | The Tractor | 4 |
| | Servicing the Tractor | 4 |
| | Operating the Tractor | 5 |
| | Driving the Tractor | 5 |
| | Operating the PTO | 6 |
| | Diesel Fuel | 6 |
| | Safety Frame (ROPS) | 6 |
| | Safety Decals | 7 |
| | Instruction Decals | 9 |
| | Product Identification Plate | 13 |
| | International Symbols | 14 |
| | Specifications - TC21DA, TC24DA | 15 |
| | General Dimensions - TC21DA, TC24DA | 20 |
| | Minimum Hardware Tightening Torques | 23 |
| | Lubricants | 25 |
| | Adjustments | 26 |




MidWestTech | New Holland TC21DA, TC24DA Tractor Service Manual | Publication 87053... Order the manual at mid-west-tech.com >

# SECTION 10 - ENGINE SYSTEMS

**BOOK 1 - 87053136**

## Chapter 1 - Engine Systems

**CONTENTS**


| Section | Description | Page |
|---|---|---|
| | Description and Operation – General Information | 6 |
| | Identification Chart | 6 |
| | Cylinder Head and Valve Train Components | 6 |
| | Cylinder Block Assembly | 7 |
| | Overhaul – Engine | 8 |
| | Engine Preparation | 8 |
| | Disassembly | 8 |
| | Fuel Injector and Glow Plug | 10 |
| | Removal | 10 |
| | Oil Pressure Switch | 10 |
| | Removal | 10 |
| | Temperature Sending Switch and Alternator | 11 |
| | Removal | 11 |
| | Fan, Water Pump, and External Oil Tube | 11 |
| | Removal | 11 |
| | Valve Cover | 11 |
| | Removal | 11 |
| | Rocker Shaft and Push Rod | 12 |
| | Removal | 12 |
| | Cylinder Head | 12 |
| | Removal | 12 |
| | Valve Tappet | 12 |
| | Removal | 12 |
| | Fuel Shut-off Solenoid | 13 |
| | Removal | 13 |
| | Engine Timing Gear Cover | 13 |
| | Removal | 13 |
| | Timing Gears and Camshaft | 15 |
| | Removal | 15 |
| | Oil Sump | 15 |
| | Removal | 15 |




MidWestTech | New Holland TC21DA, TC24DA Tractor Service Manual | Publication 87053... Order the manual at mid-west-tech.com >

| CYLINDER BLOCK | | |
|---|---|---|
| **Tractor Model** | **TC21DA** | **TC24DA** |
| Bore | | |
| Standard | 77.0 - 77.019 mm (3.031 - 3.032 in.) | 77.0 - 77.019 mm (3.031 - 3.032 in.) |
| Maximum | 77.2 mm (3.039 in.) | 77.2 mm (3.039 in.) |
| Head Surface Warp | | |
| Standard | 0.05 mm (0.002 in.) | 0.05 mm (0.002 in.) |
| Maximum | 0.12 mm (0.005 in.) | 0.12 mm (0.005 in.) |

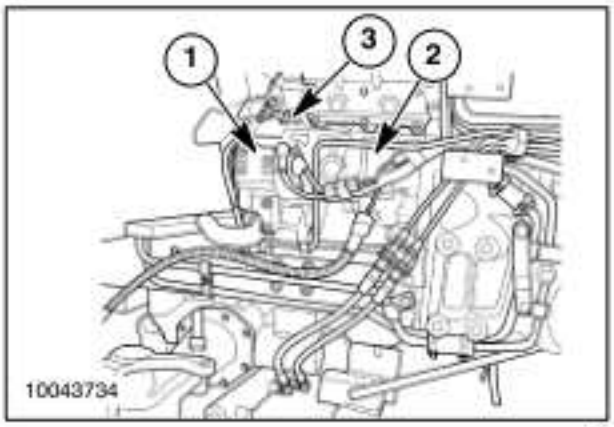
*TC21DA and TC24DA - If bore size exceeds 77.2 mm (3.04 in.) replace the long block.

| PISTON | | |
|---|---|---|
| **Tractor Model** | **TC21DA** | **TC24DA** |
| Diameter | | |
| Standard | 76.9325 - 76.9475 mm (3.029 - 3.0294 in.) | 76.9325 - 76.9475 mm (3.029 - 3.0294 in.) |
| Minimum | 76.7 (3.021 in.) | 76.7 (3.021 in.) |
| Bore Clearance | | |
| Standard | 0.0425 - 0.0765 mm (0.0017 - 0.003 in.) | 0.0425 - 0.0765 mm (0.0017 - 0.003 in.) |
| Maximum | 0.25 mm (0.010 in.) | 0.25 mm (0.010 in.) |
| Wrist Pin Bore | | |
| Standard | 20.998 - 21.004 mm (0.8267 - 0.8269 in.) | 20.998 - 21.004 mm (0.8267 - 0.8269 in.) |
| Maximum | 21.016 mm (0.827 in.) | 21.016 mm (0.827 in.) |
| Wrist Pin Diameter | | |
| Standard | 20.998 - 21.002 mm (0.8267 - 0.8268 in.) | 20.998 - 21.002 mm (0.8267 - 0.8268 in.) |
| Minimum | 20.98 mm (0.826 in.) | 20.98 mm (0.826 in.) |
| Wrist Pin Clearance | | |
| Standard | 0.0 - 0.006 mm (0.0 - 0.0002 in.) | 0.0 - 0.006 mm (0.0 - 0.0002 in.) |
| Maximum | 0.02 mm (0.00078 in.) | 0.02 mm (0.00078 in.) |



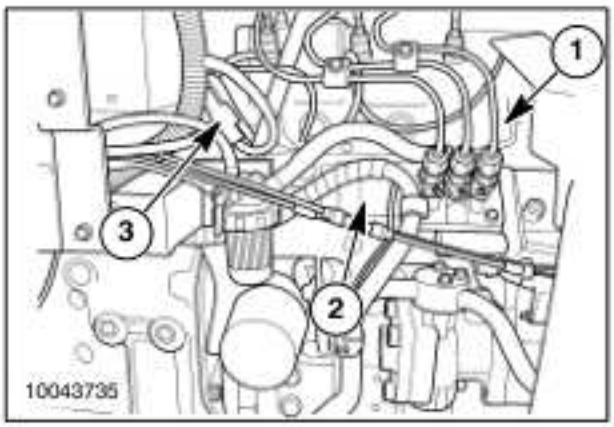
MidWestTech | New Holland TC21DA, TC24DA Tractor Service Manual | Publication 87053... Order the manual at mid-west-tech.com >

20. Disconnect the wiring harness from the alternator, 1, starter, 2, temperature sending unit, 3.



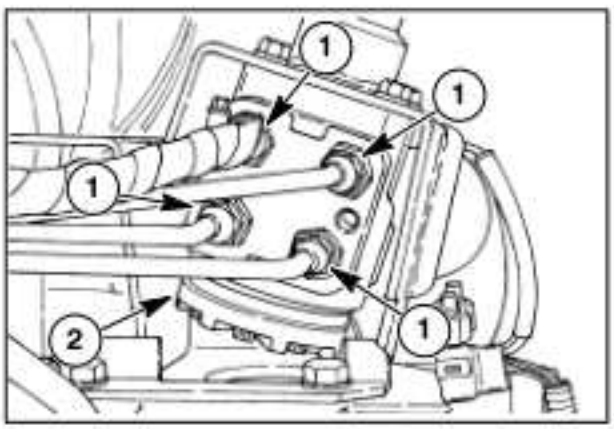

19

21. Disconnect the wiring harness from the engine oil pressure switch, 1, engine stop solenoid, 2 and disconnect the connector for the glow plug, 3. Remove the front wiring harness from the firewall.




20

22. Remove the power steering oil pipes, 1, from the power steering control valve, 2.




21



MidWestTech | New Holland TC21DA, TC24DA Tractor Service Manual | Publication 87053... Order the manual at mid-west-tech.com >

| TROUBLESHOOTING SAFE OPERATION CIRCUIT (OPERATOR NOT PRESENT)<br>REAR PTO ENGAGED<br>GEAR TRANSMISSION | | |
|---|---|---|
| **CONDITION** | **POSSIBLE CAUSE** | **REMEDY** |
| Engine does not continue to run while operator is NOT seated with transmission in neutral, parking brake engaged and mid PTO(s) in the "OFF"position and rear PTO engaged. | Defective transmission, parking brake or PTO safety switches | Test switch and replace if necessary |
| | Blown 40-amp main fuse | Inspect and replace main fuse as necessary |
| | Blown 15-amp fuse | Inspect and replace 15-amp fuse as necessary |
| | Malfunctioning safety controller | Inspect controller and replace as necessary |
| | Malfunctioning fuel shutoff solenoid | Test fuel shutoff solenoid and replace as necessary |
| | Open wiring in safe operation circuit | Check for loose connectors, grounds, and wiring damage |



MidWestTech | New Holland TC21DA, TC24DA Tractor Service Manual | Publication 87053... Order the manual at mid-west-tech.com >