

FARMALL® 40B CVT
FARMALL® 45B CVT
FARMALL® 50B CVT

Compact Tractor

PIN ZCME21001 and above

SERVICE MANUAL

Part number 48080062

2nd edition English

November 2016

Replaces part number 47454114





SERVICE MANUAL

Farmall® 40B CVT [ZDME21931 -]
Farmall® 45B CVT [ZDME21931 -]
Farmall® 50B CVT [ZDME21931 -]

Link Product / Engine

Product	Market Product	Engine
Farmall® 40B CVT [ZDME21931 -]	North America	N844
Farmall® 45B CVT [ZDME21931 -]	North America	N844L
Farmall® 50B CVT [ZDME21931 -]	North America	N844L

Contents

INTRODUCTION

Engine.....	10
[10.001] Engine and crankcase	10.1
[10.101] Cylinder heads	10.2
[10.102] Pan and covers	10.3
[10.103] Crankshaft and flywheel.....	10.4
[10.105] Connecting rods and pistons.....	10.5
[10.106] Valve drive and gears	10.6
[10.110] Balancer and damper	10.7
[10.114] Pump drives	10.8
[10.218] Fuel injection system.....	10.9
[10.254] Intake and exhaust manifolds and muffler	10.10
[10.304] Engine lubrication system.....	10.11
[10.400] Engine cooling system	10.12
[10.414] Fan and drive	10.13
Transmission.....	21
[21.504] Continuously Variable Transmission (CVT)	21.1
Four-Wheel Drive (4WD) system	23
[23.101] Mechanical control	23.1
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
Rear axle system.....	27
[27.100] Powered rear axle.....	27.1
[27.106] Rear bevel gear set and differential.....	27.2

Power Take-Off (PTO)	31
[31.104] Rear electro-hydraulic control	31.1
[31.110] One-speed rear Power Take-Off (PTO)	31.2
[31.120] Central Power Take-Off (PTO)	31.3
Brakes and controls	33
[33.110] Parking brake or parking lock	33.1
[33.120] Mechanical service brakes	33.2
Hydraulic systems	35
[35.000] Hydraulic systems	35.1
[35.104] Fixed displacement pump	35.2
[35.204] Remote control valves	35.3
[35.300] Reservoir, cooler, and filters.....	35.4
Steering	41
[41.200] Hydraulic control components.....	41.1
[41.206] Pump	41.2
[41.216] Cylinders	41.3
Cab climate control	50
[50.100] Heating	50.1
[50.104] Ventilation	50.2
[50.200] Air conditioning	50.3
Electrical systems	55
[55.000] Electrical system	55.1
[55.010] Fuel injection system.....	55.2
[55.100] Harnesses and connectors.....	55.3
[55.201] Engine starting system	55.4
[55.301] Alternator	55.5
[55.302] Battery.....	55.6
[55.404] External lighting	55.7

[55.408] Warning indicators, alarms, and instruments	55.8
[55.518] Wiper and washer system.....	55.9
[55.640] Electronic modules	55.10
[55.DTC] FAULT CODES.....	55.11
Platform, cab, bodywork, and decals	90
[90.100] Engine hood and panels	90.1
[90.116] Fenders and guards.....	90.2
[90.124] Pneumatically-adjusted operator seat.....	90.3
[90.150] Cab.....	90.4
[90.151] Cab interior.....	90.5
[90.154] Cab doors and hatches	90.6



INTRODUCTION

Contents

INTRODUCTION

Foreword - Important notice regarding equipment servicing	3
Foreword (*)	4
Safety rules (*)	5
Safety rules - Ecology and the environment	6
Basic instructions - Important notice regarding equipment servicing (*)	7
Basic instructions Hardware (*)	8
Basic instructions - Shop and assembly	9
Torque Wheel Bolt Torques (*)	11
Basic instructions Tire ballast and pressures (*)	12
General specification Tire Pressures (*)	13
General specification (*)	14
Special tools (*)	15
Special tools (*)	16
International symbols (*)	17
Hydraulic contamination	18
General specification (*)	19
Consumables (*)	20
Capacities (*)	21
General specification (*)	22
Weight (*)	27
General specification (*)	28
Dimension General (*)	29
Product identification General information (*)	33

(*) See content for specific models

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 IH Sales and Service Networks.

Foreword

Farmall® 40B CVT	NA
Farmall® 45B CVT	NA
Farmall® 50B CVT	NA

This repair manual provides the technical information needed to properly service the CASE IH Farmall 40, 45, and 50 CVT (Constant Velocity Transmission) model tractors. Use this manual in conjunction with the operator's manual for complete operation, adjustment, and maintenance information

On CASE IH equipment, left and right are determined by standing behind the unit, looking in the direction of travel.

Safety rules

Farmall® 40B CVT	NA
Farmall® 45B CVT	NA
Farmall® 50B CVT	NA


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

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

Basic instructions - Important notice regarding equipment servicing

FARMALL® B	NA
------------	----

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 information in this manual is up-to-date at the date of the publication. It is the policy of the manufacturer for continuous improvement. Some information could not be updated due to modifications of a technical or commercial type, or changes to the laws and regulations of different countries.

In case of questions, refer to your CASE IH Sales and Service Networks.

Basic instructions Hardware

Farmall® 40B CVT	NA
Farmall® 45B CVT	NA
Farmall® 50B CVT	NA

General

Your tractor has been built using metric hardware.

NOTE: Be sure to use the hardware specified when using tapped holes, as trying to install a metric bolt in an inch thread, or an inch bolt in a metric thread, will damage the thread.

Certain hardware must be tightened to specific torque specifications. If specific torque specifications are not noted, tighten the hardware to the standard torque chart specification listed in this manual.

Plating

Hardware used on CASE IH balers is plated with zinc chromate (gold color). Gold colored hardware has different torquing requirements from unplated or zinc plated (silver color) hardware because of the difference in the coefficient of friction of the plating material. The torque charts in this manual list the correct specifications for gold, silver, and unplated bolts.

Nut Tightening

Whenever possible, the nut should be tightened, not the head of the bolt. When tightening using the bolt head, the clamp load can be lost because some of the torque applied twists the bolt instead of tensioning (stretching) it. The tension on the bolt is what holds the joint together.

Approximately 90% of the torque applied during assembly goes to overcoming friction between the parts. The other 10% is used to tension (stretch) the bolt. After assembly, the frictional forces disappear, which is the basis for the saying 'If it does not fail during assembly, it will not fail in service.' The bolt may later fail due to other factors, but not from being over tightened.

Locknuts

Most locknuts are coated with a special lubricant that is dry to the touch. Anytime a locknut is used, a lower than normal torque is required. Refer to the torque charts in this manual for specific values.

Jam Nuts

When using a jam nut to lock a regular nut, the jam nut should be installed first and tightened to one half the recommended torque, then held in place while installing a regular nut to the recommended torque.

Thread Lubrication

The addition of antiseize compound, Molykote, oil, graphite, or any other lubricant to a bolt decreases the friction between it and a nut. This makes it necessary to reduce the recommended torque to prevent over tensioning of the bolt. When using the torque charts in this manual, decrease the value by 20% whenever a lubricant is used.

Basic instructions - Shop and assembly

Shimming

For each adjustment operation, select adjusting shims and measure the adjusting shims individually using a micrometer, then add up the recorded values. Do not rely on measuring the entire shimming set, which may be incorrect, or the rated value shown on each shim.

Rotating shaft seals

For correct rotating shaft seal installation, proceed as follows:

1. Before assembly, allow the seal to soak in the oil it will be sealing for at least thirty minutes.
2. Thoroughly clean the shaft and check that the working surface on the shaft is not damaged.
3. Position the sealing lip facing the fluid.

NOTE: *With hydrodynamic lips, take into consideration the shaft rotation direction and position the grooves so that they will move the fluid towards the inner side of the seal.*

4. Coat the sealing lip with a thin layer of lubricant (use oil rather than grease). Fill the gap between the sealing lip and the dust lip on double lip seals with grease.
5. Insert the seal in its seat and press down using a flat punch or seal installation tool. Do not tap the seal with a hammer or mallet.
6. While you insert the seal, check that the seal is perpendicular to the seat. When the seal settles, make sure that the seal makes contact with the thrust element, if required.
7. To prevent damage to the seal lip on the shaft, position a protective guard during installation operations.

O-ring seals

Lubricate the O-ring seals before you insert them in the seats. This will prevent the O-ring seals from overturning and twisting, which would jeopardize sealing efficiency.

Sealing compounds

Apply a sealing compound on the mating surfaces when specified by the procedure. Before you apply the sealing compound, prepare the surfaces as directed by the product container.

Spare parts

Only use CNH Original Parts or CASE IH Original Parts.

Only genuine spare parts guarantee the same quality, duration, and safety as original parts, as they are the same parts that are assembled during standard production. Only CNH Original Parts or CASE IH Original Parts can offer this guarantee.

When ordering spare parts, always provide the following information:

- Machine model (commercial name) and Product Identification Number (PIN)
- Part number of the ordered part, which can be found in the parts catalog

Protecting the electronic and/or electrical systems during charging and welding

To avoid damage to the electronic and/or electrical systems, always observe the following practices:

1. Never make or break any of the charging circuit connections when the engine is running, including the battery connections.
2. Never short any of the charging components to ground.
3. Always disconnect the ground cable from the battery before arc welding on the machine or on any machine attachment.
 - Position the welder ground clamp as close to the welding area as possible.
 - If you weld in close proximity to a computer module, then you should remove the module from the machine.
 - Never allow welding cables to lie on, near, or across any electrical wiring or electronic component while you weld.
4. Always disconnect the negative cable from the battery when charging the battery in the machine with a battery charger.

NOTICE: *If you must weld on the unit, you must disconnect the battery ground cable from the machine battery. The electronic monitoring system and charging system will be damaged if this is not done.*

5. Remove the battery ground cable. Reconnect the cable when you complete welding.

WARNING

Battery acid causes burns. Batteries contain sulfuric acid.

Avoid contact with skin, eyes or clothing. Antidote (external): Flush with water. Antidote (eyes): flush with water for 15 minutes and seek medical attention immediately. Antidote (internal): Drink large quantities of water or milk. Do not induce vomiting. Seek medical attention immediately. Failure to comply could result in death or serious injury.

W0111A

Special tools

The special tools that CASE IH suggests and illustrate in this manual have been specifically researched and designed for use with CASE IH machines. The special tools are essential for reliable repair operations. The special tools are accurately built and rigorously tested to offer efficient and long-lasting operation.

By using these tools, repair personnel will benefit from:

- Operating in optimal technical conditions
- Obtaining the best results
- Saving time and effort
- Working in safe conditions

Torque Wheel Bolt Torques

Farmall® 40B CVT	NA
Farmall® 45B CVT	NA
Farmall® 50B CVT	NA

All models

Front Wheel - Disc-to-Hub: FWD	129 N·m (95 lb ft)
Rear Wheel - Rear Wheel & Disc-to Axle Disc-to Rim .	129 N·m (95 lb ft) 244 N·m (180 lb ft)

Basic instructions Tire ballast and pressures

Farmall® 40B CVT	NA
Farmall® 45B CVT	NA
Farmall® 50B CVT	NA

LIQUID BALLAST (OPTIONAL)

It is a common practice to add weight to the tractor by filling the rear tires with liquid. A calcium chloride (CaCl₂) and water solution is recommended due to its low freezing point and greater density (weight per gallon) than pure water.

Never exceed the total recommended weight for the tractor. Because special equipment is required to fill the tires, consult your CASE IH Dealer.

Tires should never be filled beyond **75 %**. At **75 %** full, the liquid will come to the valve stem when the valve stem is at its highest point at the top of the wheel.

TIRE PRESSURE

Tire pressure must be considered when adding weights, implements, or attachments to the tractor or damage to the tractor may occur.

The chart below outlines tire inflation pressures.

FRONT TIRE INFLATION PRESSURES		
Tire Type	Tire Size	Inflation Pressure
Agricultural: FWD	8 x 16, 6PR, R1	82.7 - 193.1 kPa (12 - 28 psi) 1.4 - 1.9 bar (12 - 28 psi)
Turf: FWD	27 x 10.5-15, 4PR, R3 27/12LL x 15, 6PR, R3	68.9 - 206.8 kPa (10 - 30 psi) 55.2 - 68.9 kPa (8 - 10 psi)
Industrial	10 x 16.5, 6PR, R4	110.3 - 310.3 kPa (16 - 45 psi)
REAR TIRE INFLATION PRESSURES		
Agricultural	14.9 x 24, 4 PR, R1	82.7 - 96.5 kPa (12 - 14 psi)
Turf	44 x 18-20, 4PR, R3 22.5LL x 16.1, 6PR, R3	82.7 - 137.9 kPa (12 - 20 psi) 41.4 - 55.2 kPa (6 - 8 psi)
Industrial	17.5 x 24, 8PR, R4	82.7 - 179.3 kPa (12 - 26 psi)

NOTE: Do not underinflate or overinflate tires. Do not exceed maximum inflation pressure listed.

REAR TIRE LIQUID

600 g/5 lb Gal Solution/CaCl₂

Ballast Weights (Per Tire)

Agricultural	14.9 x 24, 4PR, R1	272 kg (600 lb)
Turf	44 x 18-20, 4PR, R3	249 kg (549 lb)
Industrial (R4)	17.5 x 24, 6PR, R4	272 kg (600 lb)

General specification Tire Pressures

Farmall® 40B CVT	NA
Farmall® 45B CVT	NA
Farmall® 50B CVT	NA

FRONT TIRE INFLATION PRESSURES		
Tire Type	Tire Size	Inflation Pressure
Agricultural:	2WD	5.50 x 16, 4PR, F2
		7.5 x 15, 6 PR
	FWD	7 x 16, 6PR, R1
		8 x 16, 6PR, R1
Turf:	2WD	25 x 8.50-14, 4PR, R3
	FWD	27 x 8.50-15, 4PR, R3
Industrial (FWD only)	10 x 16.5, 6PR, R4	

REAR TIRE INFLATION PRESSURES		
Agricultural	13.6 x 24, 4PR, R1	
Turf	44 x 18-20, 4PR, R3	
Industrial (R4)	17.5 x 24, 6PR, R4	

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

