Farmall 45A
Farmall 50A
Tractor

SERVICE MANUAL

Part number 51453914
1st edition English
May 2018

CASE IH
AGRICULTURE

SERVICE MANUAL

Farmall® 45A
Farmall® 50A 50 Hp, Tier 2 Utility tractor, Two-Wheel Drive (2WD), Europe
Farmall® 50A 50 Hp, Tier 2 utility tractor, Four-Wheel Drive (4WD), Europe

51453914 30/05/2018

EN

Link Product / Engine

Product	Market Product	Engine
Farmall® 45A 45 Hp, Tier 2 utility tractor, Four-Wheel Drive (4WD), Europe	Europe	N844LT
Farmall® 50A 50 Hp, Tier 2 Utility tractor, Two-Wheel Drive (2WD), Europe	Europe	N844L
Farmall® 50A 50 Hp, Tier 2 utility tractor, Four-Wheel Drive (4WD), Europe	Europe	N844L

Contents

INTRODUCTION

Contents

INTRODUCTION

Foreword

This repair manual provides the technical information needed to properly service the Case IH Farmall 45A and Farmall 55A 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.

Foreword Ecology and the Environment

Soil, air, and water are vital factors of agriculture and life in general. When legislation does not yet rule the treatment of some of the substances which are required by advanced technology, common sense should govern the use and disposal of products of a chemical and petrochemical nature.

NOTICE: *The following are recommendations which may be of assistance:*

- Become acquainted with and ensure that you understand the relative legislation applicable to your country.
- Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, antifreeze, cleaning agents, etc., with regard to their effect on man and nature and how to safely store, use and dispose of these substances.
- Agricultural consultants will, in many cases, be able to help you as well.

HELPFUL HINTS

- Avoid filling tanks using cans or inappropriate pressurized fuel delivery systems which may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of them contain substances which 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 draining off used engine coolant mixtures, engine, gearbox and hydraulic oils, brake fluids, etc. Do not mix drained brake fluids or fuels with lubricants. Store them safely until they can be disposed of in a proper way to comply with local legislation and available resources.
- Modern coolant mixtures, i.e. antifreeze and other additives, should be replaced every two years. They should not be allowed to get into the soil but should be collected and disposed of properly.
- Do not open the air-conditioning system yourself. It contains gases which should not be released into the atmosphere. Your CASE IH dealer or air conditioning specialist has a special extractor for this purpose and will have to recharge the system properly.
- Repair any leaks or defects in the engine cooling 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 as penetrating weld splatter may burn a hole or weaken them, allowing the loss of oils, coolant, etc.

Advice

BT09A213 1

International symbols

As a guide to the operation of the machine, various universal symbols have been utilized on the instruments, controls, switches, and fuse box. The symbols are shown below with an indication of their meaning.


Thermostart starting aid


Alternator charge


Fuel level


Automatic Fuel shut-off


Engine speed (rev/min x 100)


Hours recorded


Engine oil pressure


Engine coolant temperature


Coolant level


Tractor lights


Headlamp main beam


Headlamp dipped beam


Work lamps


Stop lamps


Horn


Radio

KAM
Keep alive memory


Turn signals

Turn signals -one trailer

Turn signals -two trailers


Front wind-screen wash/wipe


Rear wind-screen wash/wipe


Heater temp-erature control


Heater fan


Air conditioner


Air filter blocked


Parking brake


Brake fluid level


Trailer brake


Roof beacon


Warning ! Corrosive substance


PTO

N
Transmission in neutral


Creeper gears


Slow or low setting


Fast or high setting


Ground speed


Differential lock


Rear axle oil tem-perature


Transmission oil pressure


FWD engaged


FWD dis-engaged


Warning!


Hazard warning lights


Variable control


Pressurised! Open carefully


Position Control


Draft Control


Accessory socket


Implement socket


%age slip


Hitch raise (rear)


Hitch lower (rear)


Hitch height limit (rear)


Hitch height limit (front)


Hitch dis-abled


Hydraulic and transmission filters


Remote valve extend


Remote valve retract


Remote valve float


Malfunction! See Operator's Manual


Malfunction! (alter-native symbol)

Safety rules

PRECAUTIONARY STATEMENTS

Personal Safety

Throughout this manual and on machine signs, you will find precautionary statements ("DANGER", "WARNING", and "CAUTION") followed by specific instructions. These precautions are intended for the personal safety of you and those working with you. Please take the time to read them.

⚠ DANGER ⚠

This word "DANGER" indicates an immediate hazardous situation that, if not avoided, will result in death or serious injury. The color associated with Danger is RED.

M1169

⚠ WARNING ⚠

This word "WARNING" indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. The color associated with Warning is ORANGE.

M1170

⚠ CAUTION ⚠

This word "CAUTION" indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW .

M1171

FAILURE TO FOLLOW THE "DANGER", "WARNING", AND "CAUTION" INSTRUCTIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH.

Machine Safety

The precautionary statement ("IMPORTANT") is followed by specific instructions. This statement is intended for machine safety.

NOTICE: *The word "IMPORTANT" is used to inform the reader of something they need to know to prevent minor machine damage if a certain procedure is not followed.*

Information

NOTE: *Instructions used to identify and present supplementary information.*

LEGAL OBLIGATIONS

This machine may be equipped with special guarding or other devices in compliance with local legislation. Some of these require active use by the operator. Therefore, check local legislation on the usage of this machine.

ACCIDENT PREVENTION

Most accidents or injuries that occur in workshops are the result of a non compliance to simple and fundamental safety regulations. For this reason, IN MOST CASES THESE ACCIDENTS CAN BE AVOIDED by foreseeing possible causes and consequently acting with the necessary caution and care.

Accidents may occur with all types of machines, regardless of how well the machine in question was designed and built.

A careful and informed service technician is the best guarantee against accidents.

Decisive awareness of the most basic safety rule is normally sufficient to avoid many serious accident.

⚠ DANGER ⚠

Shut down the machine, remove key, be sure all moving parts have stopped and all pressure in the systems is relieved before cleaning, adjusting or lubricating the equipment. Failure to comply will result in death or serious injury.

M871

SAFETY REQUIREMENTS FOR FLUID POWER SYSTEMS AND COMPONENTS - HYDRAULICS (EUROPEAN STANDARD PR EM 982)

Flexible hose assemblies must not be constructed from hoses which have been previously used as part of a hose assembly.
Do not weld hydraulic piping.
When flexible hoses or piping are damaged, replace them immediately.
It is forbidden to modify a hydraulic accumulator by machining, welding or any other means.
Before removing hydraulic accumulators for servicing, the liquid pressure in the accumulators must be reduced to zero.
Pressure check on hydraulic accumulators shall be carried out by method recommended by the accumulator manufacturer.
Care must be taken not to exceed the maximum allowable pressure of the accumulator. After any check or adjustment there must be no leakage of gas.

SAFETY RULES

A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. To help prevent accidents, read and take the following precautions before operating this tractor. Equipment should be operated only by those who are responsible and instructed to do so.

THE TRACTOR

1. Read the Operator's Manual carefully before using the tractor. Lack of operating knowledge can lead to accidents.
2. Use an approved roll bar and seat belt for safe operation. Overturning a tractor without a roll bar can result in death or injury. If your tractor is not equipped with a roll bar and seat belt, see your CASE IH Dealer.
3. Always use the seat belt. The only instance when the seat belt should not be used is if the roll bar has been removed from the tractor or folding ROPS is in down position.
4. If a front end loader is to be installed, always use a FOPS (Falling Object Protective Structure) canopy to avoid injury from falling objects.
5. Use the handholds and step plates when getting on and off the tractor to prevent falls. Keep steps and platform cleared of mud and debris.
6. Do not permit anyone but the operator to ride on the tractor. There is no safe place for extra riders.
7. Keep all safety decals clean of dirt and grime, and replace all missing, illegible, or damaged safety decals. See the list of decals in the Decal section of this manual.

SERVICING THE TRACTOR

1. The cooling system operates under pressure which is controlled by the radiator cap. It is dangerous to remove the cap while the system is hot. Always turn the cap slowly to the first stop and allow pressure to escape before removing the cap entirely.
2. Keep any type of open flame away from the tractor and do not smoke while refueling.Wait for the engine to cool before refueling.
3. Keep the tractor and equipment, particularly brakes and steering, maintained in a reliable and satisfactory condition to ensure your safety and comply with legal requirements.
4. Keep open flame or cold weather starting aids away from the battery to prevent fires or explosions. Use jumper cables according to instructions to prevent sparks which could cause explosion.
5. Stop the engine before performing any service on the tractor.

6. Escaping hydraulic/diesel fluid under pressure can penetrate the skin causing serious injury. If fluid is injected into the skin, obtain medical attention immediately or gangrene may result.
   - DO NOT use your hand to check for leaks.
   - Use a piece of cardboard or paper to search for leaks.
   - Stop the engine and relieve pressure before connecting or disconnecting lines.
   - Tighten all connections before starting the engine or pressurizing lines.
7. Do not modify or permit anyone else to modify or alter this tractor or any of its components or functions without first consulting a CASE IH Dealer.
8. The fuel oil in the injection system is under high pressure and can penetrate the skin. Unqualified persons should not remove or attempt to adjust a pump, injector, nozzle, or any other part of the fuel injection system. Failure to follow these instructions can result in serious injury.
9. Continuous long-term contact with used engine oil may cause skin cancer. Avoid prolonged contact with used engine oil.Wash skin promptly with soap and water.
10. Some components of your tractor, such as gaskets and friction surfaces (brake linings, clutch linings, etc.) may contain asbestos. Breathing asbestos dust is dangerous to your health. You are advised to have any maintenance or repair on such components carried out by an authorized CASE IH Dealer. However, if service operations are to be undertaken on parts that contain asbestos, the essential precautions listed below must be observed:
    - Work out of doors or in a well ventilated area.
    - Dust found on the tractor or produced during work on the tractor should be removed by extraction, not by blowing.
    - Dust waste should be dampened, placed in a sealed container, and marked to ensure safe disposal.
    - If any cutting, drilling, etc. is attempted on materials containing asbestos, the item should be dampened and only hand tools or low speed power tools used.

OPERATING THE TRACTOR

1. Before starting the tractor, apply the parking brake, place the PTO lever in the 'OFF' position, the lift control lever in the down position, the remote control valve levers in the neutral position, and the transmission in neutral.
2. Always sit in the tractor seat when starting the engine or operating controls. Do not start the engine or operate controls while standing beside the tractor.
3. Do not bypass the neutral start switches. Consult your CASE IH Dealer if your neutral start controls malfunction. Use jumper cables only in the recommended manner. Improper use can result in tractor runaway.
4. Avoid accidental contact with the gear shift lever while the engine is running, as this can cause unexpected tractor movement.
5. Before getting off the tractor, disengage the PTO, turn the engine off, and apply the parking brake. Never get off the tractor while it is in motion.
6. Do not park the tractor on a steep incline.
7. Do not operate the tractor engine in an enclosed building without adequate ventilation. Exhaust fumes can cause death or illness.
8. If the power steering or engine ceases operating, stop the tractor immediately.
9. Pull only from the drawbar or the lower link drawbar in the down position. Use only a drawbar pin that locks in place. Pulling from the tractor rear axle or any point above the axle may cause the tractor to upset.
10. 1If the front end of the tractor tends to rise when heavy implements are attached to the three-point hitch, install front end or front wheel weights. Do not operate the tractor with a light front end.
11. Always set the hydraulic selector lever in position control when attaching or transporting equipment. Ensure hydraulic couplers are properly mounted and will disconnect safely in case of accidental detachment of implement
12. Do not leave equipment in the raised position.
13. Use the flasher/turn signal lights and SMV signs when traveling on public roads both day and night (unless prohibited by law).
14. When operating at night, adjust lights to prevent blinding oncoming drivers.

DRIVING THE TRACTOR

1. Watch where you are going, especially at row ends, on roads, around trees and low hanging obstacles.
2. To avoid upsets, drive the tractor with care and at a safe speed. Use extra caution when operating over rough ground, when crossing ditches or slopes, and when turning corners.
3. To provide two-wheel braking, lock tractor brake pedals together when transporting on roads.
4. Do not coast or free wheel down hills. Use the same gear when going downhill as is used when going uphill.
5. Any towed vehicle with a total weight exceeding that of the towing tractor should be equipped with brakes for safe operation.
6. If the tractor becomes stuck or the tires become frozen to the ground, back up the tractor to prevent upset.
7. Always check overhead clearance, especially when transporting the tractor.
8. When operating at night, adjust lights to prevent blinding oncoming drivers.

OPERATING THE PTO

1. When operating PTO driven equipment, shut off the engine and wait until the PTO stops before getting off the tractor and disconnecting the equipment.
2. Do not wear loose clothing when operating the power take-off or when near rotating equipment.
3. When operating stationary PTO driven equipment, always place all gear shift levers in neutral position.
4. To avoid injury, do not clean, adjust, unclog, or service PTO driven equipment when the tractor engine is running.
5. Ensure the PTO master shield is installed at all times. Always replace the PTO shield cap when the PTO is not in use.

DIESEL FUEL

1. UNDER NO CIRCUMSTANCES should gasoline, alcohol, or blended fuels be added to diesel fuel. These combinations can create an increased fire or explosive hazard. Such blends are more explosive than pure gasoline in a closed container such as a fuel tank. DO NOT USE THESE BLENDS.
2. Never remove the fuel cap or refuel with the engine running or hot.
3. Do not smoke while refueling or when standing near fuel.
4. Maintain control of the fuel filler pipe nozzle when filling the tank.
5. Do not fill the fuel tank to capacity. Allow room for expansion.
6. Wipe up spilled fuel immediately.
7. Always tighten the fuel tank cap securely.
8. If the original fuel tank cap is lost, replace it with a CASE IH approved cap. A non-approved, proprietary cap may not be safe.
9. Keep equipment clean and properly maintained.
10. Do not drive equipment near open fires.
11. Never use fuel for cleaning purposes.
12. Arrange fuel purchases so that winter grade fuels are not held over and used in the spring.

SAFETY FRAME (ROPS)

Your CASE IH tractor is equipped with a safety frame. It must be maintained in a serviceable condition. Be careful when driving through doorways or working in confined spaces with low headroom.

UNDER NO CIRCUMSTANCES should you:

- Modify, drill, or alter the safety frame in any way. Doing so may render you liable to legal prosecution.
- Attempt to straighten or weld any part of the main frame or retaining brackets which have suffered damage. Doing so may weaken the structure and endanger your safety.
- Secure any parts on the main frame or attach your safety frame with anything other than the special high tensile bolts and nuts specified.
- Attach chains or ropes to the main frame for pulling purposes.

- Take unnecessary risks even though your safety frame affords you the maximum protection possible.

Basic instructions hardware

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.

Torque specification tables

Standard bolt hardware & hydraulic connector torques, specifications and information

This specification establishes general torque values to be used in bolted joints for metric and inch hardware. This specification is assumed to apply unless another specification (standard or specified requirement) is indicated in the repair manual.

NOTE: These Standards do not include electrical or hydraulic components, they are referred to in their specific charts or tables.

INCH 'NON-FLANGED' HARDWARE AND LOCKNUTS {MINIMUM HARDWARE TIGHTENING TORQUES}

IN NEWTON-METERS (FOOT-POUNDS) FOR NORMAL ASSEMBLY APPLICATIONS								
	SAE GRADE 2		SAE GRADE 5		SAE GRADE 8		LOCKNUTS	
Nominal Size	Unplated or Plated Silver	Plated w/ZnCr Gold	Unplated or Plated Silver	Plated w/ZnCr Gold	Unplated or Plated Silver	Plated w/ZnCr Gold	Gr.B w/Gr5 Bolt	Gr.C w/Gr8 Bolt
1/4	6.2 (55)*	8.1 (72)*	9.7 (86)*	13 (112)*	14 (121)*	18 (157)*	8.5 (75)*	12.2 (109)*
5/16	13 (115)*	17 (149)*	20 (178)*	26 (229)*	28 (21)	37 (27)	17.5 (155)*	25 (220)*
3/8	23 (17)	30 (22)	35 (26)	46 (34)	50 (37)	65 (48)	31 (23)	44 (33)
7/16	37 (27)	47 (35)	57 (42)	73 (54)	80 (59)	104 (77)	50 (37)	71 (53)
1/2	57 (42)	73 (54)	87 (64)	113 (83)	123 (91)	159 (117)	76 (56)	108 (80)
9/16	81 (60)	104 (77)	125 (92)	163 (120)	176 (130)	229 (169)	111 (82)	156 (115)
5/8	112 (83)	145 (107)	174 (128)	224 (165)	244 (180)	316 (233)	153 (113)	215 (159)
3/4	198 (146)	256 (189)	306 (226)	397 (293)	432 (319)	560 (413)	271 (200)	383 (282)
7/8	193 (142)	248 (183)	495 (365)	641 (473)	698 (515)	904 (667)	437 (323)	617 (455)
1	289 (213)	373 (275)	742 (547)	960 (708)	1048 (773)	1356 (1000)	654 (483)	924 (681)

NOTE: Torque values shown with * are inch pounds.

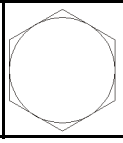
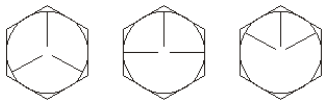
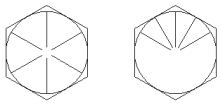
NOTICE: *Values shown on these charts are minimum hardware tightening torques unless otherwise stated.*

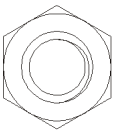
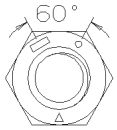
METRIC 'NON-FLANGED' HARDWARE AND LOCKNUTS {MINIMUM HARDWARE TIGHTENING TORQUES}

IN NEWTON-METERS (FOOT-POUNDS) FOR NORMAL ASSEMBLY APPLICATIONS							
	CLASS 5.8		CLASS 8.8		CLASS 10.9		LOCK-NUTS
Nominal Size	Unplated	Plated w/ZnCr	Unplated	Plated w/ZnCr	Unplated	Plated w/ZnCr	Cl.8 w/Cl8.8 Bolt
M4	1.7 (15)*	2.2 (19)*	2.6 (23)*	3.4 (30)*	3.7 (33)*	4.8 (42)*	2.3 (20)*
M6	5.8 (51)*	7.6 (67)*	8.9 (79)*	12 (102)*	13 (115)*	17 (150)*	7.8 (69)*
M8	14 (124)*	18 (159)*	22 (195)*	28 (21)	31 (23)	40 (30)	19 (169)*
M10	28 (21)	36 (27)	43 (32)	56 (41)	61 (45)	79 (58)	38 (28)
M12	49 (36)	63 (46)	75 (55)	97 (72)	107 (79)	138 (102)	66 (49)
M16	121 (89)	158 (117)	186 (137)	240 (177)	266 (196)	344 (254)	164 (121)
M20	237 (175)	307 (226)	375 (277)	485 (358)	519 (383)	671 (495)	330 (243)
M24	411 (303)	531 (392)	648 (478)	839 (619)	897 (662)	1160 (855)	572 (422)

NOTE: Torque values shown with * are inch pounds.

SAE HARDWARE IDENTIFICATION CHART

Grade	1 or 2	5	8
SAE Markings for Bolts and Cap Screws			

SAE Markings for Hex Nuts			
Grade A-B-C Locknuts	**A (No Notches)**	**B (Three Marks)**	**C (Six Marks)**

METRIC HARDWARE IDENTIFICATION CHART

Class	**5.8**	**8.8**	**10.9**
			
Hex Cap Screw and Carriage Bolts	Located on the face or flat, on the cap of the bolt	Located on the face or flat, on the cap of the bolt	Located on the face or flat, on the cap of the bolt
Hex Nuts and Locknuts	Located on the face or flat of the nut	Located on the face or flat of the nut	Located on the face or flat of the nut

Metric cap screws and nuts are identified by the grade number stamped on the head of the cap screw or on the surface of the nuts. U.S. customary cap screws are identified by radial lines stamped on the head of the cap screw.

DEFINITIONS:

1. Break-Away Torque - Torque measured in the direction of tightening, the moment before the bolt/nut starts to turn.
2. Clamping Force - Force equal to the tension in the fastener that clamps the parts together.
3. Stabilized Torque - Torque measured on a joint that has had a settling time after fastener installation, and the torque is measured in the direction of tightening, the moment after the bolt/nut begins to turn.
4. Proof Load - Safe test load for fasteners, approximately 10% below the yield load.
5. Torque - Force on the wrench handle times the handle length.
6. Torque and Turn - Bolting method utilizing a torque sufficient to close the joint, followed by rotation of a specific angle to obtain the desired bolt stretch.
7. Torque to Yield - Bolting method that tightens the joint until 0.2% yield is detected. Generally requires a computer monitored tightening tool.
8. Target Torque - Torque specified by engineering, generally nominal torque.
9. Ultimate Load - Load when bolt failure occurs.
10. Yield Load - Load when 0.2% deformation occurs.

NOTE: Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original. When replacing cap screws, always use a cap screw of the same measurement and strength as the cap screw being replaced.

NOTE: Make sure the fasteners threads are clean, and that thread engagement is started. This will prevent them from failing when being tightened. Assure that joints that utilize threaded fasteners are properly tightened, and that they remain tight during the period of their intended usage.

NOTE: Tighten plastic insert or crimped steel-type lock nuts to approximately 50% of table torque, applied to the nut, not the bolt head. Tighten toothed or serrated type lock nuts to their full torque value.

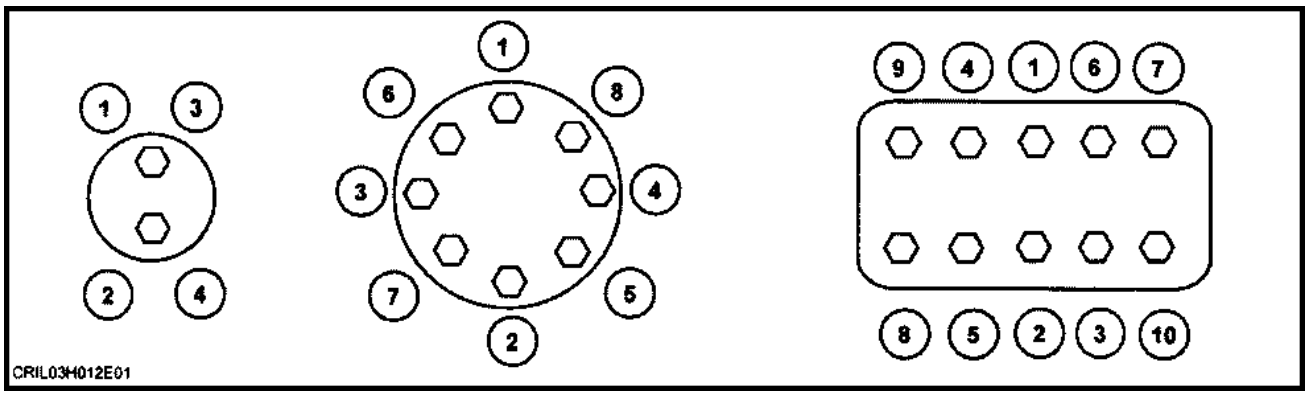
NOTE: Always use the torque values listed in the supplied charts in this section when values are not supplied in a procedure.

NOTE: DO NOT use these torque values when values are given in a specified procedure.

NOTE: Reuse of fasteners. Fasteners that have been tightened above yield point during assembly should not be reused after disassembly. They have been permanently deformed and the elastic range has been shifted closer to the ultimate tensile point.

NOTE: Torque and Turn is a recommended procedure for manufacturing and service when sophisticated tools are not available, especially for large diameter fasteners.

NOTE: Large diameter fasteners, unless specifically stated, should be tightened in sequence using the related torque chart below, at a low torque that is sufficient until the joint is closed. Each bolt is then rotated 90 degrees in sequence. Each bolt is then rotated another 90 degrees in sequence. The result is a clamp load above the yield point. This procedure results in a consistent clamp load. The fasteners should not be reused after disassembly.



DF5019-1 1

NOTE: Shown above is the suggested initial torque tightening sequences for general applications, tighten in sequence from item 1 through to the last item of hardware.

Hydraulic Hoses and Tubes

NOTE: Tightening the joint to the proper torque will keep it leak free, and prevent it from damaging the hose or fitting.

Always replace hoses and tubes with damaged cone ends or the end connections.
When installing a new hose, loosely connect each end and make sure the hose fits its desired location, without kinking or twisting, before tightening the connection. Tighten non-swivel end of hose first if applicable. Tighten the hose clamps enough to hold the hose without chafing but not so tight as to crush the ends.
Keep the hoses and tubes clear of moving parts and replace any hoses and fittings that have moved from their original positions over time. A hose with a chafed outer cover will allow moisture to get into the system. Concealed corrosion of the wire reinforcement will then occur along the hose length and result in hose failure.
Ballooning of the hose indicates internal leakage as the hose deteriorates. This condition can rapidly lead to hose failure.
Kinked, crushed, stretched or damaged hoses generally suffer internal structural damage that restricts fluid flow, reduces performance and ultimately causes the hose to fail.
Do not allow free moving, unsupported hoses or tubes to touch each other or related working surfaces. This causes chafing and reduces line life.

National Pipe Thread (NPT) Fittings

Before installing and tightening pipe fittings, clean the threads with a cleaning solvent or Loctite® brand cleaner. Apply the appropriate Loctite® brand sealant to all fittings including stainless steel, unless as otherwise stated. Generally Loctite® 567™ can be used for all fittings including stainless steel. Loctite® 565™ is used for most metal fittings. For high filtration/zero contamination systems use Loctite® 545™.

NPT PIPE FITTING TORQUE CHART

Thread Size	Torque (Maximum)
1/8" - 27	**13 Nm** (**10 lb ft**)
1/4" - 18	**16 Nm** (**12 lb ft**)
3/8" - 18	**22 Nm** (**16 lb ft**)
1/2" - 14	**41 Nm** (**30 lb ft**)
3/4" - 14	**54 Nm** (**40 lb ft**)

PIPE FITTING

Nom. SAE Dash Size	Thread Size	TFFT (Turns For Finger Tight)
-2	1/8 - 27	2.0 - 3.0
-4	1/4 - 18	2.0 - 3.0
-6	3/8 - 18	1.5 - 3.0
-8	1/2-14	2.0 - 3.0
-12	3/4 - 14	2.0 - 3.0
-16	1 - 11-1/2	1.5 - 2.5
-20	1-1/4 - 11-1/2	1.5 - 2.5
-24	1-1/2 - 11-1/2	1.5 - 2.5
-32	2 - 11-1/2	1.5 - 2.5

Apply sealant/lubricant to male pipe threads. The first two threads should be left uncovered to avoid system contamination. Screw pipe fitting into female pipe port to the finger tight position. Wrench tighten fitting to the appropriate turns from finger tight (TFFT) shown in table above, making sure the tube end of an elbow or tee fitting is aligned to receive incoming tube or hose fitting.

Installation of Adjustable Fittings in Straight Thread O Ring Bosses

1. Lubricate the O ring by coating it with light oil or petroleum jelly. Install the O ring in the groove adjacent to the metal backup washer which is assembled at the extreme end of the groove.
2. Install the fitting into the SAE straight thread boss until the metal backup washer contacts the face of the boss.
   NOTE: Do not over tighten and distort the metal backup washer.
3. Position the fitting by turning out (counter clockwise) up to a maximum of one turn. Holding the pad of the fitting with a wrench, tighten the locknut and washer against the face of the boss.
4. When hose ends or connectors are made of materials other than steel, different torque values may be required.

O RING BOSS END FITTING OR LOCK NUT

Nom. SAE Dash Size	Thread Size	Newton·meters	lb/in	lb/ft
-6	9/16 - 18	48 to 54	432 to 480	
-8	3/4 - 16	70 to 78	612 to 684	
-10	7/8 - 14	102 to 114		75 to 84
-12	1-1/16 - 12	142 to 160		105 to 117
-16	1-5/16 - 12	237 to 254		175 to 187

37 DEGREE FLARE FITTING (STEEL HYDRAULIC FITTINGS)

Nom. SAE Dash Size	Tube OD/Hose ID		Thread Size	Newton·meters	lb/in	lb/ft
-2			5/16 - 24	8 to 9	72 to 84	
-3			3/8 - 24	11 to 12	96 to 108	
-4	6.4 mm	1/4 inch	7/16 - 20	14 to 16	120 to 144	
-5	7.9 mm	5/16 inch	1/2 - 20	18 to 21	156 to 192	
-6	9.5 mm	3/8 inch	9/16 - 18	27 to 33	240 to 300	
-8	12.7 mm	1/2 inch	3/4 - 16	46 - 56	408 to 504	
-10	15.9 mm	5/8 inch	7/8 - 14	77 to 85	684 to 756	
-12	19.0 mm	3/4 inch	1-1/16 - 12	107 to 119		79 to 88
-14	22.2 mm	7/8 inch	1-3/16 -12	127 to 140		94 to 103
-16	25.4 mm	1.0 inch	1-5/16 - 12	131 to 156		97 to 117
-20	31.8 mm	1-1/4 inch	1-5/8 - 12	197 to 223		145 to 165
-24	38.1 mm	1-1/2 inch	1-7/8 - 12	312 to 338		230 to 250

37 DEGREE FITTINGS

TUBE NUTS FOR 37 DEGREE FLARED FITTINGS								**O RING BOSS PLUGS ADJUSTABLE FITTING LOCKNUTS, SWIVEL JIC-37° SEATS**			
				TORQUE				**TORQUE**			
Size	Tubing OD		Thread Size	Newton· Meters		Foot Pounds		Newton· Meters		Foot Pounds	
	mm	in.		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
4	6.4	1/4	7/16-20	12	16	9	12	8	14	6	10
5	7.9	5/16	1/2-20	16	20	12	15	14	20	10	15
6	9.5	3/8	9/16-18	29	33	21	24	20	27	15	20
8	12.7	1/2	3/4-16	47	54	35	40	34	41	25	30
10	15.9	5/8	7/8-14	72	79	53	53	47	54	35	40
12	19.1	3/4	1-1/ 16-12	104	111	77	82	81	95	60	70
14	22.2	7/8	1-3/ 16-12	122	136	90	100	95	109	70	80
16	25.4	1	1-5/ 16-12	149	163	110	120	108	122	80	90
20	31.8	1-1/4	1-5/8-12	190	204	140	150	129	158	95	115

These torques are not recommended for tubes of **12.7 mm** (**0.5 in**) OD and larger with wall thickness of **0.89 mm** (**0.035 in**) or less. The torque is specified for **0.89 mm** (**0.035 in**) wall tubes on each application individually. Before installing and torquing 37° flared fittings, clean the face of the flare and threads with a cleaning solvent or Loctite® brand cleaner, and apply hydraulic sealant Loctite® 569™ to the 37° flare and the threads. Install fitting, and torque to specified torque, loosen fitting and re-torque to specifications.

General specification

	Farmall 45A	Farmall 50A
ENGINE		
Type/Model	Diesel/N844L	Diesel/N844LT
Emission Level	Tier 3	Tier 3
Engine Gross Horsepower	**33.6 kW** (**45.0 Hp**)	**37.3 kW** (**50.0 Hp**)
PTO Horsepower	**29 kW** (**39 Hp**)	**35.5 kW** (**47.6 Hp**)
Cylinders	4	4
Bore	**84 mm** (**3.31 in**)	**84 mm** (**3.31 in**)
Stroke	**100 mm** (**3.94 in**)	**100 mm** (**3.94 in**)
Displacement	**2.2 l** (**135.2 in³**)	**2.2 l** (**135.2 in³**)
Compression Ratio	22.5:1	22.5:1
Firing Order	1-3-4-2	1-3-4-2
Aspiration	Natural	Turbocharged
Low Idle Speed	**1050 RPM** ± 50	**1100 RPM** ± 50
Maximum no-load speed:	**2900 – 2950 RPM**	**2900 – 2950 RPM**
Rated Speed	**2600 RPM**	**2800 RPM**
Tappet Clearance		
Intake/Exhaust (cold)	**0.2 mm** (**0.008 in**)	**0.2 mm** (**0.008 in**)
Crankcase Oil Capacity	**5.5 l** (**5.8 US qt**)	**7.0 l** (**7.4 US qt**)
CAPACITIES		
Fuel Tank	**51 l** (**13.5 US gal**)	**51 l** (**13.5 US gal**)
Cooling System	**8.5 l** (**9.0 US qt**)	**10.0 l** (**10.5 US qt**)
Engine Crankcase Oil Capacity	**5.5 l** (**5.8 US qt**)	**7.0 l** (**7.4 US qt**)
Rear Axle & Transmission	**25 l** (**6.6 US gal**)	**25 l** (**6.6 US gal**)
Front Axle (FWD)	**7.5 l** (**8.0 US qt**)	**7.5 l** (**8.0 US qt**)

	Farmall 45A	Farmall 50A
COOLING SYSTEM		
Type	Pressurized Liquid with Recirculating Bypass	Pressurized Liquid with Recirculating Bypass
Water Pump:		
Type	Centrifugal	Centrifugal
Drive	V-Belt	V-Belt
Belt Deflection	**10 – 15 mm** (**0.4375 – 0.5625 in**) when **9 – 11 kg** (**20 – 25 lb**) thumb pressure is applied midway between belt pulleys	**10 – 15 mm** (**0.4375 – 0.5625 in**) when **9 – 11 kg** (**20 – 25 lb**) thumb pressure is applied midway between belt pulleys
Fan Diameter	**410 mm** (**16.1 in**)	**410 mm** (**16.1 in**)
Number of Fan Blades	6	8
Thermostat:		
Start to Open	**71 °C** (**160 °F**)	**71 °C** (**160 °F**)
Fully Open	**82 °C** (**180 °F**)	**82 °C** (**180 °F**))
Radiator Cap	**90 kPa** (**13 psi**)	**90 kPa** (**13 psi**)
Antifreeze	Ethylene Glycol	Ethylene Glycol
System Capacity	**8.5 l** (**9.0 US qt**)	**8.5 l** (**9.0 US qt**)
ELECTRICAL SYSTEM		
Main System Protection	Fusible Link (**20 A**)	Fusible Link (**20 A**)
Number Fuses for Circuit Protection	6	6
Alternator	**12 V**, **40 A**	**12 V**, **40 A**
Battery Type	**12 V**, w/ negative ground, 600-850 cca BCI group 49	**12 V**, w/ negative ground, 600-850 cca BCI group 49
Starter Motor - Type	Solenoid operated	Solenoid operated
Starter KW(HP) Rating	**2.0 kW** (**2.7 Hp**)	**2.0 kW** (**2.7 Hp**)
Bulb Rating and Type		
Head Light	35/ **35 W**	35/ **35 W**
Turn Signal	**27 W**/#1156	**27 W**/#1156
Tail Light	**8.5 W**/#1157	**8.5 W**/#1157
FUEL SYSTEM		
Fuel Type	Diesel	Diesel
Type of Fuel to Use if above **5 °C** (**40 °F**)	No. 2-Diesel, Cetane Rating: Minimum 45	No. 2-Diesel, Cetane Rating: Minimum 45
Type of Fuel to Use if below **5 °C** (**40 °F**)	No. 1-Diesel, Cetane Rating: Minimum 45	No. 1-Diesel, Cetane Rating: Minimum 45
Injection Pump:		
Type	In-Line CTD	In-Line CTD
Timing	**19 – 20.5°** BTDC	**17.5 – 19°** BTDC

	Farmall 45A	Farmall 50A
CLUTCH		
Type	Double Disc/Dry	Double Disc/Dry
(Transmission)		
Clutch Disc Diameter	**280 mm** (**11 in**)	**280 mm** (**11 in**)
(PTO)		
Clutch Disc Diameter	**280 mm** (**11 in**)	**280 mm** (**11 in**)
Pedal Free-Travel	**35 – 40 mm** (**1.38 – 1.57 in**)	**35 – 40 mm** (**1.38 – 1.57 in**)
BRAKES		
Type	Wet Disc	Wet Disc
Number of Discs per side	2	2
Brake Disc Diameter	**165 mm** (**6.5 in**)	**165 mm** (**6.5 in**)
Pedal Free Travel	**50 – 55 mm** (**1.96 – 2.16 in**)	**50 – 55 mm** (**1.96 – 2.16 in**)
STEERING		
Type	Power	Power
Pump Flow	**20.1 l/min** (**5.3 US gpm**)	**20.1 l/min** (**5.3 US gpm**)
Maximum Hydraulic Steering Pressure	**13700 kPa** (**1987 psi**)	**13700 kPa** (**1987 psi**)
Turns Lock-to-Lock:		
2WD	4	4.5
4WD	3.75	3.75
Turning Radius		
Without Brakes (2WD)	**3600 mm** (**142 in**))	**3350 mm** (**132 in**))
With Brakes (2WD)	**3100 mm** (**122 in**))	**3000 mm** (**118 in**))
Without Brakes (4WD)	**4475 mm** (**176 in**))	**4475 mm** (**176 in**))
With Brakes (4WD)	**3950 mm** (**155 in**))	**3950 mm** (**155 in**))
Maximum Steering Angle:		
2WD	**46°**	**52°**
4WD	**37°** inner **30°** outer	**37°** inner **30°** outer
POWER TAKE-OFF		
Type	Independent	Independent
Clutch Disc Size	**280 mm** (**11 in**)	**280 mm** (**11 in**)
Clutch Material	Organic	Organic
Control	Hand Lever, Mechanical	Hand Lever, Mechanical
Shaft:		
Rear PTO	**35 mm** (**1.375 in**)	**35 mm** (**1.375 in**)
Number of Splines	6	6
PTO Shaft Rotation	Clockwise (Viewed from rear)	Clockwise (Viewed from rear)
Engine Speed for 540 rpm rear PTO Operation	**2576 RPM**	**2576 RPM**
PTO Horsepower	**29 kW** (**39 Hp**)	**35.5 kW** (**47.6 Hp**)

	Farmall 45A	Farmall 50A
HYDRAULIC LIFT SYSTEM		
Type	Open Center	Open Center
Pump Type	Gear, engine driven	Gear, engine driven
Pump Capacity	**44 l/min** (**11.6 US gpm**)	**44 l/min** (**11.6 US gpm**)
System Relief Valve Setting	**17500 kPa** (**2538 psi**)	**17500 kPa** (**2538 psi**)
Number of Rear Remotes	2 (optional)	2 (optional)
Number of Front Remotes	2 (optional)	2 (optional)
Draft Control	Not Available	Standard Equipment
Three-Point Linkage		
Category Type	II	II
Lift capacity at ball ends	**1060 kg** (**2337 lb**)	**1430 kg** (**3153 lb**)
Lift capacity **610 mm** behind ball ends	**830 kg** (**1830 lb**)	**1170 kg** (**2579 lb**)
Clutch System		
Type	Double Disc/Dry	Double Disc/Dry
(Transmission)		
Clutch Disc Diameter	**280 mm** (**11 in**)	**280 mm** (**11 in**)
(PTO)		
Clutch Disc Diameter	**280 mm** (**11 in**)	**280 mm** (**11 in**)
Pedal Free Travel	**35 – 40 mm** (**1.38 – 1.57 in**)	**35 – 40 mm** (**1.38 – 1.57 in**)

Transmission Speeds (8X8) - Forward		Farmall 45A	Farmall 50A
Main Gear	Range Gear	(**2700 RPM** Engine Speed with 13.6 x 28 Rear Tires)	(**2700 RPM** Engine Speed with 14.9 x 28 Rear Tires)
1st	Low	**2.79 km/h** (**1.73 mph**)	**2.80 km/h** (**1.74 mph**)
2nd		**4.20 km/h** (**2.60 mph**)	**4.21 km/h** (**2.61 mph**)
3rd		**6.20 km/h** (**3.85 mph**)	**6.22 km/h** (**3.86 mph**)
4th		**8.52 km/h** (**5.30 mph**)	**8.56 km/h** (**5.32 mph**)
1st	High	**10.11 km/h** (**6.28 mph**)	**10.96 km/h** (**6.81 mph**)
2nd		**15.23 km/h** (**9.46 mph**)	**16.51 km/h** (**10.25 mph**)
3rd		**22.48 km/h** (**14.00 mph**)	**24.37 km/h** (**15.14 mph**)
4th		**30.92 km/h** (**19.21 mph**)	**33.53 km/h** (**20.83 mph**)

Transmission Speeds (8X8) - Reverse		Farmall 45A	Farmall 50A
Main Gear	Range Gear	(**2700 RPM** Engine Speed with 13.6 x 28 Rear Tires)	(**2700 RPM** Engine Speed with 14.9 x 28 Rear Tires)
1st	Low	**2.94 km/h** (**1.83 mph**)	**2.96 km/h** (**1.84 mph**)
2nd		**4.43 km/h** (**2.75 mph**)	**4.45 km/h** (**2.76 mph**)
3rd		**6.55 km/h** (**4.07 mph**)	**6.58 km/h** (**4.10 mph**)
4th		**9.01 km/h** (**5.60 mph**)	**9.04 km/h** (**5.62 mph**)
1st	High	**10.68 km/h** (**6.64 mph**)	**11.58 km/h** (**7.20 mph**)
2nd		**16.09 km/h** (**10.00 mph**)	**17.44 km/h** (**10.84 mph**)
3rd		**23.75 km/h** (**14.76 mph**)	**25.75 km/h** (**16.00 mph**)
4th		**32.68 km/h** (**20.31 mph**)	**35.43 km/h** (**22.01 mph**)

	Farmall 45A	Farmall 50A
TIRES		
FRONT:		
Agricultural:		
2WD	6.00 x 16 F2, 6 Ply	7.50 x 16 F2, 6 Ply
4WD	8.3 x 24 R1, 6 Ply	9.5 x 24, R1, 6 Ply
REAR:		
Agricultural		
2WD and 4WD	13.6 x 28, R1, 6Ply	14.9 x 28, R1, 6Ply
WHEEL BOLT TORQUES		
Front Wheel - Disc-to-Hub:	**123 N·m** (**91 lb ft**)	**123 N·m** (**91 lb ft**)
Rear Wheel - Disc-to Hub	**192 N·m** (**142 lb ft**)	**192 N·m** (**142 lb ft**)

General specification - Biodiesel Fuels

Fatty Acid Methyl Ester Biodiesel (Biodiesel Fuel) consists of a family of fuels derived from vegetable oils treated with methyl esters.

NOTICE: *Biodiesel Fuel blends are approved for your engine only if they comply with* ***EN14214*** *Specification Standards or* ***ASTM D6751****.*

NOTICE: *It is imperative that you check which blend is approved for your engine with your CASE IH dealer. Be aware that the use of Biodiesel Fuel that does not comply with the Standards mentioned above could lead to severe damage to the engine and fuel system of your machine. The use of fuels that are not approved may void CASE IH Warranty coverage.*

Biodiesel Fuel Usage Conditions

NOTICE: *The Biodiesel Fuel must meet the fuel Specification mentioned above.*

Biodiesel Fuel must be purchased from a trusted supplier that understands the product and maintains good fuel quality. Biodiesel Fuel must be pre-blended by the supplier. Mixing Biodiesel Fuels on-site can result incorrect mixture that can lead to problems with both engine and fuel system.

Engine performance is affected by the use of Biodiesel Fuel. There may be up to **12%** reduction in power or torque depending on the blend used.

NOTICE: *DO NOT modify the engine and/or injection pump settings to recover the reduced performance.*

The reduced power must be accepted if using any Biodiesel Fuel blend.

Some modification may be required to allow your engine to run Biodiesel Fuel. Consult you dealer for complete information on these modifications.

Biodiesel Fuel has a higher cloud point than Diesel Fuel.

NOTICE: *The use of high Biodiesel Fuel blends are not recommended in cold weather conditions.*

With Biodiesel Fuels, it may be necessary to change the engine oil, engine oil filter and fuel filter elements more frequently than with Diesel Fuels. Biodiesel Fuel can remove rust and particles from the inside of on-site fuel storage tanks that would normally adhere to the sides of the tank. Like particle deposits that commonly occur with Diesel Fuel, these particles can become trapped by the machine fuel filters, causing blockage and shortening filter life. In cold weather, this is more likely to happen. Consult your CASE IH dealer for information on cold weather operation and proper maintenance intervals when using any Biodiesel Fuel blend.

When handling Biodiesel Fuel, care must be taken not to allow water into the fuel supply. Biodiesel Fuel will actually attract moisture from the atmosphere.

Fuel tanks must be kept as full as possible to limit the amount of air and water vapors in them. It may be necessary to drain the fuel filter water tap more frequently.

Potential oxidation and stability could be a problem with the fuel stored in the machine.

NOTICE: *Machines must not be stored for more than three months with Biodiesel Fuel blends in the fuel system.*

If long storage periods are necessary, the engine must run on Diesel Fuel for 20 hours to flush the Biodiesel Fuel out of the engine fuel system prior to storage.

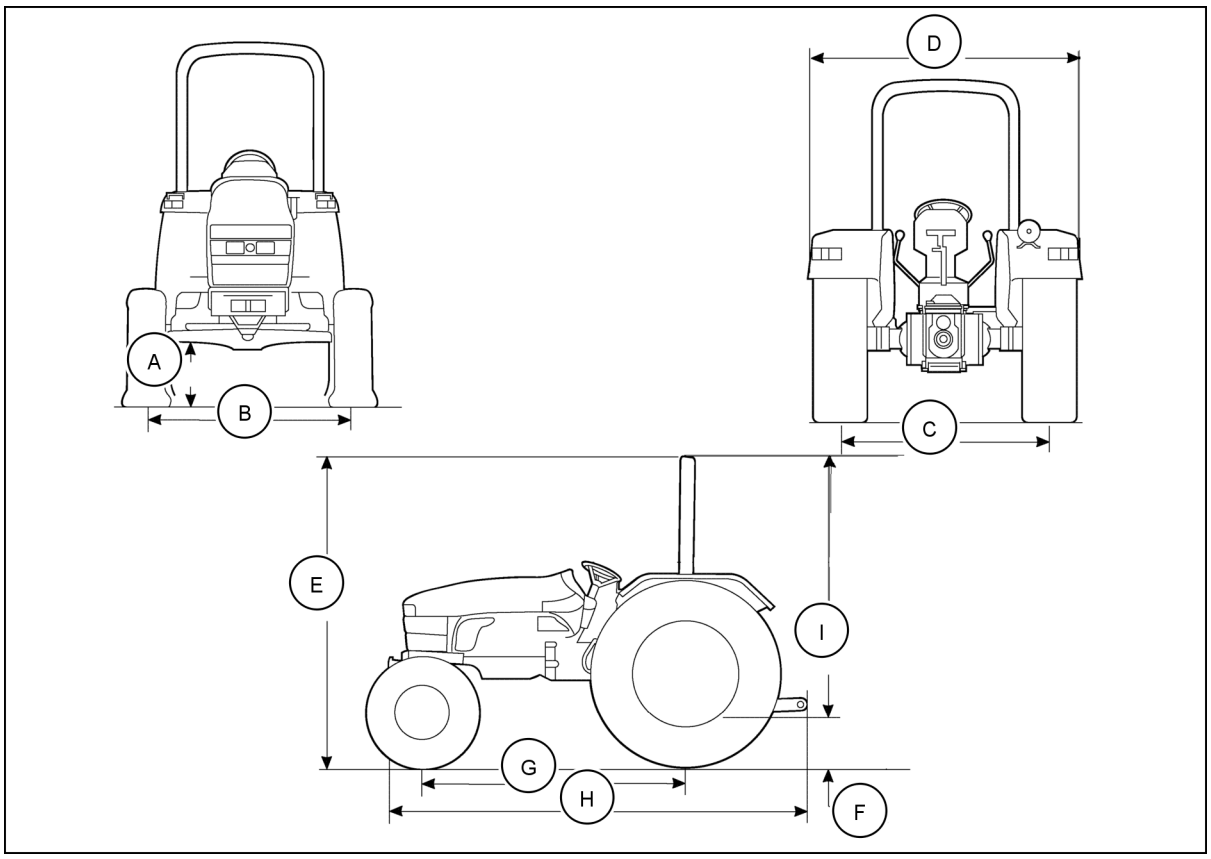
NOTICE: *Biodiesel Fuel must not be stored in on-site storage tanks for more than three months.*

Any spillage of Biodiesel Fuel must be cleaned up immediately before it can cause damage to the environment and the paint finish of the machine.

Before using Biodiesel Fuel blends you should consult with your dealer to receive full information about the approved blend for your machine and any detailed conditions of its usage.

NOTICE: *Be aware that not fulfilling the requirements and conditions of Biodiesel Fuel usage will void your machine's CASE IH Warranty coverage.*

Dimension



56061233A 1

NOTE: *The following dimensions are based on standard tractors fitted with tire sizes as shown. Allowance must be given for tires of larger or smaller dimensions.*

	Farmall 45A	Farmall 50A
Front	6.00 x 16 2WD/8.3x24 4WD	7.50 x 16 2WD/9.5x24 4WD
Rear	13.6 x 28	14.9 x 28
(A) Ground clearance under center of front axle	NA 2WD	NA 2WD
	355 mm (**14 in**) 4WD	**380 mm** (**15 in**) 4WD
(B) Front wheel tread setting (Std.)	**1277 mm** (**50.27 in**) 2WD	**1410 mm** (**55.51 in**) 2WD
	1330 mm (**52.36 in**) 4WD	**1330 mm** (**52.36 in**) 4WD
(C) Rear wheel tread setting (Std.)	**1426 mm** (**56.14 in**) 2WD	**1426 mm** (**56.14 in**) 2WD
	1340 mm (**52.75 in**) 4WD	**1350 mm** (**53.15 in**) 4WD
(D) Overall width	**1680 mm** (**66.14 in**) 2WD	**1680 mm** (**66.14 in**) 2WD
	1680 mm (**66.14 in**) 4WD	**1680 mm** (**66.14 in**) 4WD
(E) Height to top of ROPS	**2385 mm** (**94.0 in**) 2WD	**2435 mm** (**99.0 in**) 2WD
	2385 mm (**94.0 in**) 4WD	**2435 mm** (**99.0 in**) 4WD
(F) Ground clearance under drawbar	**336 mm** (**13.2 in**) 2WD	**386 mm** (**15.2 in**) 2WD
	356 mm (**14.0 in**) 4WD	**386 mm** (**15.2 in**) 4WD
(G) Wheel base	**1975 mm** (**77.75 in**) 2WD	**1970 mm** (**77.56 in**) 2WD
	1960 mm (**77.16 in**) 4WD	**1960 mm** (**77.16 in**) 4WD
(H) Overall Length	**3331 mm** (**131.14 in**) 2WD	**3331 mm** (**131.14 in**) 2WD
	3390 mm (**133.46 in**) 4WD	**3390 mm** (**133.46 in**) 4WD
(I) Rear axle to top of ROPS	**1795 mm** (**70.67 in**) 2WD	**1795 mm** (**70.67 in**) 2WD
	1795 mm (**70.67 in**) 4WD	**1795 mm** (**70.67 in**) 4WD

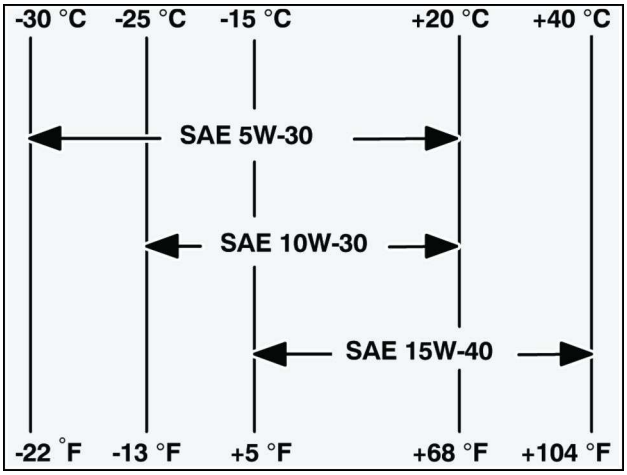
Tractor Total Weight

Model	2WD	4WD
Farmall 45A	**1600 kg** (**3527 lb**)	**1740 kg** (**3836 lb**)
Farmall 55A Farmall 50A	**1710 kg** (**3770 lb**)	**1854 kg** (**4078 lb**)

Engine Oil

The correct engine oil viscosity grade is dependent upon ambient temperature. Refer to the chart on the right when selecting oil for your tractor engine.

NOTE: *In areas where prolonged periods of extreme temperatures are encountered, local lubricant practices are acceptable; such as the use of SAE 5W30 in extreme low temperatures or SAE50 in extreme high temperatures.*



20103258 2

Sulfur in Fuel

The engine oil change period is shown in Section 3. However, locally available fuel may have a high sulphur content, in which case the engine oil change period should be adjusted as follows:

Sulfur Content %	
Below 0.5	Normal
0.5-1.0	Half the normal
above 1.0	One quarter normal

NOTICE: *The use of fuel with a sulfur content above* ***1.3%*** *is not recommended.*

Consumables

Recommended Fluids and Application	International Specification	Approximate Quantities	
		Farmall 45A	**Farmall 50A**
Engine Oil:			
CASE IH AKCELA NO. 1™ ENGINE OIL CI-4 SAE 10W-30	API CF4	**5.5 l** (**5.8 US qt**)	**7.05 l** (**7.4 US qt**)
Transmission/Rear Axle Oil			
CASE IH AKCELA HY-TRAN® ULTRA™ HYDRAULIC TRANSMISSION OIL	API GL4, ISO 32/46	**25.0 l** (**6.6 US gal**)	**25.0 l** (**6.6 US gal**)
Front Axle Differential/Final Reduction Gear Case			
CASE IH AKCELA HY-TRAN® ULTRA™ HYDRAULIC TRANSMISSION OIL	API GL4, ISO 32/46	**7.5 l** (**8.0 US qt**)	**7.5 l** (**8.0 US qt**)
Grease Fittings/Bearings			
High Viscosity Lithium Base	NLGI #2	As required	As required
Steering Oil (Hydraulic)			
CASE IH AKCELA HY-TRAN® ULTRA™ HYDRAULIC TRANSMISSION OIL	API GL4, ISO 32/46	**2.0 l** (**2.1 US qt**)	**2.0 l** (**2.1 US qt**)
Engine Radiator Coolant			
System Capacity		**8.5 l** (**9.0 US qt**)	**10.0 l** (**10.5 US qt**)
*Water		**50%**	**50%**
Ethylene Glycol		**50%**	**50%**

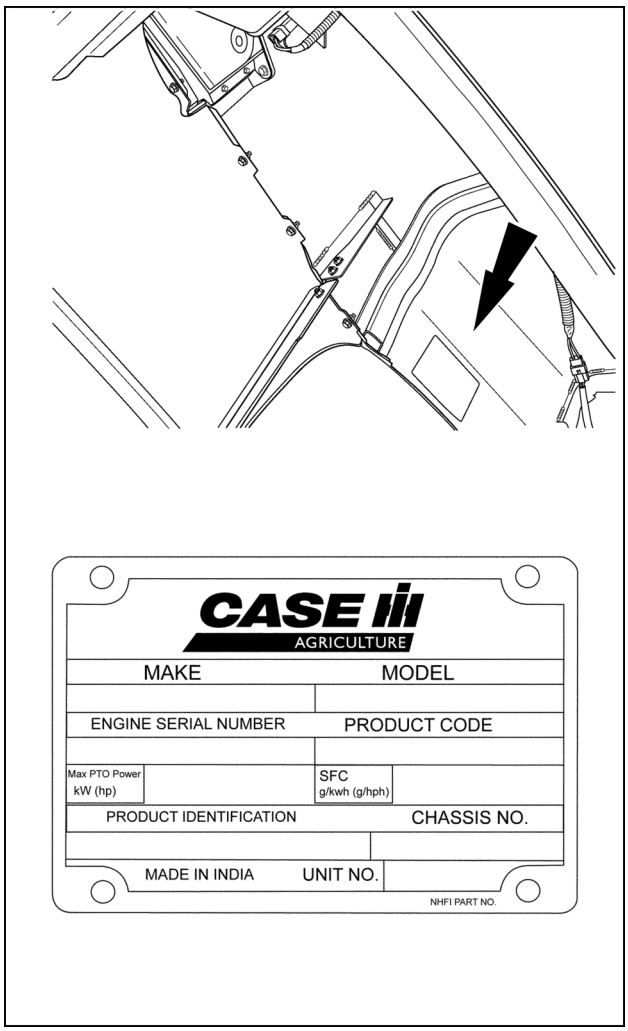
NOTE: **See Operator's manual, Section 4, page 6 and page 27, for further details before topping off or changing the engine coolant.*

Product identification

Tractor Identification Decal

(Underside of Hood)

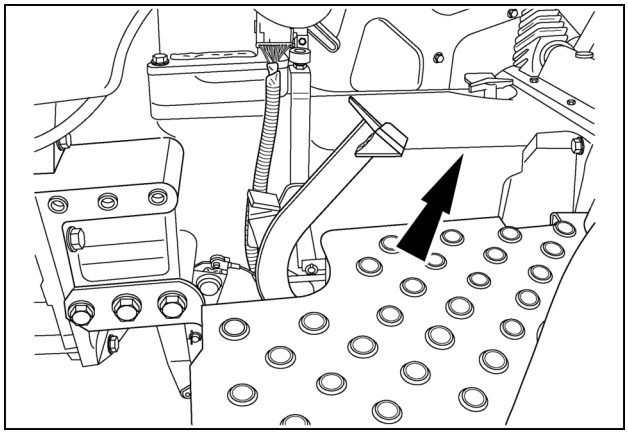
The first line represents tractor serial number and model while the second line represents unit code and engine serial number followed by transmission serial number. Record the information in Figure **1** for quick reference.



20103257 1

Tractor Identification Location (Stamped)

The tractor serial number, unit code, and engine number are stamped on the top of the clutch housing. these numbers are also repeated on the vehicle identification decal reproduced above.



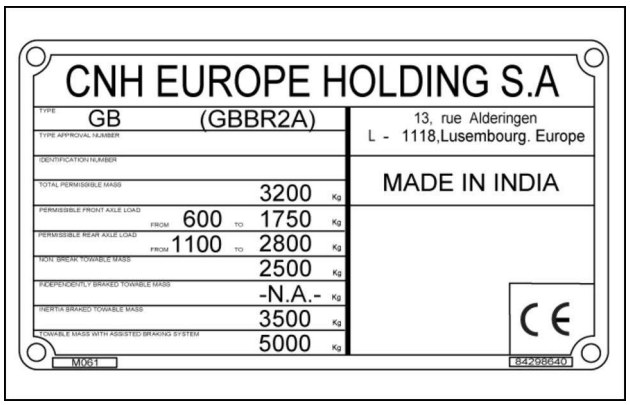
86090118 2

Product identification

Tractor Identification Decal

(Underside of Hood)

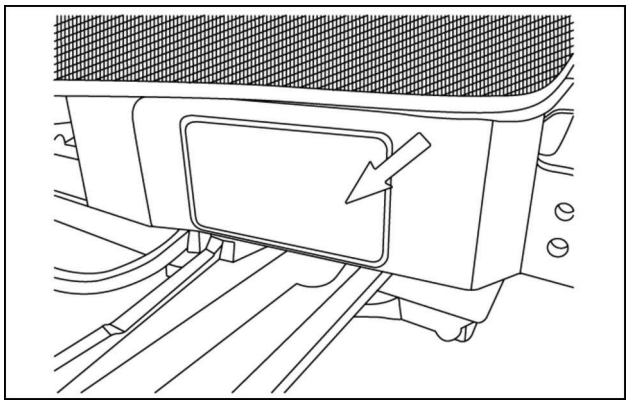
Record the information in Figure **1** for quick reference.



BAIL11IN003AAB 1

Tractor Identification Location (Stamped)

The tractor serial number, unit code, and engine number are stamped on the top of the clutch housing. these numbers are also repeated on the vehicle identification decal reproduced above.



BAIL11IN002AAB 2

SERVICE MANUAL

Engine

Farmall® 45A
Farmall® 50A 50 Hp, Tier 2 Utility tractor, Two-Wheel Drive (2WD), Europe
Farmall® 50A 50 Hp, Tier 2 utility tractor, Four-Wheel Drive (4WD), Europe

Contents

Engine - 10

Engine - 10

Engine and crankcase - 001

Farmall® 45A
Farmall® 50A 50 Hp, Tier 2 Utility tractor, Two-Wheel Drive (2WD), Europe
Farmall® 50A 50 Hp, Tier 2 utility tractor, Four-Wheel Drive (4WD), Europe

Contents

Engine - 10

Engine and crankcase - 001

Engine - General specification

General		
Engine Model	ISM N844L	ISM N844LT
Number of Cylinders	4	4
Bore x Stroke	**84 mm** x **100 mm** (**3.31 in** x **3.94 in**)	**84 mm** x **100 mm** (**3.31 in** x **3.94 in**)
Displacement	**2216 cm³** (**135.2 in³**)	**2216 cm³** (**135.2 in³**)
Compression Ratio	22.4:1	23.4:1
Rated Speed	**2700 RPM**	**2700 RPM**
Gross Engine Horsepower	**33.6 kW** (**45.7 Hp**)	**41 kW** (**55.7 Hp**)
PTO Horsepower at 2250 Engine and 766 PTO rpm	**26.1 kW** (**35.5 Hp**)	**31.3 kW** (**42.6 Hp**)
Firing Order	1-3-4-2	1-3-4-2
Low Idle Speed	**1050±50 RPM**	**1100±50 RPM**
Maximum No-Load Speed	**2900~2950 RPM**	**2900~2950 RPM**
Cylinder Arrangement	In-Line Vertical	In-Line Vertical
Valve Arrangement	Overhead	Overhead
Compression Pressure at **200 RPM**(cylinder speed)	**2944 ± 345 kPa** (**427 ± 50 psi**)	**2944 ± 345 kPa** (**427 ± 50 psi**)
Variation between cylinders	**345 kPa** (**50 psi**)	**345 kPa** (**50 psi**)

NOTE: *If bore size exceeds **85.2 mm** (**3.3543 in**) replace with long block.*

Engine - Torque

Model		Farmall 50A
Engine Model	ISM N844L	ISM N844LT
TORQUE SPECIFICATION		
Connecting Rod Cap Bolts	**49 – 54 N·m** (**36 – 40 lb ft**)	**49 – 54 N·m** (**36 – 40 lb ft**)
Main Bearing Retaining Bolts	**49 – 54 N·m** (**36 – 40 lb ft**)	**49 – 54 N·m** (**36 – 40 lb ft**)
Relief Valve Assembly	**59 – 69 N·m** (**43 – 51 lb ft**)	**59 – 69 N·m** (**43 – 51 lb ft**)
Crankshaft Main Bearing Holder Bolts		
Rear Main	**25 – 29 N·m** (**18 – 22 lb ft**)	**25 – 29 N·m** (**18 – 22 lb ft**)
Center Mains	**49 – 54 N·m** (**36 – 40 lb ft**)	**49 – 54 N·m** (**36 – 40 lb ft**)
Engine Rear Mounting Plate	**12 – 17 N·m** (**9 – 12 lb ft**)	**12 – 17 N·m** (**9 – 12 lb ft**)
Flywheel Retaining Bolts	**68 – 78 N·m** (**51 – 58 lb ft**)	**68 – 78 N·m** (**51 – 58 lb ft**)
Engine Front Plate	**9 – 12 N·m** (**6 – 9 lb ft**)	**9 – 12 N·m** (**6 – 9 lb ft**)
Crankshaft Pulley Nut	**274 – 333 N·m** (**202 – 246 lb ft**)	**274 – 333 N·m** (**202 – 246 lb ft**)
Cylinder Head Bolts	**98 – 103 N·m** (**72.3 – 76 lb ft**)	**98 – 103 N·m** (**72.3 – 76 lb ft**)
Rocker Arm Assembly	**27 – 39 N·m** (**20 – 29 lb ft**)	**27 – 39 N·m** (**20 – 29 lb ft**)
Rocker Arm Locknut	**11 – 16 N·m** (**8 – 12 lb ft**)	**11 – 16 N·m** (**8 – 12 lb ft**)
Oil Tube Banjo Bolt	**9 – 13 N·m** (**7 – 9 lb ft**)	**9 – 13 N·m** (**7 – 9 lb ft**)
Oil Pressure Switch	**14 – 20 N·m** (**10 – 14 lb ft**)	**14 – 20 N·m** (**10 – 14 lb ft**)
Rocker Cover Bolts	**7 – 12 N·m** (**6 – 9 lb ft**)	**7 – 12 N·m** (**6 – 9 lb ft**)
Glow Plugs	**14 – 20 N·m** (**10 – 14 lb ft**)	**14 – 20 N·m** (**10 – 14 lb ft**)
Cooling Fan Bolts	**9 – 13 N·m** (**7 – 9 lb ft**)	**9 – 13 N·m** (**7 – 9 lb ft**)
Balancer		
Retaining Bolts	**49 – 53.9 N·m** (**36 – 39 lb ft**)	**49 – 53.9 N·m** (**36 – 39 lb ft**)

Metric Bolt Torque Specifications

		Coarse Thread Fine Thread		Fine Thread	
Bolt Size	**Grade No.**	**Pitch**	**Torque**	**Pitch**	**Torque**
	4T		**4.9 – 6.9 N·m (3.6 – 5.1 lb ft)**		
M6	7T	1.0	**8.3 – 11.3 N·m (6.1 – 8.3 lb ft)**		
	10T		**11.8 – 15.7 N·m (8.7 – 11.6 lb ft)**		
	4T		**12.7 – 16.7 N·m (9.4 – 12.3 lb ft)**		**15.2 – 20.1 N·m (11.2 – 14.8 lb ft)**
M8	7T	1.25	**22.6 – 28.4 N·m (16.6 – 21.0 lb ft)**	1.0	**26.5 – 34.3 N·m (19.5 – 25.3 lb ft)**
	10T		**28.4 – 36.3 N·m (21.0 – 26.8 lb ft)**		**30.4 – 40.2 N·m (22.4 – 29.7 lb ft)**
	4T		**25.5 – 33.3 N·m (18.8 – 24.6 lb ft)**		**28.4 – 36.3 N·m (21.0 – 26.8 lb ft)**
M10	7T	1.5	**44.1 – 55.9 N·m (32.5 – 41.2 lb ft)**	1.25	**49.0 – 62.8 N·m (36.2 – 46.3 lb ft)**
	10T		**53.9 – 69.6 N·m (39.8 – 51.4 lb ft)**		**57.9 – 73.5 N·m (42.7 – 54.2 lb ft)**
	4T		**37.3 – 47.1 N·m (27.5 – 34.7 lb ft)**		**43.1 – 54.9 N·m (31.8 – 40.5 lb ft)**
M12	7T	1.75	**65.7 – 83.4 N·m (48.5 – 61.5 lb ft)**	1.25	**74.5 – 94.1 N·m (55.0 – 69.4 lb ft)**
	10T		**92.2 – 116 N·m (68.0 – 85.4 lb ft)**		**99.0 – 127 N·m (73.1 – 93.3 lb ft)**
	4T		**62.8 – 80.4 N·m (46.3 – 59.3 lb ft)**		**69.6 – 87.3 N·m (51.4 – 64.4 lb ft)**
M14	7T	2.0	**104 – 131 N·m (76.7 – 96.9 lb ft)**	1.5	**117 – 148 N·m (86.1 – 109 lb ft)**
	11T		**139 – 175 N·m (102 – 129 lb ft)**		**147 – 186 N·m (108 – 137 lb ft)**
	4T		**86.3 – 110 N·m (63.6 – 81.0 lb ft)**		**91.2 – 115 N·m (67.3 – 84.6 lb ft)**
M16	7T	2.0	**140 – 184 N·m (110 – 136 lb ft)**	1.5	**157 – 192 N·m (116 – 142 lb ft)**
	11T		**206 – 255 N·m (152 – 188 lb ft)**		**221 – 270 N·m (163 – 199 lb ft)**
	4T		**114 – 141 N·m (83.9 – 104 lb ft)**		**131 – 163 N·m (96.9 – 120 lb ft)**
M18	7T	2.0	**196 – 235 N·m (145 – 174 lb ft)**	1.5	**230 – 279 N·m (170 – 206 lb ft)**
	11T		**275 – 333 N·m (203 – 246 lb ft)**		**299 – 368 N·m (221 – 271 lb ft)**
	4T		**144 – 179 N·m (106 – 132 lb ft)**		**172 – 211 N·m (127 – 156 lb ft)**
M20	7T	2.5	**240 – 289 N·m (177 – 213 lb ft)**	1.5	**275 – 333 N·m (203 – 246 lb ft)**
	11T		**363 – 441 N·m (268 – 325 lb ft)**		**397 – 485 N·m (293 – 358 lb ft)**

Engine - Special tools

Tool No.	Description
FNH01721	Injector Tester
FNH00120	Adapter - Compression Tester

Tool No.	Description
FNH01728	Injector Adapter Set
OEM1074	Compression Test Gauge Assembly
FNH01720	Injector Cleaning Kit
380002887	Port Block Installer
FNH11044	Port Block Installer Pins
380002888	Port Block Remover
FNH00011	Oil Pressure Test Fitting
Micrometer, Outside	**0 – 25 mm** (**0 – 1 in**)
Micrometer, Outside	**25 – 51 mm** (**1 – 2 in**)
Micrometer, Outside	**76.2 – 101.6 mm** (**3 – 4 in**)
Small Hole Gauge	**19 – 25 mm** (**0.75 – 1 in**)
Cylinder Bore Gauge	**76.2 – 101.6 mm** (**3 – 4 in**)
Cylinder Bore Gauge	**25 – 51 mm** (**1 – 2 in**)

Crankcase - Dimension

	Farmall 45A	Farmall 55A
Engine Model	ISM N844L	ISM N844LT
Bore		
Standard	**84 mm** (**3.3071 – 3.3078 in**)	**84 mm**(**3.3071 – 3.3078 in**)
Maximum	**85.2 mm** (**3.3543 in**)	**85.2 mm** (**3.3543 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**)

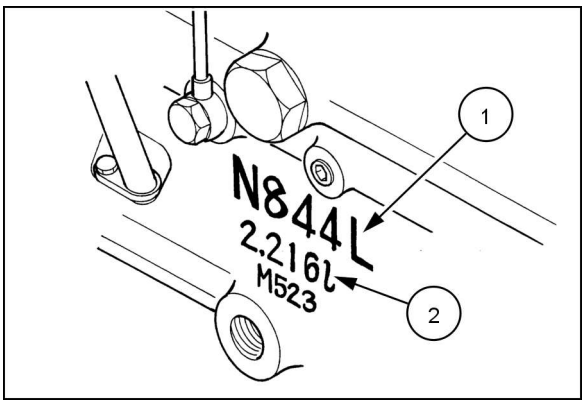
NOTE: *If bore size exceeds* ***85.2 mm*** *(****3.3543 in****) replace with long block*

Engine - Identification

Description of Operation

This section describes the engine overhaul and repair procedures of the Models Farmall 45A, and Farmall 55A tractors. Repair procedures are essentially the same for all models except as noted in the repair procedures.

All tractors are equipped with four-cylinder in-line engines. They are all four cycle, overhead valve, liquid cooled, diesel engines. The engines are identified by a code, **(1)**, cast into the lower right side of the cylinder block.



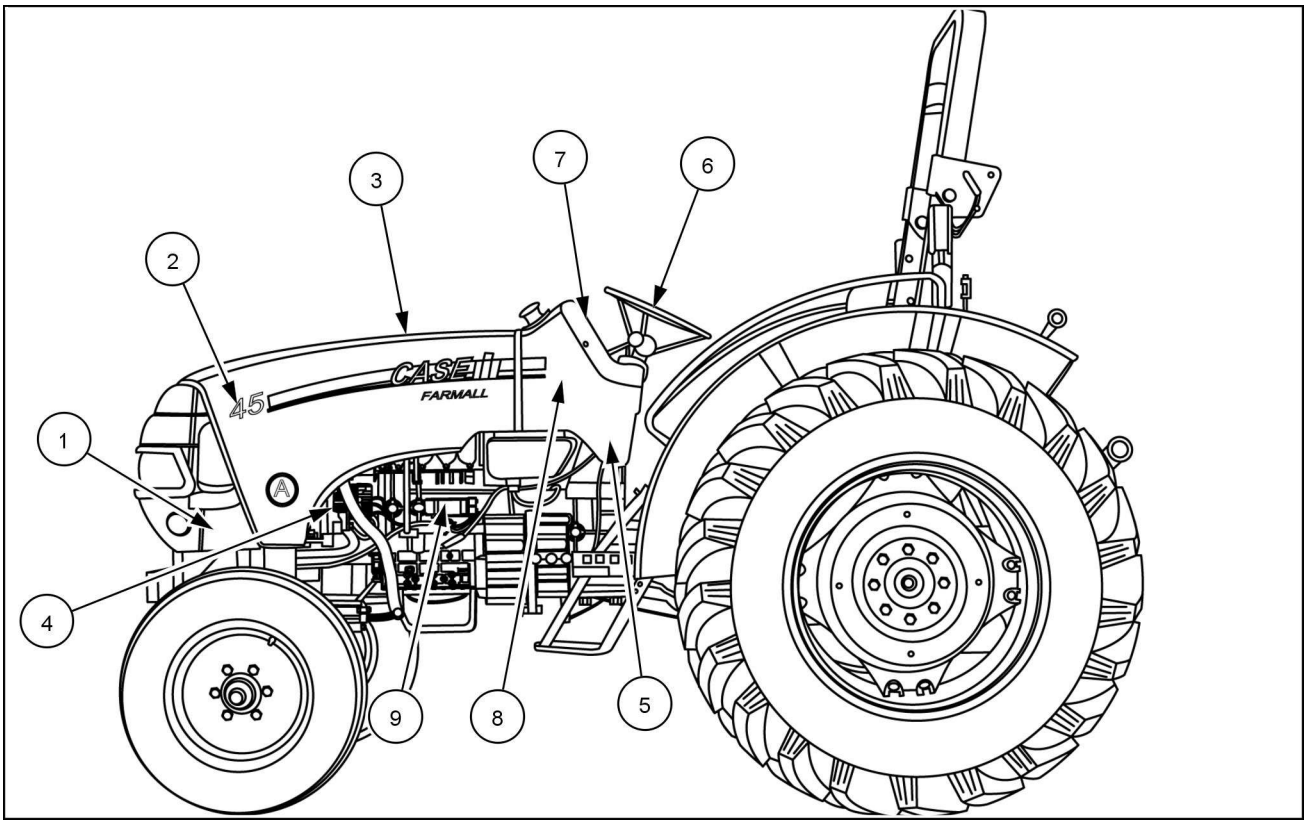
20002360 1

NOTE: *Numeric value,* ***(2)****, under the Engine Code indicates displacement of the engine in liters.*

Engine Identification	Tractor Model	Engine Power
ISM N844L	Farmall 45A	**45 Hp**
ISM N844LT	Farmall 55A	**55 Hp**

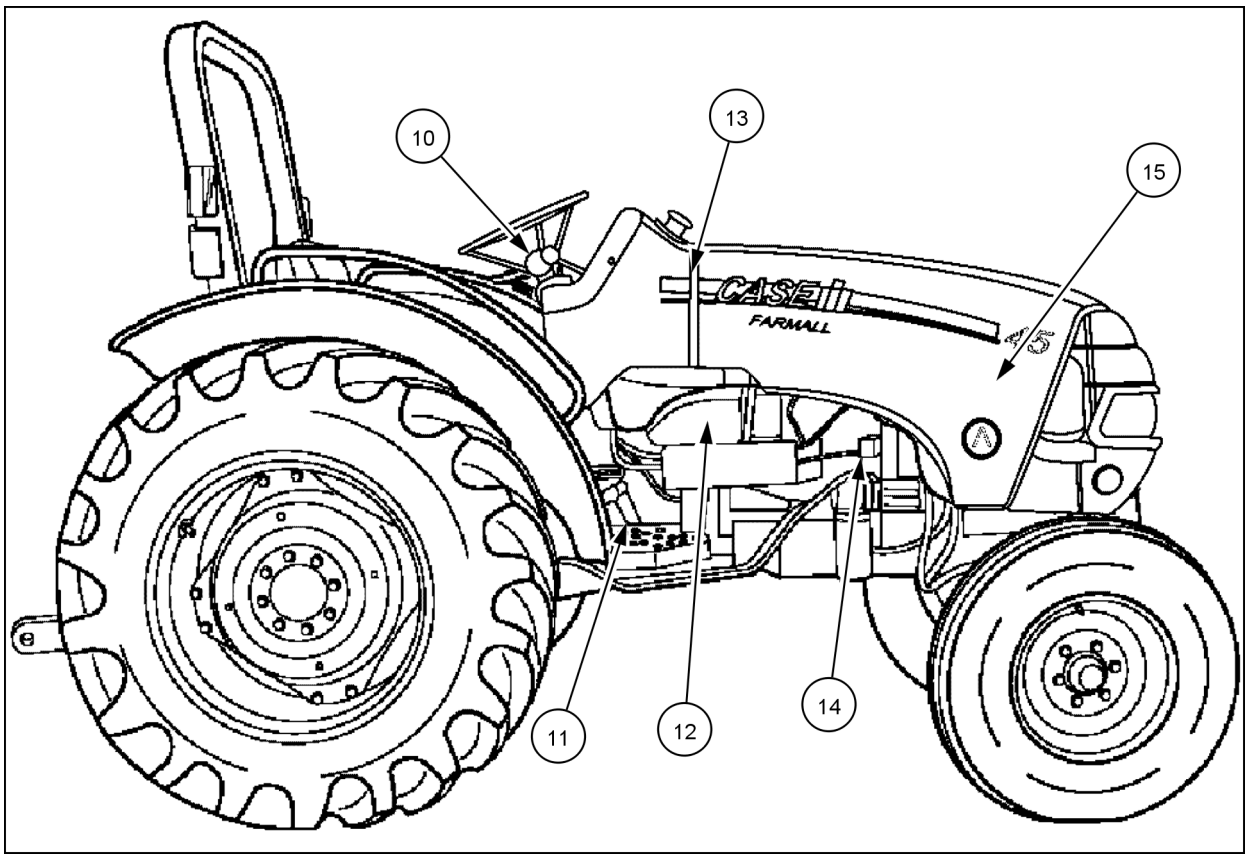
Engine - Remove Separating the tractor at the clutch housing/engine - 8x8 transmission

Removal



96097007 1

1. Disconnect the negative (-) battery cable, and the positive (+) battery cable from the battery, **(1)**.
2. Disconnect the headlight wiring harness, **(2)**, and remove the hood, **(3)**.
3. If equipped, remove the remote loader control valve, and all the connecting hydraulic tubes from the right side loader tower.
4. Remove the left-hand and right-hand engine side covers, **(4)**.
5. Remove the left-hand, right-hand and center rear hood panels, **(5)**.
6. Remove the steering wheel, **(6)**.
7. Remove the instrument panel, **(7)**, from the dash housing. Disconnect all electrical connectors from the instrument panel.
8. Remove the dash housing, **(8)**, from the firewall. Disconnect all electrical connectors from the dash housing.
9. Disconnect electrical harness to the starter, **(9)**.

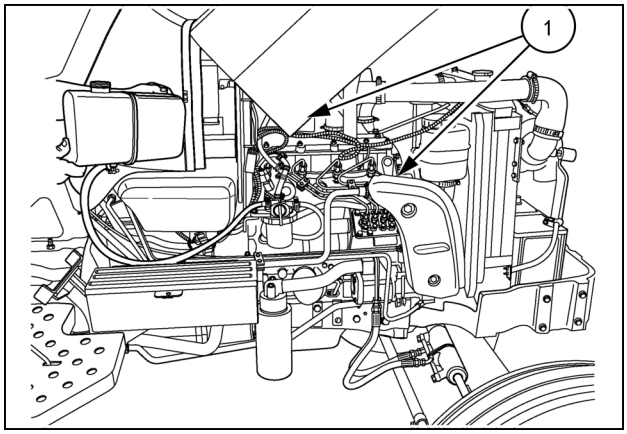


760900752 2

10. Disconnect and remove the throttle cable from the dash mounted throttle control lever, **(10)**.
11. Disconnect and remove the throttle cable from the foot control pedal, **(11)**.
12. Drain fuel from fuel tank, **(12)**, into a suitable container. Remove fuel tank from firewall.
13. Remove the firewall, **(13)**, from the tractor.
14. Disconnect all hydraulic tubes **(14)**, to the hydraulic pump, **(15)**.
15. Attach a chain sling to the two hoist eyes, **(1)**.
16. Attach a suitable hoist to the chain sling.

NOTE: *The hoist is used for supporting the engine and axle assembly, not necessarily for lifting.*

17. Roll a floor jack under the rear of the tractor, and place under the clutch housing. Raise the jack enough to support the drive train.

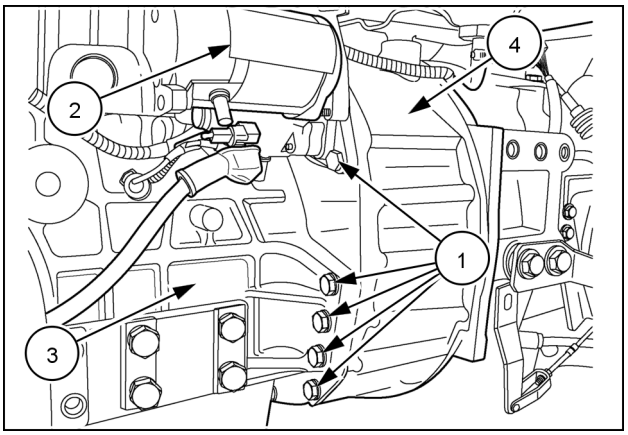


56071902A 3

18. Remove the buckle-up bolts, **(1)**, and starter, **(2)**, that secure the engine, **(3)**, to the clutch housing, **(4)**.

NOTE: *The hoist and/or floor jack may need to be raised or lowered to allow for separation of the engine and clutch housing.*

19. Carefully roll the drive train away from the engine, using the floor jack for support.



86071895 4

Next operation:
Engine - Remove Separating the tractor at the engine/frame (10.001).

Engine - Remove Separating the tractor at the engine/frame

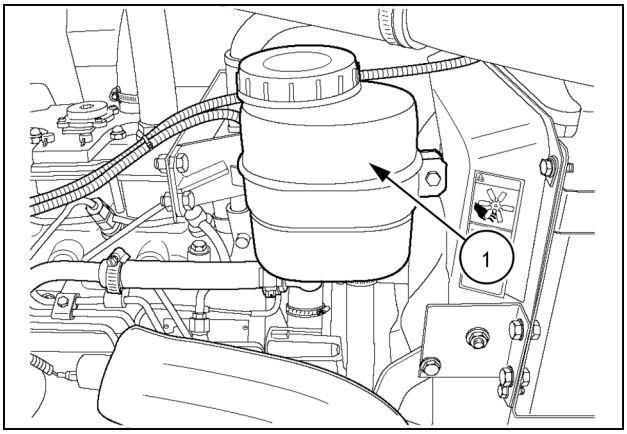
Prior operation:
Engine - Remove Separating the tractor at the clutch housing/engine - 8x8 transmission (10.001)

1. Use jack stands under the frame rails to support the front frame/engine assembly.

⚠ WARNING ⚠
The front frame/engine assembly is extremely heavy and awkward. Make sure the assembly is securely supported before removing chain sling from engine. Failure to comply could result in death or serious injury.

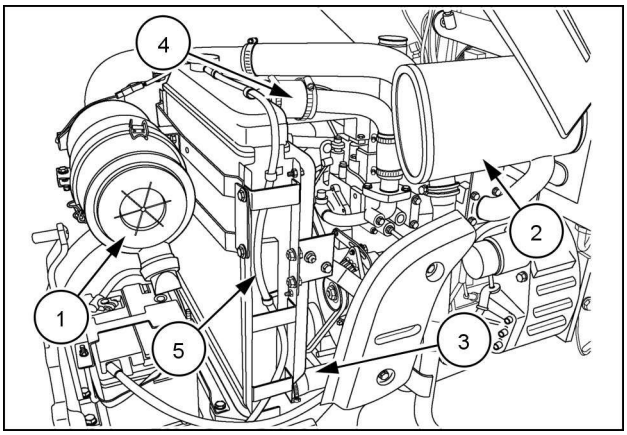
M1632

2. Remove the chain sling from the two hoist eyes on the engine.
3. Drain the hydraulic fluid from the power steering reservoir, **(1)**, into a suitable container. Remove the reservoir, **(1)**, and mounting bracket from the engine.



83071900 1

4. Remove the air cleaner assembly, **(1)**, from the tractor.
5. Remove the muffler and tailpipe assembly, **(2)**, from engine.
6. Loosen the lower radiator hose, **(3)**, and drain the coolant into a suitable container.
7. Remove the lower, **(3)**, and upper, **(4)**, radiator hoses.
8. Remove the radiator, **(5)**, from the tractor.



86071897 2