

# Introduction

## Foreword

This repair manual is valid for the following rotary harvesting unit model:

### 480FI

This manual is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.



This is the safety-alert symbol. When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.

Information is organized in groups for the various components requiring service instruction. At the

beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Technical Manuals are concise guides for specific machines. They are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

Fundamental service information is available from other sources covering basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes.

KM00321,00004E8 -19-05AUG11-1/1

## Version Date

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KM00321,00004E7 -19-04AUG11-1/1

Product: New Holland 480FI Forage Harvester Service Repair Manual  
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*Original Instructions. All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.*

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## Section 05 Safety

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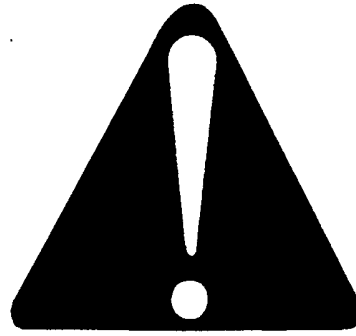
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### Recognize Safety Information

This is a safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



T81389 —UN—07DEC88

DX,ALERT -19-29SEP98-1/1

### "Important" Information

Information marked as IMPORTANT points out problems that may lead to machine damage. By following the directions given, these problems can be avoided.

LX,CRA05 002885 -19-09APR92-1/1

### "Note" - Information

When marked with NOTE the information given is more detailed or contains restrictions to directions given

previously. On the other hand useful information may be given belonging to certain instruction without being directly connected to them.

LX,CRA05 002886 -19-12NOV01-1/1

### Prevent Machine Runaway

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. With normal circuitry bypassed, machine will start even if

hydrostatic ground speed control lever is not in neutral position.

Start engine only from operator's seat, with transmission in neutral or park.

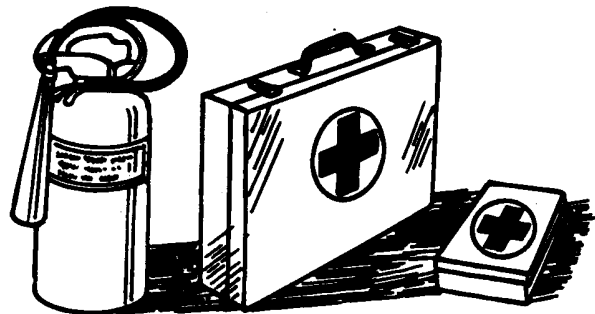
ZX08798,0000003 -19-12NOV01-1/1

### Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



TS291 —UN—23AUG88

DX,FIRE2 -19-03MAR93-1/1

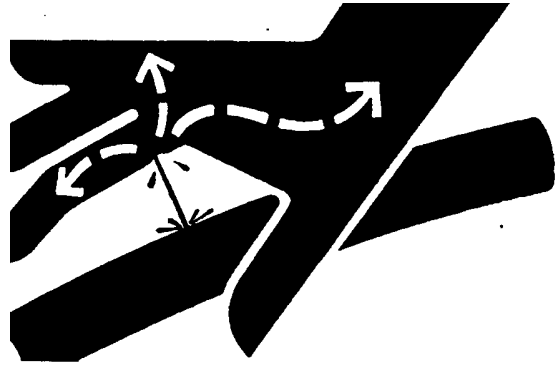
### Avoid High-Pressure Fluids

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high-pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.



X9811 —UN—23AUG88

KM00321,00004E9 -19-05AUG11-1/1

### Remove Paint Before Welding or Heating

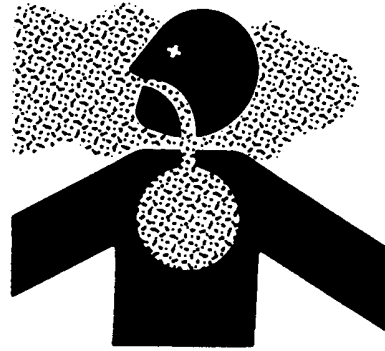
Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Remove paint before heating:

- Remove paint a minimum of 100 mm (4 in.) from area to be affected by heating. If paint cannot be removed, wear an approved respirator before heating or welding.
- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

Do not use a chlorinated solvent in areas where welding will take place.



TS220 —UN—23AUG88

Do all work in an area that is well ventilated to carry toxic fumes and dust away.

Dispose of paint and solvent properly.

DX,PAINT -19-24JUL02-1/1

### Avoid Heating Near Pressurized Fluid Lines

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can accidentally burst when heat goes beyond the immediate flame area.



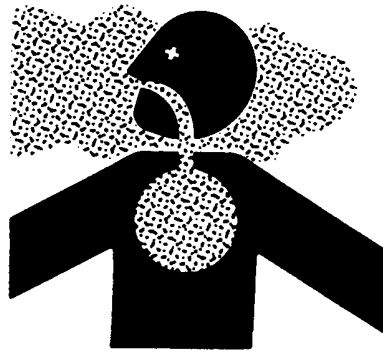
TS953 —UN—15MAY90

DX,TORCH -19-10DEC04-1/1

### Work In Ventilated Area

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.



TS220—UN—23AUG88

DX,AIR -19-17FEB99-1/1

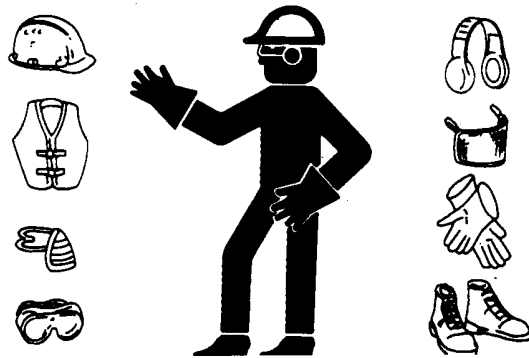
### Wear Protective Clothing

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.



TS206—UN—23AUG88

DX,WEAR -19-10SEP90-1/1

## Practice Safe Maintenance

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.



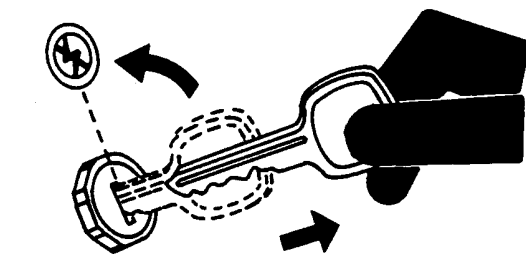
TS218 —UN—23AUG88

DX,SERV -19-17FEB99-1/1

## Park Machine Safely

Before working on the machine:

- Lower all equipment to the ground.
- Stop the engine and remove the key.
- Disconnect the battery ground strap.
- Hang a "DO NOT OPERATE" tag in operator station.



KM1001039

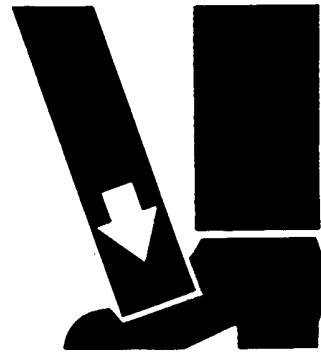
KM1001039 —UN—20NOV09

KM00321,00004EA -19-05AUG11-1/1

### Use Proper Lifting Equipment

Lifting heavy components incorrectly can cause severe injury or machine damage.

Follow recommended procedure for removal and installation of components in the manual.



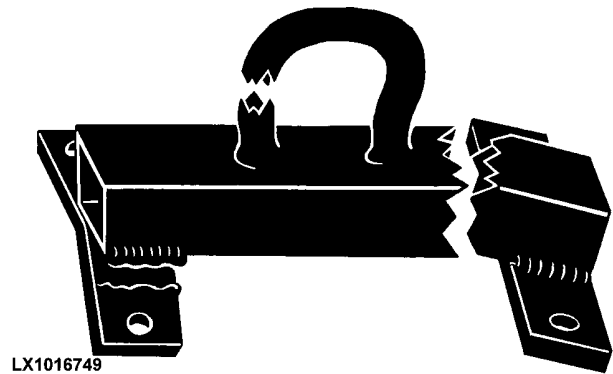
TS226 —UN—23AUG88

DX,LIFT -19-04JUN90-1/1

### Construct Dealer-Made Tools Safely

Faulty or broken tools can result in serious injury. When constructing tools, use proper, quality materials, and good workmanship.

Do not weld tools unless you have the proper equipment and experience to perform the job.



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LX1016749 —UN—01JUL97

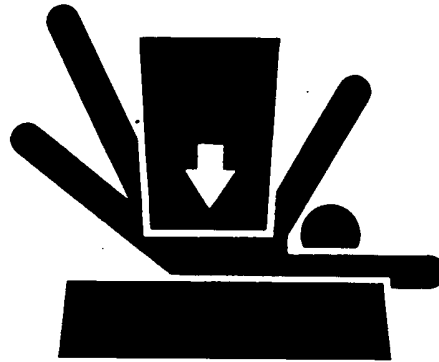
DX,SAFE,TOOLS -19-10OCT97-1/1

### Support Machine Properly

Always lower the attachment or implement to the ground before you work on the machine. If the work requires that the machine or attachment be lifted, provide secure support for them. If left in a raised position, hydraulically supported devices can settle or leak down.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

When implements or attachments are used with a machine, always follow safety precautions listed in the implement or attachment operator's manual.



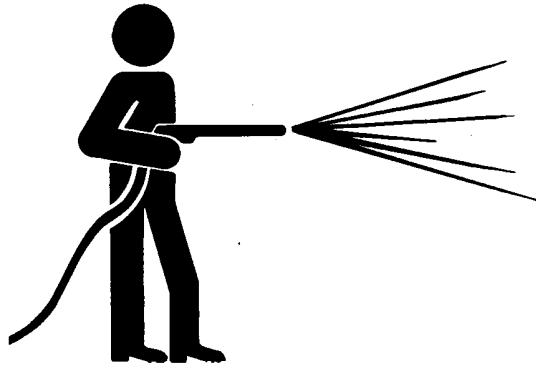
TS229 —UN—23AUG88

DX,LOWER -19-24FEB00-1/1

### Work in Clean Area

Before starting a job:

- Clean work area and machine.
- Make sure you have all necessary tools to do your job.
- Have the right parts on hand.
- Read all instructions thoroughly; do not attempt shortcuts.

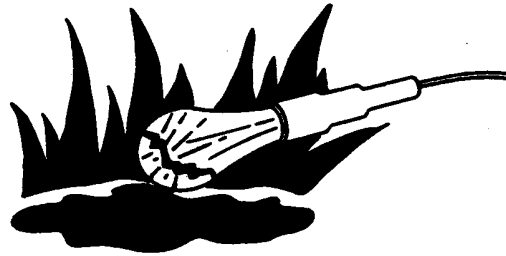


T6642EJ —UN—18OCT88

DX,CLEAN -19-04JUN90-1/1

### Illuminate Work Area Safely

Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.



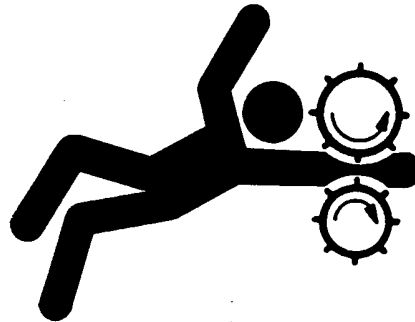
TS223 —UN—23AUG88

DX,LIGHT -19-04JUN90-1/1

### Service Machines Safely

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



TS228 —UN—23AUG88

DX,LOOSE -19-04JUN90-1/1

## Use Proper Tools

Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards.

Use power tools only to loosen threaded parts and fasteners.

For loosening and tightening hardware, use the correct size tools. DO NOT use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches.

Use only service parts meeting New Holland specifications.



TS779—UN—08NOV89

KM00321,0000502 -19-12AUG11-1/1

## Parking and Leaving the Forage Harvester

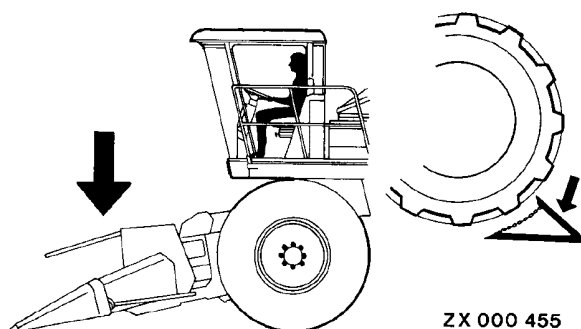
Lower harvesting unit to the ground.

Before leaving the forage harvester, disengage main clutch and shut off engine. Move gear shift lever to neutral, apply parking brake, remove key and lock the operator's cab. Position chock blocks.

**NOTE:** Use only chock blocks provided with the machine.

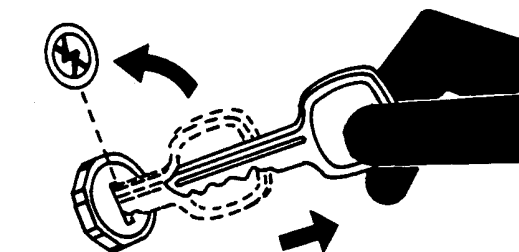
Never leave forage harvester unattended as long as engine is running.

Never leave the operator's cab when driving.



ZX 000 455

ZX000455—UN—03APR95



KM1001039

KM1001039—UN—20NOV09

KM00321,0000498 -19-22JUL11-1/1

## Replace Safety Signs

Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.



TS201—UN—23AUG88

DX,SIGNS1 -19-04JUN90-1/1

## Dispose of Waste Properly

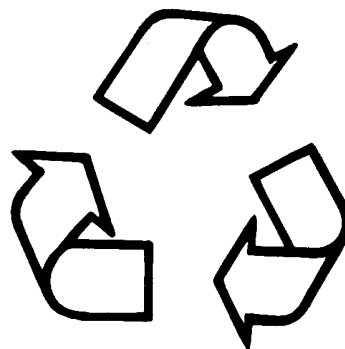
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with New Holland equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your New Holland dealer.



TS1133 —UN—26NOV90

KM00321,00004EB -19-05AUG11-1/1

## Live With Safety

Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.



TS231 —19—07OCT88

DX,LIVE -19-25SEP92-1/1

## Safety Measures on Electronic Control Units

**CAUTION:** Before installing test equipment on forage harvester, always shut off the engine and turn the key switch "OFF".

**CAUTION:** When testing is performed with the engine running, there is a risk of injury from rotating parts.

**IMPORTANT:** To protect electronic circuits, disconnect the battery and alternator before performing any welding on the forage harvester.

KM00113,00000A3 -19-07JAN10-1/1

## Section 10 General Information

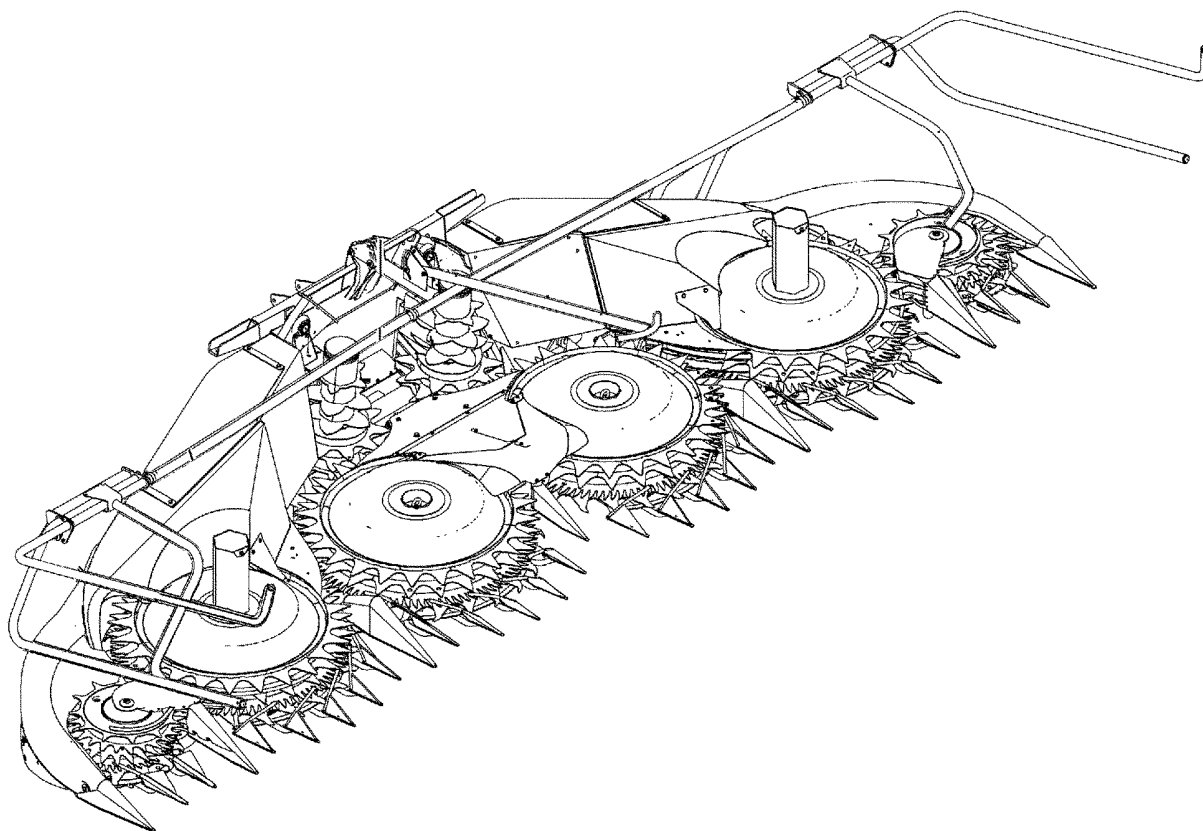
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Group 00  
Identification View and Description

Identification View, 480FI Rotary Harvesting Unit



KM1001540

KM1001540 —UN—27APR11

KM00321,00004EC -19-08AUG11-1/1

## Serial Number Plate, 480FI Rotary Harvesting Unit

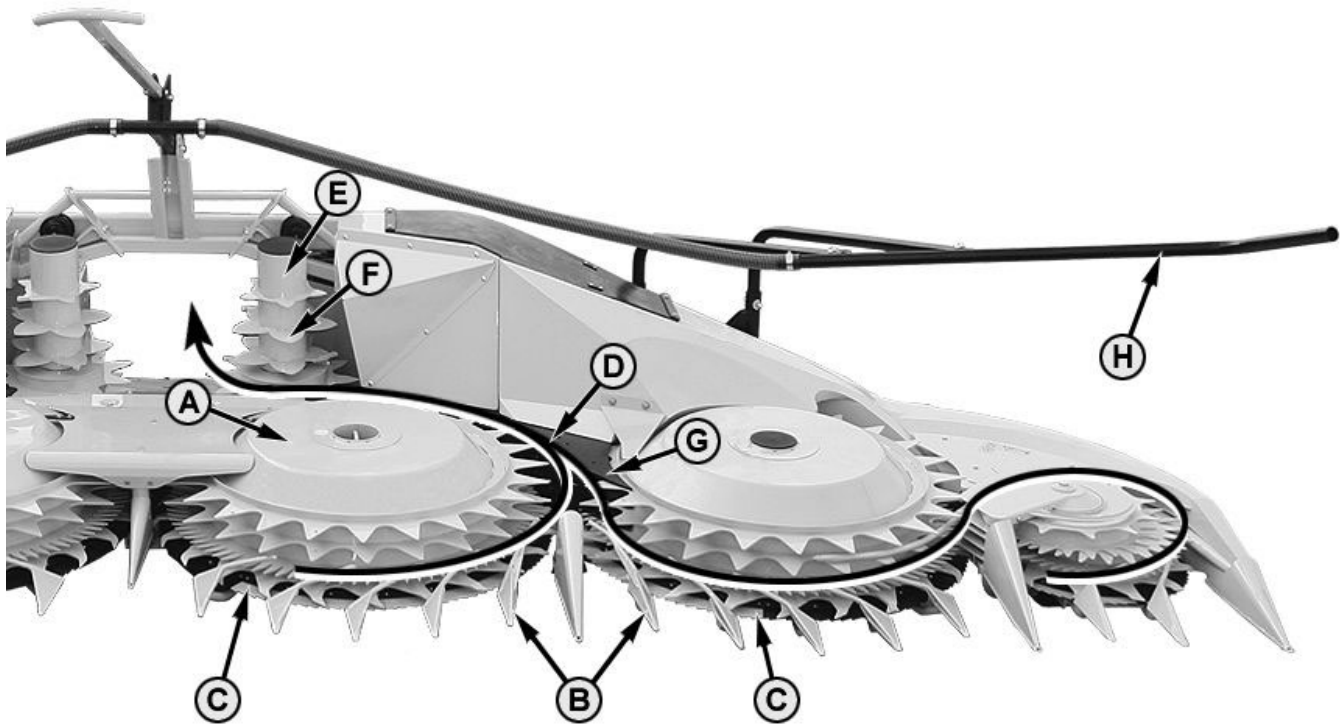
The serial number plate is located on the left side of the frame.

A—Product Identification Number



KM00321,00004ED -19-08AUG11-1/1

## Assembly Designations



KM1000813

A—Gathering Drum  
B—Dividers

C—Rotating Blade  
D—Lengthwise Direction of Crop  
E—Feed Drum  
F—Feed Teeth

G—Guides and Scrapers  
H—Feed Bar

KM00321,000042C -19-27APR11-1/1

KM1000813—UN—20MAR09

## Hanging Points

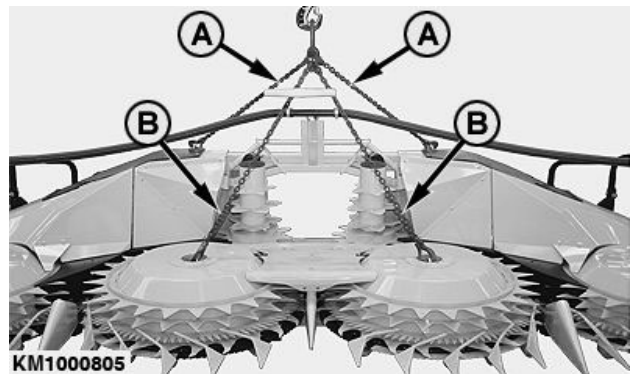
**CAUTION:** When loading the harvesting unit with a crane, always use the hanging points. This will prevent the machine from toppling over.

Make sure to use chains or slings that meet the weight requirements of the harvesting unit (see "Specifications" Section).

When loading in this way, you must pay extreme attention and use additional securing chains if necessary.

**IMPORTANT:** Ringbolts in gathering drums must always be screwed all the way in.

When loading the harvesting unit with a crane, chains or slings with the relevant length must be used as shown on illustration.



KM1000805

A—1600 mm (5 ft 2.99 in.)

B—1540 mm (5 ft 0.62 in.)

KM1000805—UN—16MAR09

KM00321,000012D -19-16MAR09-1/1



# Group 05 Lubricants, Gear Oil and Coolant

## Grease

Use grease based on NLGI consistency numbers and the expected air temperature range during the service interval.

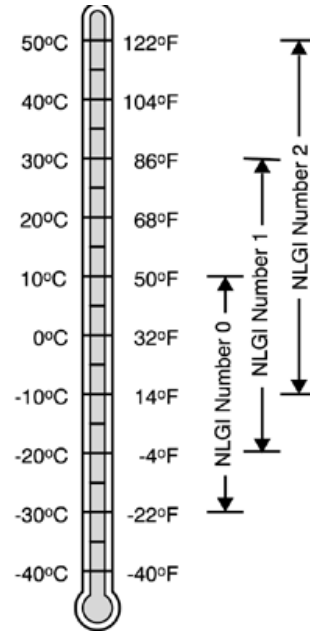
AVIA AVIALITH 2 EP grease is recommended.

Other greases may be used if they meet the following specification:

NLGI Service Classification GC-LB

**IMPORTANT: Some types of grease thickeners are not compatible with others. Contact your lubricant supplier before mixing various types of lubricants.**

KM1000899



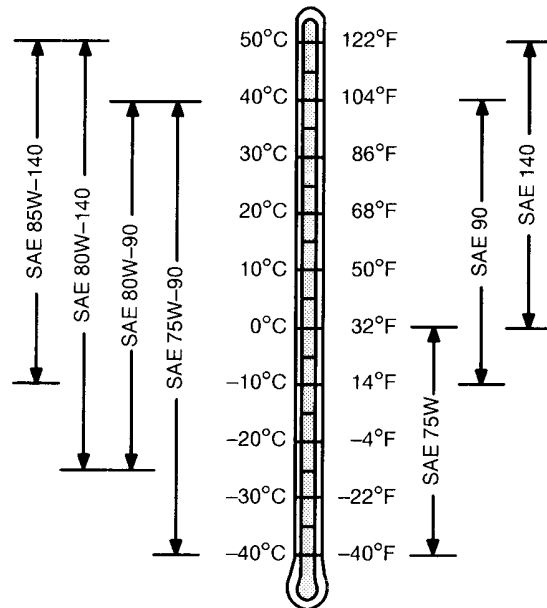
KM1000899 —UN—09JUN09

KM00321,00002CB -19-03MAY10-1/1

## Transmission Oil

Use oil with a viscosity based on the expected air temperature range during the period between oil changes.

Transmission oils must meet API Service Classification GL-5.



T51653 —UN—14MAR96

KM00321,0000195 -19-10JUN09-1/1

### Low-Viscosity Grease for Gears

The feed drum spur gear angle drives are filled with low-viscosity grease for gears.

The following low-viscosity greases are recommended:

Manufacturer	Name
ARAL	ARALUB FDP 00
BP	ENERGREASE HT 00 EP
TEXACO	STARFAK E 900
WESTFALEN	GRESANAT X 00

Other low-viscosity greases may be used if they meet the following:

NLGI Performance Classification NLGI 00

KM00321,0000351 -19-14JUL10-1/1

### Coolant for Main Drive Friction Clutch

The cooling system of the main drive friction clutch is filled to provide protection against corrosion and freeze protection to -37 °C (-34 °F).

Use a low silicate ethylene glycol base coolant concentrate. The mixing ratio is 50% concentrate and 50% water.

The coolant concentrate must be of a quality that protects the cast iron in the cooling system from cavitation corrosion.

A 50% mixture of ethylene coolant in water provides freeze protection to -37°C (-34°F). If protection at lower

temperatures is required, consult your New Holland dealer for recommendations.

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol based coolant concentrate.

#### Coolant Change Intervals

Drain coolant from the main drive friction clutch, flush the cooling system and refill with new coolant after the first 3 years or 3000 hours of operation. At each interval, drain the coolant, flush the cooling system, and refill with new coolant.

KM00321,00004E4 -19-29JUL11-1/1

### Alternative and Synthetic Lubricants

Conditions in certain geographical areas may require lubricant recommendations different from those printed in this manual.

Some lubricants may not be available in your location.

Consult your New Holland dealer to obtain information and recommendations.

Synthetic lubricants may be used if they meet the performance requirements as shown in this manual.

The temperature limits and service intervals shown in this manual apply to both conventional and synthetic lubricants.

Re-refined base stock products may be used if the finished lubricant meets the performance requirements.

KM00321,000049E -19-22JUL11-1/1

### Mixing Lubricants

In general, avoid mixing different brands or types of oil. Oil manufacturers blend additives in their oils to meet certain specifications and performance requirements.

Mixing different oils can interfere with the proper functioning of these additives and degrade lubricant performance.

Consult your New Holland dealer to obtain information and recommendations.

KM00321,000049F -19-22JUL11-1/1

## **Lubricant Storage**

Your equipment can operate at top efficiency only when clean lubricants are used.

Use clean containers to handle all lubricants.

Store lubricants and containers in an area protected from dust, moisture, and other contamination. Store containers on their side to avoid water and dirt accumulation.

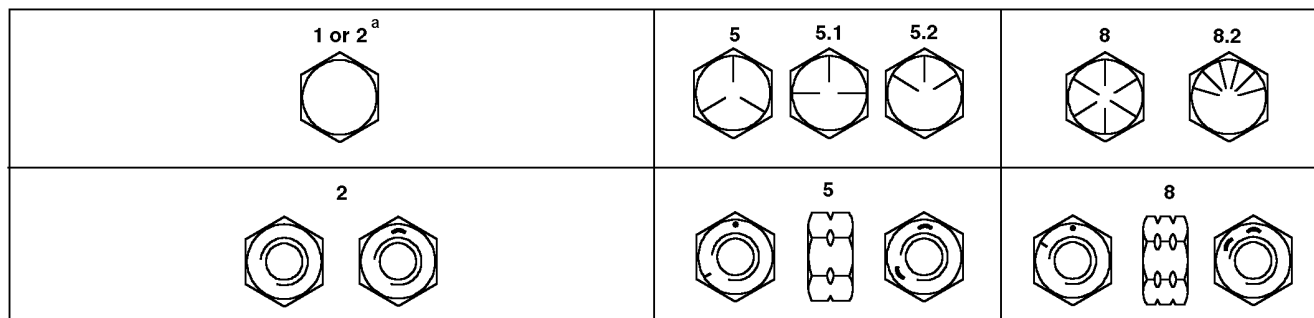
Make certain that all containers are properly marked to identify their contents.

Properly dispose of all old containers and any residual lubricant they may contain.

DX,LUBST -19-11APR11-1/1



## Unified Inch Bolt and Screw Torque Values



TORQ1A—UN—27SEP99

Top, SAE Grade and Head Markings; Bottom, SAE Grade and Nut Markings

Size	Grade 1 (No Mark)		Grade 2 <sup>a</sup> (No Mark)		Grade 5, 5.1 or 5.2		Grade 8 or 8.2	
	Lubricated <sup>b</sup> N·m (lb-ft)	Dry <sup>c</sup> N·m (lb-ft)	Lubricated <sup>b</sup> N·m (lb-ft)	Dry <sup>c</sup> N·m (lb-ft)	Lubricated <sup>b</sup> N·m (lb-ft)	Dry <sup>c</sup> N·m (lb-ft)	Lubricated <sup>b</sup> N·m (lb-ft)	Dry <sup>c</sup> N·m (lb-ft)
1/4	3.8 (2.8)	4.7 (3.5)	6 (4.4)	7.5 (5.5)	9.5 (7)	12 (9)	13.5 (10)	17 (12.5)
5/16	7.7 (5.7)	9.8 (7.2)	12 (9)	15.5 (11.5)	19.5 (14.5)	25 (18.5)	28 (20.5)	35 (26)
3/8	13.5 (10)	17.5 (13)	22 (16)	27.5 (20)	35 (26)	44 (32.5)	49 (36)	63 (46)
7/16	22 (16)	28 (20.5)	35 (26)	44 (32.5)	56 (41)	70 (52)	80 (59)	100 (74)
1/2	34 (25)	42 (31)	53 (39)	67 (49)	85 (63)	110 (80)	120 (88)	155 (115)
9/16	48 (35.5)	60 (45)	76 (56)	95 (70)	125 (92)	155 (115)	175 (130)	220 (165)
5/8	67 (49)	85 (63)	105 (77)	135 (100)	170 (125)	215 (160)	240 (175)	305 (225)
3/4	120 (88)	150 (110)	190 (140)	240 (175)	300 (220)	380 (280)	425 (315)	540 (400)
7/8	190 (140)	240 (175)	190 (140)	240 (175)	490 (360)	615 (455)	690 (510)	870 (640)
1	285 (210)	360 (265)	285 (210)	360 (265)	730 (540)	920 (680)	1030 (760)	1300 (960)
1-1/8	400 (300)	510 (375)	400 (300)	510 (375)	910 (670)	1150 (850)	1450 (1075)	1850 (1350)
1-1/4	570 (420)	725 (535)	570 (420)	725 (535)	1280 (945)	1630 (1200)	2050 (1500)	2600 (1920)
1-3/8	750 (550)	950 (700)	750 (550)	950 (700)	1700 (1250)	2140 (1580)	2700 (2000)	3400 (2500)
1-1/2	990 (730)	1250 (930)	990 (730)	1250 (930)	2250 (1650)	2850 (2100)	3600 (2650)	4550 (3350)

<sup>a</sup> Grade 2 applies for hex cap screws up to 6 in. (152 mm) long. Grade 1 applies for hex cap screws over 6 in. (152 mm) long, and for all other types of bolts and screws of any length.

<sup>b</sup> "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings.

<sup>c</sup> "Dry" means plain or zinc-plated without any lubrication.

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Torque values listed are for general use only.

Make sure fastener threads are clean and you properly start thread engagement. This will prevent them from failing when tightening.

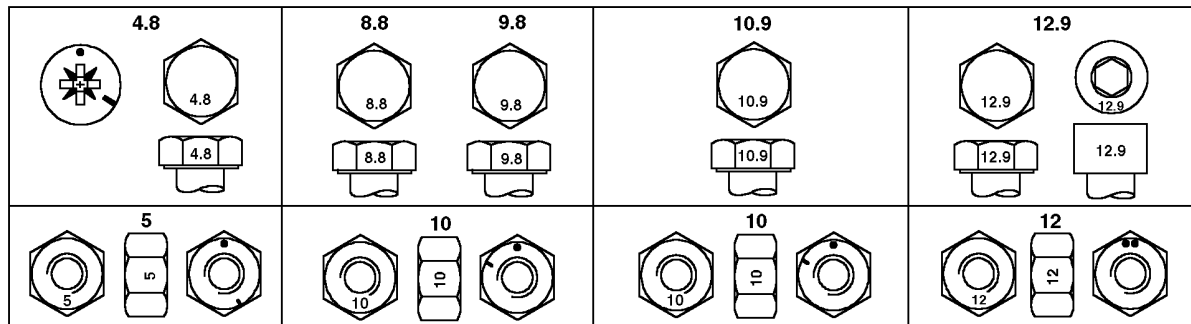
Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

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.

ZX09263,0001D10 -19-27JUN07-1/1

## Metric Bolt and Screw Torque Values



Top, Property Class and Head Markings; Bottom, Property Class and Nut Markings

Size	Grade 4.8		Grade 8.8 or 9.8		Grade 10.9		Grade 12.9	
	Lubricated <sup>a</sup> N-m (lb-ft)	Dry <sup>b</sup> N-m (lb-ft)	Lubricated <sup>a</sup> N-m (lb-ft)	Dry <sup>b</sup> N-m (lb-ft)	Lubricated <sup>a</sup> N-m (lb-ft)	Dry <sup>b</sup> N-m (lb-ft)	Lubricated <sup>a</sup> N-m (lb-ft)	Dry <sup>b</sup> N-m (lb-ft)
M6	4.7 (3.5)	6 (4.4)	9 (6.6)	11.5 (8.5)	13 (9.5)	16.5 (12.2)	15.5 (11.5)	19.5 (14.5)
M8	11.5 (8.5)	14.5 (10.7)	22 (16)	28 (20.5)	32 (23.5)	40 (29.5)	37 (27.5)	47 (35)
M10	23 (17)	29 (21)	43 (32)	55 (40)	63 (46)	80 (59)	75 (55)	95 (70)
M12	40 (29.5)	50 (37)	75 (55)	95 (70)	110 (80)	140 (105)	130 (95)	165 (120)
M14	63 (46)	80 (59)	120 (88)	150 (110)	175 (130)	220 (165)	205 (150)	260 (190)
M16	100 (74)	125 (92)	190 (140)	240 (175)	275 (200)	350 (255)	320 (235)	400 (300)
M18	135 (100)	170 (125)	265 (195)	330 (245)	375 (275)	475 (350)	440 (325)	560 (410)
M20	190 (140)	245 (180)	375 (275)	475 (350)	530 (390)	675 (500)	625 (460)	790 (580)
M22	265 (195)	330 (245)	510 (375)	650 (480)	725 (535)	920 (680)	850 (625)	1080 (800)
M24	330 (245)	425 (315)	650 (480)	820 (600)	920 (680)	1150 (850)	1080 (800)	1350 (1000)
M27	490 (360)	625 (460)	950 (700)	1200 (885)	1350 (1000)	1700 (1250)	1580 (1160)	2000 (1475)
M30	660 (490)	850 (625)	1290 (950)	1630 (1200)	1850 (1350)	2300 (1700)	2140 (1580)	2700 (2000)
M33	900 (665)	1150 (850)	1750 (1300)	2200 (1625)	2500 (1850)	3150 (2325)	2900 (2150)	3700 (2730)
M36	1150 (850)	1450 (1075)	2250 (1650)	2850 (2100)	3200 (2350)	4050 (3000)	3750 (2770)	4750 (3500)

<sup>a</sup> "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings.

<sup>b</sup> "Dry" means plain or zinc-plated without any lubrication.

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Torque values listed are for general use only.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

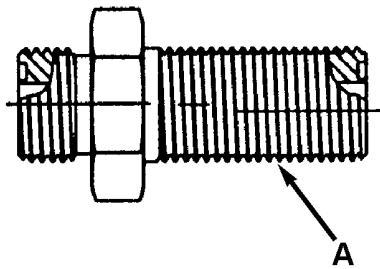
Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fastener threads are clean and you properly start thread engagement. This will prevent them from failing when tightening.

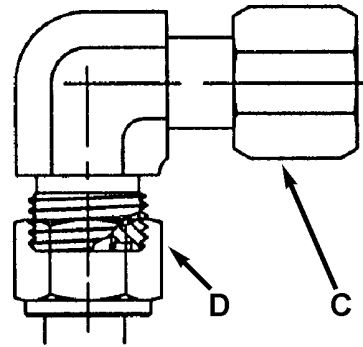
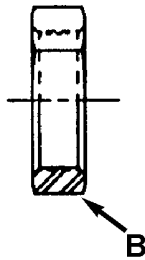
Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

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## Hydraulic System Inch Fitting Torque Values



LX1020169



A—Bulkhead fitting

B—Locknut

C—Union nut

D—Union nut

Thread size	Fittings with flat-faced ring seal			
	Union nut		Locknut for bulkhead fitting	
	N·m	lb·ft	N·m	lb·ft
9/16—18	16	12	5	3.5
11/16—16	24	18	9	6.5
13/16—16	50	37	17	12.5
1—14	69	51	17	12.5
1-3/16—12	102	75	17	12.5
1-7/16—12	142	105	17	12.5
1-11/16—12	190	140	17	12.5
2—12	217	160	17	12.5

The torques in the table above are intended only as approximate values and do NOT apply if a different torque value is listed for specific fittings at other points in this manual. Check fittings regularly to make sure they are seated properly.

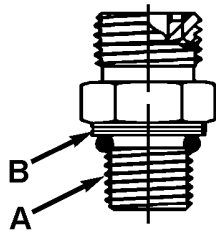
When replacing fittings, be sure to use parts with an equal or higher grade to the parts you are replacing. Items of

hardware (e.g. union nuts) that are of a higher grade should be tightened to the same torque value as the parts they replace.

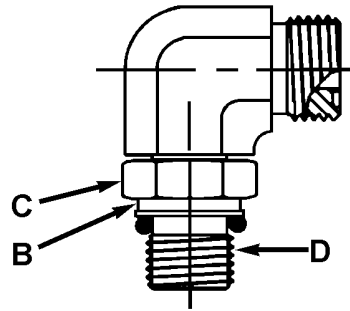
It is vitally important to make sure that the sealing faces are clean and that the O-rings have been inserted properly.

ZX09263,0001D12 -19-27JUN07-1/1

## Hydraulic System Metric Fitting Torque Values



LX1020170



A—Stud-end fitting

B—Groove for metric thread

C—Locknut

D—Adjustable stud-end fitting

Thread size	Straight stud-end fitting and lock nut for adjustable stud-end fitting			
	Steel or gray-cast iron		Aluminum	
	N·m	lb·ft	N·m	lb·ft
M12x1.5	21	15.5	9	6.6
M14x1.5	33	24	15	11
M16x1.5	41	30	18	13
M18x1.5	50	37	21	15
M22x1.5	69	51	28	21
M27x2	102	75	46	34
M33x2	158	116	71	52
M38x2	176	130	79	58
M42x2	190	140	85	63
M48x2	217	160	98	72

The torques in the table above are intended only as approximate values and do NOT apply if a different torque value is listed for specific fittings at other points in this manual. Check fittings regularly to make sure they are seated properly.

When replacing fittings, be sure to use parts with an equal or higher grade to the parts you are replacing. Items of

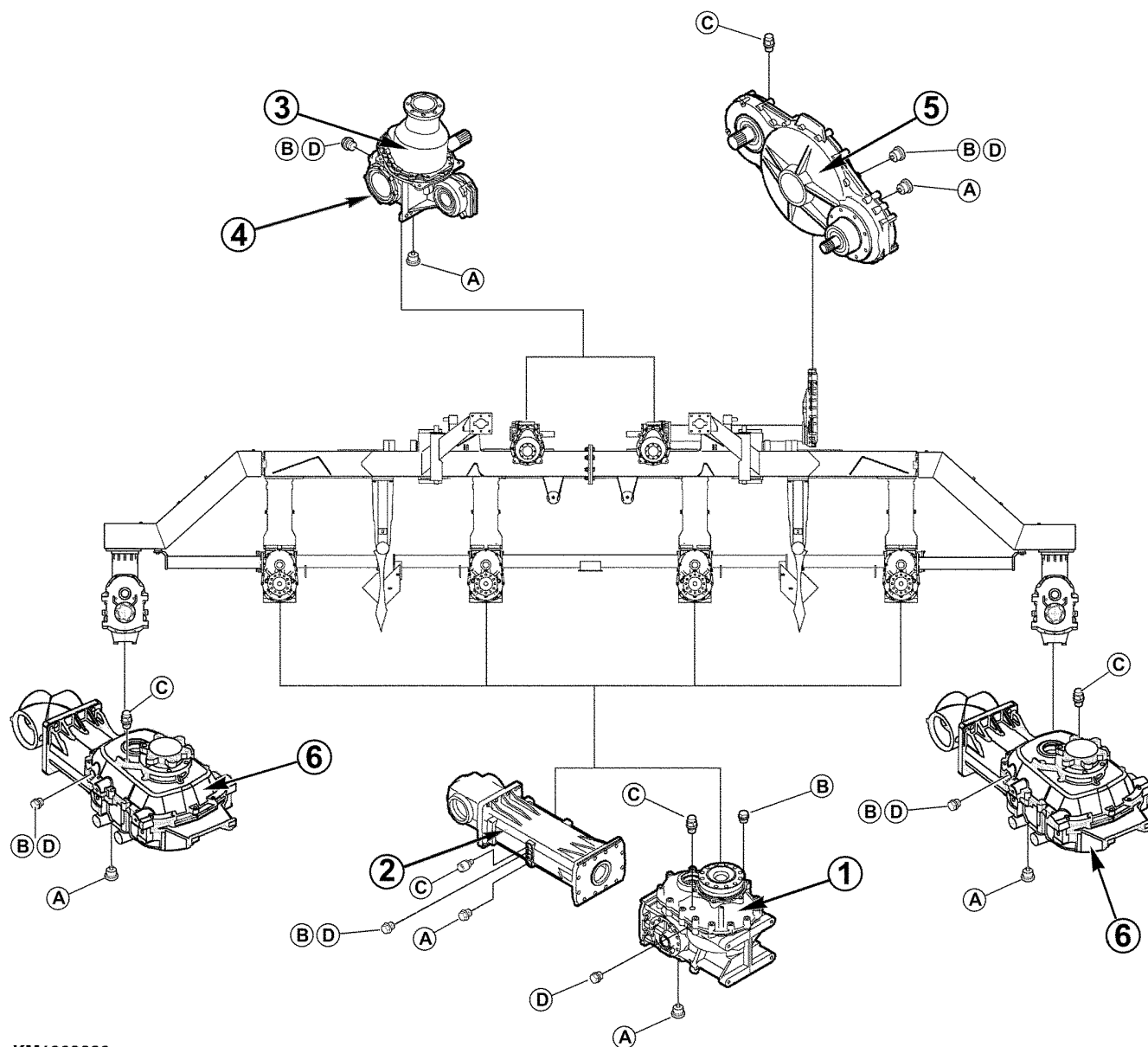
hardware (e.g. union nuts) that are of a higher grade should be tightened to the same torque value as the parts they replace.

It is vitally important to make sure that the sealing faces are clean and that the O-rings have been inserted properly.

ZX09263,0001D13 -19-27JUN07-1/1

LX1020170 — UN—21APR98

## 480FI Rotary Harvesting Unit - Transmissions, Capacities



KM1000820

A—Oil Drain Plug  
B—Oil Fill Plug  
C—Breather

D—Oil Level Plug  
1—Gathering Drums, Spur Gear Angle Drive - 4.4 L (1.16 US. gal)  
2—Angle Drive - 4.0 L (1.05 US. gal.)

3—Spur Gear Angle Drive of Feed Drums (with a lifetime filling of 1.1 kg (2.42 lb.) low-viscosity grease for gears)  
4—Spur Gear Angle Drive - 1.1 L (0.29 US. gal.)  
5—Gear Box - 2.9 L (0.76 US. gal.)

6—Gathering Drums, Spur Gear Angle Drive - 8.5 L (2.25 US. gal)

KM1000820—UN—23MAR09

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