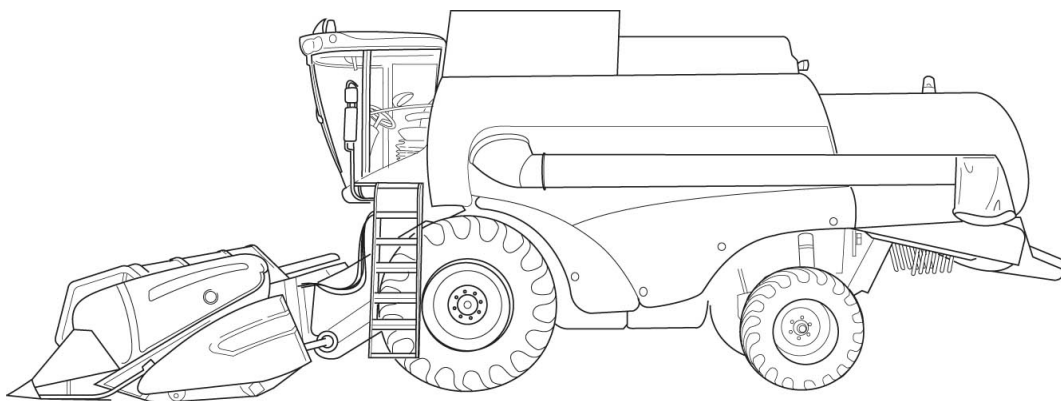


SERVICE MANUAL



CSX7000

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INTRODUCTION

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Foreword

Technical Information

This manual has been produced by a new technical information system. This new system is designed to deliver technical information electronically through CD-ROM and in paper manuals. A coding system called ICE has been developed to link the technical information to other Product Support functions e.g. Warranty.

Technical information is written to support the maintenance and service of the functions or systems on a customers machine. When a customer has a concern on his machine it is usually because a function or system on his machine is not working at all, is not working efficiently, or is not responding correctly to his commands. When you refer to the technical information in this manual to resolve that customers concern, you will find all the information classified using the new ICE coding, according to the functions or systems on that machine. Once you have located the technical information for that function or system then you will find all the mechanical, electrical or hydraulic devices, components, assemblies and sub assemblies for that function or system. You will also find all the types of information that have been written for that function or system, the technical data (specifications), the functional data (how it works), the diagnostic data (fault codes and troubleshooting) and the service data (remove, install adjust, etc.).

By integrating this new ICE coding into technical information , you will be able to search and retrieve just the right piece of technical information you need to resolve that customers concern on his machine. This is made possible by attaching 3 categories to each piece of technical information during the authoring process.

The first category is the Location, the second category is the Information Type and the third category is the Product:

- LOCATION - is the component or function on the machine, that the piece of technical information is going to describe e.g. Fuel tank.
- INFORMATION TYPE - is the piece of technical information that has been written for a particular component or function on the machine e.g. Capacity would be a type of Technical Data that would describe the amount of fuel held by the Fuel tank.
- PRODUCT - is the model that the piece of technical information is written for.

Every piece of technical information will have those 3 categories attached to it. You will be able to use any combination of those categories to find the right piece of technical information you need to resolve that customers concern on his machine.

That information could be:

- the description of how to remove the cylinder head
- a table of specifications for a hydraulic pump
- a fault code
- a troubleshooting table
- a special tool

How to Use this Manual

This manual is divided into Sections. Each Section is then divided into Chapters. Contents pages are included at the beginning of the manual, then inside every Section and inside every Chapter. An alphabetical Index is included at the end of a Chapter. Page number references are included for every piece of technical information listed in the Chapter Contents or Chapter Index.

Each Chapter is divided into four Information types:

- Technical Data (specifications) for all the mechanical, electrical or hydraulic devices, components and, assemblies.
- Functional Data (how it works) for all the mechanical, electrical or hydraulic devices, components and assemblies.
- Diagnostic Data (fault codes, electrical and hydraulic troubleshooting) for all the mechanical, electrical or hydraulic devices, components and assemblies.
- Service data (remove disassembly, assemble, install) for all the mechanical, electrical or hydraulic devices, components and assemblies.

Sections

Sections are grouped according to the main functions or a systems on the machine. Each Section is identified by a letter A, B, C etc. The amount of Sections included in the manual will depend on the type and function of the machine that the manual is written for. Each Section has a Contents page listed in alphabetic/numeric order. This table illustrates which Sections could be included in a manual for a particular product.

PRODUCT	SECTION										
	A - Distribution Systems										
	B - Power Production										
	C - Power Train										
	D - Travelling										
	E - Body and Structure										
	F - Frame Positioning										
	G - Tool Positioning										
	H - Working Arm										
	J - Tools and Couplers										
	K - Crop Processing										
	L - Field Processing										
Tractors	X	X	X	X	X	X		X	X		
Vehicles with working arms: backhoes, excavators, skid steers,	X	X	X	X	X	X	X	X	X		
Combines, forage harvesters, balers,	X	X	X	X	X	X	X	X	X	X	
Seeding, planting, floating, spraying equipment,	X	X	X	X	X	X	X		X		X
Mounted equipment and tools,					X	X	X		X		

This manual contains these Sections. The contents of each Section are explained over the following pages.

Contents

INTRODUCTION	
DISTRIBUTION SYSTEMS	A
POWER PRODUCTION	B
POWER TRAIN	C
TRAVELLING	D
BODY AND STRUCTURE	E
TOOL POSITIONING	G
CROP PROCESSING	K

Section Contents

SECTION A, DISTRIBUTION SYSTEMS

This Section covers the main systems that interact with most of the functions of the product. It includes the central parts of the hydraulic, electrical, electronic, pneumatic, lighting and grease lubrication systems. The components that are dedicated to a specific function are listed in the Chapter where all the technical information for that function is included.

SECTION B, POWER PRODUCTION

This Section covers all the functions related to the production of power to move the machine and to drive various devices.

SECTION C, POWER TRAIN

This Section covers all the functions related to the transmission of power from the engine to the axles and to internal or external devices and additional Process Drive functions.

SECTION D, TRAVELLING

This Section covers all the functions related to moving the machine, including tracks, wheels, steering and braking. It covers all the axles both driven axles and non-driven axles, including any axle suspension.

SECTION E, BODY AND STRUCTURE

This Section covers all the main functions and systems related to the structure and body of the machine. Including the frame, the shields, the operator's cab and the platform.

SECTION G, TOOL POSITIONING

This Section covers all the functions related to the final and/or automatic positioning of the tool once the tool is positioned using the Working Arm or the machine frame.

SECTION K, CROP PROCESSING

This Section covers all the functions related to crop processing.

Chapters

Each Chapter is identified by a letter and number combination e.g. Primary hydraulic power system A.10.A The first letter is identical to the section letter i.e. Chapter A.10 is inside Section A, Distribution systems.

CONTENTS

The Chapter Contents lists all the technical data (specifications), functional data (how it works), service data (remove, install adjust, etc..) and diagnostic data (fault codes and troubleshooting) that have been written in that Chapter for that function or system on the machine.

Contents

DISTRIBUTION SYSTEMS PRIMARY HYDRAULIC POWER SYSTEM_ 10.A.

TECHNICAL DATA

PRIMARY HYDRAULIC POWER SYSTEM - General specification (A.10.A)

FUNCTIONAL DATA

PRIMARY HYDRAULIC POWER SYSTEM - Dynamic description (A.10.A)

SERVICE

PRIMARY HYDRAULIC POWER SYSTEM - Hydraulic pump - Remove (A.10.A)

DIAGNOSTIC

PRIMARY HYDRAULIC POWER SYSTEM - Troubleshooting (A.10.A)

INDEX

The Chapter Index lists in alphabetical order all the types of information (called Information Units) that have been written in that Chapter for that function or system on the machine.

Index

DISTRIBUTION SYSTEMS - A PRIMARY HYDRAULIC POWER SYSTEM

PRIMARY HYDRAULIC POWER SYSTEM - Dynamic description (A.10.A)

PRIMARY HYDRAULIC POWER SYSTEM - General specification (A.10.A)

PRIMARY HYDRAULIC POWER SYSTEM -Hydraulic pump- Remove (A.10.A)

PRIMARY HYDRAULIC POWER SYSTEM - Troubleshooting (A.10.A)

Page Header and Footer

The page header will contain the following references:

- Section and Chapter description

The page footer will contain the following references:

- Publication number for that Manual, Section or Chapter.
- Version reference for that publication.
- Publication date
- Section, chapter and page reference e.g. A.10.A / 9

Note to the Owner

Engine repair information:

The engine repair information is not contained within this Manual.
For engine repair information, please refer to the respective Repair Manual for the engine type used in your vehicle.

Fault Code Resolution (FCR) information:

The FCR information is not contained within the paper version of the Manual.
For FCR information, please refer to the Electronic Service Tool (EST) or the electronic version of this Manual.

Safety rules

WARNING AND DANGER SYMBOL



This warning symbol points out important personal safety messages. Carefully read the following safety regulations and observe advised precautions in order to avoid potential hazards and safeguard your health and safety. In this manual the symbol is accompanied by the following key words:
WARNING - Warnings concerning unsuitable repair operations that may jeopardise the safety of Repair personnel.
DANGER - Specific warnings concerning potential hazards for operator safety or for other persons directly or indirectly involved.



ACCIDENT PREVENTION

Most accidents or injuries that occur in workshops are the result of non-observance of 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 machine, regardless of how well the machine in question was designed and built.

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

Precise observance 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.

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SAFETY RULES

General guidelines

- Carefully follow specified repair and maintenance procedures.
- Do not wear rings, wristwatches, jewellery, unbuttoned or loose articles of clothing such as: ties, torn clothing, scarves, open jackets or shirts with open zips that may remain entangled in moving parts. It is advised to wear approved safety clothing, e.g.: non-slip footwear, gloves, safety goggles, helmets, etc.
- Do not carry out repair operations with someone sitting in the driver's seat, unless the person is a trained technician who is assisting with the operation in question.
- Do not operate the machine or use any of the implements from different positions, other than the driver's seat.
- Do not carry out operations on the machine with the engine running, unless specifically indicated.
- Stop the engine and check that the hydraulic circuits are pressure-free before removing caps, covers, valves, etc.
- All repair and maintenance operations must be carried out using extreme care and attention.
- Service steps and platforms used in the workshop or elsewhere should be built according to standard accident prevention regulations.
- Disconnect the p.t.o. from the and label all controls to indicate that the machine is being serviced. Any parts that are to be raised must be locked in position.
- Brakes are inoperative when manually released for repair or maintenance purposes. Use blocks or similar devices to control the machine in these conditions.
- Only use specified towing points for towing the machine. Connect parts carefully. Make sure that all pins and/or locks are secured in position before applying traction. Never remain near the towing bars, cables or chains that are operating under load.

INTRODUCTION

- When loading or unloading the machine from the trailer (or other means of transport), select a flat area capable of sustaining the trailer or truck wheels. Firmly secure the machine to the truck or trailer and lock the wheels in the position used by the carrier.
- Electric heaters, battery-chargers and similar equipment must only be powered by auxiliary power supplies with efficient ground insulation to avoid electrical shock hazards.
- Always use suitable hoisting or lifting devices when raising or moving heavy parts.
- Take extra care if bystanders are present.
- Never use gasoline, diesel oil or other inflammable liquids as cleaning agents. Use non-inflammable, non toxic commercially available solvents.
- Wear safety goggles with side guards when cleaning parts with compressed air.
- Reduce the air pressure according to the local regulations in force.
- Do not run the engine in confined spaces without suitable ventilation.
- Never use naked flames for lighting when working on the machine or checking for leaks.
- All movements must be carried out carefully when working under, on or near the machine. Wear protective equipment: helmets, goggles and special footwear.
- When carrying out checks with the engine running, request the assistance of an operator in the driver's seat. The operator must maintain visual contact with the service technician at all times.
- If operating outside the workshop, position the machine on a flat surface and lock in position. If working on a slope, lock the machine in position. Move to a flat area as soon as is safely possible.
- Damaged or bent chains or cables are unreliable. Do not use them for lifting or towing. Always use suitable protective gloves when handling chains or cables.
- Chains should always be safely secured. Make sure that the hitch-up point is capable of sustaining the load in question. Keep the area near the hitch-up point, chains or cables free of all bystanders.
- Maintenance and repair operations must be carried out in a CLEAN and DRY area. Eliminate any water or oil spillage immediately.
- Do not create piles of oil or grease-soaked rags as they represent a serious fire hazard. Always store rags in a closed metal container. Before engaging the machine, make sure that there are no persons within the machine or implement range of action.
- Empty your pockets of all objects that may fall accidentally unobserved into the machine inner compartments.
- In the presence of protruding metal parts, use protective goggles or goggles with side guards, helmets, special footwear and gloves.
- When welding, use protective safety devices: tinted safety goggles, helmets, special overalls, gloves and footwear. All persons present in the area where welding is taking place must wear tinted goggles. NEVER LOOK DIRECTLY AT THE WELDING ARC WITHOUT SUITABLE EYE PROTECTION.
- Metal cables tend to fray with repeated use. Always use suitable protective devices (gloves, goggles, etc.) when handling cables.
- Handle all parts carefully. Do not put your hands or fingers between moving parts. Wear suitable safety clothing - safety goggles, gloves and shoes.

Start-up

- Never run the engine in confined spaces that are not equipped with adequate ventilation for exhaust gas extraction.
- Never place the head, body, limbs, feet, hands or fingers near rotating and moving parts.

Hydraulic systems

- A liquid leaking from a tiny hole may be almost invisible but, at the same time, be powerful enough to penetrate the skin. Therefore, NEVER USE HANDS TO CHECK FOR LEAKS but use a piece of cardboard or wood for this purpose. If any liquid penetrates skin tissue, call for medical aid immediately. Failure to treat this condition with correct medical procedure may result in serious infection or dermatosis.
- In order to check the pressure in the system use suitable instruments.

Wheels and Tyres

- Make sure that the tyres are correctly inflated at the pressure specified by the manufacturer. Periodically check the rims and tyres for damage.
- Stand away from (at the side of) the tyre when checking inflation pressure.
- Do not use parts of recovered wheels as incorrect welding brazing or heating may weaken and eventually cause damage to the wheel.
- Never cut or weld a rim mounted with an inflated tyre.
- To remove the wheels, lock all wheels. After having raised the machine, position supports underneath, according to regulations in force.
- Deflate the tyre before removing any objects that may be jammed in the tyre tread.
- Never inflate tyres using inflammable gases, as this may result in explosions and injury to bystanders.

Removal and Re-fitting

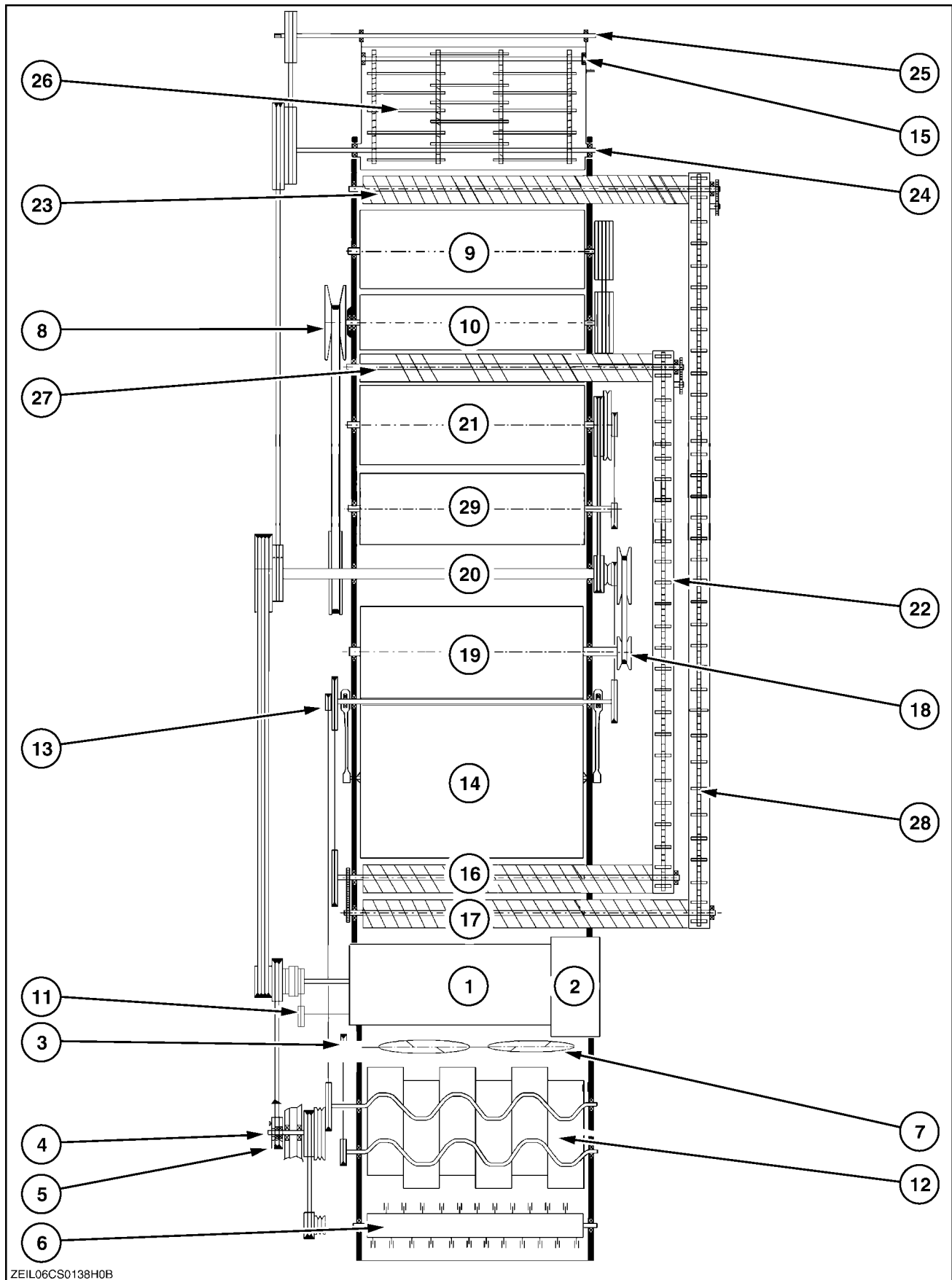
- Lift and handle all heavy parts using suitable hoisting equipment. Make sure that parts are sustained by appropriate hooks and slings. Use the hoisting eyebolts for lifting operations. Extra care should be taken if persons are present near the load to be lifted.
- Handle all parts carefully. Do not put your hands or fingers between parts. Wear suitable safety clothing - safety goggles, gloves and shoes.
- Avoid twisting chains or metal cables. Always wear safety gloves when handling cables or chains.

Driveline overview

MAIN OUTPUT SHAFT

- | | |
|--|---------------------------------------|
| 1. Engine | 16. Clean grain cross auger |
| 2. Rotary dust screen | 17. Returns cross auger |
| 3. Chaff spreader drive shaft (if installed) | 18. Fan variator |
| 4. Chopper intermediate drive shaft (if installed) | 19. Fan |
| 5. Chopper clutch (if installed) | 20. Intermediate shaft |
| 6. Chopper (if installed) | 21. Rotary separator (if installed) |
| 7. Chaff spreader (if installed) | 22. Grain elevator |
| 8. Drum variator | 23. Returns top auger |
| 9. Drum | 24. Straw elevator top shaft |
| 10. Beater | 25. Header drive shaft |
| 11. Hydraulic pump shaft | 26. Straw elevator chain |
| 12. Straw walkers | 27. Grain tank filling auger |
| 13. Eccentric shaft | 28. Returns elevator |
| 14. Shaker shoe | 29. Straw Flow™ beater (if installed) |
| 15. Straw elevator bottom shaft | |

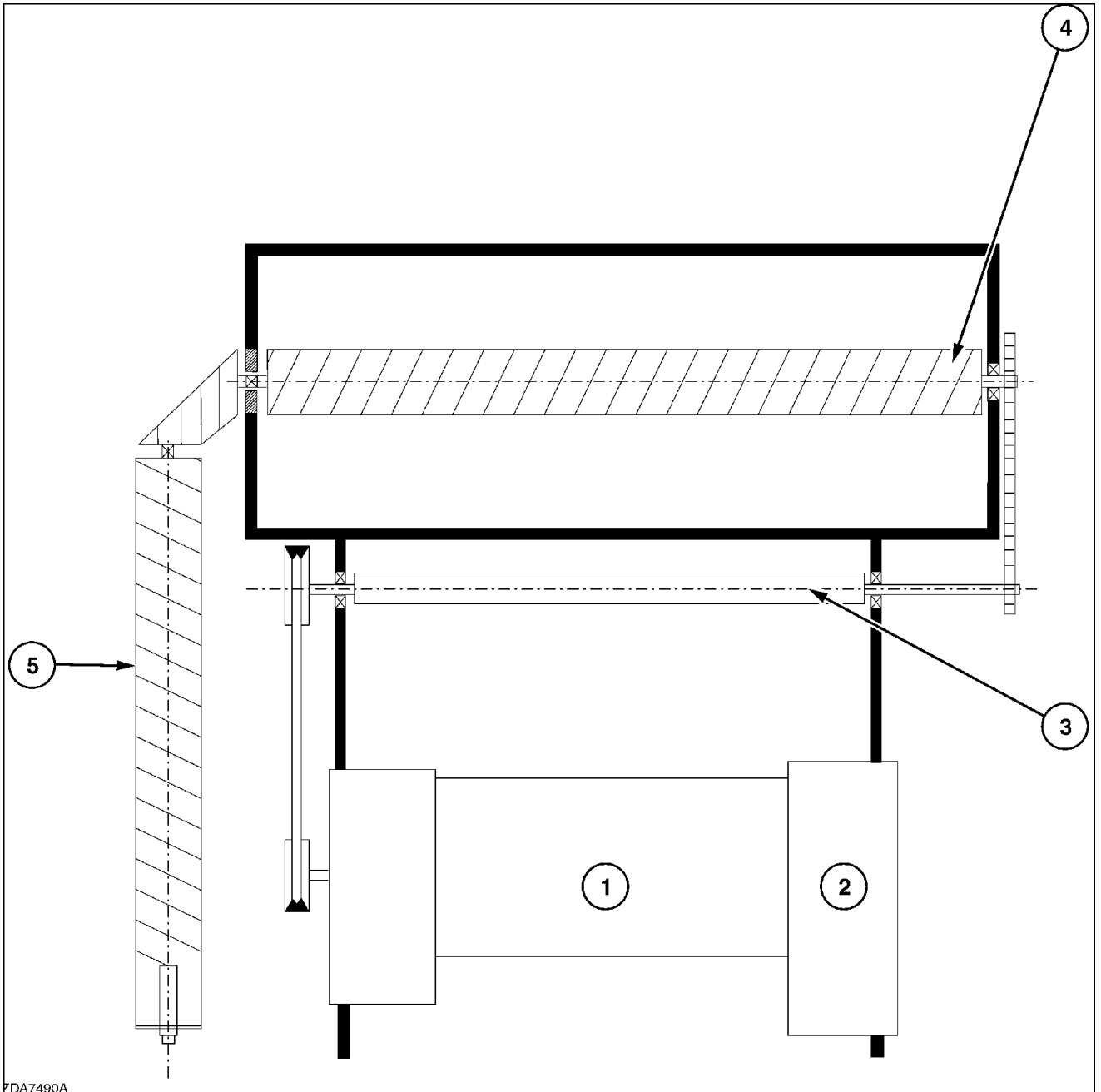
INTRODUCTION



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UNLOADING OUTPUT SHAFT

1. Engine
2. Engine cooling system
3. Unloading intermediate drive shaft
4. Grain tank bottom auger
5. Unloading auger



ZDA7490A

ZDA7490A 2

Basic instructions

SHIMMING

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

ROTATING SHAFT SEALS

For correct rotating shaft seal installation, proceed as follows:

- before assembly, allow the seal to soak in the oil it will be sealing for at least thirty minutes
- thoroughly clean the shaft and check that the working surface on the shaft is not damaged
- position the sealing lip facing the fluid; with hydrodynamic lips, take into consideration the shaft rotation direction and position the grooves so that they will deviate the fluid towards the inner side of the seal
- coat the sealing lip with a thin layer of lubricant (use oil rather than grease) and fill the gap between the sealing lip and the dust lip on double lip seals with grease
- insert the seal in its seat and press down using a flat punch, do not tap the seal with a hammer or mallet
- whilst inserting the seal, check that it is perpendicular to the seat; once settled, make sure that it makes contact with the thrust element, if required
- to prevent damaging the seal lip on the shaft, position a protective guard during installation operations

O-RING SEALS

Lubricate the O-RING seals before inserting them in the seats, this will prevent them from overturning and twisting, which would jeopardize sealing efficiency.

SEALING COMPOUNDS

Apply one of the following sealing compounds on the mating surfaces marked with an X: RTV SILMATE, RHODORSIL CAF 1 or LOCTITE™ PLASTIC GASKET. Before applying the sealing compound, prepare the surfaces as follows:

- remove any incrustations using a metal brush;
- thoroughly de-grease the surfaces using one of the following cleaning agents: trichlorethylene, petrol or a water and soda solution.

COTTER PINS

When fitting split cotter pins, ensure that the pin notch is positioned in the direction of the force required to stress the pin. Spiral cotter pins do not require special positioning.

PROTECTING THE ELECTRONIC/ ELECTRICAL SYSTEMS DURING CHARGING OR WELDING

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

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

IMPORTANT: *If welding must be performed on the unit, either the unit or the header (if it is attached), the battery ground cable must be disconnected from the unit battery. The electronic monitoring system and charging system will be damaged if this is not done.*

Remove the battery ground cable. Reconnect the cable when welding is completed.



WARNING



Battery acid causes severe burns. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote - EXTERNAL: flush with water. INTERNAL: drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or vegetables oil. Call physician immediately. EYES: flush with water for 15 minutes and get prompt medical attention.

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**Thanks very much for your reading,
Want to get more information,
Please click here, Then get the complete
manual**

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**Have any questions please write to me:
admin@servicemanualperfect.com**