SERVICE MANUAL

TC4.90 / TC5.70 / TC5.80 / TC5.90

Combine

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NEW HOLLAND AGRICULTURE

SERVICE MANUAL

TC4.90
TC5.70
TC5.80
TC5.90

Link Product / Engine

Product	Market Product	Engine
TC5.80 FPT NEF TIER 4A	Europe	F4HFE613V*A003
TC5.90 FPT NEF TIER 4A	Europe	F4HFE613U*A006

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INTRODUCTION

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INTRODUCTION

(*) See content for specific models

Foreword - Important notice regarding equipment servicing

All repair and maintenance work listed in this manual must be carried out only by qualified dealership personnel, strictly complying with the instructions given, and using, whenever possible, the special tools.

Anyone who performs repair and maintenance operations without complying with the procedures provided herein shall be responsible for any subsequent damages.

The manufacturer and all the organizations of its distribution chain, including - without limitation - national, regional, or local dealers, reject any responsibility for damages caused by parts and/or components not approved by the manufacturer, including those used for the servicing or repair of the product manufactured or marketed by the manufacturer. In any case, no warranty is given or attributed on the product manufactured or marketed by the manufacturer in case of damages caused by parts and/or components not approved by the manufacturer.

The manufacturer reserves the right to make improvements in design and changes in specifications at any time without notice and without incurring any obligation to install them on units previously sold. Specifications, descriptions, and illustrative material herein are as accurate as known at time of publication but are subject to change without notice.

In case of questions, refer to your NEW HOLLAND Sales and Service Networks.

Safety rules

TC Harvest Suit™ Comfort Cab	WE

LEGAL OBLIGATIONS

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

ACCIDENT PREVENTION

Most accidents or injuries that occur in workshops are the result of non compliance to simple and fundamental safety principles. For this reason, IN MOST CASES THESE ACCIDENTS CAN BE AVOIDED by applying the fundamental safety principles, 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.

⚠ CAUTION

Unexpected machine movement!
1. Disengage all drives.
2. Engage parking brake.
3. Lower all attachments to the ground, or raise and engage all safety locks.
4. Shut off engine.
5. Remove key from key switch.
6. Switch off battery key, if installed.
7. Wait for all machine movement to stop.
Failure to comply could result in minor or moderate injury.

C0038A

SAFETY REQUIREMENTS FOR FLUID POWER SYSTEMS AND COMPONENTS - HYDRAULICS (EUROPEAN STANDARD EN982)

- Flexible hose assemblies must not be constructed from hoses which have been previously used as part of a hose assembly.
- Do not weld hydraulic pipes: when flexible hoses or piping are damaged, replace them immediately.
- It is forbidden to modify a hydraulic accumulator by machining, welding or any other way.
- Before removing hydraulic accumulators for servicing, the liquid pressure in the accumulators must be reduced to zero.
- Pressure check on hydraulic accumulators must be carried out by a method recommended by the accumulator manufacturer.
- Take care not to exceed the maximum allowed pressure of the accumulator. After any check or adjustment, check for leakages or gas in the hoses or tubes.

SAFETY RULES

General guidelines

- Carefully follow specified repair and maintenance procedures.
- When appropriate, use P.P.E (Personal Protective Equipment)
- 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.
- Bring all hydraulic cylinders to the home positions (down, retracted, etc.) before engine shut down.
- 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 the applicable standards and legislation.
- Disconnect the Power Take-Off (PTO) and label the controls to indicate that the machine is being serviced.
- Brakes are inoperative when manually released for repair or maintenance purposes. Use blocks or similar devices to secure 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.
- 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.
- Keep bystanders away.
- 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.
- Never use open flames for lighting when working on the machine or checking for leaks.
- 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.
- Maintenance and repair operations must be carried out in a clean and dry area. Clean up 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.
- When metal parts are sticking out, 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.

Machine 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 and fuel injection 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 paper 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 death.
- In order to check the pressure in the system use suitable instruments.

Wheels and tires

- Make sure that the tires are correctly inflated at the pressure specified by the manufacturer. Periodically check the rims and tires for damage.
- Stand away from (at the side of) the tire 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 tire.
- Deflate the tire before removing any objects that may be jammed in the tire tread.
- Never inflate tires using inflammable gases, as this may result in explosions and injury to bystanders.

Removal and installation

- 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.
- 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.
- Metal cables tend to fray with repeated use. Always use suitable protective devices (gloves, goggles, etc.) when handling cables.

Safety rules

Personal safety

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: *Notice indicates a situation that, if not avoided, could result in machine or property damage.*

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: *Note indicates additional information that clarifies steps, procedures, or other information in this manual.*

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

Safety rules - Ecology and the environment

Soil, air, and water quality is important for all industries and life in general. When legislation does not yet rule the treatment of some of the substances that advanced technology requires, sound judgment should govern the use and disposal of products of a chemical and petrochemical nature.

Familiarize yourself with the relative legislation applicable to your country, and make sure that you understand this legislation. Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, anti-freeze, cleaning agents, etc., with regard to the effect of these substances on man and nature and how to safely store, use, and dispose of these substances.

Helpful hints

- Avoid the use of cans or other inappropriate pressurized fuel delivery systems to fill tanks. Such delivery systems may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of these products contain substances that may be harmful to your health.
- Modern oils contain additives. Do not burn contaminated fuels and or waste oils in ordinary heating systems.
- Avoid spillage when you drain fluids such as used engine coolant mixtures, engine oil, hydraulic fluid, brake fluid, etc. Do not mix drained brake fluids or fuels with lubricants. Store all drained fluids safely until you can dispose of the fluids in a proper way that complies with all local legislation and available resources.
- Do not allow coolant mixtures to get into the soil. Collect and dispose of coolant mixtures properly.
- The air-conditioning system contains gases that should not be released into the atmosphere. Consult an air-conditioning specialist or use a special extractor to recharge the system properly.
- Repair any leaks or defects in the engine cooling system or hydraulic system immediately.
- Do not increase the pressure in a pressurized circuit as this may lead to a component failure.
- Protect hoses during welding. Penetrating weld splatter may burn a hole or weaken hoses, allowing the loss of oils, coolant, etc.

Battery recycling

Batteries and electric accumulators contain several substances that can have a harmful effect on the environment if the batteries are not properly recycled after use. Improper disposal of batteries can contaminate the soil, groundwater, and waterways. NEW HOLLAND strongly recommends that you return all used batteries to a NEW HOLLAND dealer, who will dispose of the used batteries or recycle the used batteries properly. In some countries, this is a legal requirement.

Mandatory battery recycling

NOTE: *The following requirements are mandatory in Brazil.*

Batteries are made of lead plates and a sulfuric acid solution. Because batteries contain heavy metals such as lead, CONAMA Resolution 401/2008 requires you to return all used batteries to the battery dealer when you replace any batteries. Do not dispose of batteries in your household garbage.

Points of sale are obliged to:

- Accept the return of your used batteries
- Store the returned batteries in a suitable location
- Send the returned batteries to the battery manufacturer for recycling

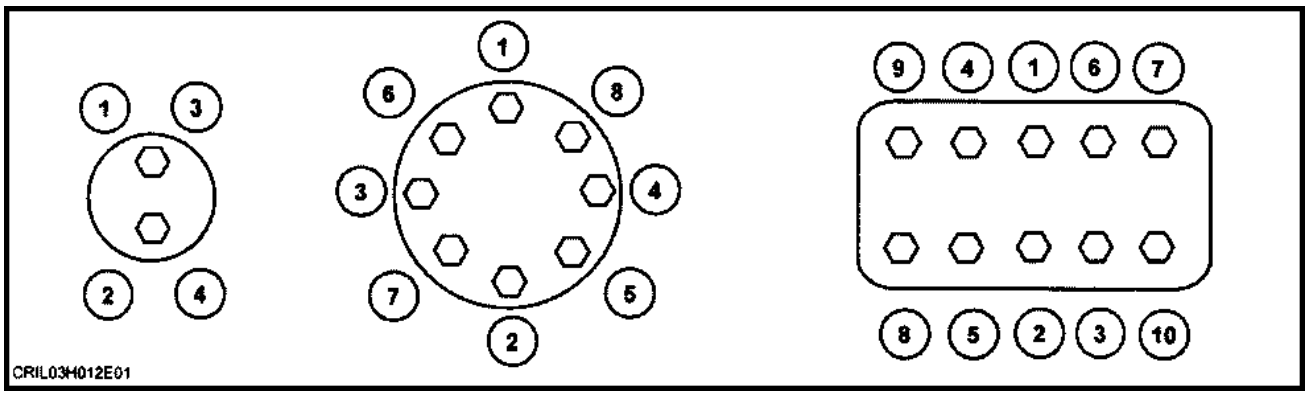
Torque

TC Harvest Suit™ Comfort Cab	WE

Minimum hardware tightening torques (in N m or lb in /lb ft) for normal assembly applications unless otherwise stated

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

The minimum hardware tightening torque on drawings, in specifications etc. have priority.
The applicable CNH Standard is ENS7001.



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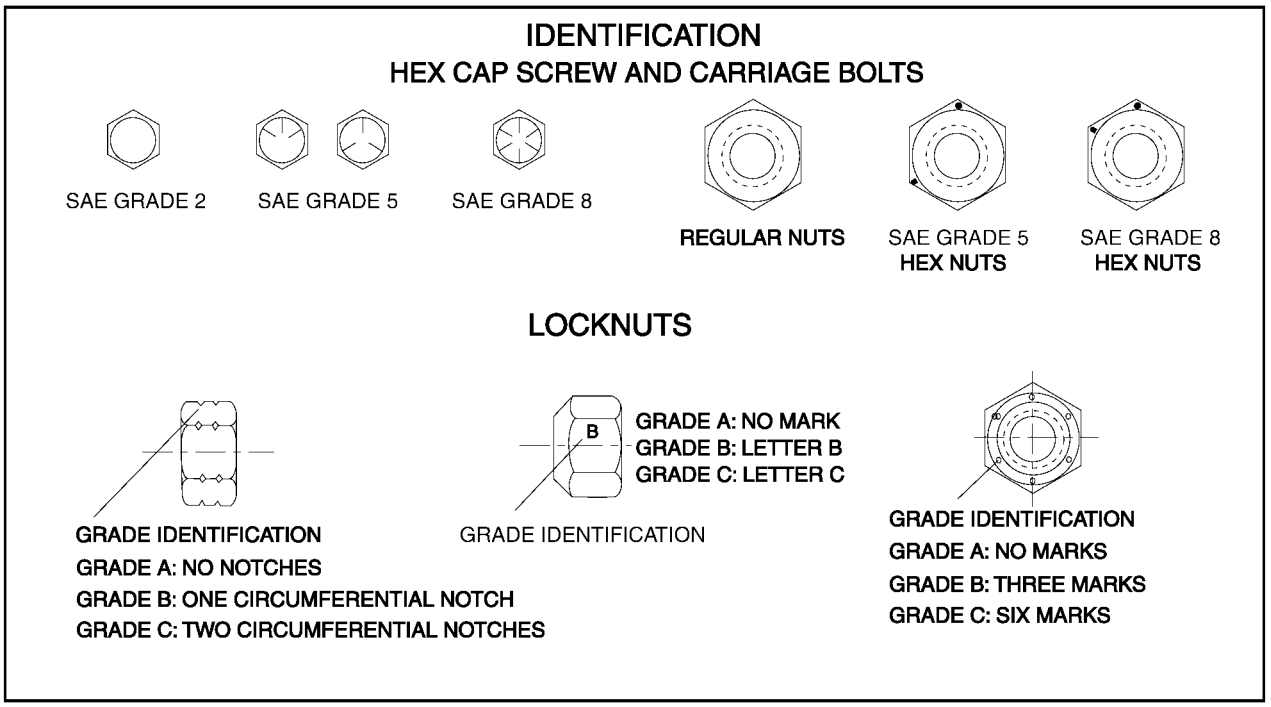
Metric hardware

	Class 8.8 in N m (lb in or lb ft)			Class 10.9 in N m (lb in or lb ft)		
Nominal Size	Plated nut	Lock nut	Hardened nut	Plated nut	Lock nut	Hardened nut
M3	1.3 N·m (11.5 lb in)	0.7 N·m (6.2 lb in)	1.2 N·m (10.6 lb in)	1.8 N·m (15.9 lb in)	0.9 N·m (8.0 lb in)	1.6 N·m (14.2 lb in)
M4	2.9 N·m (25.7 lb in)	1.6 N·m (14.2 lb in)	2.6 N·m (23.0 lb in)	4.2 N·m (37.2 lb in)	2.3 N·m (20.4 lb in)	3.7 N·m (32.7 lb in)
M5	5.9 N·m (52.2 lb in)	3.2 N·m (28.3 lb in)	5.3 N·m (46.9 lb in)	8.5 N·m (75.2 lb in)	4.6 N·m (40.7 lb in)	7.6 N·m (67.3 lb in)
M6	10.1 N·m (89.4 lb in)	5.5 N·m (48.7 lb in)	9.1 N·m (80.5 lb in)	14.5 N·m (10.7 lb ft)	7.9 N·m (69.9 lb in)	13 N·m (9.6 lb ft)
M8	24.5 N·m (18.1 lb ft)	13.5 N·m (10.0 lb ft)	22 N·m (16.2 lb ft)	35.1 N·m (25.9 lb ft)	19.3 N·m (14.2 lb ft)	31.5 N·m (23.2 lb ft)
M10	48.7 N·m (35.9 lb ft)	26.8 N·m (19.8 lb ft)	43.8 N·m (32.3 lb ft)	69.5 N·m (51.3 lb ft)	38.2 N·m (28.2 lb ft)	62.5 N·m (46.1 lb ft)
M12	85 N·m (62.7 lb ft)	46.7 N·m (34.4 lb ft)	76.5 N·m (56.4 lb ft)	121 N·m (89.2 lb ft)	66.5 N·m (49.0 lb ft)	108.9 N·m (80.3 lb ft)
M14	135 N·m (99.6 lb ft)	74.2 N·m (54.7 lb ft)	121.5 N·m (89.6 lb ft)	193 N·m (142.3 lb ft)	106.1 N·m (78.3 lb ft)	173.7 N·m (128.1 lb ft)
M16	210 N·m (154.9 lb ft)	115.5 N·m (85.2 lb ft)	189 N·m (139.4 lb ft)	301 N·m (222 lb ft)	165.5 N·m (122.1 lb ft)	270.9 N·m (199.8 lb ft)
M18	299 N·m (220.5 lb ft)	164.4 N·m (121.3 lb ft)	269.1 N·m (198.5 lb ft)	414 N·m (305.4 lb ft)	227.7 N·m (167.9 lb ft)	372.6 N·m (274.8 lb ft)
M20	425 N·m (313.5 lb ft)	233.72 N·m (172.4 lb ft)	382.5 N·m (282.1 lb ft)	587 N·m (432.9 lb ft)	322.8 N·m (238.1 lb ft)	528.3 N·m (389.7 lb ft)
M22	579 N·m (427 lb ft)	318.4 N·m (234.8 lb ft)	521.1 N·m (384.3 lb ft)	801 N·m (590.8 lb ft)	440.5 N·m (324.9 lb ft)	720.9 N·m (531.7 lb ft)
M24	735 N·m (542.1 lb ft)	404.2 N·m (298.1 lb ft)	661.5 N·m (487.9 lb ft)	1016 N·m (749.4 lb ft)	558.8 N·m (412.1 lb ft)	914.4 N·m (674.4 lb ft)
M27	1073 N·m (791.4 lb ft)	590.1 N·m (435.2 lb ft)	967.5 N·m (713.6 lb ft)	1486 N·m (1096 lb ft)	817.3 N·m (602.8 lb ft)	1337 N·m (986.1 lb ft)
M30	1461 N·m (1077.6 lb ft)	803.5 N·m (592.6 lb ft)	1315 N·m (969.9 lb ft)	2020 N·m (1489.9 lb ft)	1111 N·m (819.4 lb ft)	1818 N·m (1340.9 lb ft)



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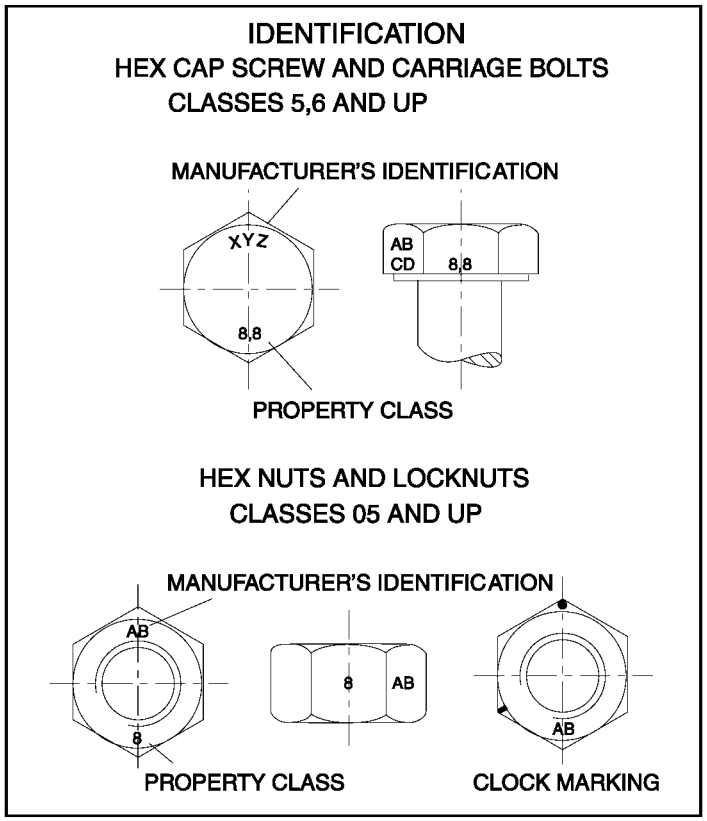

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Basic instructions - Chain Wear Tables - Roller Chains

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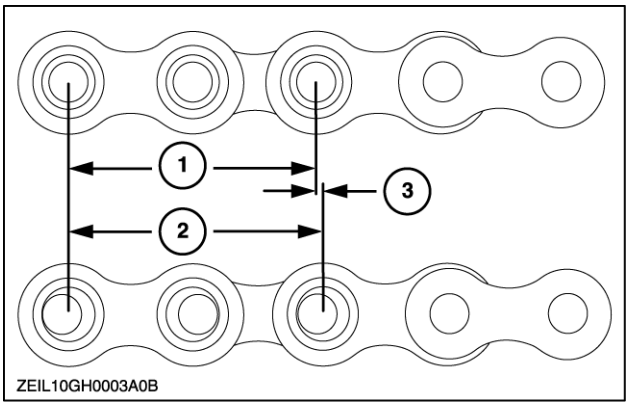
Chain Wear

The individual joints in a roller chain articulate as they enter and leave the sprockets. This articulation results in wear on the pins and bushings. A material is worn away from these surfaces the chain will gradually elongate.



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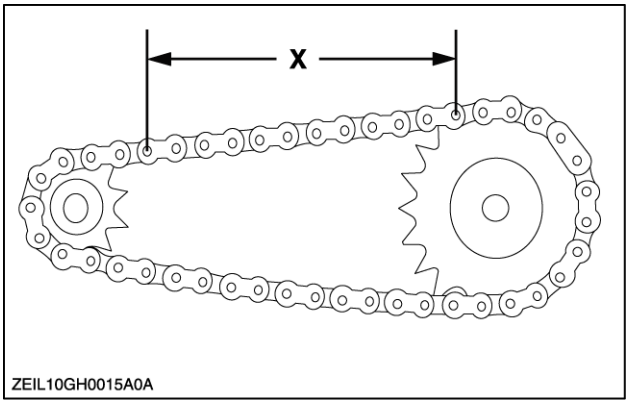
Chains do not "stretch" - material is removed from pin and bushing.

(1): 2x pitch
(2): 2x pitch + wear
(3): elongation due to pin and bushing wear.

Elongation is normal and may be minimized by proper lubrication and drive maintenance. The rate of wear is dependent upon: the relationship between the load and the amount of bearing area between pin and bushing, the material and surface condition of the bearing surfaces, the adequacy of lubrication and the frequency and degree of articulation between pins and bushings.
The latter is determined by the quantity of sprockets in the drive, their speeds, the number of teeth and the length of the chain in pitches.



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Measurement of Chain For Wear Elongation

Relatively accurate wear measurements can be made by using the above illustration. Measure as closely as possible from the center of one pin to the center of another. The more pitches (pins) contained within the measurement increase the accuracy. If the measured value exceeds the nominal by more than the allowable percentage the chain should be replaced.
The maximum allowable wear elongation is approximately **3 %** for most industrial applications, based upon sprocket design. The allowable chain wear in percent can be calculated using the relationship: 200/ **(N)**, where **(N)** is the number of teeth in the large sprocket.
This relationship is often useful since the normal maximum allowable chain wear elongation of **3 %** is valid only up to 67 teeth in the large sprocket. In drives having fixed center distances, chains running in parallel or where smoother operation is required, wear should be limited to approximately **1.5 %**.

For example, if 40 pitches (40 pins) of a #40 chain were measured and the result was **523 mm** (**20.6 in**) or greater (using **3 %** as the maximum allowable wear), the chain should be replaced. Anything less than **523 mm** (**20.6 in**) would still be acceptable by most industrial standards.

WEAR LIMITS ON ROLLER CHAIN

Strand Length in Pitches	No. 40 Chain (08A)		No. 50 Chain (10A)		No. 60 Chain (12A)		No. 80 Chain (16A)	
	New	Replace	New	Replace	New	Replace	New	Replace
40P	508 mm (20.0 in)	523 mm (20.6 in)	635 mm (25.0 in)	654 mm (25.7 in)	762 mm (30.0 in)	787 mm (31.0 in)	1016 mm (40.0 in)	1047 mm (41.2 in)
50P	635 mm (25.0 in)	654 mm (25.7 in)	793 mm (31.2 in)	817 mm (32.2 in)	952 mm (37.5 in)	981 mm (38.6 in)	1270 mm (50.0 in)	1308 mm (51.5 in)
60P	762 mm (30.0 in)	784 mm (30.9 in)	952 mm (37.5 in)	981 mm (38.6 in)	1143 mm (45.0 in)	1177 mm (46.3 in)	1524 mm (60.0 in)	1568 mm (61.7 in)
70P	889 mm (35.0 in)	914 mm (36.0 in)	1111 mm (43.7 in)	1144 mm (45.0 in)	1333 mm (52.5 in)	1371 mm (54.0 in)	1778 mm (70.0 in)	1828 mm (72.0 in)
80P	1016 mm (40.0 in)	1047 mm (41.2 in)	1270 mm (50.0 in)	1308 mm (51.5 in)	1524 mm (60.0 in)	1568 mm (61.7 in)	2032 mm (80.0 in)	2095 mm (82.5 in)
90P	1143 mm (45.0 in)	1177 mm (46.3 in)	1428 mm (56.2 in)	1473 mm (58.0 in)	1714 mm (67.5 in)	1765 mm (69.5 in)	2286 mm (90.0 in)	2355 mm (92.7 in)
100P	1270 mm (50.0 in)	1308 mm (51.5 in)	1578 mm (62.1 in)	1635 mm (64.4 in)	1905 mm (75.0 in)	1962 mm (77.2 in)	2540 mm (100.0 in)	2616 mm (103.0 in)

STANDARD ROLLER CHAIN SIZES - NEW CHAINS

Chain No.	150 Chain No.	Pitch	Width	Roller Diameter
40	08A	12.7 mm (0.5 in)	7.9 mm (0.3 in)	7.9 mm (0.3 in)
50	10A	15.8 mm (0.6 in)	9.5 mm (0.4 in)	10.1 mm (0.4 in)
60	12A	19 mm (0.7 in)	12.7 mm (0.5 in)	11.9 mm (0.5 in)
80	16A	25.4 mm (1.0 in)	15.8 mm (0.6 in)	15.8 mm (0.6 in)
100	20A	31.7 mm (1.2 in)	19 mm (0.7 in)	19 mm (0.7 in)
120	24A	38.1 mm (1.5 in)	25.4 mm (1.0 in)	22.2 mm (0.9 in)
140	28A	44.4 mm (1.7 in)	25.4 mm (1.0 in)	25.4 mm (1.0 in)
160	32A	50.8 mm (2.0 in)	31.7 mm (1.2 in)	28.5 mm (1.1 in)
180	*	57.1 mm (2.2 in)	35.7 mm (1.4 in)	35.7 mm (1.4 in)
200	40A	63.4 mm (2.5 in)	38.1 mm (1.5 in)	39.6 mm (1.6 in)

* No. 150 Number does not exist.

Basic instructions - How to use and navigate through this Manual

Technical information

This manual has been produced by a new technical information system. This new system is designed to deliver technical information electronically through Web delivery (eTim), DVD and in paper manuals. A coding system called SAP 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 customer's 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 customer's concern, you will find all the information classified using the SAP 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 SAP coding into technical information, you will be able to search and retrieve just the right piece of technical information you need to resolve that customer's 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 for which the piece of technical information is written.

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 customer's 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 number 00, 35, 55, 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				
	Tractors				
		Vehicles with working arms: backhoes, excavators, skid steers, ….			
			Combines, forage harvesters, balers, ….		
				Seeding, planting, floating, spraying equipment, ….	
SECTION					Mounted equipment and tools, ….
00 - Maintenance					
05 - Machine completion and equipment					
10 - Engine					
14 - Main gearbox and drive					
18 - Clutch					
21 - Transmission					
23 - Four wheel drive system					
25 - Front axle system					
27 - Rear axle system					
29 - Hydrostatic drive					
31 - Implement power take-off					
33 - Brakes and controls					
35 - Hydraulic systems					
36 - Pneumatic system					
37 - Hitches, drawbars and implement couplings					
39 - Frames and ballasting					
41 - Steering					
44 - Wheels					
46 - Steering clutches					
48 - Tracks and track suspension					
50 - Cab climate control					
55 - Electrical systems					
56 - Grape harvester shaking					
58 - Attachments/headers					
60 - Product feeding					
61 - Metering system					
62 - Pressing - Bale formation					

63 - Chemical applicators						
64 - Chopping						
66 - Threshing						
68 - Tying/Wrapping/Twisting						
69 - Bale wagons						
70 - Ejection						
71 - Lubrication system						
72 - Separation						
73 - Residue handling						
74 - Cleaning						
75 - Soil preparation/Finishing						
76 - Secondary cleaning / Destemmer						
77 - Seeding						
78 - Spraying						
79 - Planting						
80 - Crop storage / Unloading						
82 - Front loader and bucket						
83 - Telescopic single arm						
84 - Booms, dippers and buckets						
86 - Dozer blade and arm						
88 - Accessories						
89 - Tools						
90 - Platform, cab, bodywork and decals						

Section contents

Section	Number	Description
Maintenance	00	
Machine completion and equipment	05	
Engine	10	
Main gearbox and drive	14	
Clutch	18	
Transmission	21	
Four wheel drive system	23	
Front axle system	25	
Rear axle system	27	
Hydrostatic drive	29	
Implement power take-off	31	
Brakes and controls	33	
Hydraulic systems	35	This Section covers the central parts of the hydraulic system. The components that are dedicated to a specific function are listed in the Chapter where all the technical information for that function is included.
Pneumatic system	36	This Section covers the pneumatic system. The components that are dedicated to a specific function are listed in the Chapter where all the technical information for that function is included.
Hitches, drawbars and implement couplings	37	
Frames and ballasting	39	
Steering	41	
Wheels	44	
Steering clutches	46	
Tracks and track suspension	48	
Cab climate control	50	
Electrical systems	55	The Section covers the central parts of the electrical, electronic, and lighting 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.
Grape harvester shaking	56	
Attachments/headers	58	
Product feeding	60	
Metering system	61	
Pressing - Bale formation	62	
Chemical applicators	63	
Chopping	64	
Threshing	66	
Tying/Wrapping/Twisting	68	
Bale wagons	69	
Ejection	70	
Lubrication system	71	
Separation	72	
Residue handling	73	
Cleaning	74	
Soil preparation/Finishing	75	
Secondary cleaning / Destemmer	76	
Seeding	77	
Spraying	78	
Planting	79	
Crop storage / Unloading	80	
Front loader and bucket	82	

Section	Number	Description
Telescopic single arm	83	
Booms, dippers and buckets	84	
Dozer blade and arm	86	
Accessories	88	
Tools	89	
Platform, cab, bodywork and decals	90	This Section covers all the main functions and systems related to the body of the machine, including the operators cab and the platform.

Chapters

Each Chapter is identified by a number e.g. Hydraulic Systems - Main check valve- 35.359. The first number is identical to the Section number i.e. Chapter 35.359 is inside Section 35, Hydraulic Systems. The second number is representative of the Chapter contained within the Section.
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

HYDRAULIC SYSTEMS - 35
Main control valve - 359

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.

Information units and information search

Each chapter is composed of information units. Each information unit has a page reference within that Chapter. The information units provide a quick and easy way to find just the right piece of technical information you are looking for.

Example information unit	Main control valve - Sectional View (35.359)		
Information Unit SAP code	35		Hydraulic systems
SAP code classification		359	Main control valve

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.35.359 / 9

Basic instructions - Shop and assembly

Shimming

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

Rotating shaft seals

For correct rotating shaft seal installation, proceed as follows:

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

   NOTE: *With hydrodynamic lips, take into consideration the shaft rotation direction and position the grooves so that they will move the fluid towards the inner side of the seal.*
4. Coat the sealing lip with a thin layer of lubricant (use oil rather than grease). Fill the gap between the sealing lip and the dust lip on double lip seals with grease.
5. Insert the seal in its seat and press down using a flat punch or seal installation tool. Do not tap the seal with a hammer or mallet.
6. While you insert the seal, check that the seal is perpendicular to the seat. When the seal settles, make sure that the seal makes contact with the thrust element, if required.
7. To prevent damage to the seal lip on the shaft, position a protective guard during installation operations.

O-ring seals

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

Sealing compounds

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

Spare parts

Only use CNH Original Parts or NEW HOLLAND Original Parts.

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

When ordering spare parts, always provide the following information:

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

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

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

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

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

⚠ WARNING

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

W0111A

Special tools

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

By using these tools, repair personnel will benefit from:

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

Conversion factors

TC Harvest Suit™ Comfort Cab	WE

Length

1 mm	**=**	**0.0393 in**	**1 in**	**=**	**25.4 mm**
1 km	**=**	**0.621 miles**	**1 miles**	**=**	**1.609 km**
1 m	**=**	**3.281 ft**	**1 ft**	**=**	**0.3048 m**

Area

1 ha	**=**	**2.471 ac**	**1 ac**	**=**	**0.404 US fl oz**
1 m²	**=**	**10.76 ft²**	**1 ft²**	**=**	**0.0923 m²**

Volume

1 litre	**=**	**0.26 US gal**	**1 US gal**	**=**	**3.78 litre**
1 litre	**=**	**0.0.28 Bu**	**1 Bu**		**35.23 litre**
1 litre	**=**	**1.057 US quart**	**1 US quart**	**=**	**0.9464 litre**
1 cm³ (cc)	**=**	**0.061 in³**	**1 in³**	**=**	**16.38 cm³** (cc)
1 m³	**=**	**35.31 ft³**	**1 ft³**	**=**	**0.028 m³**
1 ml	**=**	**0.033 US fl oz**	**1 US fl oz**	**=**	**29.57 ml**

Mass

1 kg	**=**	**2.204 lb**	**1 lb**	**=**	**0.4536 kg**

Torque

1 N·m	**=**	**0.7376 lb ft**	**1 lb ft**	**=**	**1.3558 N·m**

Power

1 kW	**=**	**1.358 Hp**	**1 Hp**	**=**	**0.746 kW**

Pressure

1 bar	**=**	**100 kPa**			
1 bar	**=**	**14.505 psi**	**1 psi**	**=**	**0.06894 bar**

Temperature

1 °C	**=**	**((1.8 x ° C) + 32) °F**	**1 °F**	**=**	**(0.56 x (° F - 32)) °C**

Flow

1 l/min	**=**	**0.2642 US gpm**	**1 US gpm**	**=**	**3.7853 l/min**

Speed

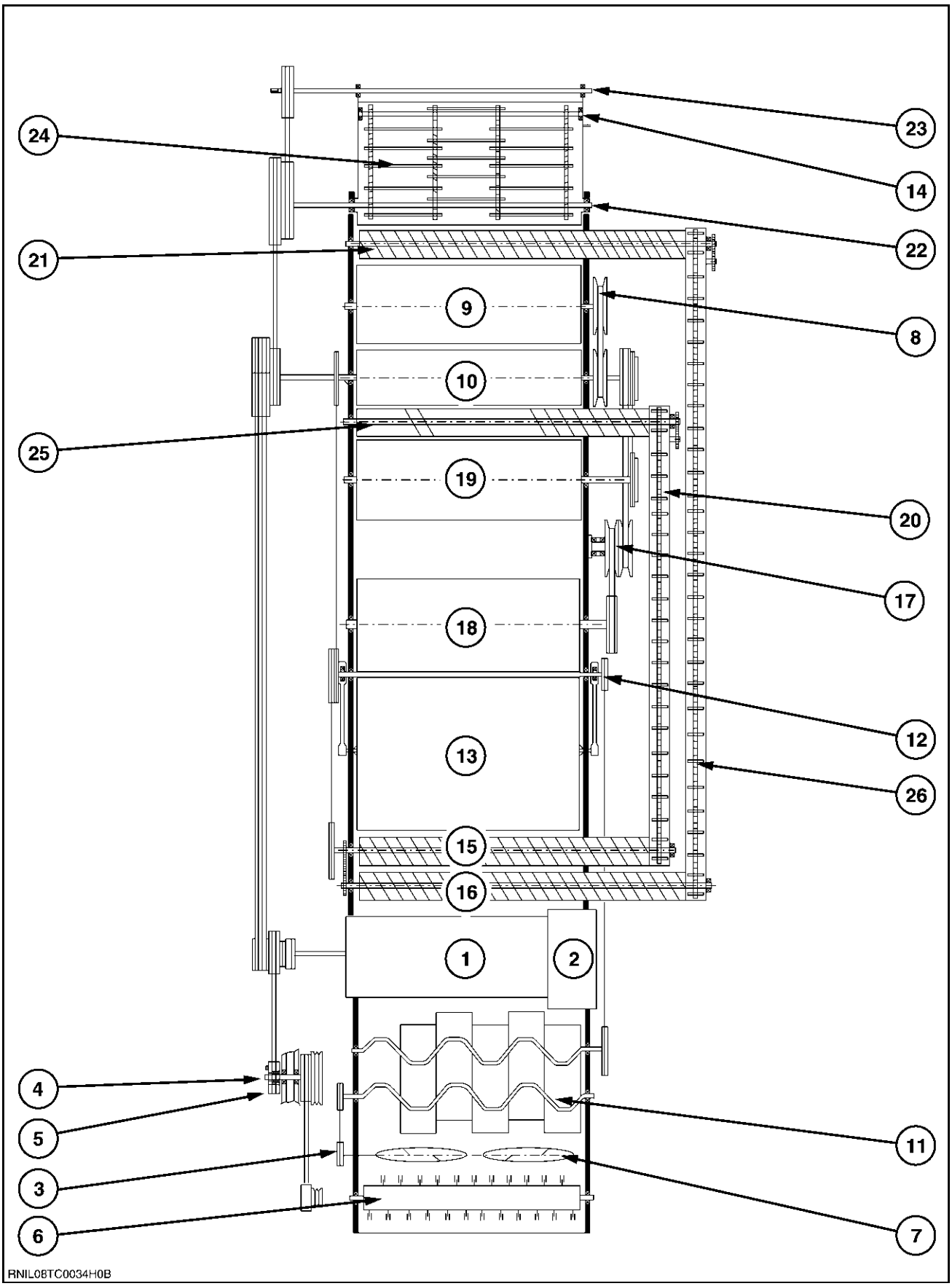
1 km/h	**=**	**0.62 mph**	**1 mph**	**=**	**1.6 km/h**

Part identification

TC Harvest Suit™ Comfort Cab	WE

MAIN OUTPUT SHAFT

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



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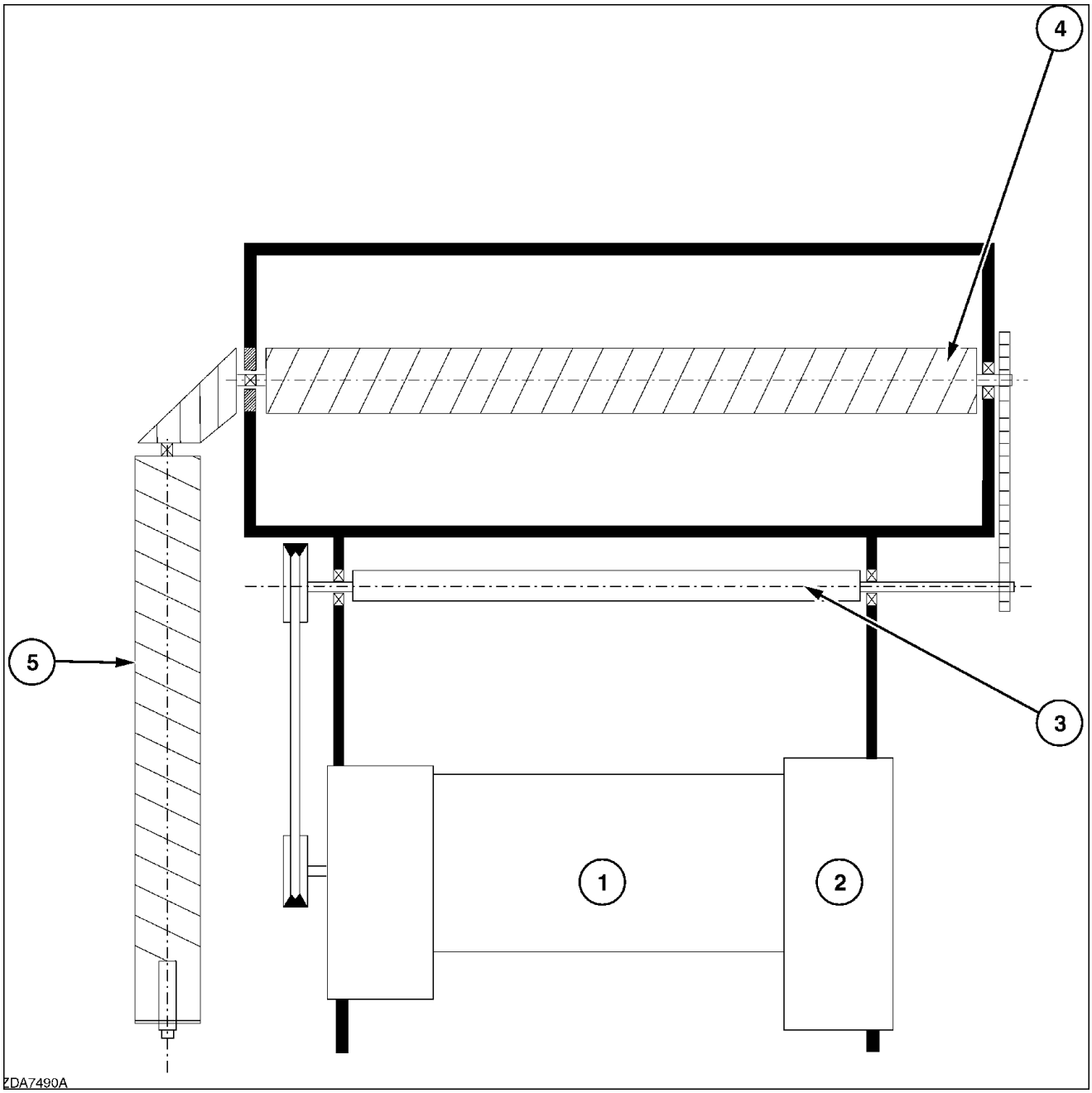
UNLOADING OUTPUT SHAFT

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



ZDA7490A 2

SERVICE MANUAL

Engine

TC4.90
TC5.70
TC5.80
TC5.90

Contents

Engine - 10

Engine - 10

Engine and crankcase - 001

TC4.90
TC5.70
TC5.80
TC5.90

Contents

Engine - 10

Engine and crankcase - 001

SERVICE

(*) See content for specific models

Engine - Remove

TC5.80	WE
TC5.90	WE

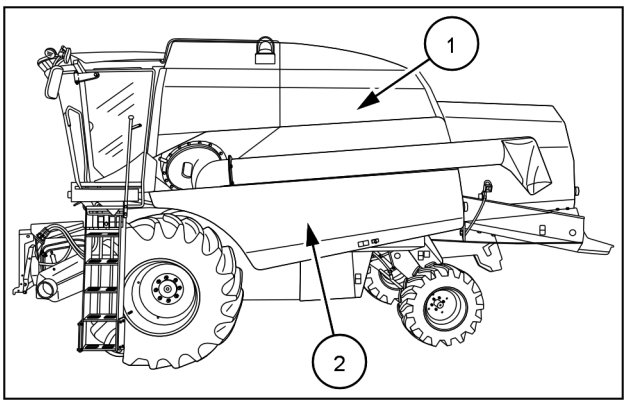
NOTE: *When disconnecting fluid lines, have a suitable container readily available to collect any residual fluids. Use stops and/or plugs to prevent fluids spill and to protect against dirt ingress.*

1. Open the unload tube.

NOTE: *See the operator's manual.*

Shieldings

2. Remove the shieldings **(1)** and **(2)** as follows:



ZEIL13TC00053AA 1

3. Open the left-hand side shield **(2)**.
4. Lift up the bottom clip from the gas strut **(4)**, then remove the gas strut **(4)** from the pivot bolt.

⚠ CAUTION

Heavy parts!
The following instruction requires two people.
Failure to comply could result in minor or moderate injury.

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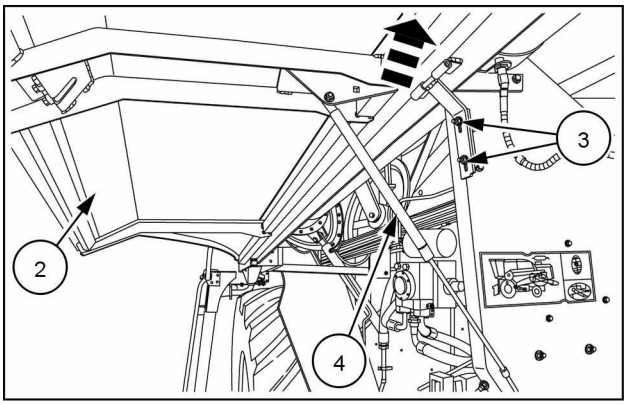
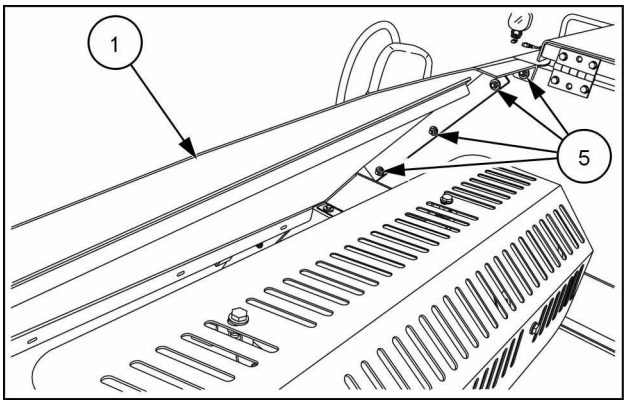


ZEIL15TC00010AA 2

5. Remove the hardware **(3)**. Remove the shield **(2)**, pull in the direction of the arrow.
6. Support the engine shield **(1)**. See Figure **1**.
7. Near the exhaust pipe on top of the machine. Remove the hardware **(5)**.

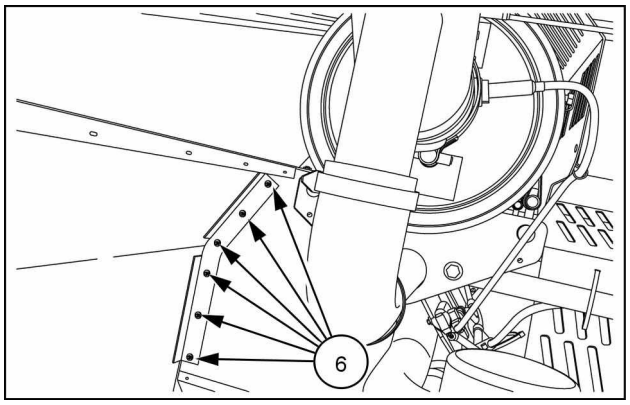
NOTE: *Requires a second person with a wrench inside the grain tank.*



ZEIL15TC00006AA 3

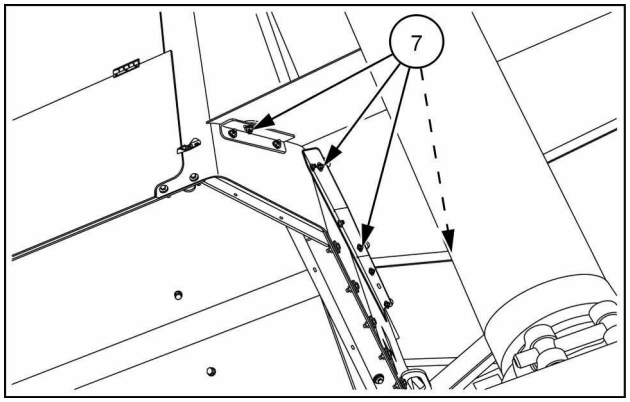
8. Near the exhaust pipe mounted to the grain tank. Remove the hardware **(6)**.

NOTE: *Requires a second person with a wrench inside the grain tank.*



ZEIL15TC00007AA 4

9. On the straw hood, on the left-hand side of the machine. Remove the hardware **(7)**.

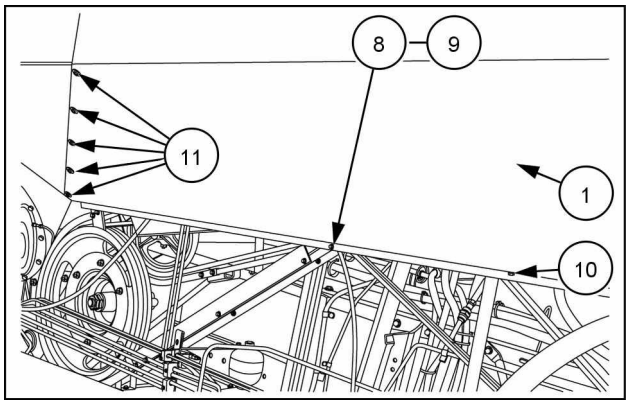


ZEIL15TC00008AA 5

10. Remove the hardware **(8)** and the clamp **(9)** of the hydrostatic control cable.
11. Remove the hardware **(10)**.
12. Remove the hardware **(11)**.

NOTE: *Requires a second person with a wrench inside the grain tank.*

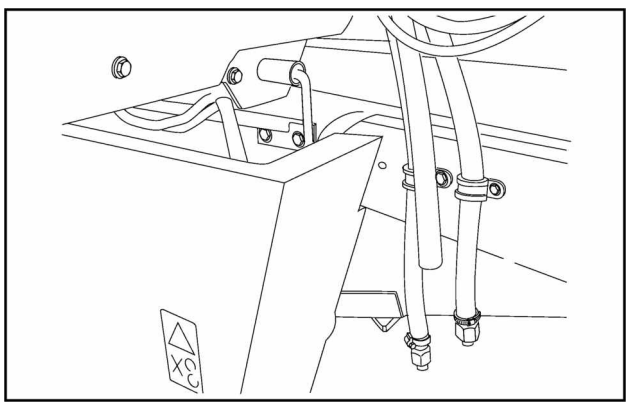
13. Remove the engine shield **(1)**.



ZEIL15TC00009AA 6

Drain fluids

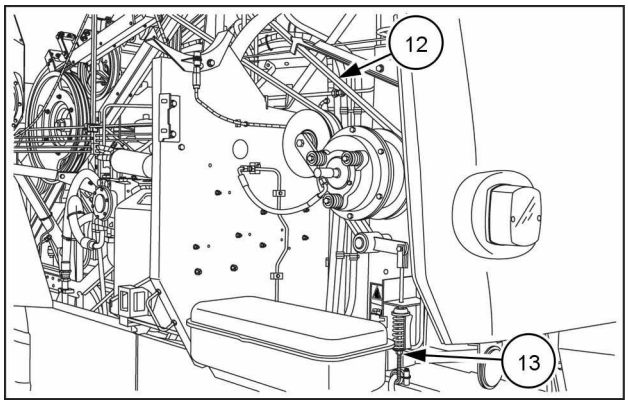
14. Drain the following fluids into a clean, suitable container. Refer to the operator's manual.
    - Engine oil.
    - Hydraulic oil.
    - Engine coolant (tap and drain hose on cooling group).



ZEIL07TC00164AA 7

Drive belts

15. Release the straw chopper front drive belt tensioner **(13)** and remove the straw chopper front drive belt **(12)** from the drive pulley (engine) (if equipped).

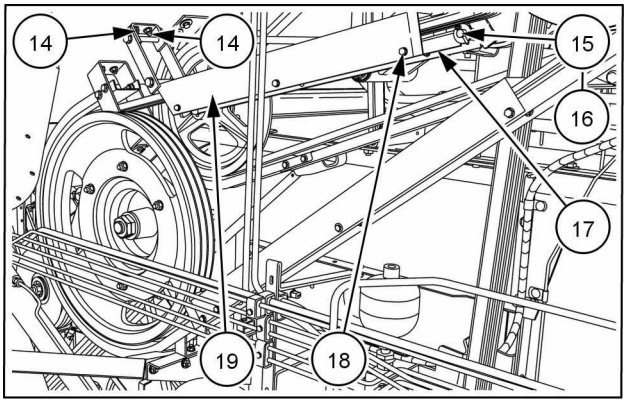


ZEIL15TC00011AA 8

16. Remove the hardware **(14)**.

NOTE: *Requires a second person with a wrench inside the grain tank.*

17. Remove the hardware **(18)** (six in total) and remove the cover **(19)**.
18. Remove the hairpin **(16)**, the washer **(15)** and the belt guard **(17)**.

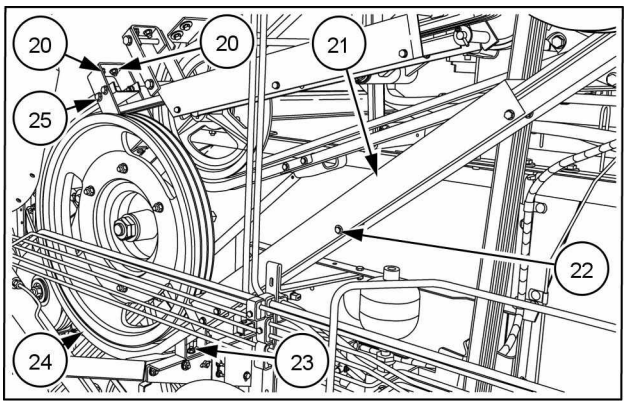


ZEIL15TC00012AA 9

19. Remove the hardware **(25)** (four in total).
20. Remove the hardware **(20)** and remove the bracket.

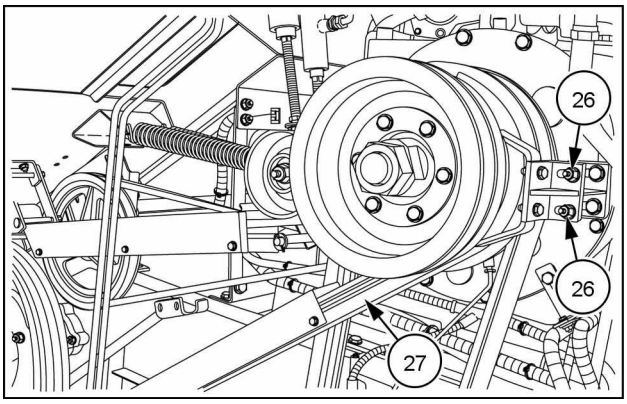
NOTE: *Requires a second person with a wrench inside the grain tank.*

21. Remove the hardware **(22)** (eight in total) and the cover **(21)**.



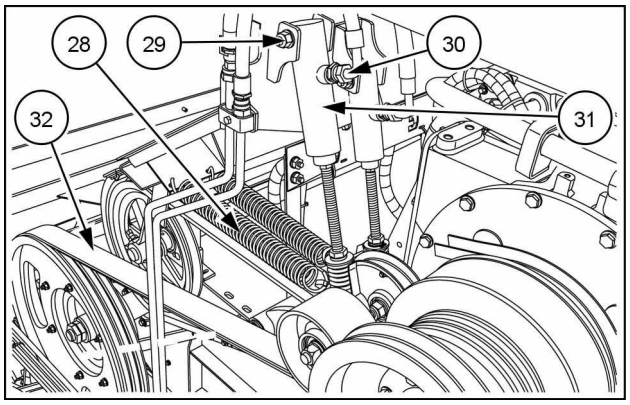
ZEIL15TC00012AA 10

22. Remove the hardware **(26)** and remove the belt guard **(27)**.
23. Remove the hardware **(23)** and remove the belt guard **(24)**. See Figure **10**.



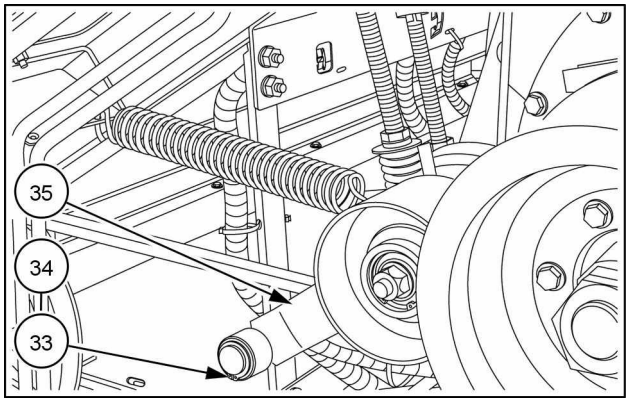
ZEIL15TC00013AA 11

24. Remove the spring **(28)**.
25. Remove the hydraulic hose **(30)**.
26. Remove the hardware **(29)** and the hydraulic cylinder **(31)**.



ZEIL15TC00014AA 12

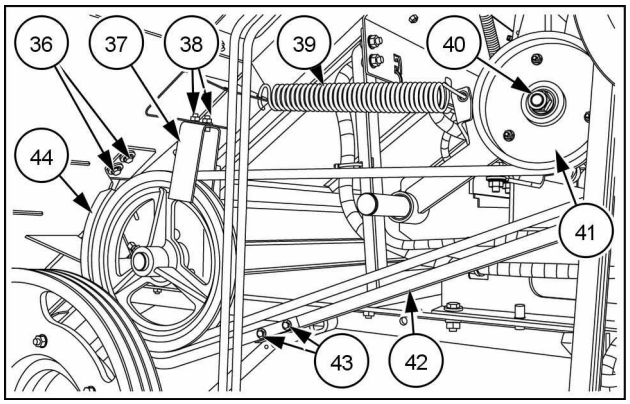
27. Remove the retaining ring **(33)**, the washers **(34)** and the main engaging drive belt tensioner **(35)**.
28. Remove the main engaging drive belt **(32)** from the drive pulley. See Figure **12**.



ZEIL15TC00104AA 13

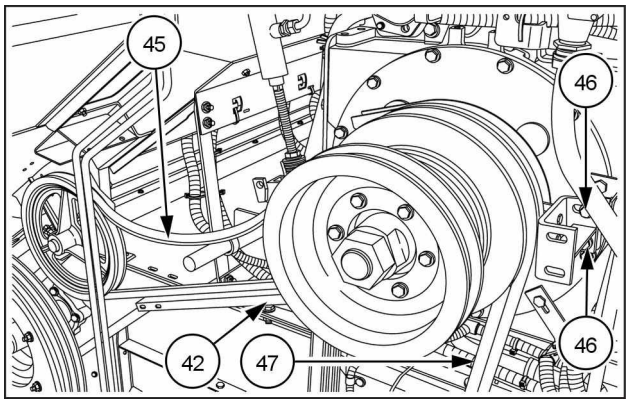
29. Remove the spring **(39)**.
30. Remove the lock nut **(40)** and the idler wheel **(41)**.
31. Remove the hardware **(43)**.
32. Remove the hardware **(36)** and the belt guard **(44)**.
33. Remove the hardware **(38)** and remove the bracket **(37)**.

NOTE: *Requires a second person with a wrench inside the grain tank.*



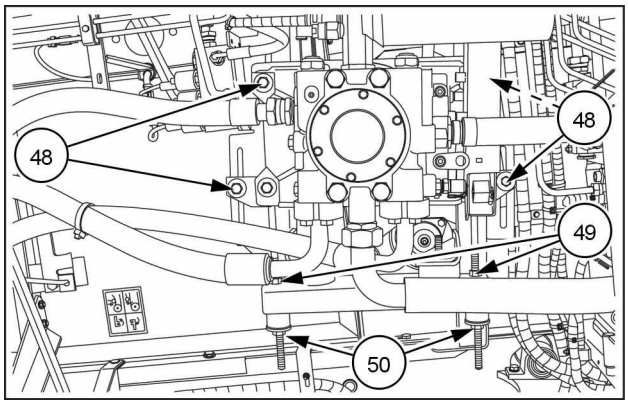
ZEIL15TC00016AA 14

34. Remove the hardware **(46)** and the belt guard **(42)**.



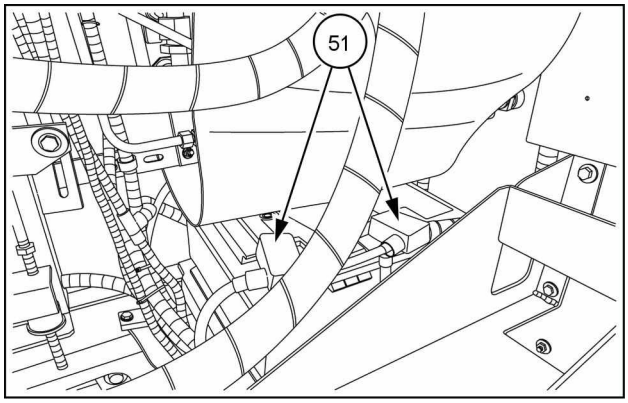
ZEIL15TC00017AA 15

35. On the hydrostatic pump, loosen the hardware **(48)** enough so that the hydrostatic pump can move freely.
36. Loosen the nuts **(50)** till the end of the threaded rod.
37. Tighten the nuts **(49)** to push up the hydrostatic pump and to be able to remove the hydrostatic pump drive belt from the drive pulley.
38. Remove the hydrostatic pump drive belt **(47)**. See Figure **15**.
39. Remove the unloading engaging drive belt **(45)**. See Figure **15**.



ZEIL15TC00018AA 16

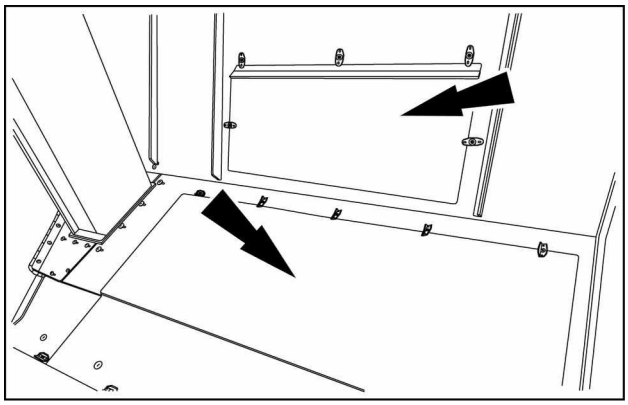
40. Remove the two positive leads **(51)** from the batteries.



ZEIL15TC00044AA 17

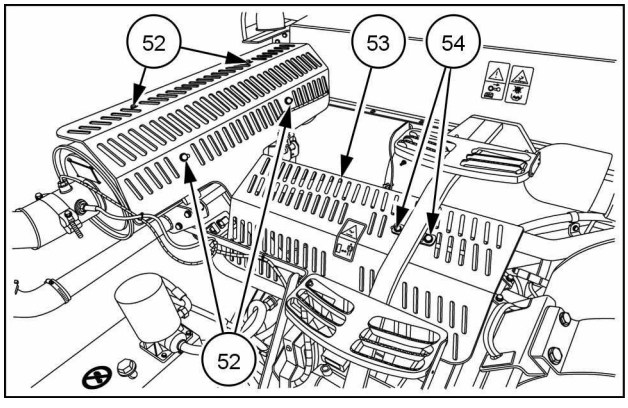
Engine

41. Go inside the grain tank and remove the covers.



ZEIL15TC00019AA 18

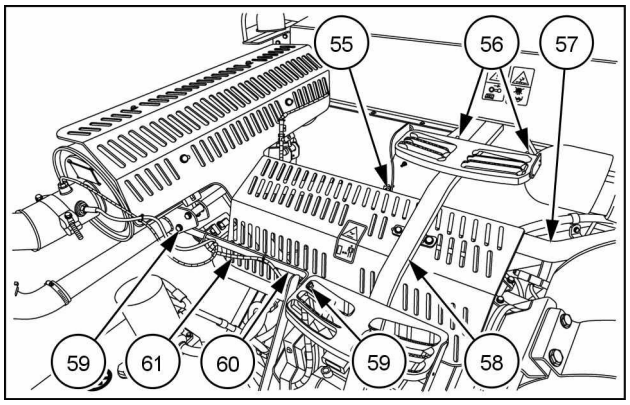
42. Remove the hardware **(52)**, **(54)** and the heat shield **(53)**.



ZEIL15TC00020AA 19

43. Remove the hardware **(55)** of the clamp on the air suction tube **(57)**.
44. Disconnect the connector **(61A)** from the **Diesel Exhaust Fluid (DEF)/AdBlue®** injector valve and cut the straps that secure the wiring harness **(61)** to the support **(60)**. See Figure **21**.
45. Remove the hardware **(59)** and the support **(60)**.
46. At the top of the steps support **(58)**, remove the hardware **(56)**.

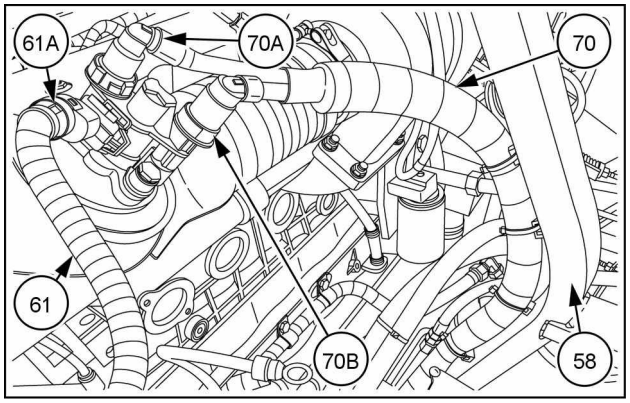
NOTE: *Requires a second person with a wrench inside the grain tank.*



ZEIL15TC00020AA 20

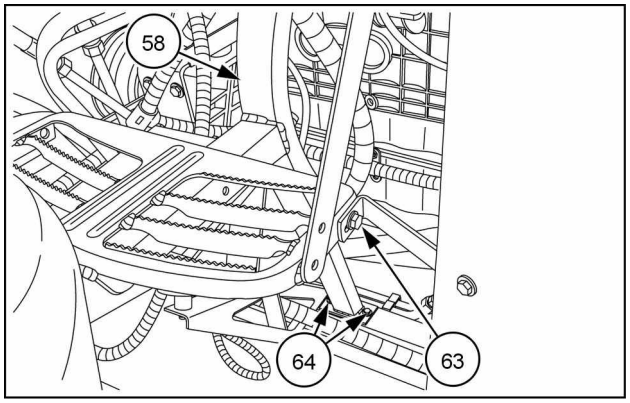
47. At the bottom of the steps support **(58)**, cut the straps of the **DEF/AdBlue®** dosing module lines **(70)**.
48. Disconnect the connectors **(70A)** and **(70B)** of the **DEF/AdBlue®** dosing module lines **(70)**.

NOTE: *Have a suitable container ready and use the appropriate plugs on the **DEF/AdBlue®** dosing module and the **DEF/AdBlue®** dosing module lines **(70)**. Clean up any **DEF/AdBlue®** spill immediately.*



ZEIL15TC00025AA 21

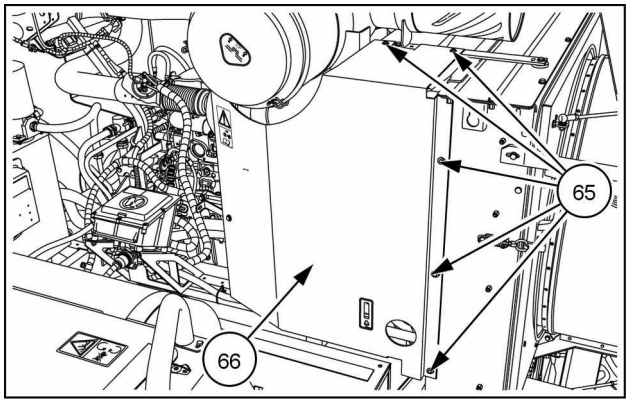
49. At the bottom of the steps support **(58)**, remove the hardware **(63)**, **(64)** and remove the steps support **(58)**.



ZEIL15TC00021AA 22

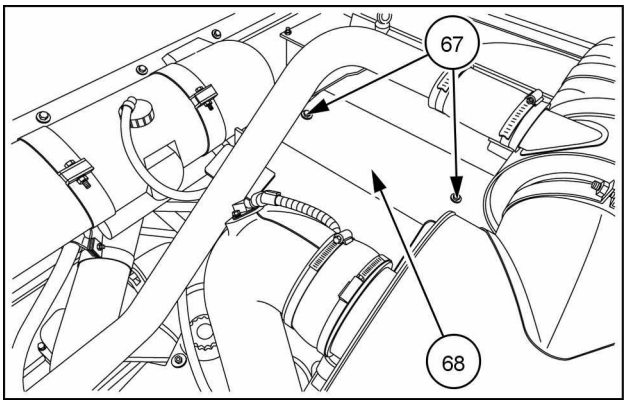
Cooling circuits

50. Remove the hardware **(65)** and the cooling group shield **(66)**.



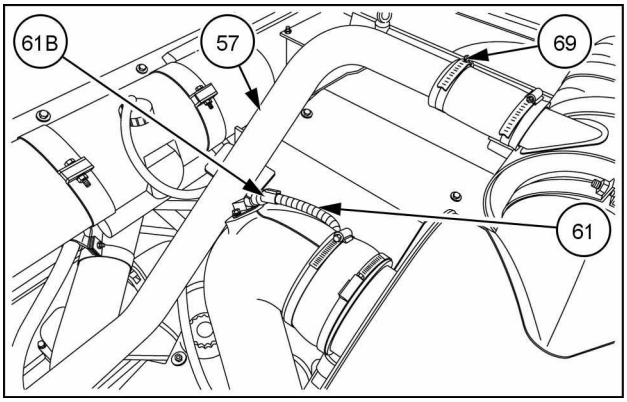
ZEIL15TC00022AA 23

51. Remove the hardware **(67)** and the cover plate **(68)**.



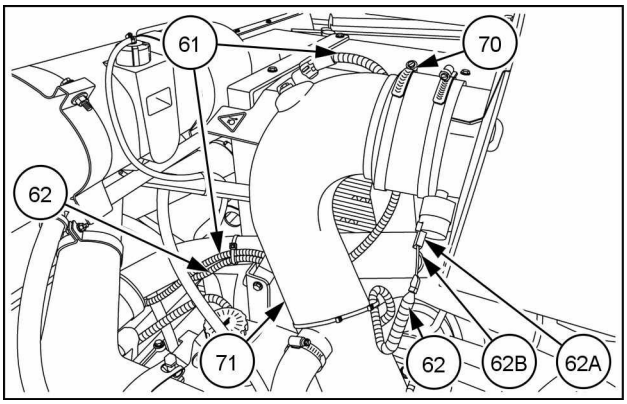
ZEIL15TC00023AA 24

52. On the air suction tube **(57)**, loosen the hose clamp **(69)**.
53. Disconnect the connector **(61B)** of the wiring harness **(61)** from the air humidity sensor.



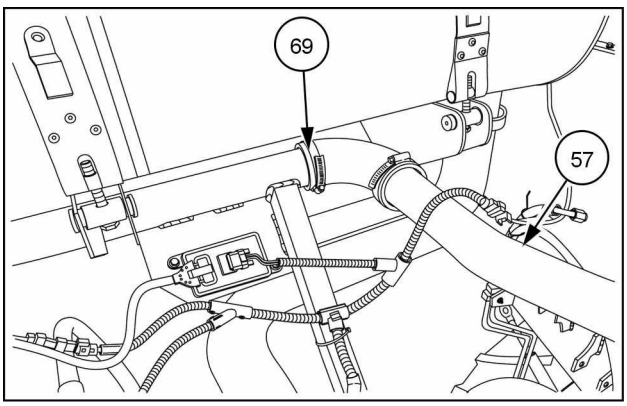
ZEIL15TC00023AA 25

54. Disconnect the connectors **(62A)** and **(62B)** of the wiring harness **(62)** from the filter clogging sensor.
55. Loosen the clamp **(70)** of the air intake tube **(71)**.



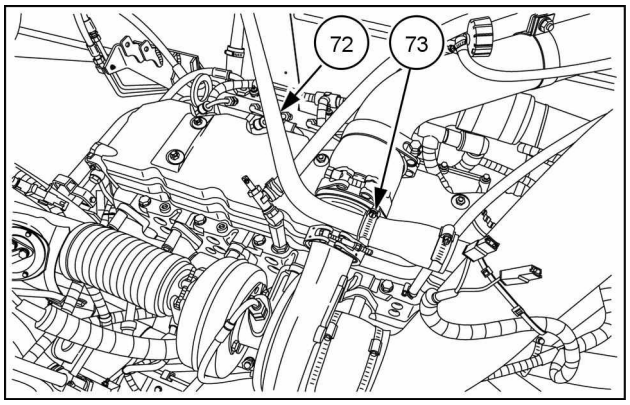
ZEIL15TC00111AA 26

56. Loosen the hose clamp **(69)** and remove the air suction tube **(57)**.



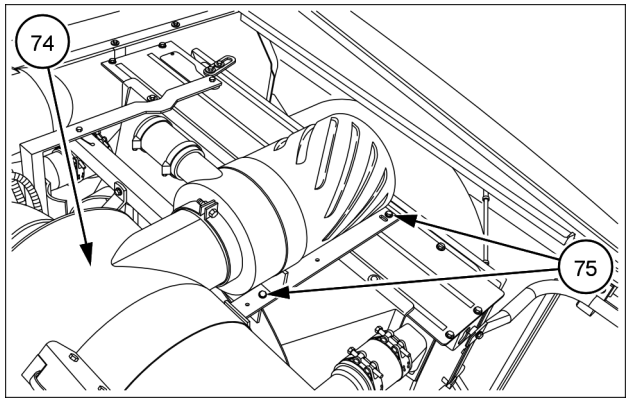
ZEIL15TC00024AA 27

57. Loosen the hose clamp **(73)** and remove the air compressor intake tube **(72)**.



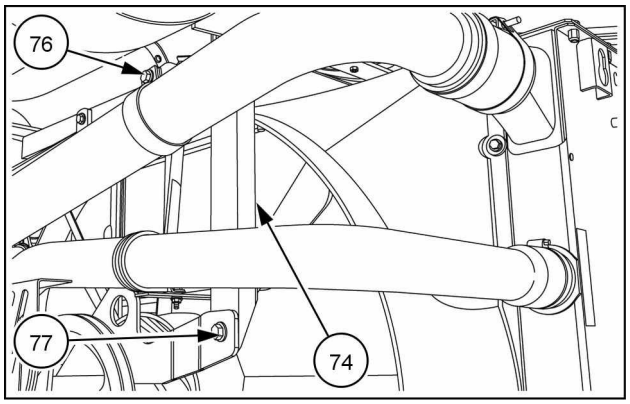
ZEIL15TC00026AZ 28

58. On the air filter **(74)** assembly, remove the hardware **(75)**.



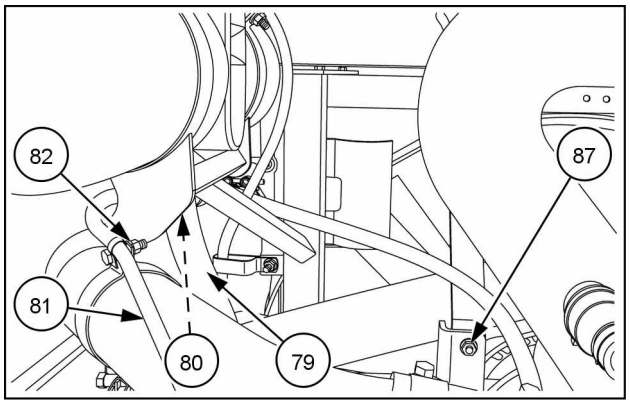
ZEIL15TC00027AA 29

59. Remove the hardware **(76)**, the hardware **(77)** and the air filter **(74)** assembly. See Figure **29**.



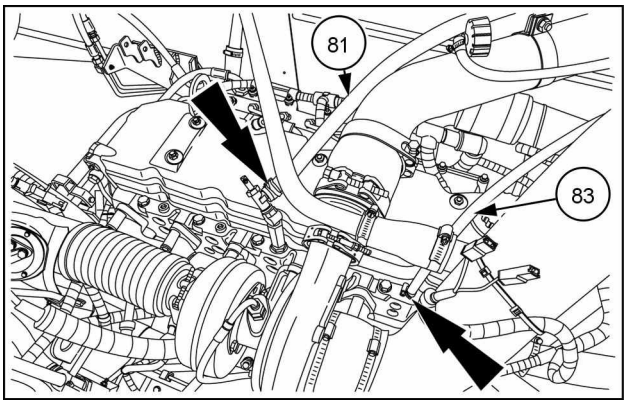
ZEIL15TC00028AA 30

60. Remove the hardware **(82)** of the clamp and the coolant hose **(81)** from the cooling group air intake tube.
61. Loosen the hose clamp **(80)** and remove the hose **(79)**.



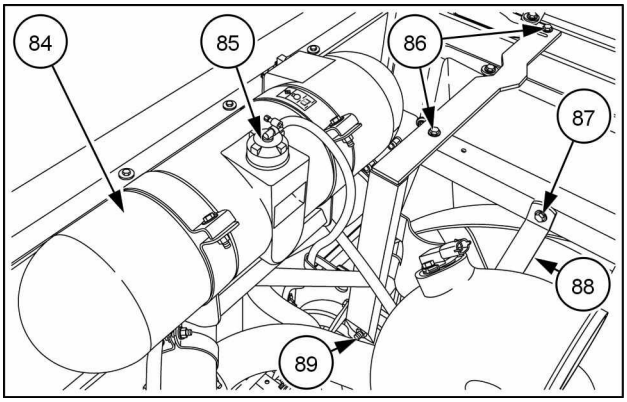
ZEIL15TC00029AA 31

62. Loosen the hose clamp, see arrow and remove the hose **(81)**.
63. Loosen the hose clamp, see arrow and remove the hose **(83)**.



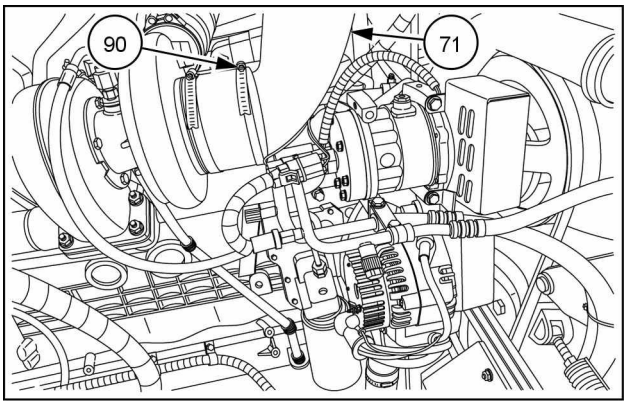
ZEIL15TC00026AZ 32

64. Remove the cap **(85)** from the reservoir **(84)**.
65. Remove the hardware **(86)**, the hardware **(89)** and the coolant reservoir **(84)** with support.
66. Remove the hardware **(87)** and remove the support **(88)**. See also Figure **31**.



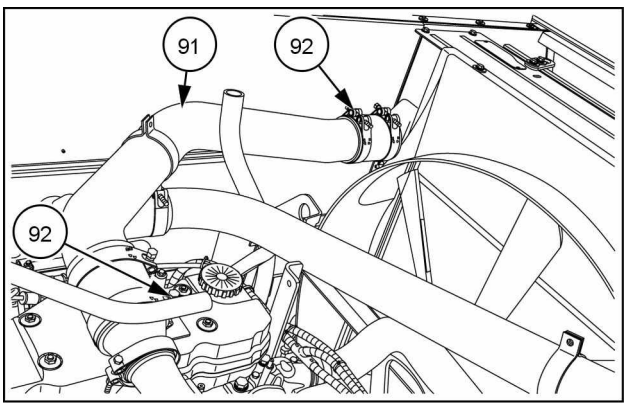
ZEIL15TC00126AZ 33

67. Loosen the hose clamp **(90)** and remove the air intake tube **(71)**.



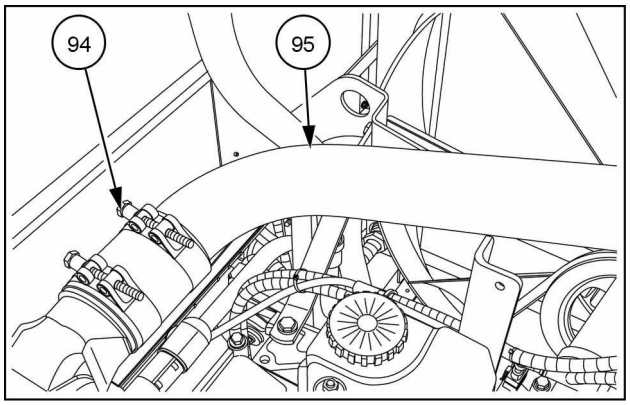
ZEIL15TC00030AA 34

68. Loosen the clamps **(92)** and remove the cool group air intake tube **(91)**.



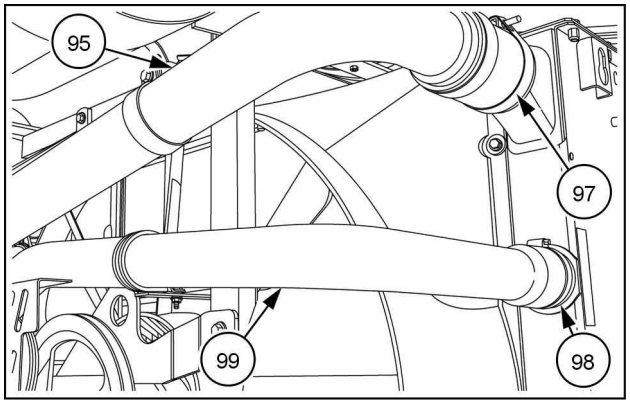
ZEIL15TC00031AA 35

69. Loosen the clamp **(94)** of the cool group air outlet tube **(95)**.



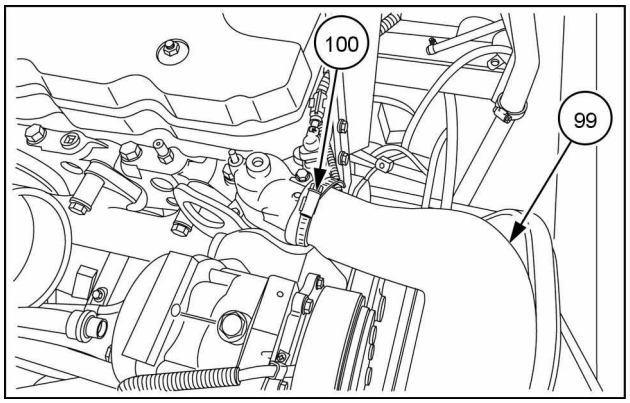
ZEIL15TC00039AA 36

70. On the cooling group side. Loosen the clamp **(97)** of the cool group air outlet tube **(95)**.
71. Loosen the clamp **(98)** of the engine water outlet tube **(99)**.



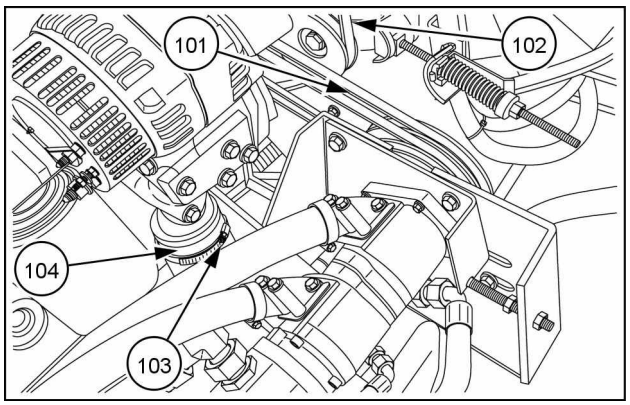
ZEIL15TC00028AA 37

72. Loosen the clamp **(100)** and remove the engine water outlet tube **(99)**.



ZEIL15TC00040AA 38

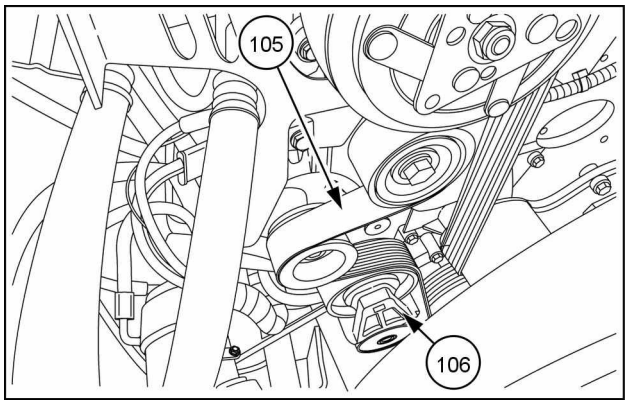
73. Loosen the clamp **(103)** of the engine water inlet tube **(104)**.
74. Release the tension and remove the engine cooling fan drive belt **(102)**. See the operator's manual.
75. Release the tension and remove the hydraulic pump drive belts **(101)**. See the operator's manual.



ZEIL15TC00034AZ 39

Air-conditioning compressor

76. Use a suitable lever tool in the square keyway on the belt tensioner **(106)** and release the tension of the alternator/air-conditioning compressor belt **(105)**.

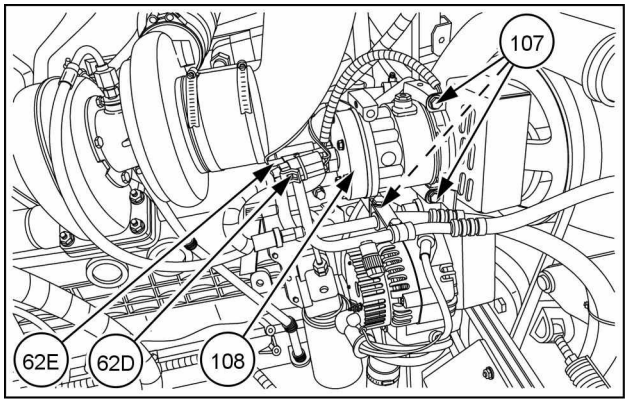


ZEIL15TC00113AA 40

77. Disconnect the connectors **(62D)** and **(62E)**.
78. Remove the bolts **(107)** and remove the air-conditioning compressor **(108)** without disconnecting the hoses.

NOTE: *One bolt cannot be removed only loosened but you will be able to remove the alternator.*

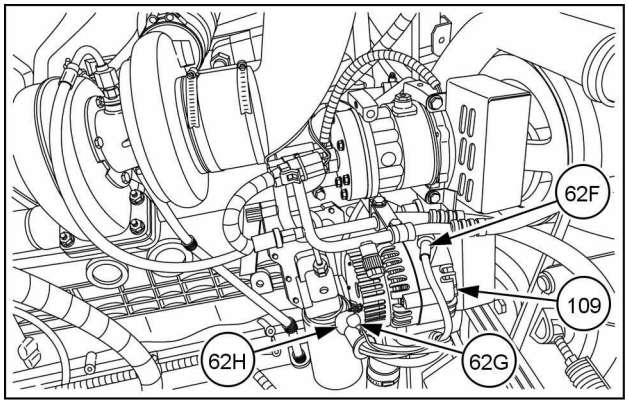
NOTE: *Keep the leverage on the belt tensioner, see Figure* ***40****.*



ZEIL15TC00030AA 41

Alternator

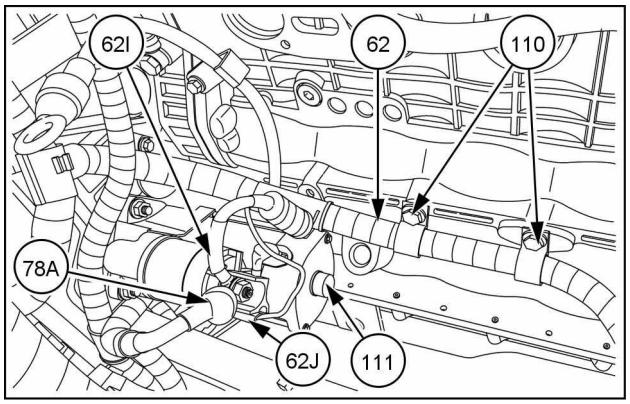
79. Disconnect the cables **(62F)**, **(62G)** and **(62H)** from the alternator **(109)**.



ZEIL15TC00030AA 42

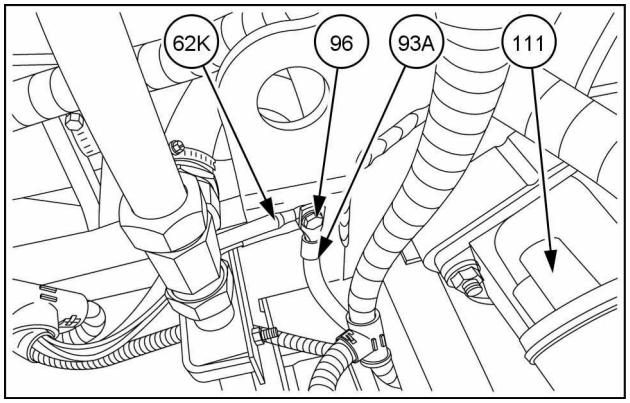
Starter motor

80. Disconnect the connectors **(78A)**, **(62I)** and **(62J)** from the starter motor **(111)**.
81. Remove the hardware **(110)** from the clamps and remove the wiring harness **(62)**.



ZEIL15TC00042AA 43

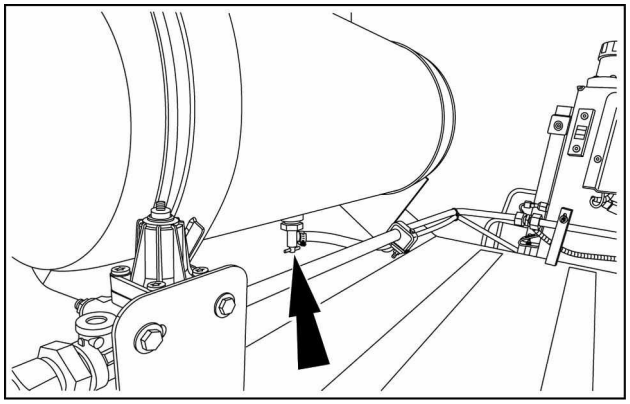
82. At the engine ground point, near the starter motor **(111)**, remove the bolt **(96)**.
83. Disconnect the cable **(62K)** and the cable **(93A)**.



ZEIL15TC00043AZ 44

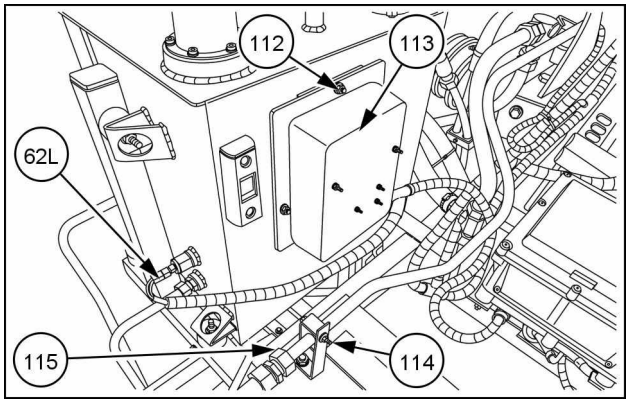
Compressed air lines, wiring harnesses

84. If equipped with an air compressor. Release the air pressure from the reservoir. Open the tap, see arrow.



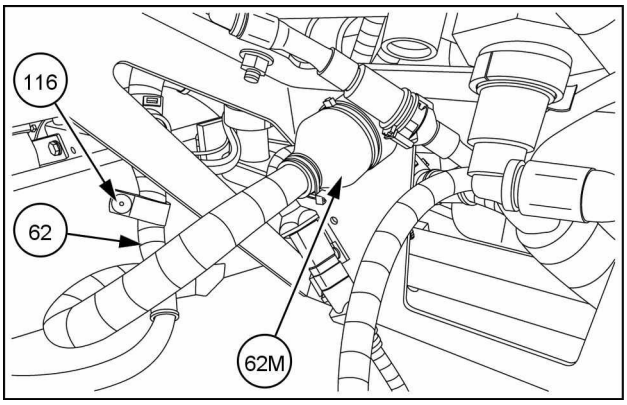
ZEIL15TC00056AA 45

85. Remove the three nuts **(112)** and remove the cover **(113)** of the fuses and relay on the hydraulic oil reservoir.
86. Disconnect the connector **(62L)**.
87. Remove the clamp and hardware **(114)**.
88. Disconnect the air tube **(115)**.



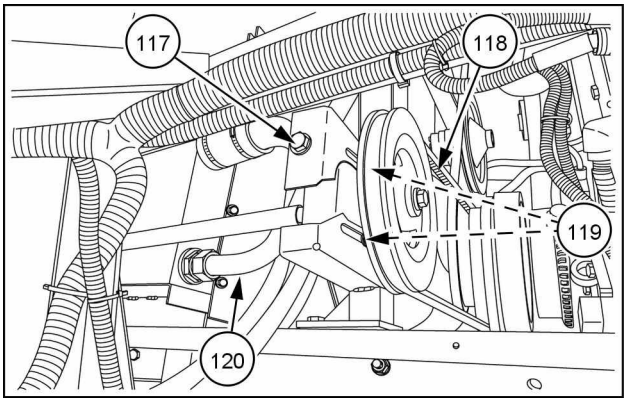
ZEIL15TC00032AA 46

89. On the Dosing Control Unit (DCU), disconnect the connector **(62M)**.
90. Remove the rivet **(116)** that secures the wiring harness **(62)**.



ZEIL15TC00033AA 47

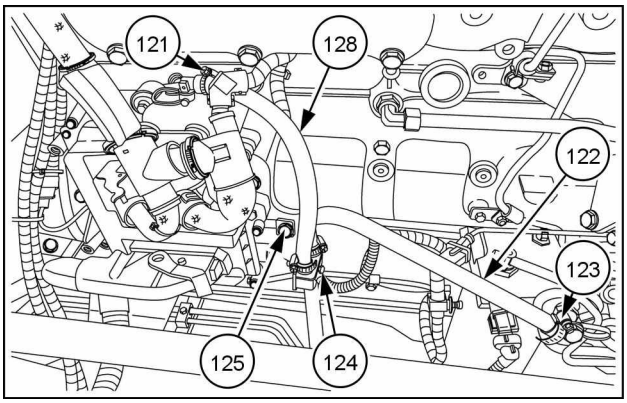
91. Loosen the two bolts **(119)**.
92. Release the belt tension, turn the bolt **(117)**. Remove the rotary dust screen drive belt **(118)**.
93. Remove the hydraulic tube **(120)**.



ZEIL15TC00035AA 48

Fuel

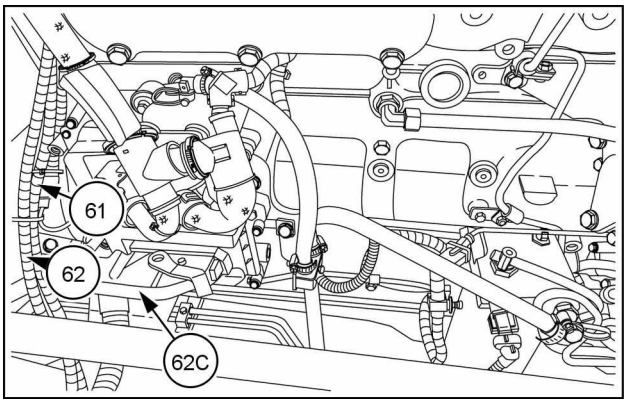
94. Loosen the hose clamp **(121)** and remove the hose **(128)**.
95. Loosen the hose clamp **(123)** and remove the hose **(122)**.
96. Remove the hardware **(124)** of the clamp.
97. Remove the clamp support **(125)**.



ZEIL15TC00036AA 49

Wiring harnesses

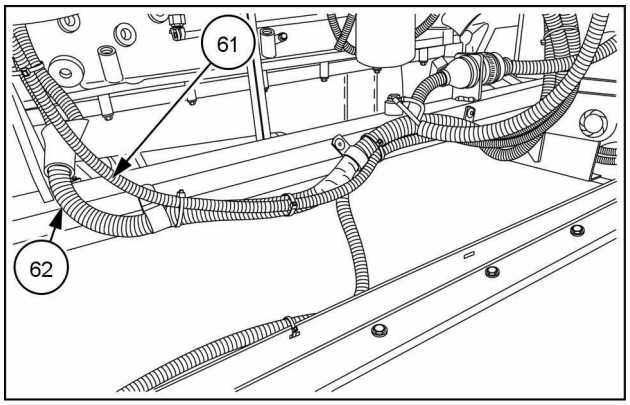
98. Disconnect the connector **(62C)** of the wiring harness **(62)**.
99. Take the wiring harness **(62)** connector ends that connects to the air-conditioning compressor and the wiring harness **(61)** connector end that connects to the air humidity sensor.



ZEIL15TC00036AA 50

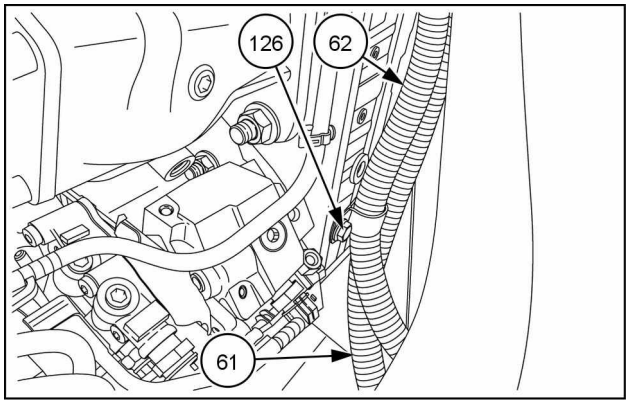
100. Cut the straps to remove the wiring harness **(61)**.

NOTE: *Wiring harness **(62)** as reference.*



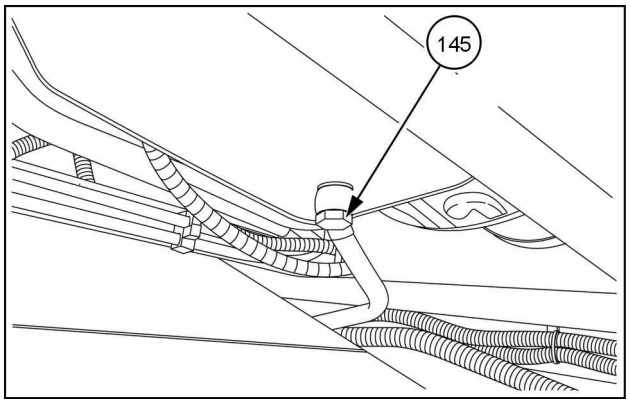
ZEIL15TC00053AA 51

101. Remove the hardware **(126)** of the clamp and remove the wiring harness **(62)**.



ZEIL15TC00052AA 52

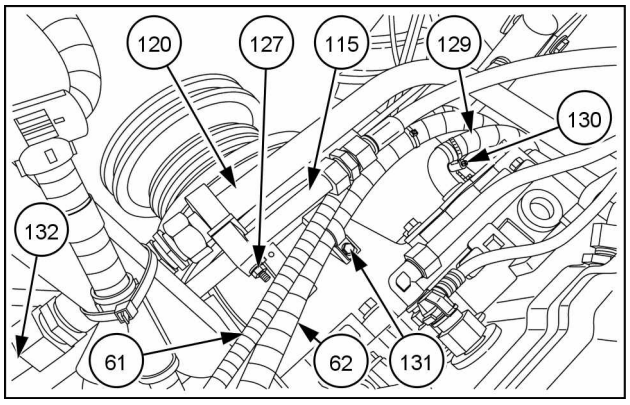
102. Remove the engine drain hose **(145)** from the engine.



ZEIL15TC00047AA 53

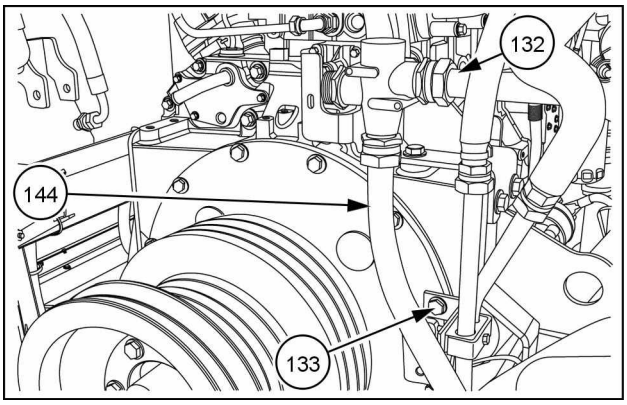
Hydraulic and compressed air lines, wiring harnesses

103. Remove the hardware **(127)** and the clamp.
104. Disconnect and remove the hydraulic tube **(120)**.
105. Disconnect and remove the air tube **(115)**.
106. Loosen the clamp **(130)** and remove the tube **(129)**.
107. Remove the hardware **(131)** of the clamp. And remove the wiring harness **(62)** toward the grain tank.
108. Remove the wiring harness **(61)** toward the straw hood.
109. Disconnect the hydraulic tube **(132)**.



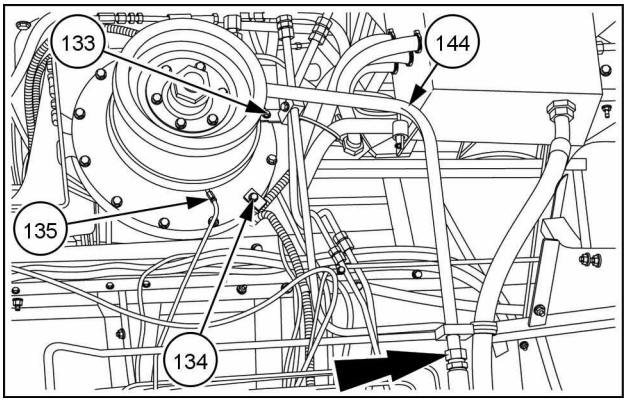
ZEIL15TC00037AA 54

110. Disconnect the tube **(132)** from the thermostat.
111. Remove the hardware **(133)** of the clamp.



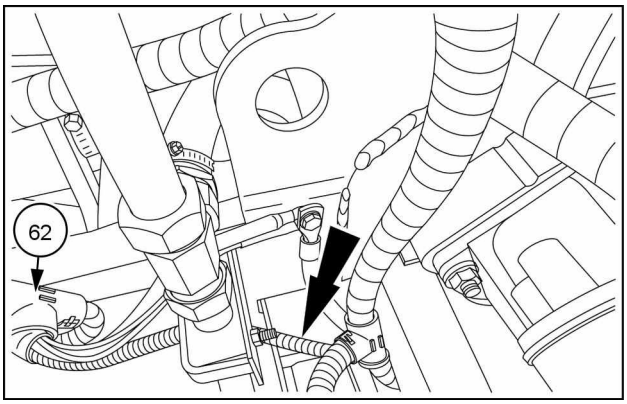
ZEIL15TC00143AA 55

112. Loosen the hydraulic tube **(144)** and swing it out of the way. Leave the thermostat on the hydraulic tube for its orientation.
113. Remove the hardware **(134)** of the clamp.
114. Disconnect the grease line **(135)**.



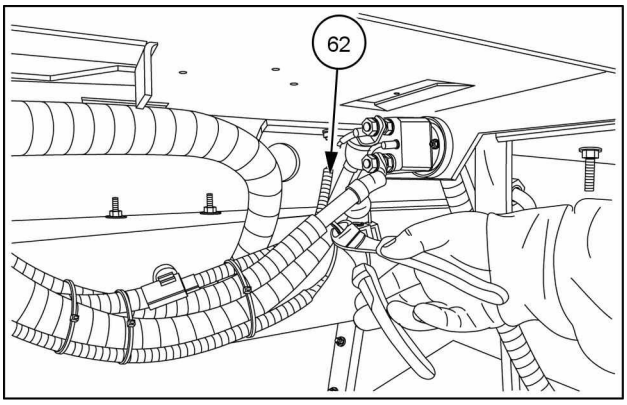
ZEIL15TC00038AA 56

115. Remove the wiring harness **(62)** branch, indicated by the arrow, down along the left-hand side of the machine toward the battery switch.



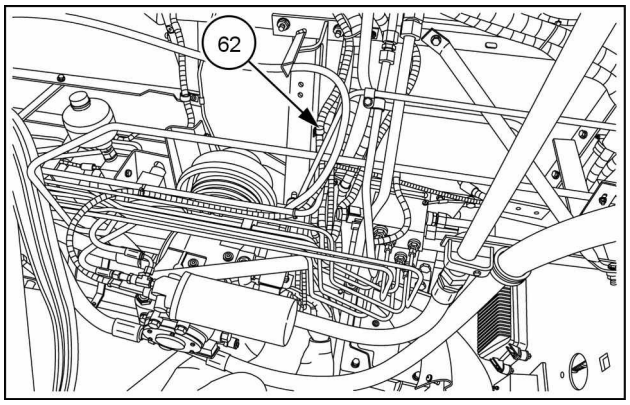
ZEIL15TC00043AZ 57

116. Cut the straps and disconnect the wiring harness **(62)** branch with the fuse from the battery switch.



ZEIL15TC00046AA 58

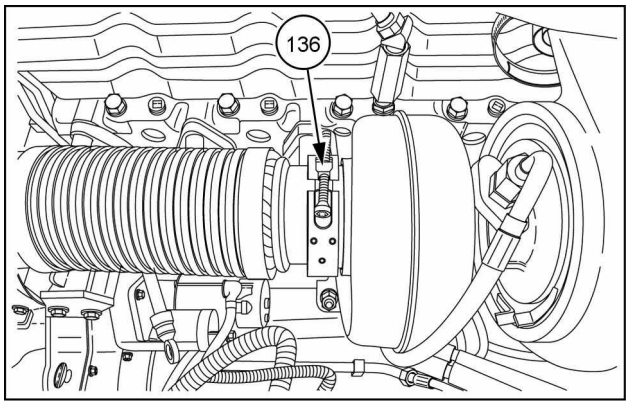
117. Remove the wiring harness **(62)** branch with the fuse from the side of the machine.



ZEIL15TC00045AA 59

Exhaust

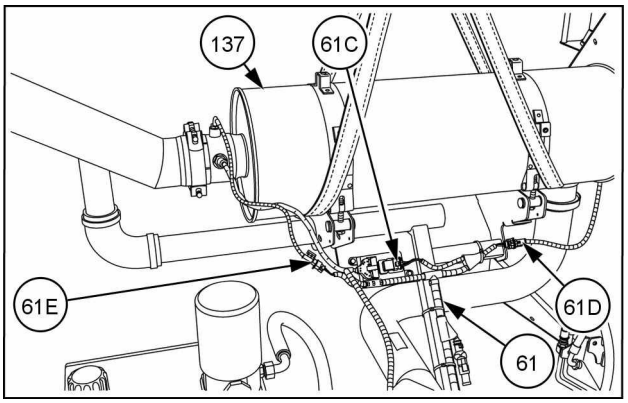
118. Loosen the clamp **(136)** of the exhaust pipe.



ZEIL15TC00048AA 60

119. Use a suitable lifting device to support the exhaust **(137)**.

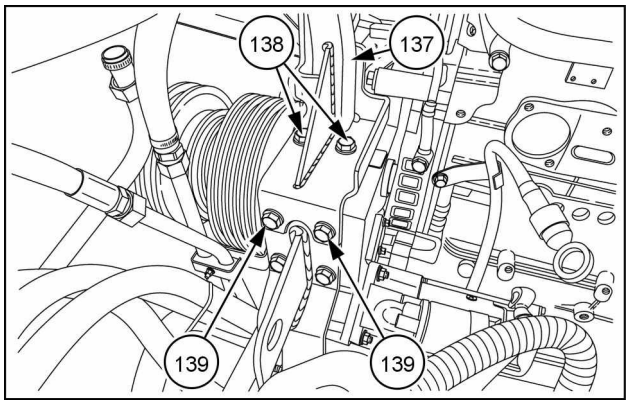
120. Disconnect the connector **(61C)**, the connector **(61D)**, the connector **(61E)** of the wiring harness **(61)**.



ZEIL15TC00050AA 61

121. Remove the hardware **(138)** and the hardware **(139)**.

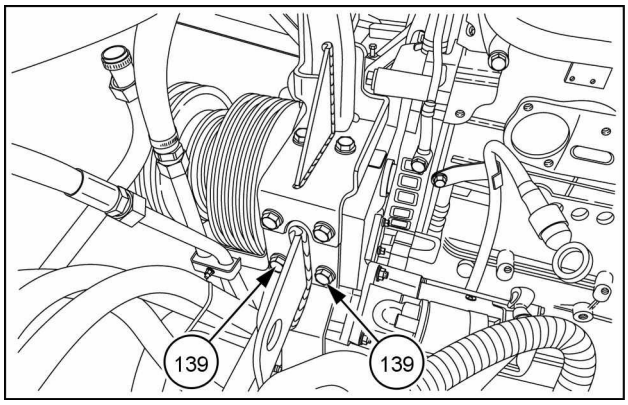
122. Remove the exhaust **(137)** from the engine. See also Figure **61**.



ZEIL15TC00049AZ 62

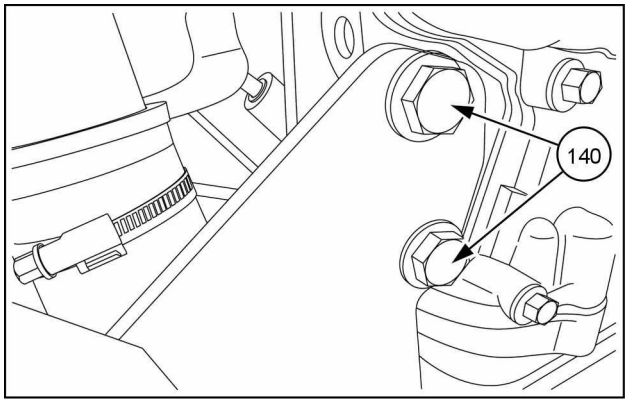
Engine supports

123. Support the engine with a suitable lifting device.
124. Remove the hardware **(139)**. See Figure **63**.



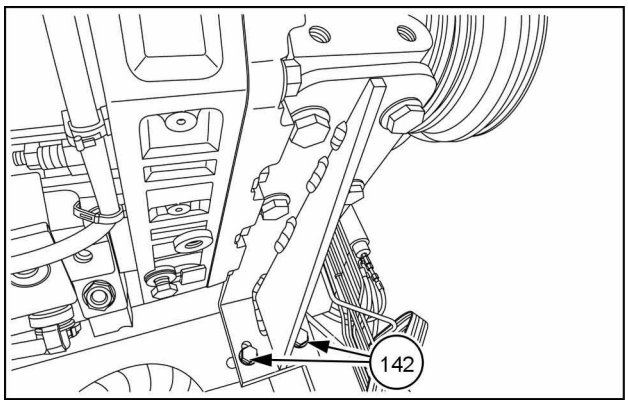
ZEIL15TC00049AZ 63

125. On the right-hand back side of the engine, remove the hardware **(140)**.



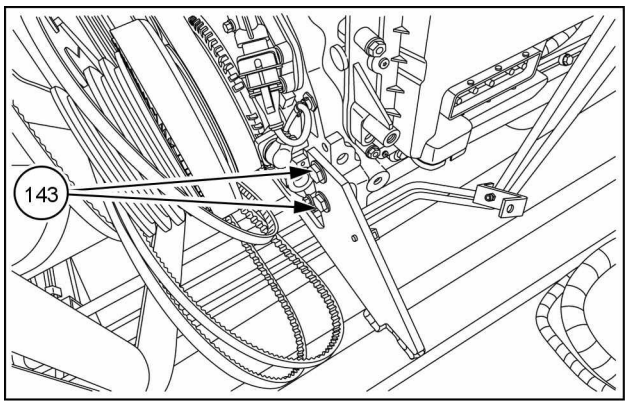
ZEIL15TC00051AA 64

126. On the left-hand front side of the engine, remove the hardware **(142)**.



ZEIL15TC00054AA 65

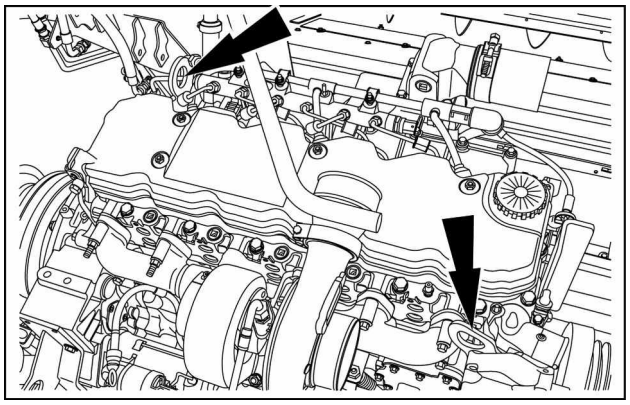
127. Go inside the grain tank. On the right-hand side front of the engine remove the hardware **(143)**.



ZEIL15TC00055AA 66

128. Make sure nothing remains connected to the engine. Remove the engine.

NOTE: *Make sure that the chains are set in such a way that the engine, when lifted, is properly balanced. It could be difficult to remove the engine, if not balanced properly.*



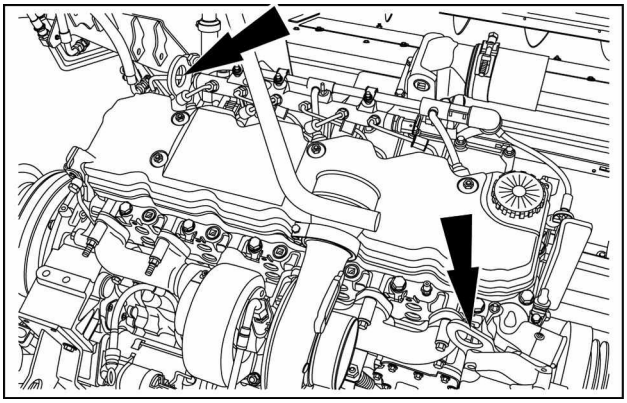
ZEIL15TC00142AA 67

Engine - Install

TC5.80	WE
TC5.90	WE

1. Use a suitable lifting device and position the engine on the machine. Keep the engine suspended until all the engine supports and the bolts are installed.

NOTE: *Make sure that the chains are set in such a way that the engine, when lifted, is properly balanced. It could be difficult to install the engine, if not balanced properly.*



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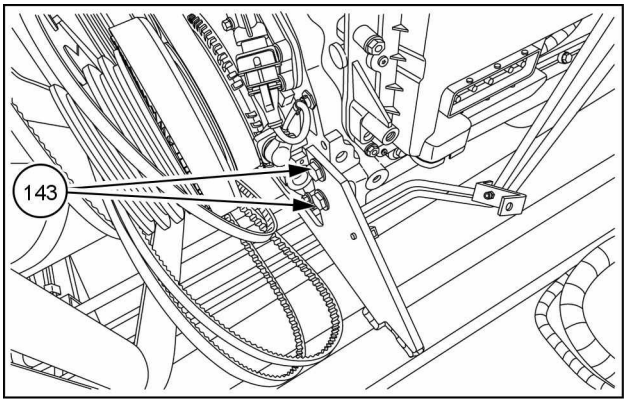
Engine supports

2. Go inside the grain tank. On the right-hand side front of the engine install the hardware **(143)**.



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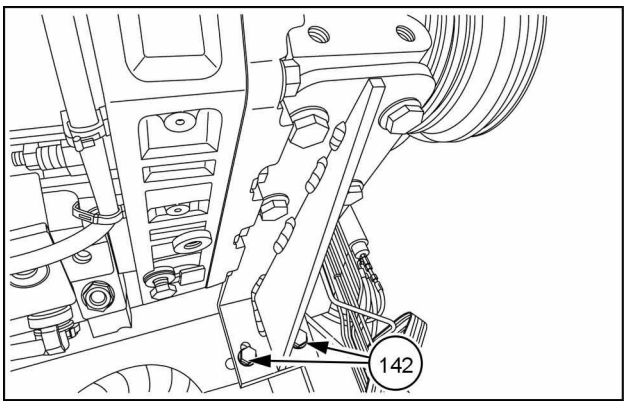
3. On the left-hand front side of the engine, install the hardware **(142)**.



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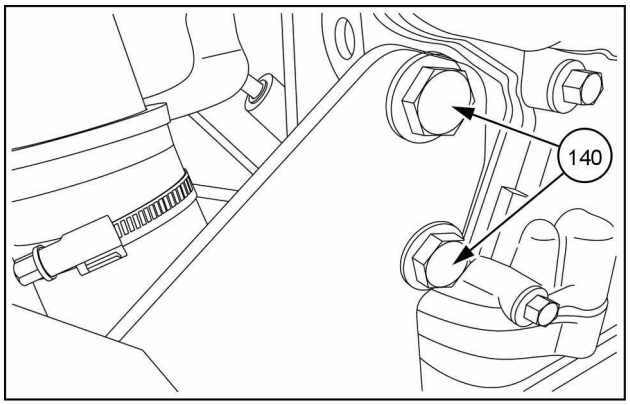
4. On the right-hand back side of the engine, install the hardware **(140)**.



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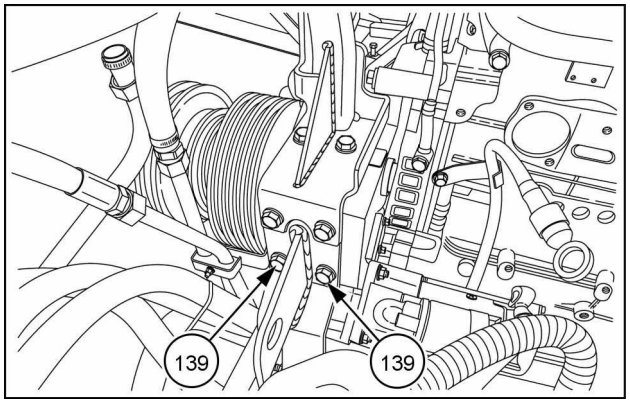
5. On the left-hand back side, install the hardware **(139)**.



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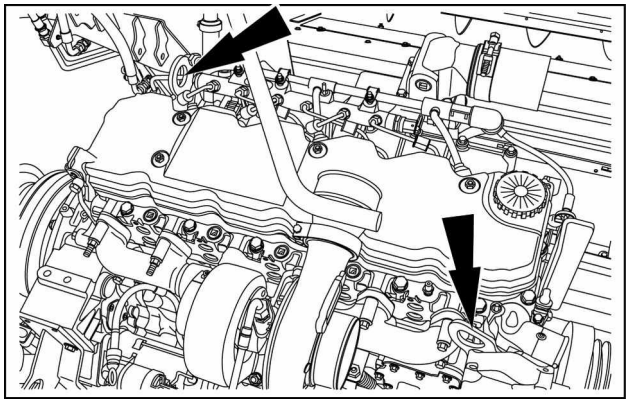
6. Remove the chains from the engine lifting eyes.



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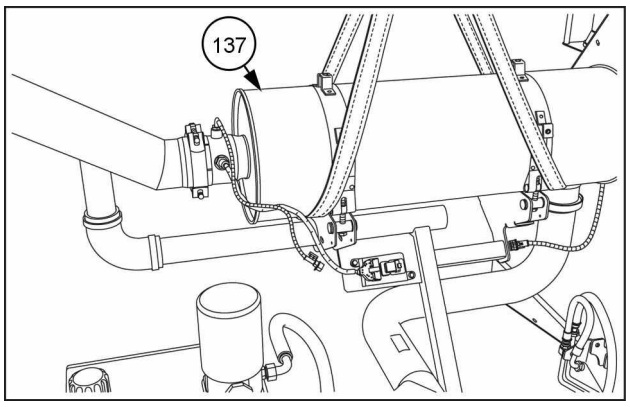
Exhaust

7. Use a suitable lifting device and position the exhaust **(137)** on the engine. See also Figure **8**.



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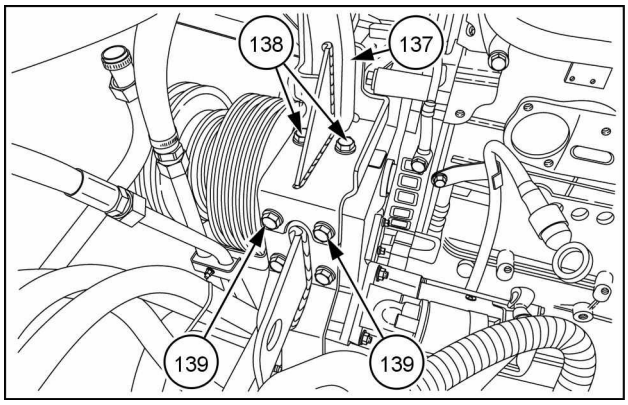
8. Install the exhaust **(137)** on the engine. Use the hardware **(138)** and the hardware **(139)**.



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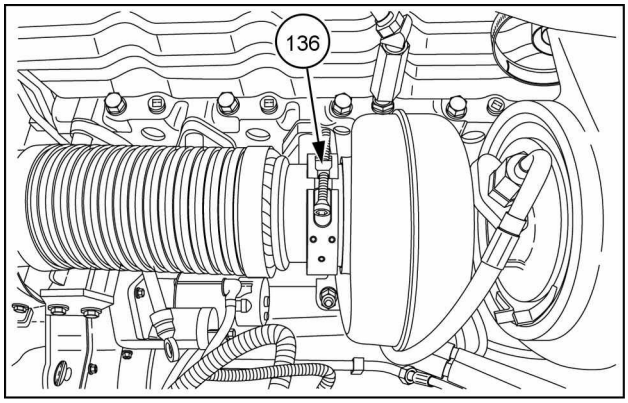
9. Tighten the clamp **(136)** of the exhaust pipe.

NOTE: *Torque between* ***6 - 8 N·m*** *(****4.4 - 5.9 lb ft****).*



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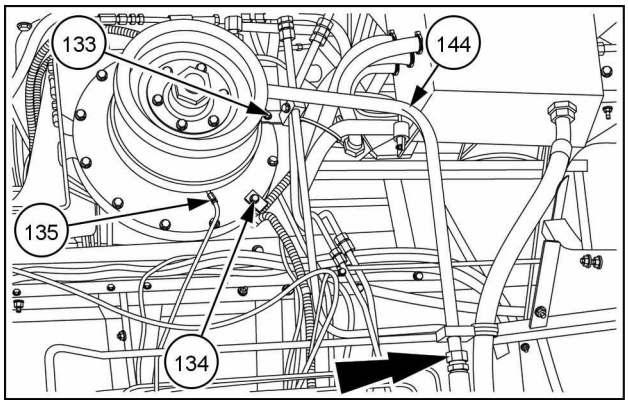
Hydraulic and compressed air lines, wiring harnesses

10. Connect the grease line **(135)**.
11. Install the hardware **(134)** of the clamp.
12. Swing the hydraulic tube **(144)** back to its position.



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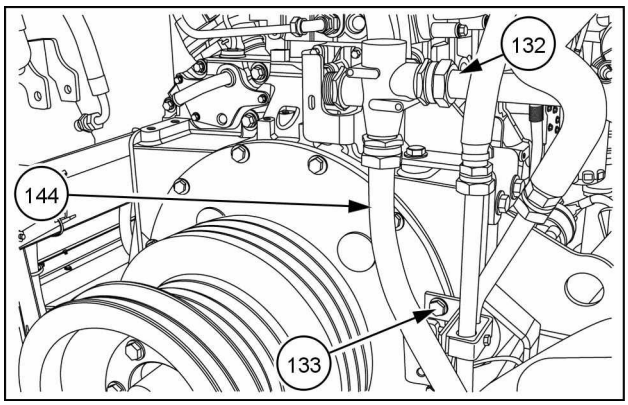
13. Connect the tube **(132)** to the thermostat.
14. Tighten the nut of the hydraulic tube **(144)**. See the arrow in Figure **10**.
15. Install the hardware **(133)** of the clamp.



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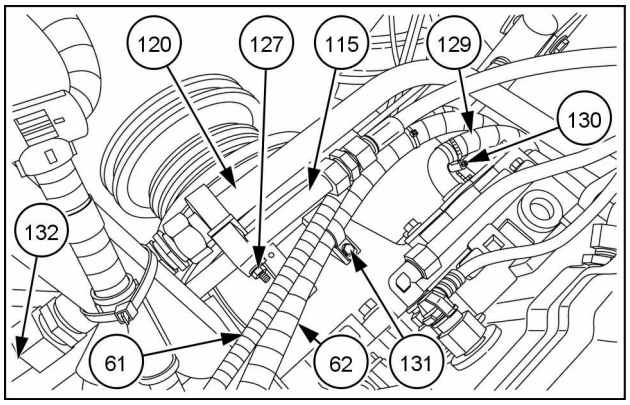
16. Route the wiring harness **(62)** toward the straw hood. Install the hardware **(131)** of the clamp.
17. Route the wiring harness **(61)** toward the grain tank.
18. Install and connect the hydraulic tube **(120)** between the thermostat and the hydraulic oil cooler. See also Figure **22**.
19. Install and connect the air tube **(115)** between the air reservoir and compressor. See also Figure **24**.
20. Install the tube **(129)** and tighten the clamp **(130)**.
21. Install the clamp as shown. Use the hardware **(127)**.



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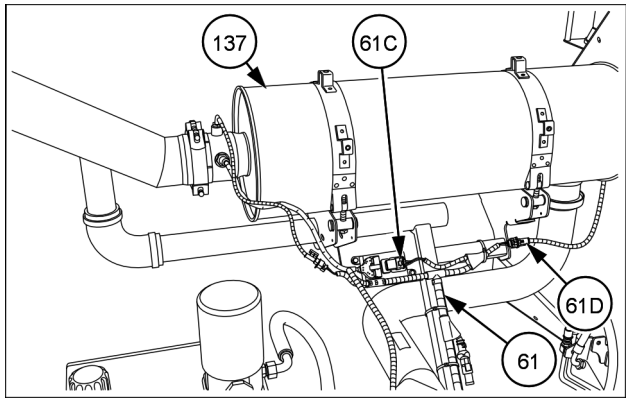
22. Secure the wiring harness **(61)** to the exhaust **(137)** support with straps.
23. Connect the connector **(61C)**, the connector **(61D)** and the connector **(61E)** of the wiring harness **(61)**.



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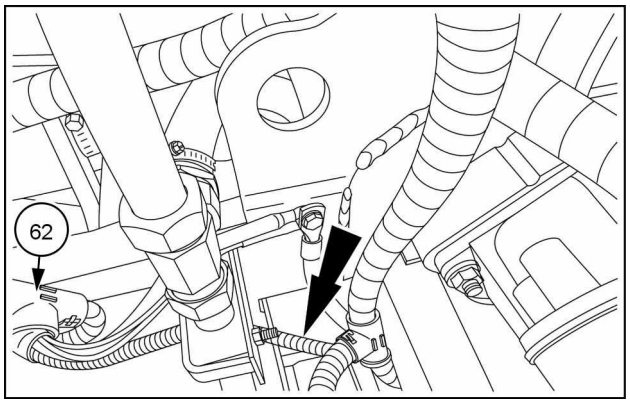
24. Install the wiring harness **(62)** branch with the fuse, indicated by the arrow, down along the left-hand side of the machine toward the battery switch.



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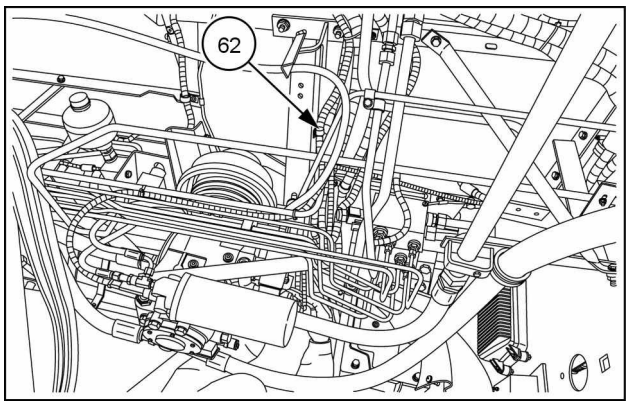
25. Install the wiring harness **(62)** branch with the fuse on the left-hand side of the machine.



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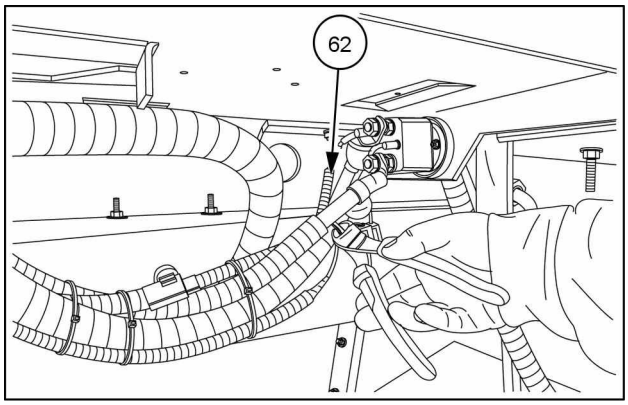
26. Connect the wiring harness **(62)** branch with the fuse to the battery switch. Secure the wiring harness together with the other wiring harnesses, use straps.



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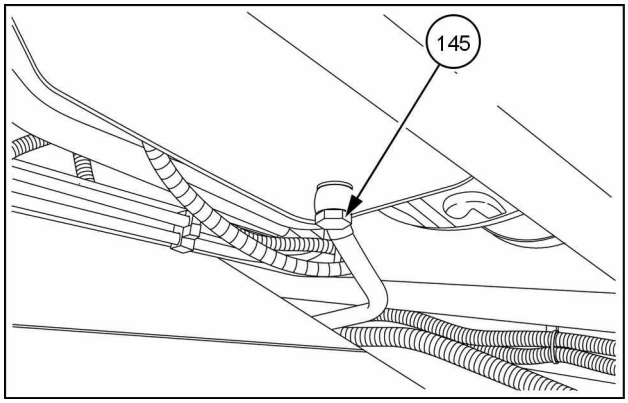
27. On the underside of the engine, install the engine oil drain hose **(145)**.



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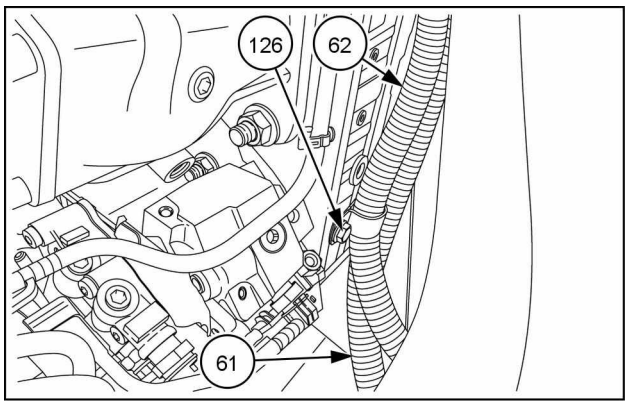
Inside the grain tank:

28. Install the wiring harness **(62)** with the clamp. Use the hardware **(126)**.



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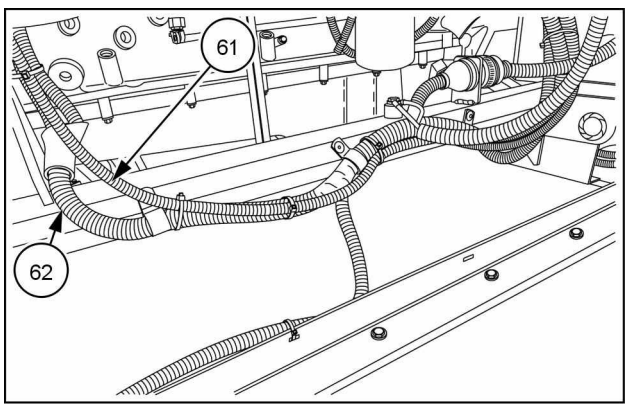
29. Secure the wiring harness **(61)** to the wiring harness **(62)** with the straps as shown.



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