HW SERIES REPAIR MANUAL COMPLETE CONTENTS

The following pages are the collation of the contents pages from each section and chapter of the HW Series Repair manual.

The sections used through out all New Holland product Repair manuals may not be used for each product. Each Repair manual will be made up of one or several books. Each book will be labeled as to which sections are in the overall Repair manual and which sections are in each book.

The sections listed above are the sections utilized for the HW Series Speedrower Windrowers.

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SECTION 00 – GENERAL INFORMATION

1 - General Information

CONTENTS

PRECAUTIONARY STATEMENTS

PERSONAL SAFETY

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

⚠ DANGER ⚠

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

⚠ WARNING ⚠

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

⚠ CAUTION ⚠

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

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

MACHINE SAFETY

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

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

INFORMATION

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

SAFETY

PRECAUTIONARY STATEMENTS

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

Carefully review the procedures given in this manual with all operators. It is important that all operators be familiar with and follow safety precautions.

1. **To stop, return the FNR lever to neutral, engage the parking brake, center the steering wheel to the locked position, and stop the engine before leaving the seat.**
2. **When descending steep grades on the road and when in the field, always place the switch into the field range position.**
3. **When going down a steep grade, pull the FNR lever back toward neutral to slow ground speed.**
4. **With the parking brake engaged, the steering wheel centered, and the hydrostatic FNR lever in the neutral slot, the neutral lock will engage pulling the lever to the right. The parking brake must be engaged before the engine will start.**
5. **The neutral lock should always be engaged when the windrower is stopped.**
6. **The steering wheel must be centered to keep the windrower from turning even with the FNR lever in neutral. When moving forward, the windrower turns the direction the steering wheel is turned. When moving in reverse, the windrower turns opposite the direction the wheel is turned. In reverse, hold the steering wheel at the back of the rim and move your hand in the direction you want to go.**
7. **When driving the windrower on the road or highway, use the proper accessory lights for adequate warning to the operators of other vehicles. Check your local government regulations concerning the use of warning devices. Work lights should not be used as they could be mistaken for an oncoming vehicle.**
8. **Always use the seat belt when operating the windrower.**
9. **Never idle the engine in a closed area. Exhaust gases may build up. These gases are harmful and potentially lethal. Carbon monoxide is colorless and odorless, but can be present with all other exhaust fumes.**
10. **Be sure everyone is clear of the windrower before starting the engine.**
11. **When using battery jumper cables, the last connection must be made away from the windrower battery to avoid sparks which may ignite battery gases and result in an explosion and fire.**
12. **Batteries normally produce explosive gases which can cause personal injury. Therefore do not allow flames, sparks, or lighted tobacco to come near the batteries. Always shield your eyes when charging or working near a battery. Always provide ventilation.**
13. **When lifting a plastic cased battery, excessive pressure on the end wall could cause acid to spew through the vent caps, resulting in personal injury. Lift a plastic cased battery with a battery carrier or with your hands on opposite corners of the battery.**
14. **Batteries contain sulfuric acid. In case of contact with skin, flush the affected area with water for five minutes. Seek medical attention immediately. Avoid contact with the skin, eyes or clothing. Wear eye protection when working near batteries.**
15. **Keep batteries out of reach of children. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Shield your eyes when working near the batteries to protect against possible splashing of the acid solution. In case of acid contact with skin or eyes, flush immediately with water for a minimum of fifteen minutes and get prompt medical attention. If acid is swallowed, call a physician immediately.**
16. **Header locks are built into the header lift system to lock the header in the raised position. Lock the header on both sides before working under a raised header.**
17. **When the wheel caps are turned to the towing position (dimples in), there are no brakes, there will be absolutely no control of the unit from the cab. Tow only a short distance at a slow speed.**

18. **Be careful when driving the windrower without the header. It responds much more quickly than with the header installed.**

19. **When hauling the windrower on a road or highway, check your local government regulations concerning the use of proper warning devices and the necessity of a hauling permit.**

20. **Never make any adjustments or attempt to unplug the header with the engine running. Disengage the header drive, lower or lock the header up, shut off the engine, and engage the parking brake before attempting any adjustments or trying to unplug the header.**

21. **After the first one, five, and twenty hours use, check for loose wheel bolts. Tighten the bolts as outlined in "Before Operating" in the Operator's Manual.**

22. **If stones and other foreign objects are carried into the conditioner rolls, the objects can be thrown toward the operator, possibly resulting in physical injury.**

23. **Raise the header and engage the lift locks before adjusting the skid shoes.**

24. **Some illustrations in this manual show shields removed to show the parts being serviced. Replace all shields before running the machine.**

25. **Never operate the windrower engine while it is being refueled. Do not smoke in the refueling area.**

26. **Be very careful to avoid contact with hot engine oil. If engine is extremely hot, allow oil to cool to a moderately warm temperature before proceeding.**

27. **Do not start the machine with any cleaners in the system or damage will result.**

28. **Whenever jacking under the main drive wheels, be sure the machine is on level ground and securely blocked to prevent the tail wheels from swiveling.**

29. **It is dangerous to remove the radiator cap while the system is hot because the system is under pressure. Let the system cool or turn the cap slowly to the first stop and allow the pressure to escape before removing the cap completely.**

30. **Do not tap any filter element against any hard surface as it will be damaged or distorted.**

31. **Diesel fuel escaping under pressure can penetrate the skin causing serious injury.**

32. **The air conditioning system contains environmentally safe HFC 134a refrigerant. This system is not compatible with R12 refrigerant and the components are different. Gauges and test equipment must not be used with R12 or damage to the system will result.**

33. **Fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Always protect the skin and eyes from escaping fluid under pressure.**

34. **Before disconnecting lines or fittings, be sure to relieve all pressure. Before applying pressure to the system, be sure that all connections are tight and that lines, pipes, and hoses are not damaged.**

35. **If injured by escaping fluid, obtain medical assistance at once. Serious infection or reaction can develop if medical treatment is not administered immediately.**

36. **Relief valves in the hydrostatic drive system and in the header drive system are not adjustable. They should not be tampered with. Check with your dealer's service department if you have problems with the hydraulic or hydrostatic system.**

37. **Because of the high pressure in the hydraulic system, use only genuine factory parts and hoses for repairing these systems.**

38. **If welding must be performed on either the tractor or the attached header, the battery ground strap must be disconnected from the battery or damage may result in the windrower electronic system (WES) and other electrical components. Reinstall the battery ground strap when welding is complete.**

39. **When adjusting the drag on the FNR lever, always lock the jam nuts together once this adjustment is completed. Failure to do so could lock the FNR handle.**

40. **Never use ether starting fluid with thermostart. An explosion would result that would severe damage to the engine.**

GENERAL SAFETY INFORMATION

HANDLE FLUIDS SAFELY
When you work around fuel or other flammable material, do not smoke, work near heaters or other fire hazards.

Do not store flammable material in open containers.

Store flammable fluids away from fire hazards.

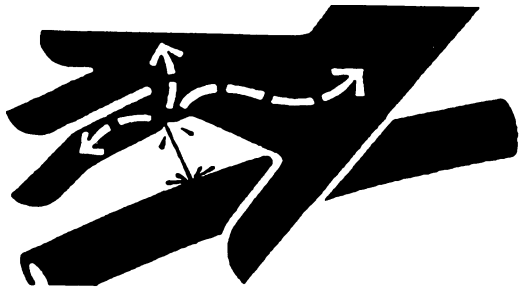
Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, oil, and debris.

Do not store oily rags; they can ignite and burn spontaneously.

Keep a first aid kit and fire extinguisher handy.

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



USE CARE AROUND HIGH-PRESSURE FLUID LINES
Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines.

Tighten all line connections before applying pressure.

Check for leaks with a piece of cardboard.

Protect hands and body from high-pressure fluids.

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

AVOID HEATING NEAR PRESSURIZED FLUID LINES
Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders.

Do not heat by welding, soldering, or using a torch near pressurized fluid lines.

Pressurized lines can be accidentally cut or damaged when heat goes beyond the immediate flame area.

USE CARE IN HANDLING AND SERVICING BATTERIES

Prevent Battery Explosions
Keep sparks, lighted matches, and open flame away from the top of the battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Do not charge a frozen battery; it may explode. Warm the battery to 16° C (60° F).

WARNING

If any servicing or adjustments require the battery to be disconnected, or welding is required on the windrower, disconnect the (-) negative ground cable. Failure to disconnect the battery may result in damage to the EIC (Electronic Instrument Cluster) monitoring system and other electrical components.

WARNING

If welding on an attachment is required, first remove the attachment from the windrower.

WARNING

Engine starting with a booster battery requires extreme care as batteries produce explosive gases. The slightest spark can cause an explosion.

Follow these safety tips:

1. **Always shield your eyes when charging or working near a battery. Always provide good ventilation.**
2. **Cover the battery with a piece of carpet or other heavy material. Do not remove the battery vent caps.**
3. **Connect one cable to the (+) positive terminal of the weak battery. Connect the other end of the cable to the (+) positive terminal of the stronger battery.**
4. **Connect the second cable to the (-) negative terminal of the stronger battery.**
5. **Connect the remaining (-) negative cable end to the engine block or starter ground terminal.**
6. **Reverse this procedure when disconnecting the booster.**

USE SAFE SERVICE PROCEDURES

Wear Protective Clothing
Do not wear loose clothing.

Wear close-fitting clothing.

Wear safety glasses or face shield as required.

Wear other safety equipment appropriate to the job.

Wear earplugs or earmuffs as required.

SERVICE MACHINES SAFELY
Use caution when working around moving parts.

If servicing requires the boom to be in the raised position, support the boom on the boom locks and remove any attachment from the boom mounting plate. If servicing requires the complete skid steer to be in the supported position, support all four wheels off the ground using adequate jack stands or blocks.

If servicing requires the engine to be operated, raise the machine and properly support the unit with adequate jack stands or blocking with all four wheels off the ground.

CAUTION

Before servicing the windrower or any of its attached equipment, be sure that the attachments are lowered to the ground.

USE PROPER TOOLS
Use tools appropriate for the job.

If tilting of the cab is required, use the proper tools and follow the procedure for tilting the cab in Section 1 of this manual.

REVIEW SAFETY EQUIPMENT, SIGNS AND SHIELDS
Replace missing or damaged safety decals.

Reinstall all shielding removed for servicing.

Replace any damaged or missing shielding.

CONTROLS
Operate unit and check machine functions for proper operation.

Check seat belt for proper operation, wear, and damage - Replace as needed.

Check operator restraint system - EIC for proper operation.

Check boom and bucket spool locks for proper operation.

Check mechanical boom locks for proper operation.

Check parking brake for proper operation and adjustment.

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. Do not use a jump start battery of higher than 12 volts nominal voltage.
4. Always observe correct polarity when installing the battery or using a jump start battery to jump start the engine. Follow the instructions in the operator's manual when jump starting the windrower. Connect positive to positive and negative to negative.
5. Always disconnect the ground cable from the battery before arc welding on the windrower or on any header attached to the windrower.

- 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 windrower. It is recommended that this procedure be done by an authorized dealer.
- Never allow welding cables to lay on, near or across any electrical wiring or electronic component while welding is in progress.

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

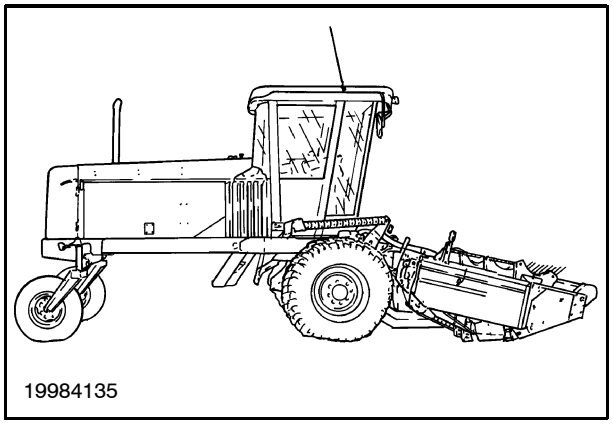
Remove the battery ground cable. Reconnect the cable when welding is completed.

6. Always disconnect the negative cable from the battery when charging the battery in the windrower with a battery charger.

⚠ WARNING ⚠

Batteries contain sulfuric acid. In case of contact with skin, flush the affected area with water for five minutes. Seek medical attention immediately. Avoid contact with the skin, eyes or clothing. Wear eye protection when working near batteries.

INTRODUCTION



1

The Models HW300, HW320, and HW340 windrowers (shown with 2300 sickle header) have been designed to harvest a variety of crops. In addition to the base unit, a variety of header widths are available for this windrower.

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

This service manual provides the technical information to properly service and maintain the Model HW300, HW320, and HW340 windrowers. Use it in conjunction with the operator's manual which is supplied with the windrower. Keep both manuals available for ready reference.

The HW300, HW320, and HW340 are very similar machines, with the major difference being engine horsepower. This manual details the easiest and least time-consuming removal, disassembly and reassembly procedures. Modifying any of these procedures is not recommended. New Holland windrowers are designed with emphasis on operator safety and protection. However, careless and negligent operation can still result in serious injury to persons or damage to property. Be sure to read and follow all safety instructions in the manual.

Your New Holland Dealer is interested in your obtaining the most from your investment and will be glad to answer any questions you may have about this windrower. When major service is required, the New Holland dealer's staff of trained service technicians is always ready to serve you.

⚠ CAUTION ⚠

This symbol is used throughout this book whenever your own personal safety is involved. Take time to be careful!

ABOUT IMPROVEMENTS

New Holland is continually striving to improve its products. We must, therefore, reserve the right to make improvements or changes when it becomes practical and possible to do so, without incurring any obligation to make changes or additions to the equipment sold previously.

All specifications are subject to change without notice.

SERIAL NUMBERS

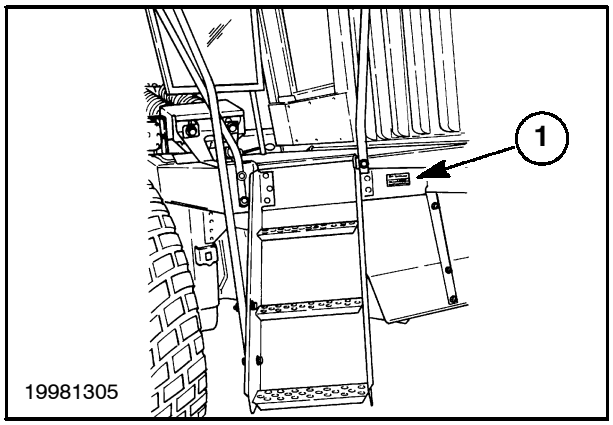
When parts are required, always order genuine factory service parts from your authorized dealer. Be prepared to give your dealer the model and serial number of your windrower. Locate these numbers now and record them below.

The model and serial number plate is located on the left side of the main frame channel, beside the steps, 1.

Record the Model and Serial Number here:

Windrower Model _____

Windrower Serial Number _____



2

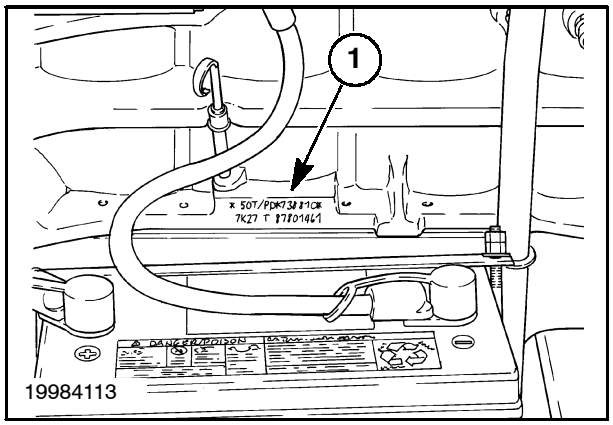
ENGINE SERIAL NUMBER

The engine model code (450T), production date code (example: 7K27), and serial number (example: *87801461*) are together and stamped into the flat area, 1, on the left side of the crankcase. The engine serial number and production date code may be required to obtain the correct engine parts or for warranty purposes.

Record the Model and Serial Number here:

Engine Model _____

Engine Serial Number _____



3

COMPANY POLICY

Company policy, which is one of continuous improvement, reserves the right to make changes in design and specifications at any time without notice and without obligation to modify units previously built.

All data given in this book is subject to production variations. Dimensions and weights are approximate only and the illustrations do not necessarily show skid steers in standard condition.

PARTS AND ACCESSORIES

Genuine NEW HOLLAND parts and accessories have been specifically designed for HEW HOLLAND MACHINES.

We would like to point out that “NON-GENUINE” parts and accessories have not been examined and released by NEW HOLLAND. The installation and or use of such products could have negative effects upon the design characteristics of your machine and thereby affect its safety. NEW HOLLAND is not liable for any damage caused by the use of “NON-GENUINE” NEW HOLLAND parts and accessories.

LUBRICATION

Adequate lubrication and maintenance on a regular schedule is vital to maintaining your equipment. To ensure long service and efficient operation, follow the lubrication and maintenance schedules outlined in this manual. The use of proper fuels, oils, grease and filters, as well as keeping the systems clean, will also extend machine and component life.

IMPORTANT: *Always use genuine* ***New Holland*** *replacement parts, oils and filters to ensure proper operation, filtration of engine and hydraulic systems. See your* ***New Holland*** *dealer for additional oil quantities.*

RECOMMENDED LUBRICANTS AND COOLANTS

Lubricant	Location Used	Type and Description	Part Number	Quart or Liter	Gallon or Tube
Oil	Engine and Pivot Points without Grease Fittings, Chains	SAE 30 API CF-2SJ	9613286	1Qt.	
		SAE 30 API CF-2SJ	9613289		2.5 Gal.
		SAE 30 API CF-2SJ	9613366*	4 L	
		5W-30 API SG/CD	9673589DS	1 Qt.	
		5W-30 API SG/CD	9624590*	4 L	
		10W-30 API SG/CD	9613313	1 Qt.	
		10W-30 API SG/CD	9613314		2.5 Gal.
		10W-30 API SG/CD	9673508DS		5 Gal.
		10W-30 API SG/CD	9613358*	1 L	
		10W-30 API SG/CD	9613359*	4 L	
		15W-40 API CF-4	9613290	1 Qt.	
		15W-40 API CF-4	9673730DS		1 Gal.
		15W-40 API CF-4	9613303		2.5 Gal.
		15W-40 API CF-4	9613292		5 Gal.
		15W-40 API CF-4	9613350*	1 L	
		15W-40 API CF-4	9613351*	4 L	
Coolant	Engine	ESE-M97B18-D, Ethylene Glycol New Holland Spec. Coolant Concentrate	FGCC2701DS		1 Gal.
		Propylene Glycol Concentrate	FGCC2711DS		1 Gal.
Hydraulic Oil	Hydraulic System, Hydrostatic System Front Axle Oil	134D – ESN-M2C134-D New Holland Spec. Hydraulic oil	9624450		2.5 Gal.
		134D – ESN-M2C134-D	9624451		5 Gal.
		134D – ESN-M2C134-D	9613367*	4 L	
		134D – ESN-M2C134-D	9624785*	10 L	
Hydraulic Oil	Optional, Multi-Seasonal Use, Recommended for Low Temperatures	F200	86523625DS	1 Qt.	
		F200	86523626DS		5 Gal.
		F200	86509446*	20 L	
Gear Oil	Gearboxes	80W90 EP Gear Oil API GL5	9613295	1 Qt.	
		80W90 EP Gear Oil API GL5	9613294		2.5 Gal.
		80W90 EP Gear Oil API GL5	9613375*	5 L	
		85W140 EP Gear Oil API GL5	9613297	1 Qt.	
		85W140 EP Gear Oil API GL5	9613296		2.5 Gal.
		85W140 EP Gear Oil API GL5	9613376*	4 L	
Grease	All Grease Fittings	Lithium base EP high temperature	9861804DS		Tube
		Lithium base EP high temperature	9861804CDS*		Tube
Brake Fluid		Mineral Based Oil	1QM6C34A or 86541699DS	1 Qt.	

**** NOTE:*** *Canada Part Numbers ONLY.*

SEALANTS

DESCRIPTION	NEW HOLLAND PART NUMBER	TYPICAL APPLICATIONS	STRENGTH	COLOR
THREAD LOCK	L22200 (222)	Small screws and hardware	Low	Purple
	L24231 (242)	Small screws and hardware	Medium	Blue
	L29000 (290)	Wicking Type	Medium	Green
	L26231 (262)	Nuts & Bolts	High	Red
THREAD SEALANTS	L54531 (545)	Hydraulic/Pneumatic	Non-fouling	
	L56531 (565)	Pipe Sealant	Controlled strength	
	L56747 (567)	Pipe Sealant	High Temperature	
SILICONES	L81724 (3.5 oz. tube)	Ultra Blue RTV Gasket	Non-corrosive	Blue
	L58775 (10.2 oz. cartridge)	Ultra Blue RTV Gasket	Non-corrosive	Blue
	L82180 (3.35 oz. tube)	Ultra Blue RTV Gasket	Non-corrosive	Black
	L59875 (10.2 oz. cartridge)	Ultra Blue RTV Gasket	Non-corrosive	Black
518 GASKET ELIMINATOR	L51831DS	Mating Machined Surfaces	Flexible	Red