Massey Ferguson®

9545 / 9565 Rotary Combine

SERVICE MANUAL 4283564M2

CONTENTS

GENERAL INFORMATION	
SPECIFICATIONS	
ENGINE WORKSHOP MANUAL	03A
ENGINE - DRIVES, COOLING AND FUEL	03B
MATERIAL HANDLING	04
MATERIAL DISCHARGE	05
REAR AXLE	
THRESHING AND SEPARATING	
FRONT AXLE	
HYDRAULICS	
CAB AND HVAC	
WIRING DIAGRAMS	11A
ELECTRICAL	11B
DIAGNOSTICS	12

Massey Ferguson®

9545 / 9565 Rotary Combine

SERVICE MANUAL 4283564M2

01 - General Information

Contents

SAFETY	
Safety Alert Symbol	
Safety Messages	
Informational Messages	
A Word To The Operator	01-2
Fire Prevention and First Aid	
Prepare for Operation	
Operation	01-4
Transporting Combine On Public Roads	01-7
Maintenance	01-8
Engine Safety	01-10
Tire Safety	01-10
Battery Safety	
Diesel Exhaust Fluid Safety	01-11
Accumulator Safety	01-12
Safety Equipment	01-12
Hazard Lamps	
Beacon Lamps	01-12
Backup Alarm	01-13
Parking Brake	01-13
Fire Extinguisher	01-13
Header Lift Cylinder Stop	01-13
Wheel Chocks	01-14
Shields and Latches	
Feeder House Shields	01-14
Left-hand Side Shield	01-16
Right-hand Side Shields	01-17
Mud Shields	
Cleaning Fan Drive Shield	01-18
Rear Shield	01-19
GENERAL INFORMATION	
Machine Main Components	
How A Combine Works	01-22
Cutting and Feeding	01-22
Threshing and Separating	01-22
Cleaning	01-23
Headers	01-23
Disposal	
Disposal of Waste	01-23
Disposal of Machine	
Intended Use	
Combine Serial Numbers	

4283564M2

Contents

Machine Serial Number			
Engine Serial Number			
Transmission Serial Number			
Final Drive Serial Number			
Serial Number Definition			
Lubrication and Maintenance			
Lubricants(
Service Procedures(
Service Periods	U I	-4	<u>ا</u> 0∠
Lubricating and Maintenance Charts			
New Machine(
Every 10 Hours or Daily			
Every 50 Hours or Weekly			
Every 100 Hours or Monthly			
Every 250 Hours			
Every 500 Hours			
Every 1000 hours			
Every 1200 Hours			
Lubrication Fitting Location			
Left-hand Side			
Right-hand side(
Auto Lube			
Auto Lube Intervals			
Auto Lube Diagnosis(
Roller Chains			
Elevator Chains			
Replacing Paddles(01	_[50
Engine OII	01	_[51
Type of Engine Oil	01	-!	51
Viscosity	01	_ !	51
Recommended Oil Change Period	01	-!	51
Oil Additives			
Checking Oil Level	01	-5	52
Changing Engine Oil and Filters			
Fuel Filter	01	- <u>{</u>	54
Fuel Filter and Fuel/Water Separator Filter Replacement	01	-5	55
Selective Catalytic Reduction System			
Diesel Exhaust Fluid Filter	01	ı – Ę	58
Draining the DEF storage tank and Metering Module	01	- <u>{</u>	59
Engine Air Cleaner			
Outer Filter Element	٠.	٠,	
Inner Filter Element(
Engine Coolant(
Anti-Freeze Type(UI	, -t	22
Coolant Change Period(
Coolant Level (
Radiator			
Filling the Engine Cooling System			
Cooling Package			
Windshield Washer Reservoir			
Cleaning Cab Glass			
Windshield			
Rear Cab Window			
Climate Control System			
Condenser			
Cab Filters			
Electrical System			
Batteries			
Cleaning Alternator Screen			
Hydraulic System			
Checking the Fluid Level			

Contents

	_		
Changing Hydraulic Oil			
Transmission			
Checking and Changing Lubricant	0	1-	-77
Final Drive	0	1-	-78
Brakes			
Master Cylinder Oil Reservoir	ň	1_	-78
Bleeding Brake System	ñ	i	70
Gearboxes			
Rotor Drive Gearbox			
Right Angle Gearbox			
Unloader Drive Gearbox			
Unloading Auger Shear Bolt			
Shear Bolt Replacement	0	1-	-84
Straw Chopper	0	1-	-85
Knives			
Jacking Points			
Tires and Wheels			
Tire Pressure			
Dual Tires			
Maintenance of Tires	0	1-	-89
Removing Wheel from Combine			
Wheel Installation			
Storage Preparation	0	1-	-92
Combine	0	1-	-92
Engine			
Preparation For Use After Storage			
Combine			
Engine			
Speed of Components			
Left-hand Drives			
Right-hand Drives			
Rear Drives			
Drive Belts	0	1-	-97
Sheave Alignment	0	1-	-97
Idler Alignment	0	1-	-97
Banded Drive Belt			
Maintenance of Belts			
Belt Changing Guides			
Belt Sheave Alignment			
Belt Run In Procedure			
Belt Troubleshooting			
Belt Problem and Wear Guide			
Roller Chains)1	-1	18
Inspection of Drive Chains and Sprockets) 1-	-1	18
Drive Chain Adjustment and Tightening	J 1	-1	19
Drive Chain Sprocket and Idler Alignment (31-	-1	20
Drive Chain Elongation and Sprocket Wear			
Normal Tooth Wear			
Not Normal Tooth Wear			
Worn Chain on New Sprockets			
Drive Chain Service Tips			
Chain Replacement			
Cleaning and Lubricating Chains			
Drive Chain Lubrication			
Drive Chain Lubricants			
Good Drive Chain Lubrication			
Roller Chain Drive Troubleshooting Guide			
Torque Charts			
Standard Torque Specifications) i	-1	31
Metric Capscrew Markings and Torque Values) 	ا _1	30
Motric Conversions) I.	1	20
Metric Conversions	7 1 7 I	ا -	03
Fractions, Decimals, and Millimeters Conversion Chart			
Decimal Equivalents of 8ths, 16ths, 32nds, and 64ths	J1	- 7	39

Contents

	Decimal Equivalents Of Letter Size Drills	
	Decimal Equivalents of Number Size Drills	
T	ap Drill Sizes - S.A.E. & Metric	01-143
P	merican Standard Pipe Thread and Tap Drill Sizes	01-147
Е	lectrical Formulas	01-148
	Amperes (Current Flow)	01-148
	Volts (Electromotive Force)	
	Ohms (Resistance)	01-148
	Watts	01-148
	Horsepower	01-148
Е	elt Speed Calculation Formulas	01-148
	Geometrical Formulas	01-149
	Circumference of a Circle	01-149
	Area of a Circle	01-149
	Volume of a Cylinder	01-149
	Volume of a Sphere	01-149
	Area of a Triangle	01-149
N	Metric to Imperial and Imperial to Metric Conversion Factors	01-150
	Measures of Temperature	
	Measures of Power	01-150
	Measures of Pressure	01-150
	Measures of Length	01-151
	Measures of Area	01-152
	Measures of Volume (Dry)	01-153
	Measures of Volume (Liquid)	01-154
	Measures of Mass (Weight)	01-155
	Measures of Effort (Torque)	01-156
	Reference Tables	01-157
IN	DEX	01-159

SAFETY

SAFETY ALERT SYMBOL

FIG. 1: The safety alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Look for the safety alert symbol both in this manual and on safety signs on the machine. The safety alert symbol will direct you to information that includes your safety and the safety of others.



FIG. 1

SAFETY MESSAGES

FIG. 2: The words DANGER, WARNING, or CAUTION are used with the safety alert symbol. Learn to recognize these safety alerts and follow the recommended precautions and safety practices.



DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in DEATH OR VERY SERIOUS INJURY.



WARNING: Indicates a potentially hazardous situation that, if not avoided, can result in DEATH OR SERIOUS INJURY.



CAUTION: Indicates a potentially hazardous situation that, if not avoided, can result in MINOR INJURY.



FIG. 2

INFORMATIONAL MESSAGES

The words IMPORTANT and NOTE are not connected to personal safety, but are used to give additional information and tips for operating or servicing this equipment.

IMPORTANT: Identifies special instructions or procedures which, if not strictly observed, can result in damage to or destruction of the machine, process, or the surroundings.

NOTE: Identifies points of particular interest for more efficient and convenient repair or operation.

A WORD TO THE OPERATOR

FIG. 3: It is YOUR responsibility to read and understand the safety section in this manual and the manual for all attachments before operating this machine. Remember YOU are the key to safety. Good safety practices not only protect you, but also the people around you.

Study the features in this manual and make them a working part of your safety program. Keep in mind that this safety section is written only for this type of machine. Practice all other usual and customary safe working precautions, and above all REMEMBER - SAFETY IS YOUR RESPONSIBILITY. YOU CAN PREVENT SERIOUS INJURY OR DEATH.

This safety section is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of your machine. This section also suggests possible ways of dealing with these situations. This section is NOT a replacement for other safety practices featured in other sections of this manual.

Personal injury or death may result if these precautions are not followed.

Learn how to operate the machine and how to use the controls properly.

Do not let anyone operate the machine without instruction and training.

For your personal safety and the personal safety of others, follow all safety precautions and instructions found in the manuals and on safety signs affixed to the machine and all attachments. Use only approved attachments and equipment.

Make sure your machine has the correct equipment needed by the local regulations.



WARNING: An operator should not use alcohol or drugs which can affect their alertness or coordination. An operator on prescription or 'over the counter' drugs needs medical advice on whether or not they can properly operate machines.



CAUTION: If any attachments used on this equipment have a separate Operator Manual, see that manual for other important safety information.



CAUTION: See the engine Operation and Maintenance Manual for other important safety information.



CAUTION: See the combine Operator Manual for other important safety information.

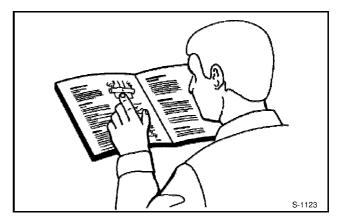


FIG. 3

01-2 4283564M2

FIRE PREVENTION AND FIRST AID

FIG. 4: If equipped, a fire extinguisher (1) will be install on the front of the left-hand combine platform.

Be prepared for emergencies. Always carry one or more suitable fire extinguishers - ABC rating, dry chemical, 2.2 KG (5 lb). Check fire extinguishers regularly to make sure the fire extinguishers are properly charged and in operating condition.

Mounting a fire extinguisher near the operator cab and a fire extinguisher near the engine compartment is recommended.

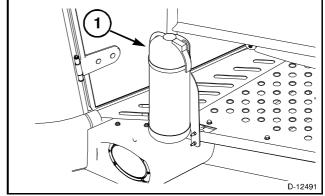


FIG. 4

FIG. 5: To reduce the risk of fire or damage if fire occurs:

- Check for over heated components
- Frequently clean the engine compartment of any chaff and crop debris
- Frequently clean areas of the machine & header where crop can accumulate
- Mount a fire extinguisher within easy reach at the front and rear of the machine

If any flame cutting, welding, or arc welding is to be done on the machine or header, make sure to clear any crop material or debris from around the area. Make sure the area below the work area is clear of any flammable material as falling molten metal or sparks can ignite the material.

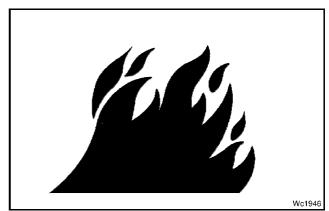


FIG. 5

PREPARE FOR OPERATION

Make sure the combine is in the proper operating condition as shown in the combine operator manual. Make sure the machine has the correct equipment needed by local regulations.

Read and understand all operating instructions and precautions in this manual before operating or servicing the machine. Make sure you know and understand the positions and operations of all controls.

Make sure that all controls are in neutral and the parking brake is engaged before starting the machine. Make sure that all people are well away from your area of work before starting and operating the machine.

All equipment has a limit. Make sure you understand the speed, brakes, steering, stability, and load characteristics of the machine before you start. Check all controls in an area clear of people and obstacles before starting your work.

Be aware of the machine size and have enough space available to permit operation. Never operate the machine at high speeds in crowded locations.

OPERATION



WARNING: In order to provide a better view, photographs and illustrations in this manual can show an assembly with the shield removed. Do not operate the combine unless all shields are in location. Replace the shields immediately after completion of inspection, repairs, cleaning or adjustments and before operation begins.

FIG. 6: Wear close fitting clothing and personal protection equipment for operating or doing lubrication and maintenance on the combine. Tie up long hair to prevent hair from becoming entangled in moving parts.

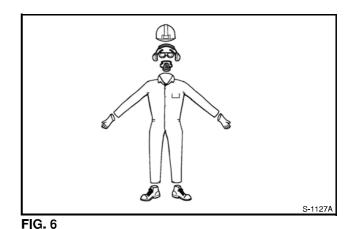


FIG. 7: Face the ladder and use the handrails when getting on or off the combine.



FIG. 8: Never operate the engine in a closed building unless the exhaust is vented outside.

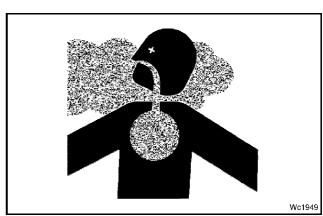


FIG. 8

01-4 4283564M2

FIG. 9: Always wear the seat belt when the combine is moving. If another person is riding in the instructor seat, make sure the person wears a seat belt. Seat belts must be worn fitted tightly around the hips and not twisted.

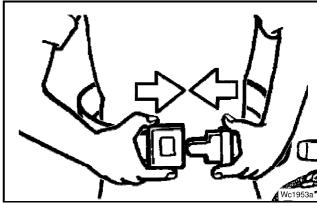


FIG. 9

FIG. 10: Never permit anyone on any part of the combine or attachments except in the operator seat and the instructor seat when the engine is running.

Do not get on or off the combine while the combine is moving.

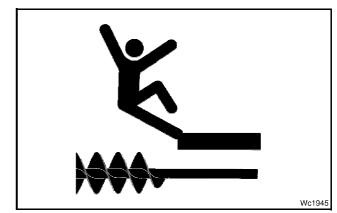


FIG. 10

FIG. 11: Prevent contact with electrical power lines. Always put the grain tank unloader tube in the transport position and lower the radio aerial before moving the combine near electrical wires. Contact with electrical power lines can cause electrical shock, resulting in very serious injury or death.

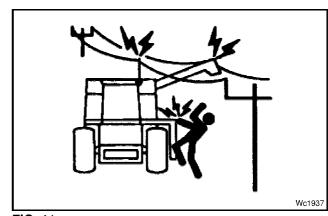


FIG. 11

FIG. 12: Use extra care and reduce speed when operating on hillsides or near ditches or embankments especially with a full grain tank to prevent rollover. Travel speed must be such that complete control and machine stability is kept at all times. Shift to a lower gear before going down a steep hill.

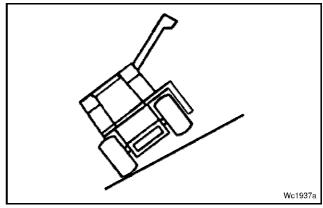


FIG. 12

Safety

FIG. 13: Always turn off the engine, shift the transmission to neutral, set the parking brake and remove the start key before leaving the operator cab or before permitting inspection, cleaning, lubrication, adjustment or repair of any part of the combine or attachments unless specifically shown in this manual. Never leave the combine while the engine is operating.



FIG. 13

FIG. 14: Never work under the header or feeder house, unless the stop is properly engaged on the header lift cylinder, the engine is stopped, the parking brake is set, and the start key is removed from the start switch.

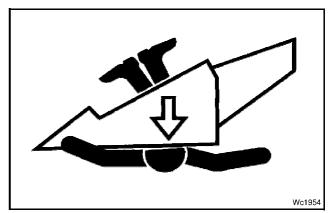


FIG. 14

FIG. 15: Always stop the combine engine before fueling. Do not smoke while fueling.

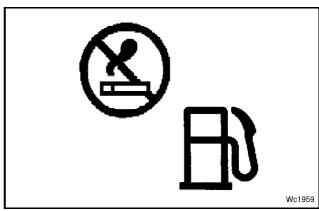


FIG. 15

01-6 4283564M2

TRANSPORTING COMBINE ON PUBLIC ROADS

FIG. 16: Consult your local law enforcement agency for local regulations about the movement of farm equipment on public roads.

- Use head lights, flashing warning lights, tail lights, and turn signals day and night unless not permitted by local law. Make sure the lights, reflectors, and SMV emblem (if required) are installed, in good condition, and wiped clean.
- Check to make sure all combine road lights (especially the amber flashers and red tail lights) are working.
- Lock the brake pedals together with the locking strap so that both front wheel brakes will be applied at the same time.
- Empty the grain bin.
- Position the unloading auger tube in the folded (transport) position.
- Remove the header if possible. If the header is to remain on the combine during transport, position header so the operator can see as good as possible. Make sure the header has enough ground and road clearance.

IMPORTANT: Do not carry the header at a height more than approximately 610 mm (24 in) off of the ground or road surface.

 Open the hydraulic accumulator shut off valve before transporting the combine. This will reduce header movement and combine loping when moving on rough roads.



CAUTION: Maintain proper tire pressure at all times to make sure of stability during road travel.

- Measure the overall width and height of the combine.
 These measurements are important when transporting along narrow roads and where under passes can be found.
- Be aware of the other vehicles on the road. Keep well over to your side of the road, and pull over when possible, to let faster vehicles pass.
- Adjust travel speed to keep control at all times. Never permit the combine to coast down hills.
- Reduce the speed of the combine by slowly pulling the hydrostatic control lever to neutral, before applying the brakes. Do not apply the brakes quickly, especially if the combine is equipped with a large header, since weight movement (during rapid braking) can cause the rear wheels to come off the ground and result in loss of steering control.

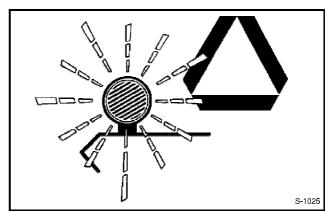


FIG. 16

Safety

- When taking the combine to a complete stop, slowly move the hydrostatic control lever to the neutral position, then push the hydrostatic high pressure release valve pedal and apply the brakes (if necessary).
- Make all turns slowly. The combine is steered by the rear wheels and can loose control if turned quickly at transport speeds. This condition will be seen more when a large header is installed on the combine.
- Remember steering to the right moves the rear of the combine to the left and vice versa.
- If the engine is not running, the steering will become manual and be very difficult to handle. Difficult steering also can result in loss of control.
- Drive component damage can result from towing.



CAUTION: Do not tow the combine on a public road.

MAINTENANCE

FIG. 17: Escaping fluid under high pressure can be almost invisible but penetrate the skin causing serious injury.

Consult a doctor immediately if you receive an injury by escaping fluids. Fluid injected into the skin must be surgically removed within a small number of hours or gangrene can result.

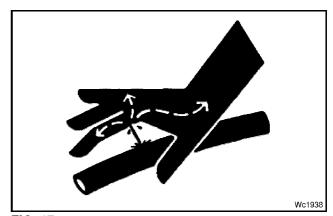


FIG. 17

FIG. 18: Use a piece of cardboard or wood to look for possible leaks, never use your hands.

Relieve pressure from the hydraulic and fuel injection systems by lowering raised equipment, turning off accumulator valve and turning off the engine before loosening any part of the systems. Tighten all connections before applying pressure.

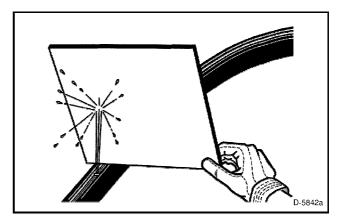


FIG. 18

01-8 4283564M2

FIG. 19: Be aware that the surfaces in and around the engine compartment will be hot if the engine has been running, even for a short time.

Always permit parts that contain hot fluid to cool before handling or disconnecting.

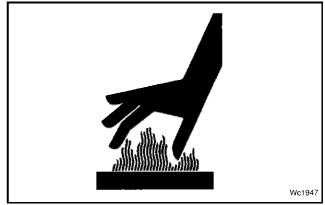


FIG. 19

FIG. 20: Do not remove the radiator cap if the engine is hot. Only remove the cap when the cap is cool enough to touch with bare hands. Loosen cap slowly to the first notch to relieve pressure, then remove the cap.

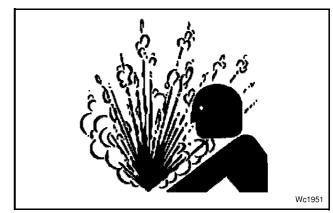


FIG. 20

FIG. 21: Remove spilled oil, antifreeze, or fuel immediately from the operator ladder and platform and other access areas.

Keep all access areas clean and free of obstructions.



FIG. 21

ENGINE SAFETY

FIG. 22: Make sure that all shields, guards, and access doors are in location and properly closed before starting the engine.

Start the engine from the operator seat only. Be sure that the transmission is in neutral and the header, separator, and unloader clutches are disengaged.

Make sure that all bystanders are clear of the combine before starting the engine.

Do not bypass the neutral start system. The neutral start system is designed to prevent starting the machine in gear. Any manual override of this system can cause death or serious injury.

Never connect booster cables to the starter terminals or short across the starter terminals.

FIG. 23: Engine is equipped with an electric starting aid. Do not use aerosol starting fluid! Use of this fluid can cause an explosion that can result in severe injury or death.



FIG. 22

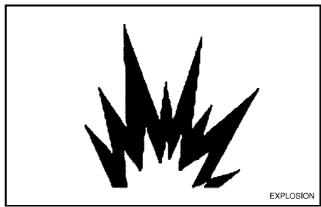


FIG. 23

TIRE SAFETY

FIG. 24: Tire explosion and serious injury can result from over inflation. Do not exceed the tire inflation pressures. See the Operator's manual for the correct tire pressure.

Replace worn or damaged tires. When tire service is needed, have a qualified tire mechanic service the tire. See the Operator's manual for the correct tire size.

Do not weld on the rim when a tire is installed. Welding will cause an explosive air/gas mixture that will ignite with high temperatures. This can happen to tires that are inflated or deflated. Removing the air or breaking the bead is not enough.

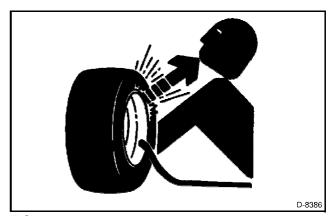


FIG. 24

01-10 4283564M2

Thank you very much for your reading. Please Click Here. Then Get COMPLETE MANUAL. NO WAITING



NOTE:

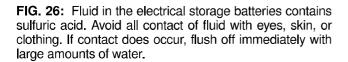
If there is no response to click on the link above, please download the PDF document first and then click on it.

BATTERY SAFETY

FIG. 25: Electrical storage batteries give off highly flammable hydrogen gas. Keep lighted smoking material and open flame or electrical sparks away from the battery. Do not lay tools or other conductive materials on the battery.

Be careful when connecting the booster cables to the combine batteries. Electrical component damage or battery explosion can result if the booster cables are not installed correctly.

Do not charge a frozen battery as the battery can explode. Warm the battery to $16 \,^{\circ}\text{C}$ ($60 \,^{\circ}\text{F}$).



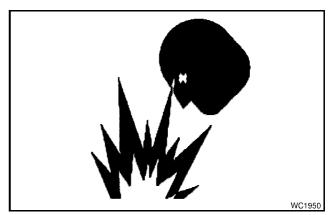


FIG. 25

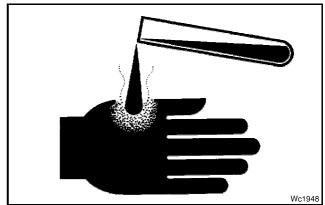


FIG. 26

DIESEL EXHAUST FLUID SAFETY

FIG. 27: The Diesel Exhaust Fluid (DEF) is stored in the DEF storage tank (1).

Avoid all contact of DEF with eyes, skin and clothing.

DEF is classified as non-hazardous by the EPA.

DEF is very corrosive and must be handled with care. DEF must not contact any parts or containers made of aluminum.

In the event of spillage, rinse the area with water and wipe dry.

If large quantities of DEF is swallowed, see medical attention immediately. Do not induce vomiting unless indicated to do so by a medical professional. Do not give liquid to a person who is unconscious.

In case of contact with the eyes, rinse the eyes immediately under running water. In the event of irritation, seek medical attention.

In case of skin contact, rinse the area with water and remove contaminated clothing.

Prevent DEF from coming in contact with other chemicals.

Do not pour or wash DEF down drains.



FIG. 27

ACCUMULATOR SAFETY



DANGER: Charging or replacing the accumulator must be performed by an authorized dealer only.

FIG. 28: The accumulator (1) is charged with dry nitrogen gas. Use only dry nitrogen when charging the accumulator. Do not use air or oxygen or an explosion will occur,

Nitrogen gas when released can cause localized freezing. Always wear protective gloves and glasses when handling nitrogen.

Do not drop the accumulator. A charged accumulator contains nitrogen under pressure. If the shut off valve breaks away from the accumulator, the escaping nitrogen will propel the accumulator at a high rate of speed.

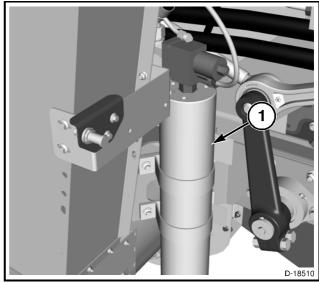


FIG. 28

SAFETY EQUIPMENT

Hazard Lamps

FIG. 29: The combine is equipped with amber hazard lamps. Use the hazard lamps in accordance with local traffic and roadway regulations.

The hazard lamp switch (1) is used to activate the hazard lamps.

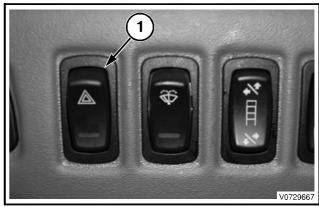


FIG. 29

Beacon Lamps

FIG. 30: The combine can be equipped with optional beacon lamps on the front and rear of the combine. Use the beacon lamps in accordance with local traffic and roadway regulations.

The first position of the beacon lamp switch (1) activates the beacon lamps for road use.

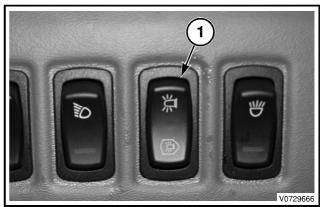


FIG. 30

01-12 4283564M2

Backup Alarm

FIG. 31: The combine is equipped with a backup alarm (1). When the ground speed lever is moved to the reverse position the alarm will sound.

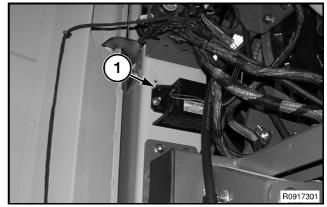


FIG. 31

Parking Brake

FIG. 32: The combine is equipped with a parking brake. Engage the parking brake when the combine is parked or the engine is shut off.

The parking brake lever (1) is used to engage the parking brake. Refer to the Operation section for more information.

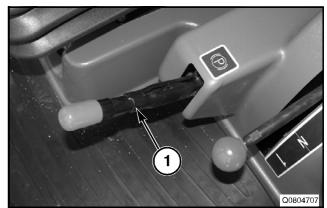


FIG. 32

Fire Extinguisher

FIG. 33: A fire extinguisher (1) is located on the cab platform.

To release the fire extinguisher, release the strap securing the strap around the fire extinguisher and remove the fire extinguisher from the bracket. Once out of the bracket, follow the instructions on the fire extinguisher to extinguish the fire.

IMPORTANT: If the instructions on the fire extinguisher can not be clearly read, then the decal or fire extinguisher must be replaced.

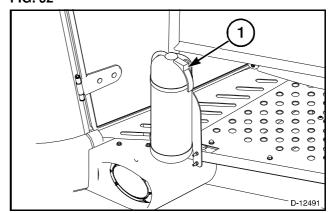


FIG. 33

Header Lift Cylinder Stop

FIG. 34: Header lift cylinder stop (1) is provided on the header lift cylinder. Always use the header lift cylinder stop when working underneath the feeder house or header. Refer to the Operation section for more information.

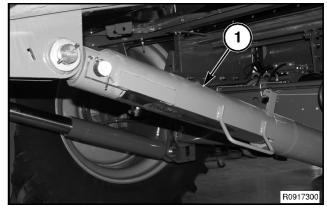


FIG. 34