

DF Series 150 and 250 Transmissions (Analog)

COMPONENT TECHNICAL MANUAL DF Series 150 and 250 Transmissions (Analog)

CTM147 03MAY12 (ENGLISH)

Introduction

Foreword

Component Technical Manuals (CTM) are concise service guides for specific components. Component technical manuals are written as stand-alone manuals covering multiple machine applications.

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

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

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

 **WARNING VEHICLE RUNAWAY HAZARD** Avoid serious or fatal injury. This transmission is not a braking system. Install it only if there is a braking system capable of stopping vehicle with dead engine, disengaged transmission, or loss of hydrostatic retardation. Otherwise, vehicle may roll freely, resulting in loss of control.

IMPORTANT: Important warns of possible damage to transmission.

NOTE: To make special mention of or to record in writing useful information about the transmission.

Use this component technical manual in conjunction with the machine technical manual. See the machine technical manual for information on component removal and installation, and gaining access to the components.

This manual is divided in three parts; general information, repair, and troubleshooting and tests:

General information group offers component identification with specification information about the transmission.

Repair groups contain necessary instructions to repair the component.

Troubleshooting and test groups help you identify the majority of routine failures quickly and then allows you to perform certain tests.

Information is organized in groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable service equipment and tools, other materials needed to do the job, specifications, and torque values.

YZ,CTM500,IFC -19-16JUN05-1/1

Contents

Section 01 —General Information

- Group 000—Safety
- Group 010—Transmission Identification, Lubricants,
Towing, Storage

Section 02 —Repair and Adjustments

- Group 015—Transmission Mounting
- Group 025—Torque Converter
- Group 035—Charge Pump
- Group 045—Front Cover
- Group 055—Control Valve
- Group 065—Main Case Front Housing
- Group 075—Gear Ratio
- Group 085—Main Case Rear Housing
- Group 095—Brake Group

Section 05 —Tools and Other Materials

- Group 165—Repair Tools

Section 06 —Specifications

- Group 201—Recommended Torque
- Group 205—Test and Troubleshooting
- Group 215—TCU, Diagnostics and Specifications

*Original Instructions. All information, illustrations and specifications in this manual are based on the latest information available at the time of publication.
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Section 01 General Information

Contents

	Page
Group 000—Safety	
Braking System	01 -000-1
Handle Fluids Safely—Avoid	
Fires.....	01 -000-1
Prepare for Emergencies.....	01 -000-1
Avoid High-Pressure Fluids	01 -000-1
Support Machine Properly	01 -000-2
Wear Protective Clothing.....	01 -000-2
Service Machines Safely	01 -000-2
Work In Ventilated Area.....	01 -000-3
Work in Clean Area	01 -000-3
Remove Paint Before Welding or Heating	01 -000-3
Avoid Heating Near Pressurized Fluid Lines	01 -000-4
Illuminate Work Area Safely	01 -000-4
Use Proper Lifting Equipment.....	01 -000-4
Practice Safe Maintenance.....	01 -000-5
Use Proper Tools	01 -000-5
Dispose of Waste Properly	01 -000-6
Live With Safety.....	01 -000-6
Park Machine Safely.....	01 -000-6
Stay Clear of Rotating Drivelines.....	01 -000-7
Prevent Machine Runaway.....	01 -000-7
 Group 010—Transmission Identification, Lubricants, Towing, Storage	
Identification and Serial Number	
Plates.....	01 -010-1
DF150/250 Transmission	
Specifications ¹	01 -010-2
Transmission and Hydraulic Oil.....	01 -010-3
Recommended Lubricants.....	01 -010-4
Fill the Transmission with Oil	01 -010-4
Check and Service Transmission	
Regularly	01 -010-4
Intervals for Changing	
Transmission Oil and Filters	01 -010-5
Cold Weather Startup	01 -010-5
Cold Weather Operation.....	01 -010-5
Oil Analysis.....	01 -010-6
Oil Temperature Warning Signal.....	01 -010-6
Towing the Vehicle.....	01 -010-6
Put Transmission in Storage	01 -010-6
Remove Transmission From	
Storage	01 -010-6
Install Transmission to the Engine.....	01 -010-7
Converter-to-Engine Flywheel	
Dimensions.....	01 -010-8
Engine to Torque Converter	
Specifications	01 -010-9

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

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please download the PDF document first, and then
click on it.**

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

Braking System

⚠ **WARNING VEHICLE RUNAWAY HAZARD** Avoid serious or fatal injury. This transmission is not a braking

system. Install it only if there is a braking system capable of stopping vehicle with dead engine, disengaged transmission, or loss of hydrostatic retardation. Otherwise, vehicle may roll freely, resulting in loss of control.

YZ,WARN -19-10MAR98-1/1

Handle Fluids Safely—Avoid Fires

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

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

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



TS227 —UN—23AUG88

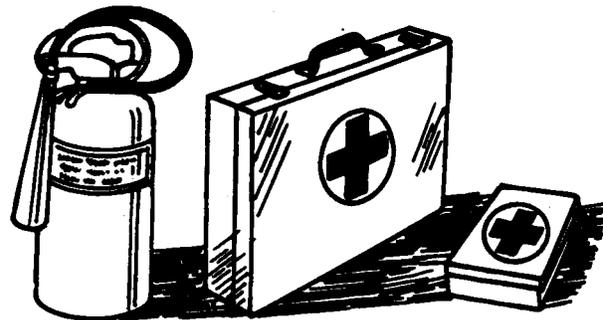
DX,FLAME -19-29SEP98-1/1

Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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



TS291 —UN—23AUG88

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

Avoid High-Pressure Fluids

Inspect hydraulic hoses periodically – at least once per year – for leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid or any other signs of wear or damage.

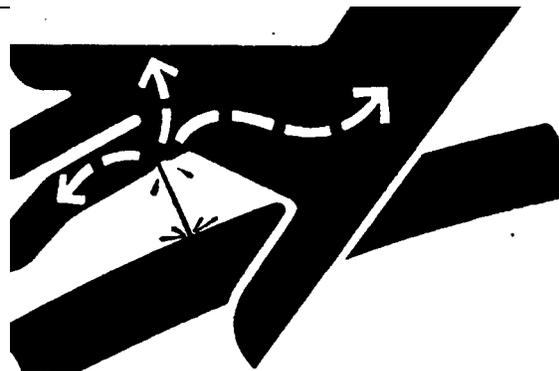
Replace worn or damaged hose assemblies immediately with John Deere approved replacement parts.

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

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

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

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within



X9811 —UN—23AUG88

a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available in English from Deere & Company Medical Department in Moline, Illinois, U.S.A., by calling 1-800-822-8262 or +1 309-748-5636.

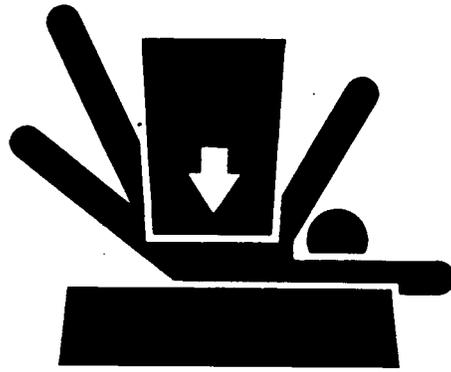
DX,FLUID -19-12OCT11-1/1

Support Machine Properly

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

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

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



TS229 —UN—23AUG88

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

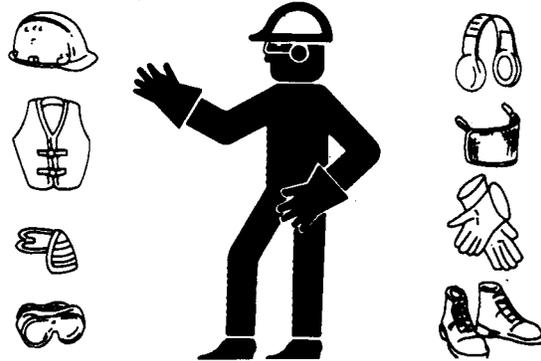
Wear Protective Clothing

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

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

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

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



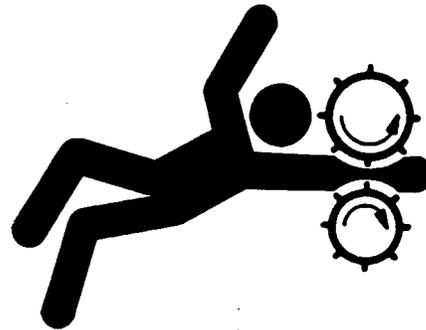
TS206 —UN—23AUG88

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

Service Machines Safely

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

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



TS228 —UN—23AUG88

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

Work In Ventilated Area

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

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



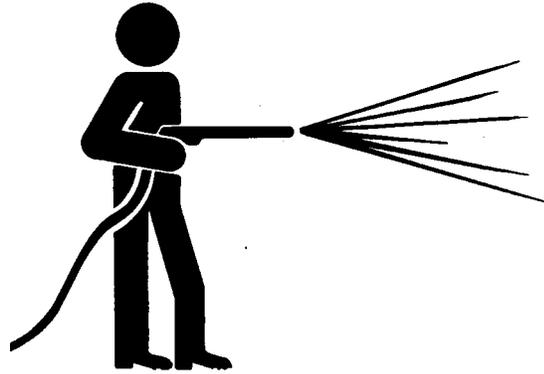
TS220—UN—23AUG88

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

Work in Clean Area

Before starting a job:

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



T6642EJ—UN—18OCT88

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

Remove Paint Before Welding or Heating

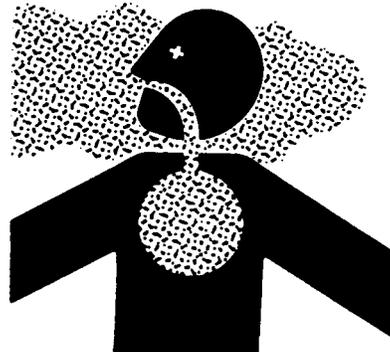
Avoid potentially toxic fumes and dust.

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

Remove paint before heating:

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

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



TS220—UN—23AUG88

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

Dispose of paint and solvent properly.

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

Avoid Heating Near Pressurized Fluid Lines

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

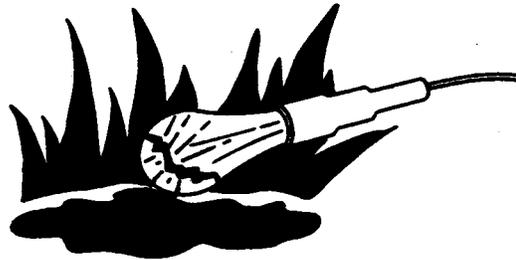


TS953—UN—15MAY90

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

Illuminate Work Area Safely

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



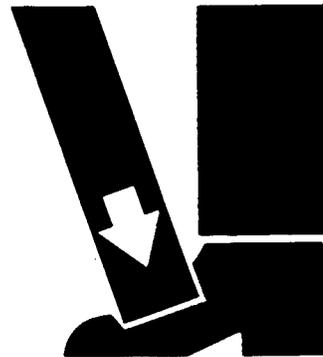
TS223—UN—23AUG88

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

Use Proper Lifting Equipment

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

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



TS226—UN—23AUG88

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

Practice Safe Maintenance

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

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

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

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

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

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



TS218 —UN—23AUG88

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

Use Proper Tools

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

Use power tools only to loosen threaded parts and fasteners.

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

Use only service parts meeting John Deere specifications.



TS779 —UN—08NOV88

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

Dispose of Waste Properly

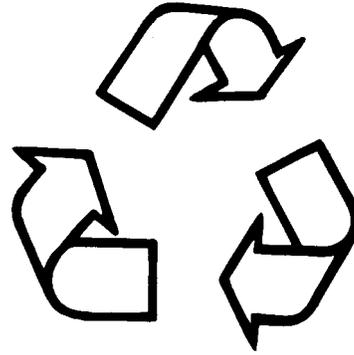
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

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

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

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

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



TS1133 —UN—26NOV90

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

Live With Safety

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



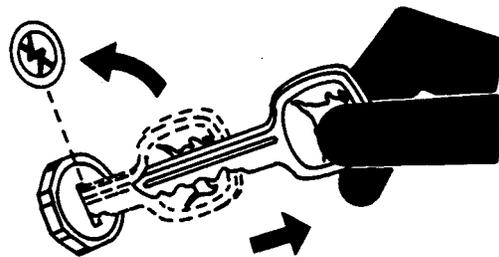
TS231 —19—07OCT88

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

Park Machine Safely

Before working on the machine:

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



TS230 —UN—24MAY89

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

Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

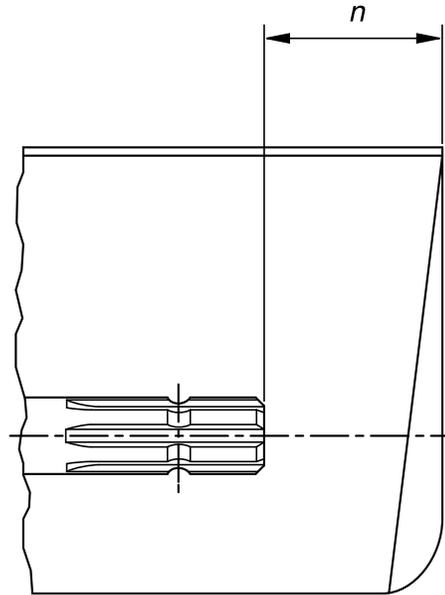
Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure that PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.

Do not install any adapter device between the tractor and the primary implement PTO drive shaft that will allow a 1000 rpm tractor shaft to power a 540 rpm implement at speeds higher than 540 rpm.

Do not install any adapter device that results in a portion of the rotating implement shaft, tractor shaft, or the adapter to be unguarded. The tractor master shield shall overlap the end of the splined shaft and the added adaptor device as outlined in the table.

PTO Type	Diameter	Splines	$n \pm 5 \text{ mm (0.20 in.)}$
1	35 mm (1.378 in.)	6	85 mm (3.35 in.)
2	35 mm (1.378 in.)	21	85 mm (3.35 in.)
3	45 mm (1.772 in.)	20	100 mm (4.00 in.)



TS1644 —UN—22AUG95

H96219 —UN—29APR10

DX,PTO -19-30JUN10-1/1

Prevent Machine Runaway

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral or park.



TS177 —UN—11JAN89

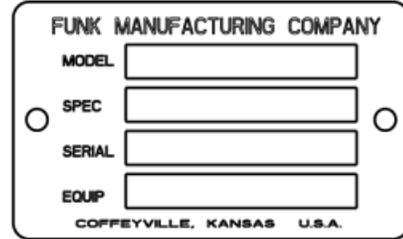
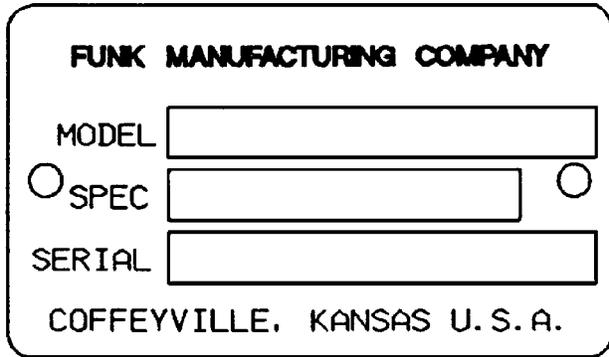
DX,BYPAS1 -19-29SEP98-1/1

Identification and Serial Number Plates

The identification plate is located on the engine side and/or opposite engine side of the transmission main case housing. The exact location varies depending on installed options and model number. Earlier version of the DF series transmission had three lines of information. Later DF series transmission will have four lines of information on identification plate. All information on identification plate is needed when contacting John Deere Coffeyville Works concerning transmission.

Contact:

- John Deere Coffeyville Works
- 2624 Hwy 169
- Coffeyville, KS 67337-0577
- Telephone: (800) 844-1337 or (620)-251-3400
- Fax: (620) 252-34253



YZ1503—UN—01MAY98

YZ1502—UN—24APR98

YZ,CTM147,10,13 -19-19MAR09-1/1

DF150/250 Transmission Specifications¹

Item	Measurement	Specification
DF-150	Weight	567 Kg (1250 lbs)
DF-150	Input-to-Output	500 mm (19.68 in)
DF-150	Rating (Depending on application)	Input power (maximum) - 141.7 kW (190 SAE hp) Input no load speed (maximum) - 3000 rpm Turbine torque (maximum) - 1288.0 N·m (950 lb-ft)
DF-250	Weight	703.1 Kg (1550 lbs)
DF-250	Input-to-Output	550 mm (21.65 in)
DF-250	Rating (Depending on application)	Input power(maximum) - 223.7 kW (300 SAE hp) Input no load speed (maximum) - 3000 rpm Turbine torque (maximum) - 1898.1 N·m (1400 lb-ft)
DF-150/250	Mountings Available	Engine Midship Remote
DF-150/250	Torque Converters Available	298.5 mm (11.75 in) 323.9 mm (12.75 in) 355.6 mm (14.00 in)
DF-150/250	Clutches	Fully modulated, oil cooled, multidisc, hydraulic actuated and self-adjusting.
DF-150/250	Gearing	Constant mesh, in line, high contact ratio ground gears. Up to eight speeds forward and four speeds reverse.
DF-150/250	Oil	Hydraulic transmission fluid.
DF-150/250	Filter	Remote mounted spin-on type filter.
Transmission Operating Conditions	Maximum Input Speed	3000 rpm
	Test Input Speed	2000 rpm
	Minimum Continuous Operating Temperature	-40°C (-40°F)
	Maximum Operating Temperature	110°C (230°F)
	Maximum Temperature	121.1°C (250°F)
	Normal Operating Temperature	37.8—93.3°C (100°F—200°F)

Continued on next page

YZCTM147,10,SPC -19-02JUN04-1/2

Item	Measurement	Specification
Pressures and Flows at Control Valve	Pump Pressure	1758—1965 kPa (255—285 psi)
	Pump Flow	87—102 L/min (23—27 gpm)
	Clutch Pressure	1655—1931 kPa (240—280 psi)
	Lube, In Pressure	138—414 kPa (20—60 psi)

¹Weights will vary depending on installed options.

YZCTM147,10,SPC -19-02JUN04-2/2

Transmission and Hydraulic Oil

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

The following oils are preferred:

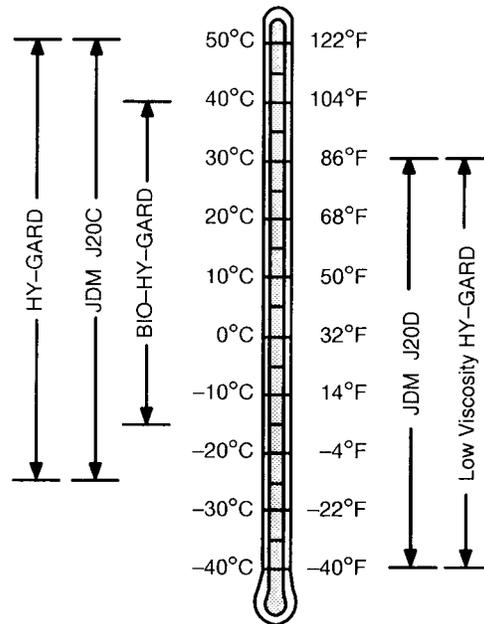
- John Deere HY-GARD™
- John Deere Low Viscosity HY-GARD™

Other oils may be used if they meet one of the following:

- John Deere Standard JDM J20C
- John Deere Standard JDM J20D

Use the following oil when a biodegradable fluid is required:

- John Deere ¹BIO-HY-GARD™



HY-GARD is a trademark of Deere & Company
BIO-HY-GARD is a trademark of Deere & Company

¹meets or exceeds the minimum biodegradability of 80% within 21 days according to CEC-L-33-T-82 test method. BIO-HY-GARD should not be mixed with mineral oils because this reduces the biodegradability and makes proper oil recycling impossible.

DX,ANT11 -19-02DEC02-1/1

TS1651—UN—14MAR96

Recommended Lubricants

Select an oil viscosity, based on the air temperature range expected between oil changes.

NOTE: The words "oil", "fluid" and "transmission fluid" are used in this manual to mean, HYDRAULIC TRANSMISSION FLUID, the operating and lubricating oil for this transmission.

Standard and Low viscosity HY-GARD® Transmission fluids are available through the John Deere dealer network worldwide. Other oils may be used if they meet one of the following:

- John Deere Standard JDM J20 C

HY-GARD is a trademark of Deere & Company.

- John Deere Standard JDM J20 D

Some fluids that contain the following additive packages have been shown to meet the specification requirements of J20 C and/or J20 D. Inclusion of the following additive packages does not constitute blanket approval of the oil for these applications.

Supplier	Additive
Chevron	Ornite OLOA 9725X
Lubrizol	Lubrizol 9990

YZ,CTM147,10,3 -19-27MAY05-1/1

Fill the Transmission with Oil

AFTER INSTALLING TRANSMISSION IN VEHICLE:

Park machine on level surface.

Engage parking brake, block wheels.

Put transmission in neutral.

Remove dipstick, the dipstick tube is the normal oil fill location.

Begin filling operation by adding 19 liters (5 gal) of recommended oil.

Start the engine, run at idle speed to fill the converter and oil lines.

Check oil level on dip stick with engine running at idle speed.

IMPORTANT: Do not overfill transmission. This will cause overheating. Damage to the transmission will result.

Fill transmission to the full mark on dipstick with engine running at idle speed.

Check oil level again when the transmission has reached normal operating temperature 37.8—98.9°C (100°F—210°F).

YZ,CTM147,10,2 -19-27MAY05-1/1

Check and Service Transmission Regularly

Routine checks will help prevent down time. The operator can aid in preventative maintenance by reporting signs of leaks or malfunctions.

The transmission operates in and by oil, most of the maintenance is concerned with oil replenishment and oil cleanliness. The type of service and operating conditions shall determine the maintenance interval.

NOTE: Engage park brake before checking oil level.

OIL LEVEL

IMPORTANT: The DF series transmission should always be in the neutral position before

starting the engine, or when the vehicle is parked and the engine is running.

CHECK THE OIL LEVEL DAILY

Set parking brake.

Put the gear selector lever in neutral position.

Operate the engine at idle speed.

Make sure the transmission oil temperature is at 38°C—93°C (100°F—200°F).

Clean area around dipstick before removing.

Keep oil level at the "FULL" mark on the dipstick.

YZ,CTM147,10,1 -19-02JUN04-1/1

Intervals for Changing Transmission Oil and Filters

IMPORTANT: Change oil and filter after the first 50 hours of transmission operation.

The oil and filter change intervals given here are for normal service conditions. If the transmission is to be operated in severe conditions contact the Funk Service Department for additional recommendations.

FIRST OIL AND FILTER CHANGE:

Change oil and filter after first 50 hours of transmission operation.

ROUTINE OIL AND FILTER MAINTENANCE:

IMPORTANT: Some vehicles are equipped with devices to alert the operator when oil is bypassing the filter. Change the oil filter if a "Filter Bypass Signal" is indicated and the transmission is at normal operating temperature.

Change oil filter anytime the transmission is at normal operating temperature and a "Filter Bypass Signal" is indicated.

Change oil and filter anytime there are signs of contamination in the oil or the oil has a burnt odor.

Change filter at every 500 hours, change filter and oil every 1000 hours of transmission operation.

YZ.CTM147,10,4 -19-05MAY98-1/1

Cold Weather Startup

Cold starts will sometimes cause the oil filter bypass signal to activate, indicating the oil is bypassing the filter. This should be an intermittent condition and should not continue after the transmission oil has reached 38° C (100° F) operating temperature.

IMPORTANT: Transmission oil should be warm before operating the transmission. If the transmission (converter out) oil temperature remains below the normal operating range after a reasonable warm-up period, stop the machine and warm the oil by stalling the torque converter.

If necessary to maintain the recommended oil temperature, operate the machine in a higher gear.

STALLING THE TORQUE CONVERTER:

NOTE: This procedure should not be used on 14 inch AAD torque converters.

Park vehicle away from personnel and obstacles.

Set brakes.

Shift transmission to the highest gear.

IMPORTANT: Do not operate transmission at full governed engine rpm for more than 30 seconds. Do not allow converter out oil temperature to exceed 121°C (250°F).

Run engine for a maximum of 30 seconds at full governed engine speed.

Stop the stall procedure when oil temperature is in the normal operating range. Do not allow oil temperature to exceed 121°C (250°F) at anytime.

YZ07927,0000305 -19-20MAY04-1/1

Cold Weather Operation

IMPORTANT: Viscosity grade selection is critical for cold weather operation of the transmission. Preheat and proper start-up procedures are required when operating transmission below the oil's MINIMUM critical temperature which is viscosity grade dependant.

NOTE: Refer to AIR TEMPERATURE RANGE chart for the MINIMUM transmission operating temperature viscosity grades.

PREHEAT TRANSMISSION FLUID WITH AUXILIARY SOURCE

Preheat the transmission fluid to the MINIMUM temperature before operating.

ALTERNATE WARM-UP PROCEDURE:

Operate transmission in neutral for approximately 20 minutes or until oil is warmed to the MINIMUM temperature.

HOT WEATHER OPERATION

Use higher viscosity grades (Refer to AIR TEMPERATURE RANGE chart) for:

Ambient temperatures consistently above 30°C (86°F).

Frequent stop-and-go driving in hot weather.

High grade climbing in hot weather.

YZ07927,0000304 -19-20MAY04-1/1

Oil Analysis

Oil analysis is best used by sampling at regular intervals to establish a baseline analysis for the oil and operation conditions present. Changes from this baseline may indicate unusual wear.

IMPORTANT: Change the oil and filter if an analysis of the used transmission oil indicates any of the following limits are exceeded.

Glycol (Anti-freeze), must not exceed 0% by volume.

Water, must not exceed 0.05% by volume.

Viscosity increase at 37.8°C (100°F), not more than 40% over new oil value.

Total Acid Number (TAN) per ASTM D664, limit of 3.0 over new lubricant value.

YZ,CTM54,10,20 -19-06MAY04-1/1

Oil Temperature Warning Signal

If the oil temperature gauge, indicating the converter oil-out temperature, rises to 121.1°C (250°F) or the transmission oil temperature warning light comes on, stop the vehicle immediately. Shift to neutral and run the engine at 1000—1200 rpm.

IMPORTANT: Do not stop the engine when the transmission is overheating if the cooling system is known to be in working order.

The transmission oil temperature should soon lower to the engine water temperature, or if an air-to-oil exchanger is used, the temperature should soon lower to ambient air temperature across the heat exchanger. If the temperature does not lower, trouble is indicated.

Correct overheating problem before the vehicle is operated again.

YZ,CTM54,10,18 -19-06MAY04-1/1

Towing the Vehicle

AVOID DAMAGE TO TRANSMISSION:

Run engine at idle speed to lubricate the clutches.

- Do not exceed normal vehicle speeds while towing.

If the engine cannot be run:

- Disconnect drive line from transmission

If drive line can not be disconnected:

- Do not exceed 4.8 km/h (3 mph)
- Tow no further than 1.6 km (1 mile)

YZ,CTM54,10,17 -19-06MAY04-1/1

Put Transmission in Storage

This procedure applies to those transmissions and components that have been tested according to Funk Manufacturing test specifications and have had the oil drained from them prior to shipment.

The following actions will help protect the unit and component items from internal rust and corrosion damage for approximately one year, provided the transmissions are stored in a dry area:

Seal all openings with moisture-proof covers or tape.

Spray 118.3 mL (4 oz) of atomized NOX RUST VCI No. 105 oil or an equivalent into oil drain hole. This fluid is covered and approved per (MIL-P-46002).

Dip, spray, or brush all exposed unpainted surfaces with NOX RUST X-110 or an equivalent. This product meets MIL-C-16173, Grade 4 specifications.

YZ,CTM147,10,5 -19-06MAY04-1/1

Remove Transmission From Storage

Wash off all external grease with a safety solvent.

Remove covers or tape from all openings.

Drain transmission completely.

Tag transmission to indicate it needs to be filled with oil after installing in vehicle.

YZ,CTM147,10,6 -19-10MAR98-1/1

Install Transmission to the Engine

⚠ CAUTION: Vehicle runaway hazard. Avoid serious or fatal injury. This transmission is not a braking system. Install only if there is a braking system capable of stopping the vehicle with dead engine, disengaged transmission, or loss of hydrostatic retardation. Otherwise, vehicle may roll freely, resulting in loss of control.

1. Check engine crankshaft endplay, it should comply with engine manufactures tolerances.
2. Remove the flywheel housing access cover. Rotate the engine flywheel until one of the mounting holes for the drive plate is aligned with the flywheel housing access hole.
3. Support the transmission assembly so that it can be positioned directly inline with the engine crankshaft. Align the pilot sleeve with the flywheel pilot bore. Align one of the cap screw holes in the drive plate with one of the mounting holes in the flywheel.

IMPORTANT: If the transmission SAE Converter Housing does not “set flush” against the engine flywheel housing, DO NOT PROCEED. Forcing the transmission SAE mounting face up to the engine flywheel housing face with the cap screws could preload the engine crankshaft. Remove the transmission and check previous

assembly step to determine the problem. Take corrective action before proceeding.

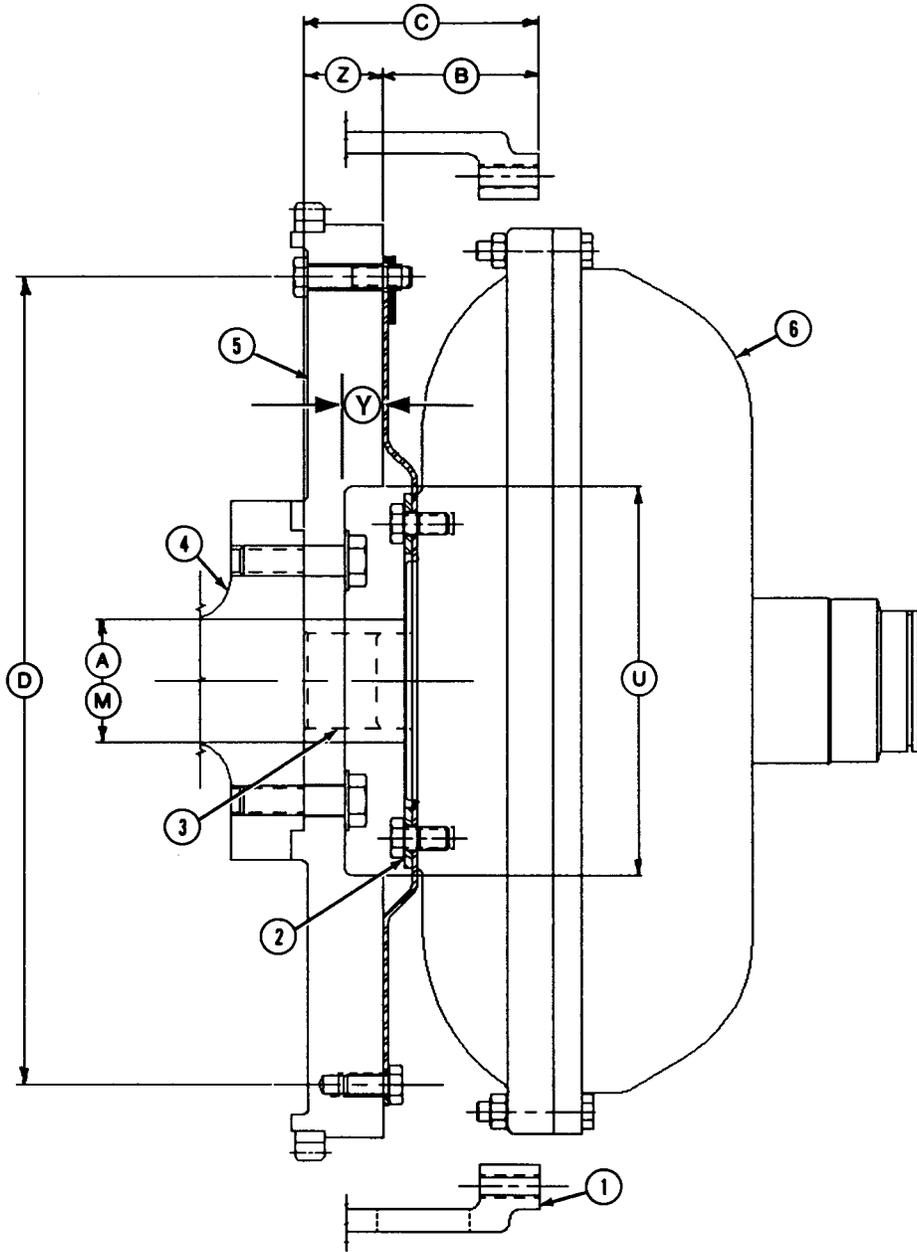
4. Push the transmission to the engine.
5. Fasten the transmission input housing (converter housing) to the engine flywheel housing.
6. Attach the drive plate to the flywheel. Install and hand tighten cap screws through the engine flywheel housing access hole. After all the cap screws have been installed, tighten to proper torque values.

IMPORTANT: Check the engine crankshaft endplay.

7. Check the engine crankshaft endplay. It should comply with the engine manufacturer's specifications. If end play is less than specified the crankshaft may have been preloaded at assembly with the transmission. The engine should not be run until the preload condition is corrected.
8. Install the flywheel access hole cover.
9. Connect all drive line, mechanical linkages, hydraulic lines and electronic connectors required by transmission.
10. Fill transmission with oil as described in this section of the manual.

YZ.CTM147,10,7 -19-06MAY04-1/1

Converter-to-Engine Flywheel Dimensions



- | | | | |
|--------------------------------|---------------------------------|---------------------------|--------------------------------|
| 1— Engine Flywheel Housing | 4— Engine Crank Shaft | 8— Flywheel End Stop | 11— Pilot Sleeve Shoulder Stop |
| 2— Converter Drive Plate Group | 5— Engine Flywheel | 9— Flywheel Shoulder Stop | |
| 3— Converter Pilot Sleeve | 6— Converter Assembly | 10— Pilot Sleeve End Stop | |
| | 7— Housing Spacer (as required) | | |

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YZ,CTM147,10,37 -19-13MAY04-1/1