DESCRIPTION OF OPERATION

ELECTRICAL SYSTEM

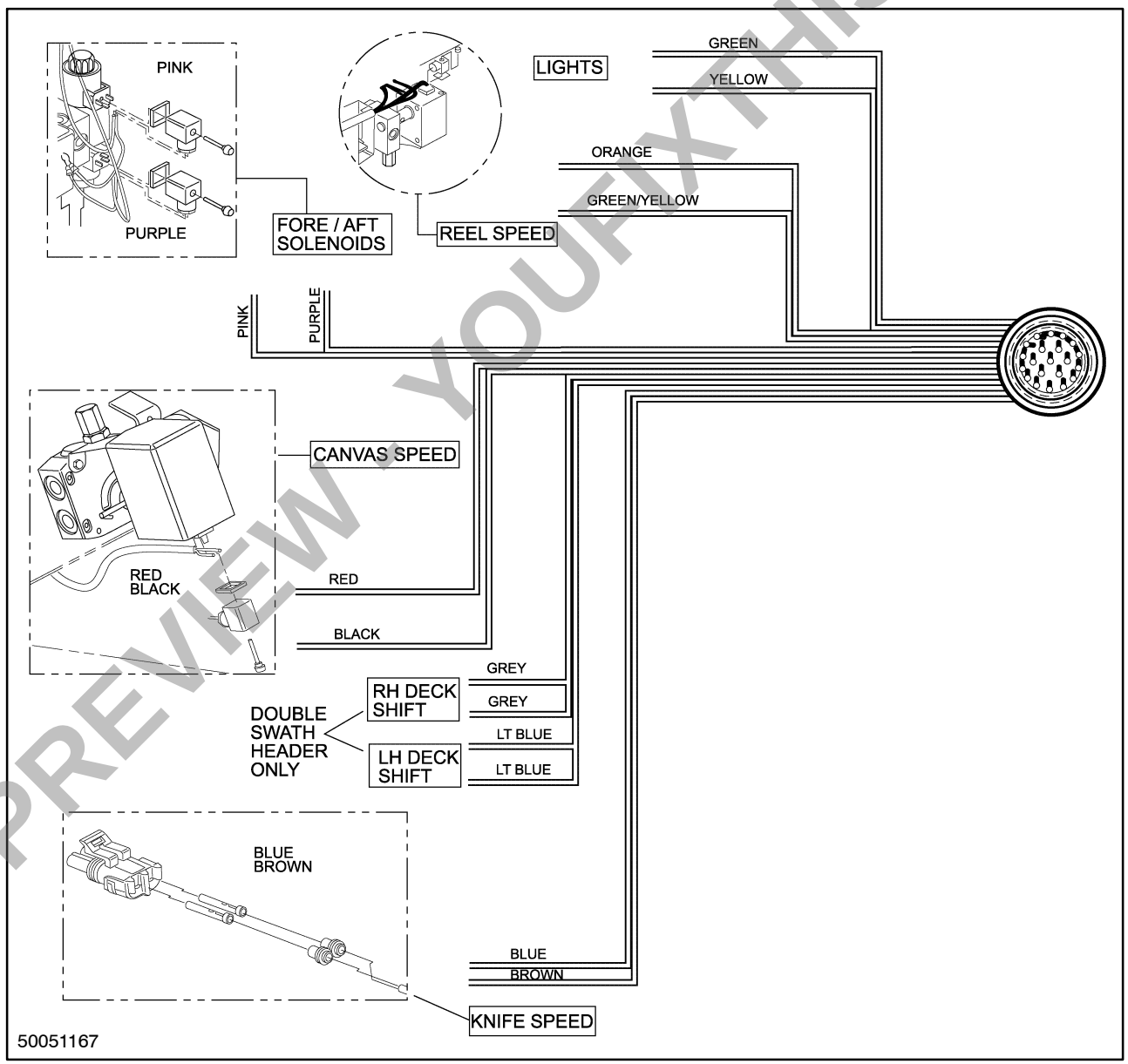
The electrical system on the DHX2 series draper header consists of the flashing lights, the trailer lights and the wiring necessary for operating the lighting.

Draper headers also have a wiring harness that connects with the windrower. The harness allows the header features and options to be operated from the switches and controls in the windrower cab's electronic console or multi-function handle (MFH).

NOTE: *Refer to the Draper Header or Windrower's Operator's Manual for more information on the electronic console and MFH.*

The windrower cab or MFH contains switches for the following features and options, which may or may not be installed on the draper header: reel speed, canvas speed, deckshift, hydraulic fore/aft, knife speed and lighting controls.

Power is provided from the windrower to operate all of the features and options through a wiring harness. Ground is supplied by the windrower and draper header because the ground wires are incorporated into the wiring harness.

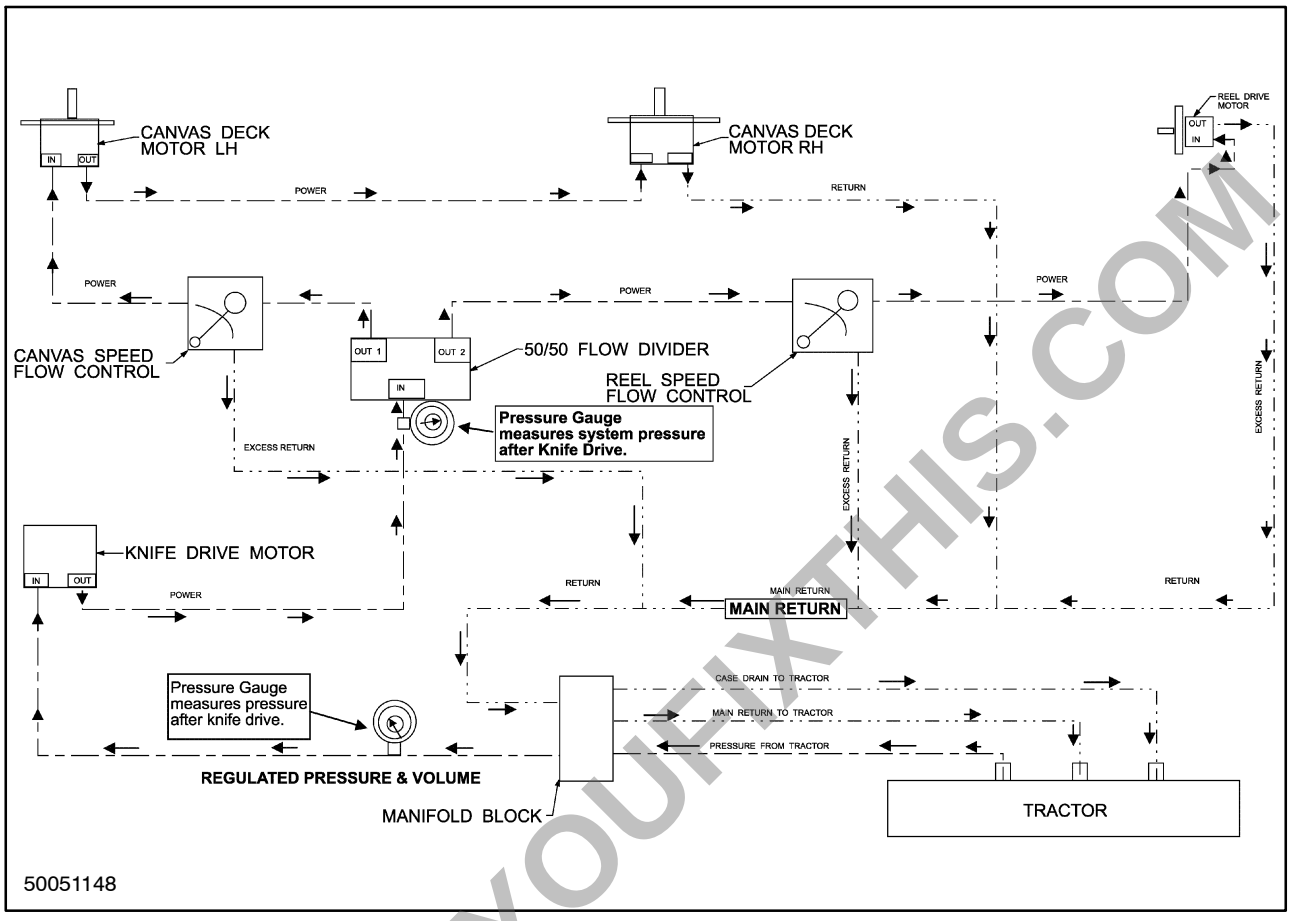


1

Wiring Harness Diagram

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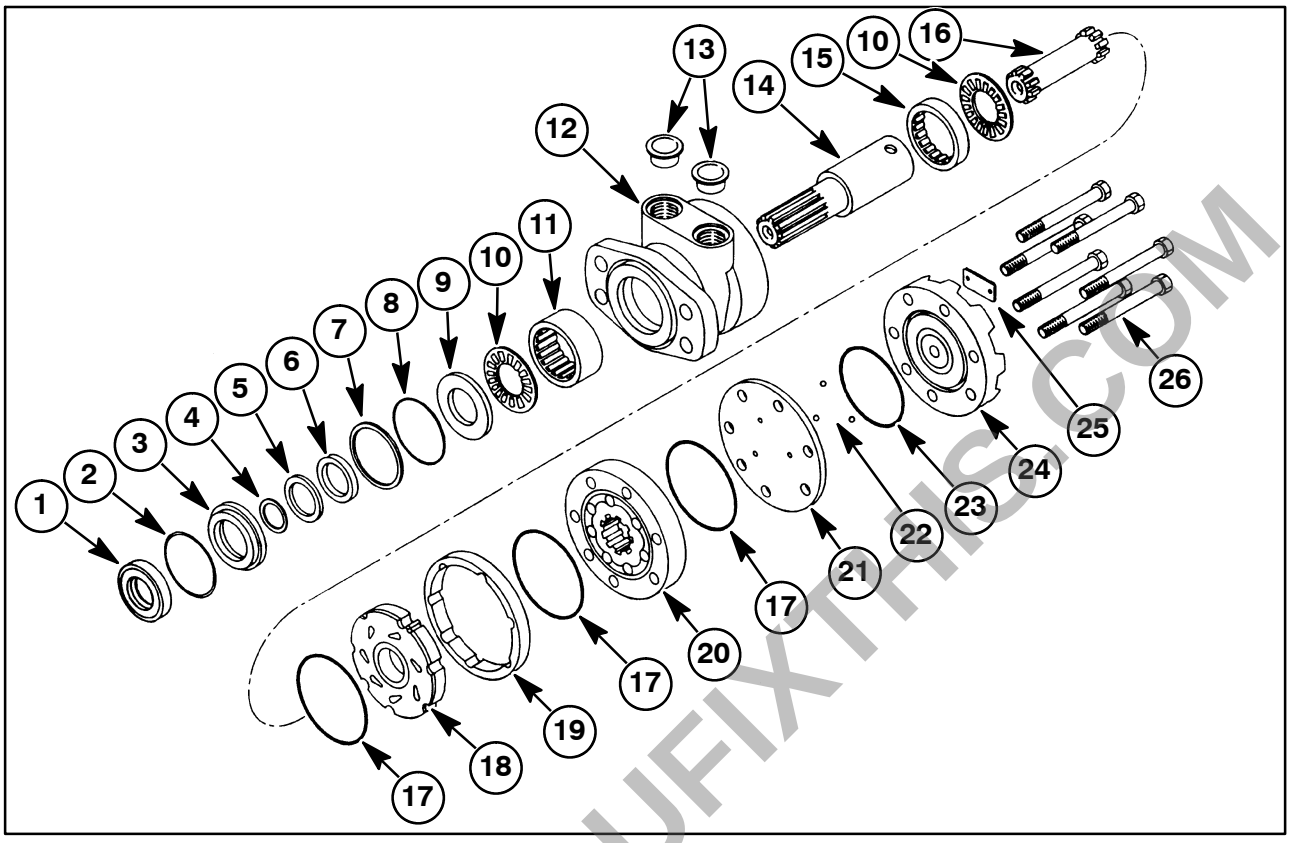
Header Hydraulic Drive System



3

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Assembly

Clean all components and put a coating of 134D hydraulic oil on the parts prior to assembly.

1. Place the housing in a vise with the mounting flange up.
2. Slide the shaft, 14, into the housing so that the seal carrier, 3, is beyond the inner bore seal groove.
3. Install the lathe cut seal, 8, into the inner bore groove.

NOTE: *Use the proper size seal. Refer to the seal that was removed.*

4. Install the steel back up shim, 7, next to seal, 8.

NOTE: *The shim must be folded and bent slightly and worked into place with a small screwdriver.*

5. Install the wire retaining ring, 2, next to the steel back up shim, 7.
6. Turn the housing over and place it in a vise with the shaft end down.

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MINIMUM HARDWARE TIGHTENING TORQUES

IN FOOT POUNDS (NEWTON-METERS) FOR NORMAL ASSEMBLY APPLICATIONS

INCH HARDWARE AND LOCKNUTS

NOMINAL SIZE	SAE GRADE 2		SAE GRADE 5		SAE GRADE 8		LOCKNUTS		NOMINAL SIZE
	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	GR.B w/GR5 BOLT	GR.C w/GR8 BOLT	
1/4	55* (6.2)	72* (8.1)	86* (9.7)	112* (13)	121* (14)	157* (18)	61* (6.9)	86* (9.8)	1/4
5/16	115* (13)	149* (17)	178* (20)	229* (26)	250* (28)	324* (37)	125* (14)	176* (20)	5/16
3/8	17 (23)	22 (30)	26 (35)	34 (46)	37 (50)	48 (65)	19 (26)	26 (35)	3/8
7/16	27 (37)	35 (47)	42 (57)	54 (73)	59 (80)	77 (104)	30 (41)	42 (57)	7/16
1/2	42 (57)	54 (73)	64 (87)	83 (113)	91 (123)	117 (159)	45 (61)	64 (88)	1/2
9/16	60 (81)	77 (104)	92 (125)	120 (163)	130 (176)	169 (229)	65 (88)	92 (125)	9/16
5/8	83 (112)	107 (145)	128 (174)	165 (224)	180 (244)	233 (316)	90 (122)	127 (172)	5/8
3/4	146 (198)	189 (256)	226 (306)	293 (397)	319 (432)	413 (560)	160 (217)	226 (306)	3/4
7/8	142 (193)	183 (248)	365 (495)	473 (641)	515 (698)	667 (904)	258 (350)	364 (494)	7/8
1	213 (289)	275 (373)	547 (742)	708 (960)	773 (1048)	1000 (1356)	386 (523)	545 (739)	1

NOTE: Torque values shown with * are inch pounds.

IDENTIFICATION
CAP SCREWS AND CARRIAGE BOLTS



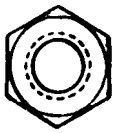
SAE GRADE 2



SAE GRADE 5



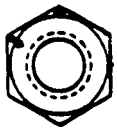
SAE GRADE 8



REGULAR NUTS

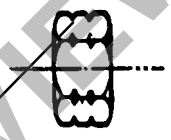


SAE GRADE 5 HEX NUTS



SAE GRADE 8 HEX NUTS

LOCKNUTS



GRADE IDENTIFICATION
GRADE A NO NOTCHES
GRADE B ONE CIRCUMFERENTIAL NOTCH
GRADE C TWO CIRCUMFERENTIAL NOTCHES



GRADE IDENTIFICATION
GRADE A NO MARKS
GRADE B THREE MARKS
GRADE C SIX MARKS
MARKS NEED NOT BE LOCATED AT CORNERS



GRADE A NO MARK
GRADE B LETTER B
GRADE C LETTER C

GRADE IDENTIFICATION

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TROUBLESHOOTING

TROUBLESHOOTING CHARTS

Use the following troubleshooting charts to identify and correct problems in reel lift systems.

PROBLEM	POSSIBLE CAUSE	SOLUTION
REEL		
Reel will not hold height.	Leaking hose or fitting. Valve in windrower leaking.	Repair or replace. See Windrower Operator's Manual.
Reel will not hold level.	Leaking hose or fitting. Air in system. Faulty master cylinder. Leaking cylinder seal.	Repair or replace. Bleed slave cylinder. Repair or replace. Replace seal.
Reel raises or lowers erratically and/or reel will not raise.	Reel cylinders binding. Arms bent or binding. Low hydraulic oil. Hydraulic couplers don't match. Hydraulic couplers not engaged. Faulty hydraulics.	Replace cylinder. Repair or replace. See Windrower Operator's Manual. Install correct couplers. Re-couple properly. See Windrower Operator's Manual.
Reel raises slowly.	Elbow in master cylinder too tight.	Loosen fitting.
Damage to center of reel.	Reel set too low.	Adjust height.
Reel hitting at end.	Reel not centered.	Adjust centering.
Reel will not turn or turns erratically.	Flow control set too low. Faulty relief valve. Seized bearing(s). Faulty drive motor. Reel tied down. Hydraulic couplers not engaged.	Advance setting. Clean or replace. Replace bearing(s). Replace motor. Release reel. Re-couple properly.
Reel speed cannot be adjusted. - Header driven reel.	Poor connection in electrical wires or cable. Defective reel speed motor. Faulty flow control.	Check connections and cable. Replace motor. Replace flow control valve.
Single Reel		
Reel does not raise level.	Air in system.	Bleed slave cylinder.
Right side goes up slow.	Air in system. Restricted hydraulic hose. Restricted bundy flex.	Bleed slave cylinder. Replace hose. Replace bundy flex.
Right side will not raise.	Leaking hose, fitting, or cylinder.	Repair or replace.
Left side goes up slow.	Faulty piston seal.	Replace seals.
Left side will not raise.	Faulty cylinder. Faulty bypass port. Faulty piston seal.	Replace cylinder. Replace cylinder. Replace seals.

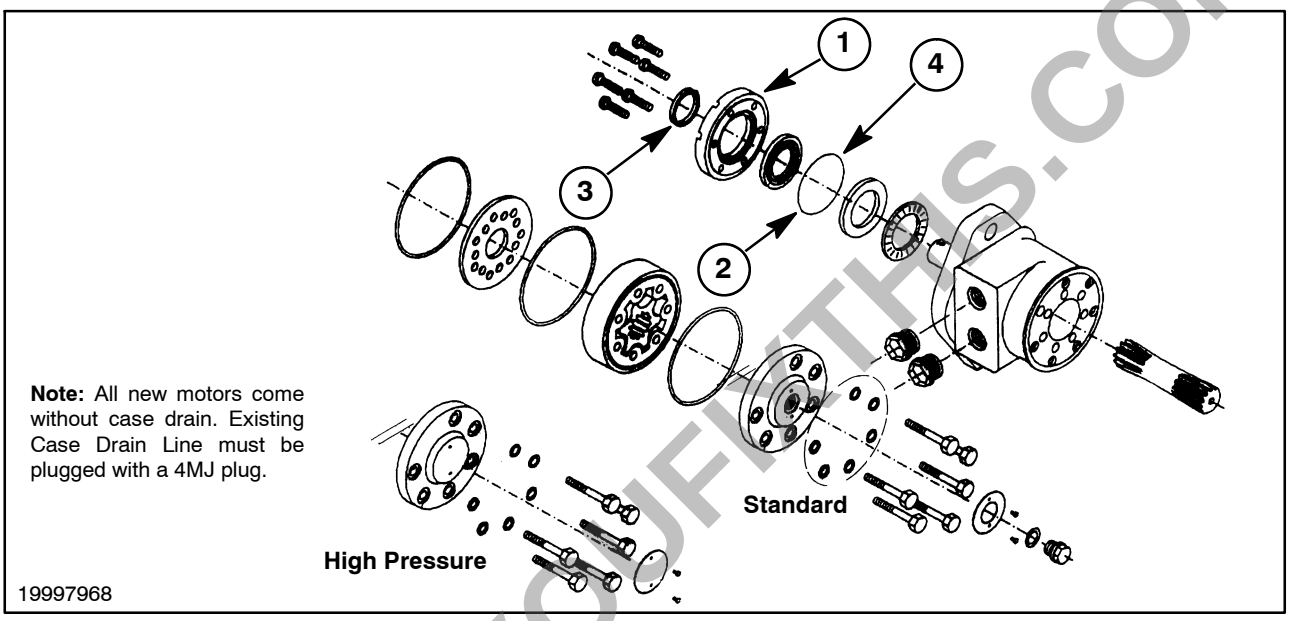
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DANFOSS DH MOTOR SHAFT SEAL

Replacement

1. Remove the motor.
2. Remove the key from the shaft.
3. Carefully wash the motor in a suitable solvent.
4. Place the motor in a vise with the output shaft up.
5. Remove the screws holding the shaft end cover, 1, with a T30 Torx wrench.
6. Hold the shaft in place so the motor does not go out of time and remove the end cover.
7. With a hammer and a 4 mm (3/16″) flat-blade screwdriver, drive out the shaft seal, 2.
8. With a 4 mm (3/16″) flat-blade screwdriver, remove the dust seal, 3.



Note: All new motors come without case drain. Existing Case Drain Line must be plugged with a 4MJ plug.

2

9. Clean the end cover to remove all dirt.
10. Install a new shaft seal with a plastic hammer. Make sure the seal lies flat against the cover recess.
11. Install a new dust seal with a plastic hammer and appropriate mandrel.
12. Remove the needle bearing O ring, 4.
13. Lubricate a new needle bearing O ring with petroleum jelly and install it at the needle bearing.
14. Lubricate the end plate and seals with clean hydraulic oil and install it onto the motor. Line up the holes in the end cover with the holes in the body.
15. Install the Torx screws to hold the end cover. Tighten the screws to 61-95 N·m (45-70 in.-lb.).

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SPECIFICATIONS

HEADERS

MODEL	DHX182	DHX212	DHX252	DHX302	DHX362
CUT WIDTH	5.5 m (18′)	6.4 m (21′)	7.6 m (25′)	9.1 m (30′)	11 m (36′)
WEIGHTS					
Header (w/o Reel) Transport Assembly or Lift Arm	815 kg (1796 lbs.)	900 kg (1984 lbs.)	1036 kg (2283 lbs.)	1232 kg (2716 lbs.)	1458 kg (3214 lbs.)
BAT REEL	136 kg (300 lbs.)	159 kg (350 lbs.)	181 kg (400 lbs.)	228 kg (502 lbs.)	266 kg (590 lbs.)
PICKUP REEL UII UNIVERSAL, 5 BAT, STEEL TEETH	223 kg (490 lbs.)	255 kg (562 lbs.)	283 kg (624 lbs.)	327 kg (720 lbs.)	446 kg (980 lbs.)
PICKUP REEL HCC ML, 6 BAT	228 kg (502 lbs.)	257 kg (566 lbs.)	284 kg (625 lbs.)	326 kg (718 lbs.)	402 kg (886 lbs.)
TRANSPORT AXLE/HITCH TUBE PACKAGE	96 kg (210 lbs.)	96 kg (210 lbs.)	96 kg (210 lbs.)	96 kg (210 lbs.)	96 kg (210 lbs.)
KNIFE DRIVE					
Single	Standard	Standard	Standard	Standard	Standard
Double	Optional	Optional	Optional	Optional	Optional

OPTIONS

*Bat Reel - 5 bat, 1372 mm (54″) diameter.

*Pickup Reel - 5 bat, 1067 mm (42″) diameter Universal UII Pickup Reel, wire or plastic fingers.

*Pickup Reel - 6 bat, 1118 mm (44″) diameter HCC ML Pickup Reel, plastic fingers.

*Cutter bar and skid shoes.

*Cross auger.

*Swath Delivery Kits - Hydraulic deck shift; DHX252 and DHX302 Only.

*Castering Gauge Wheels

*Header Transport Assembly

*Remote Canvas Speed Control

*End Gauge Wheels

*Hydraulic Fore/Aft Reel Adjustment

*Hydraulic Header Tilt

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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 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.*

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COMPLETE CONTENTS

SECTION 00 - GENERAL INFORMATION

Chapter 1 - General Information

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DHX182, DHX212, DHX252, DHX302, DHX362 Draper Headers

Repair Manual

87032609

CASE IH

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DESCRIPTION OF OPERATION AND OVERHAUL

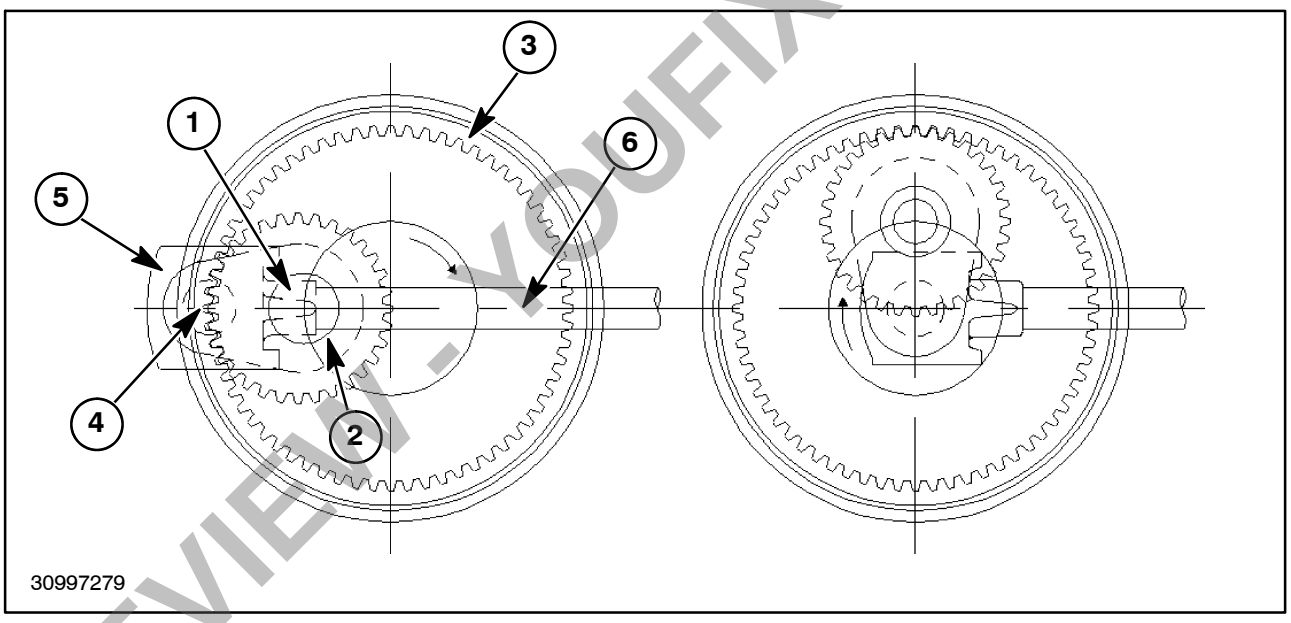
KNIFE DRIVE

The knife drive is designed to apply an absolutely linear, or straight-line, drive to the knife. This is done by using planetary gears to convert the rotary motion of the hydraulic motor to a straight-line motion for the knife.

The hydraulic motor drives a large driving gear (not shown) which has a solid web carrying the stud, 1, on which the crank pinion, 2, is mounted. This crank pinion has exactly half as many teeth as internal gear, 3, which is fastened to the frame of the drive. The crankpin, 4, is attached to the pinion, 2, and engages cross-head, 5. Attached to cross-head, 5, is knife, 6.

When the large driving gear is turned by the hydraulic motor, the crank pinion stud, 1, moves in a circular path, as indicated by the arrows, causing pinion, 2, to revolve about the stud, 1, and around the internal gear, 3. When pin, 1, has moved one-quarter of a revolution, it will be in the position shown in view B. Pin, 4, attached to cross-head, 5, will be in the center of the internal gear, 3. After pin, 1, has moved one-half revolution, pin, 4, will have moved in a straight line a distance equal to the pitch diameter of the internal gear, 3, and will be at the right-hand end of its stroke. At three-quarters of a revolution, the pin, 4, will again be in mid position, and at the end of a full revolution, the pin will be at the starting point as shown in view A. In this way, the crank pinion, 2, as it revolves around the internal gear, 3, transmits to pin, 4, and attached cross-head, 5, a linear, perfectly straight, left and right movement.

The knife head is attached to the drive by two bolts at a trapezoidal claw joint. This joint eliminates the need to adjust or shim bearings and provides quick and accurate alignment of the bolts.



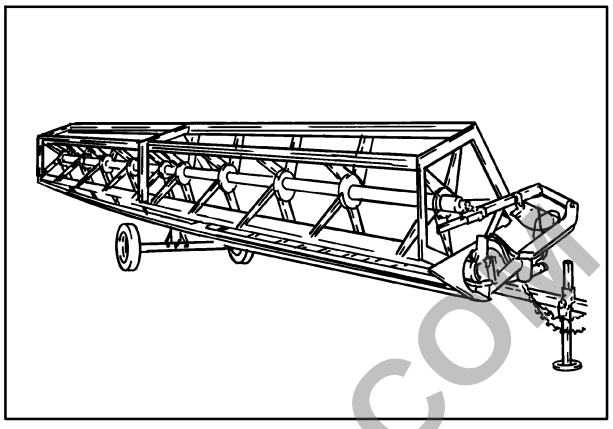
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BEFORE TRANSPORTING

1. Do a complete walk-around visual check to be sure there are no loose parts or components.
2. Check wheel bolts to make sure they are tight.
3. Check transport tire pressure. Recommended pressure is 3.4 bar (50 psi) for 225/75R15 radials, and 8.00–16 10-ply bias tires.
4. Check spindle and hitch lockpins to make sure they are in place and securely fastened.
5. Do a visual check of all hoses to make sure they are securely tied so they will not pinch or drag during transporting.
6. Be sure hitch tongue and safety chain are fastened securely to the header and to the transporting vehicle.



4

TRANSPORT SAFETY

1. Transport the header with the SMV (Slow Moving Vehicle) sign displayed on the rear of the header and use your hazard lights if the law permits. Check local road laws before transporting.
2. When transporting the header on the road be aware of the width of the header.
3. For long distance transporting, put the header into full transport.
4. Do not transport the machine at night, at dawn, or at dusk.
5. Do not exceed 32 kph (20 mph) during transport.

TRANSPORTING CHECKS

1. If you are towing your header to a distant destination, stop after the first 5 - 10 kilometers (3 - 6 miles) and check to make sure the wheel bolts are tight and the wheel hubs are not hot. Make periodic checks 50 - 60 km (30 - 35 miles) if towing the header long distances.
2. Check the hitch bolt and safety chain periodically to make sure they are secure.

Towing Restrictions on Public Roads

Check with local and state authorities and follow all regulations concerning towed equipment on public roads.

Do not tow equipment, such as a draper header, that does not have brakes:

- at speeds over 32 kph (20 mph); or
- that when fully loaded weighs more than 1.5 ton (3300 lbs.) and more than 1.5 times the weight of the towing unit.

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