BW28, BW38
REPAIR MANUAL
COMPLETE CONTENTS

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The following pages are the collation of the contents pages from each section and chapter of the BW28, BW38 Repair manual. Complete Repair part # 87693295.

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 BW28, BW38 Bale Wagons.

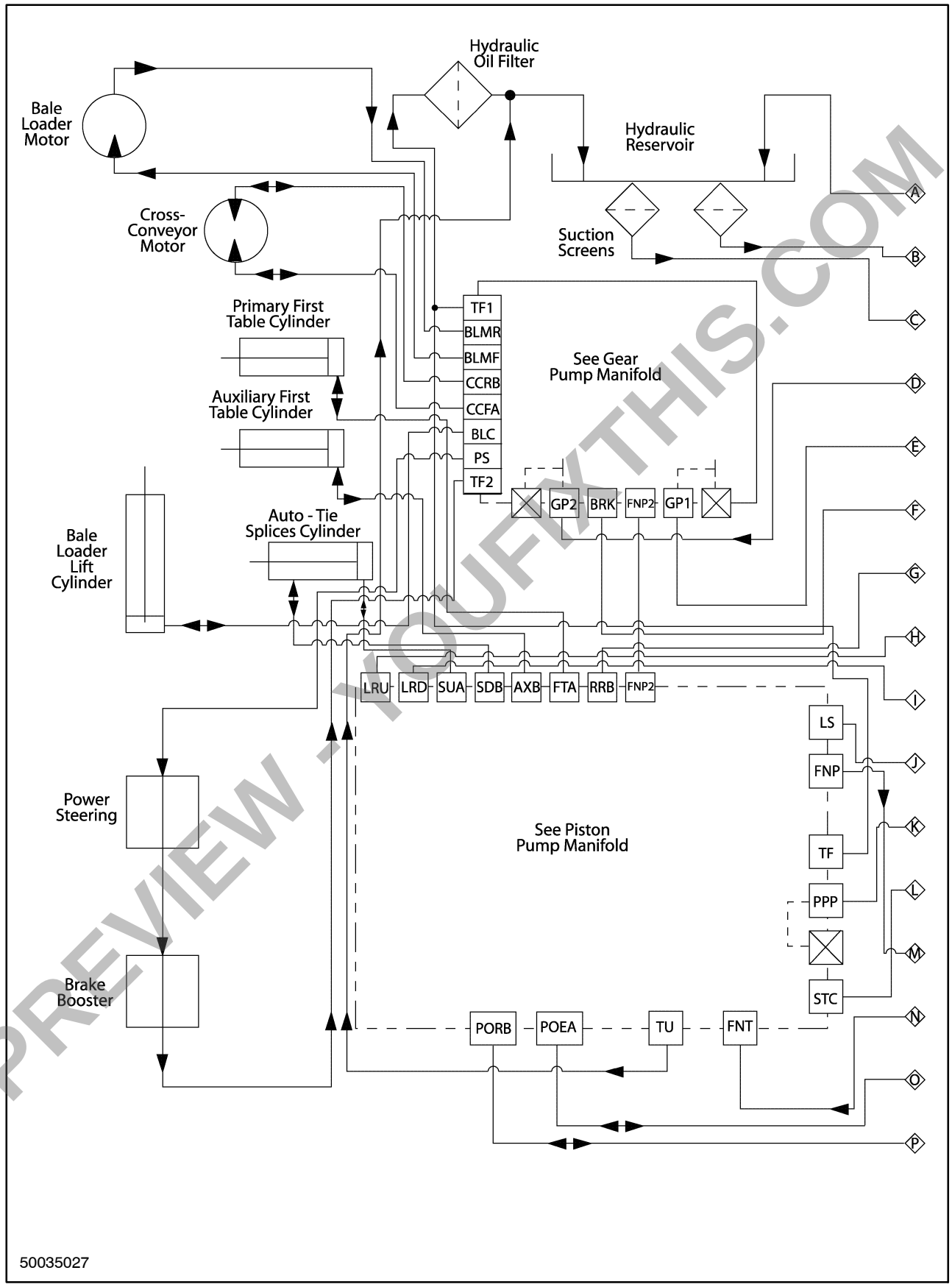
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SYSTEM DIAGRAM



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ELECTRICAL SYSTEM COMPONENTS

ELECTRICAL PANEL LOCATIONS

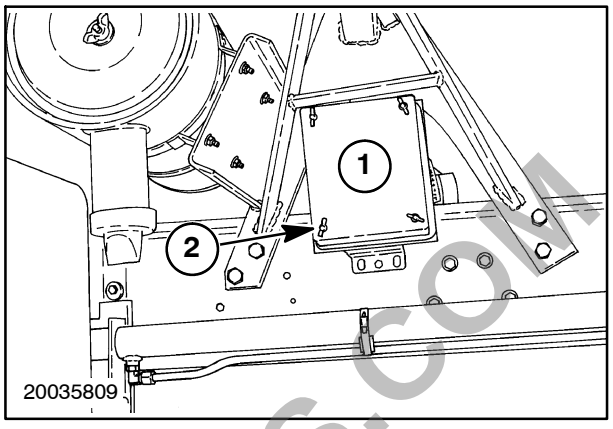
The Bale Wagon has two circuit breaker/relay panels.

One panel, 1, is located on the right frame rail near the engine.

A diagram on the fuse panel cover, 1, indicates the function and size of each component.

Access to Rear Electrical Panel (Near Engine)

1. Remove the four wing nuts, 2.

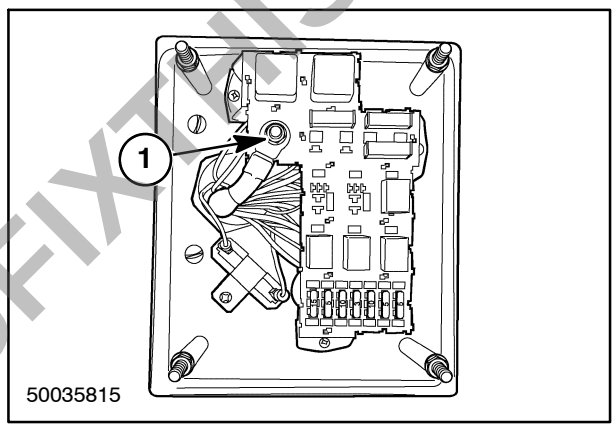


7

2. Remove cover.

Junction Block (W-01)

A junction block is a box used only for connecting wires together. The junction block (W-01), 1, is located in the rear distribution panel.



8

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GENERAL INFORMATION

This section covers the electrical portion of the lighting system. The individual circuits that comprise the lighting system are shown in schematic drawings. And explanation of each circuit is provided.

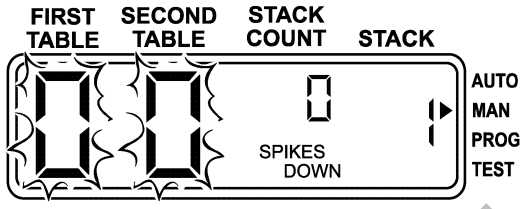
LAMP REPLACEMENT CHART

Circuit	Bulb Trade No.
Road/work lights	Sealed lamp
Headlamp (inner)	4651
Headlamp (outer)	4656
Taillight	Sealed lamp
Cab turn signal lights	1156
Hazard (rear and side)	Sealed lamp
Dome light	R10W
Overhead console light	194

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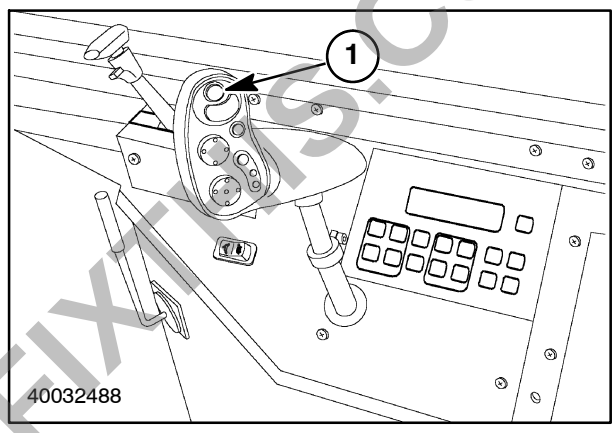
The system will begin in the manual (MAN) mode - indicated by the first and second table counts flashing and the arrow indicator pointing to “MAN”.



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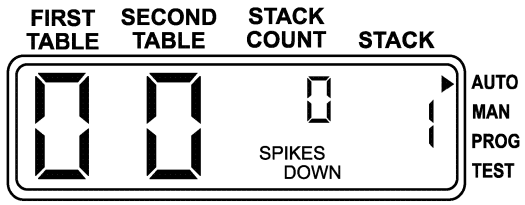
1

Press the Auto/Manual button, 1, on the MFH (S-29) to begin automatic operation.



2

The automatic mode is the normal operating mode of the bale wagon. This mode is indicated by nothing flashing in the display and the arrow pointing to “Auto”.



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3

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SPECIFICATIONS

Engine

Maximum power at rated speed	kW (hp)	129 (170)
Rated speed	rpm	2300
Idle speed	rpm	Crankshaft: 850 ± 25
High idle speed	rpm	Crankshaft: 2525 ± 25
Aspiration		Turbocharged & after cooled
Number of cylinders		6
Bore	mm (in.)	104 (4.094)
Stroke	mm (in.)	132 (5.197)
Displacement	L (cu. in.)	6.7 (408)
Compression ratio		17.5:1
Firing order		1-5-3-6-2-4
Valve clearance (cold)		
Intake	mm (in.)	0.25 ± 0.05 (0.008 – 0.012)
Exhaust	mm (in.)	0.50 ± 0.05 (0.018 – 0.022)

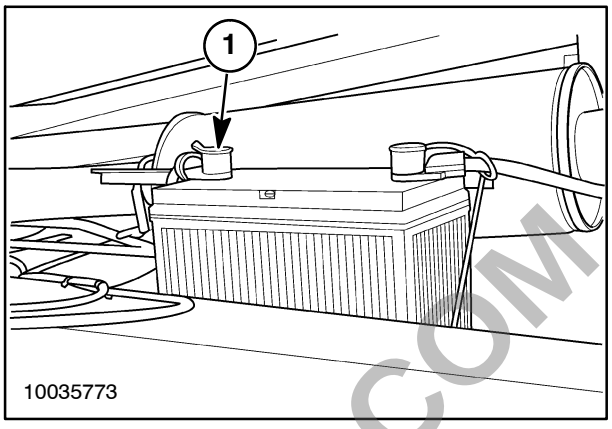
Fuel System

Injection pump type (rotary)		Bosch VE-Series
Timing BTDC	Degrees	4
Injector cracking pressure	bar (psi)	241 (3500)

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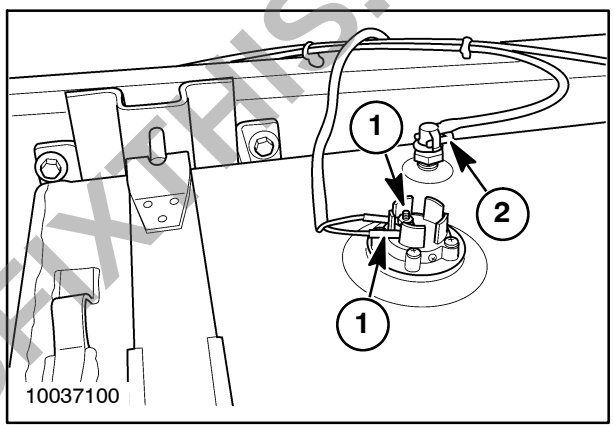
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2. Unfasten the ground cable, 1, from the battery.



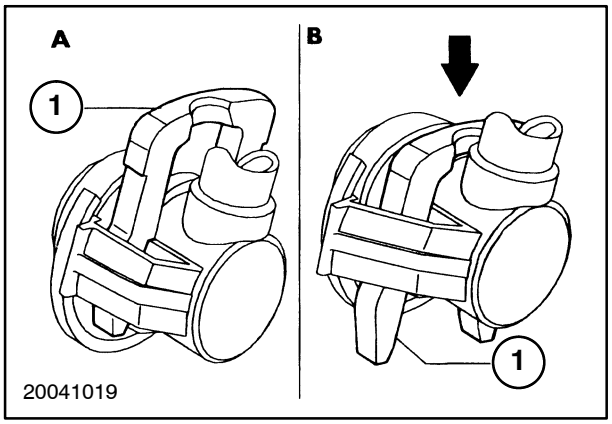
3

3. Disconnect the fuel gauge sender wires, 1.
4. Remove the fuel lines, 2.



4

5. Press the white clip, 1, inward and pull the fuel line off the fitting.
6. Keep the fuel in the fuel lines by tying them up out of the way.



5

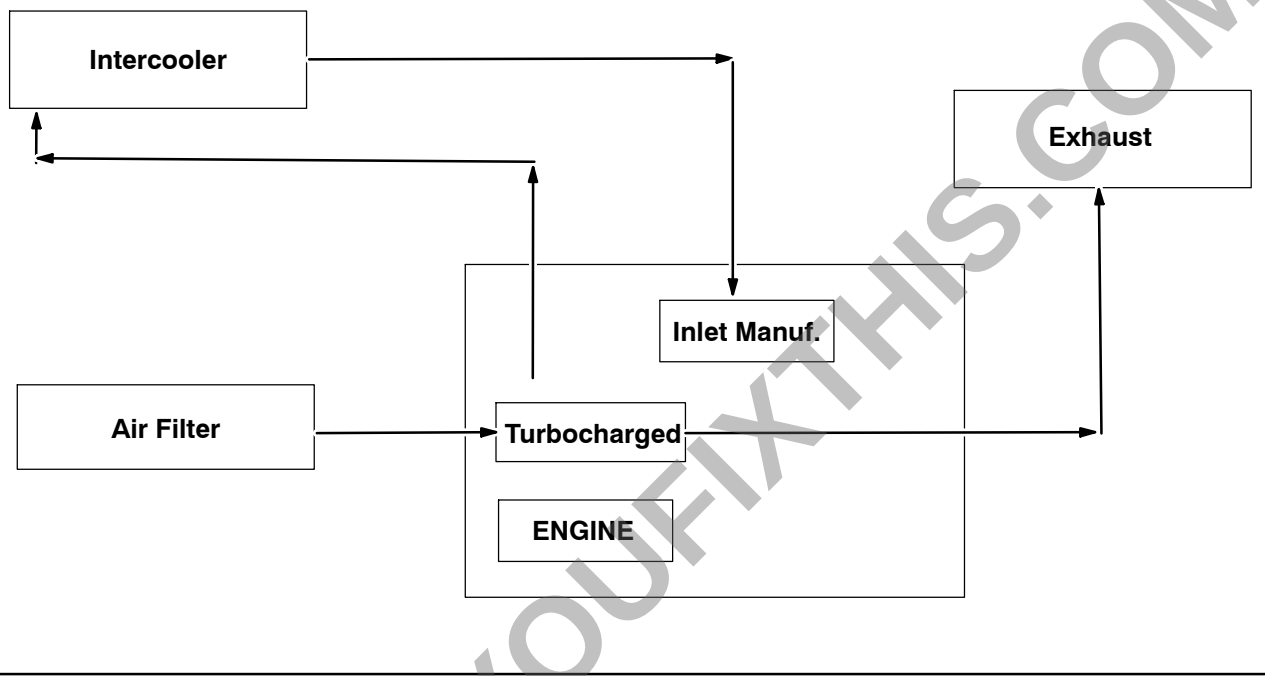
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The turbocharger pulls air in through the air filter, compresses it and pushes it through the intercooler to the engine.

SPECIFICATIONS

AIR CIRCUIT LAYOUT



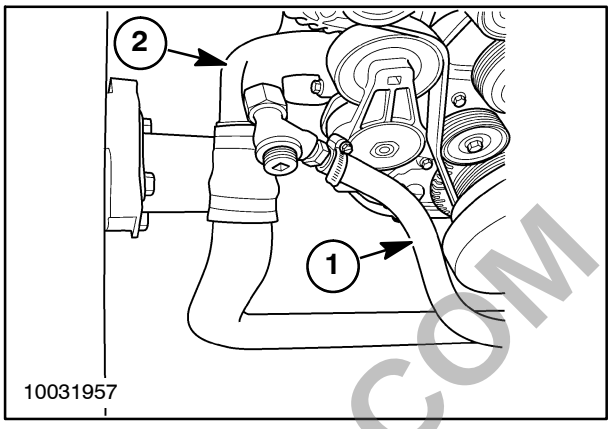
AIR FLOW

- AIR FLOW
  - 129 kW (173 HP) at 2300 rpm . . . . . 850 kg/h (1870 lbs/hr)
  - 97 kW (130 HP) at 1400 rpm . . . . . 450 kg/h (990 lbs/hr)

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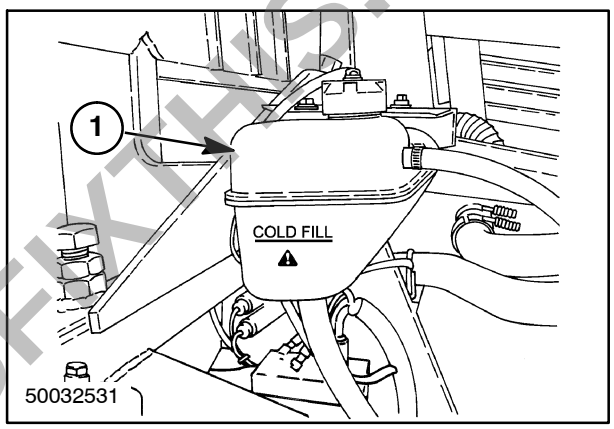
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A hose, 1, connects the housing, 2, to the expansion tank.



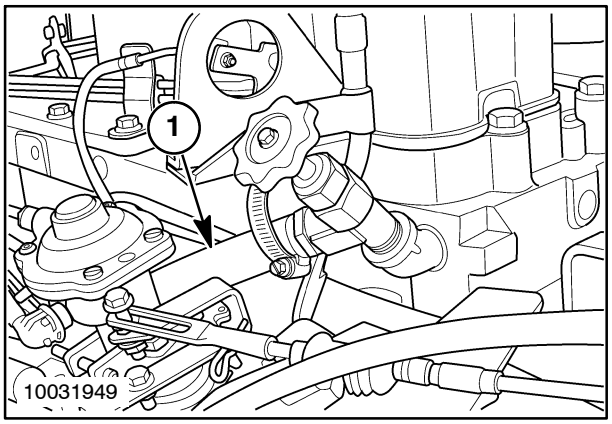
2

The reservoir of coolant in the expansion tank, 1, keeps the system full and allows for expansion as the coolant gets hot. The expansion tank will be pressurized during operation.



3

Bale wagons with a heater in the cab take some of the flow at the top rear of the engine. The hot coolant flows through the hose, 1, to the cab.

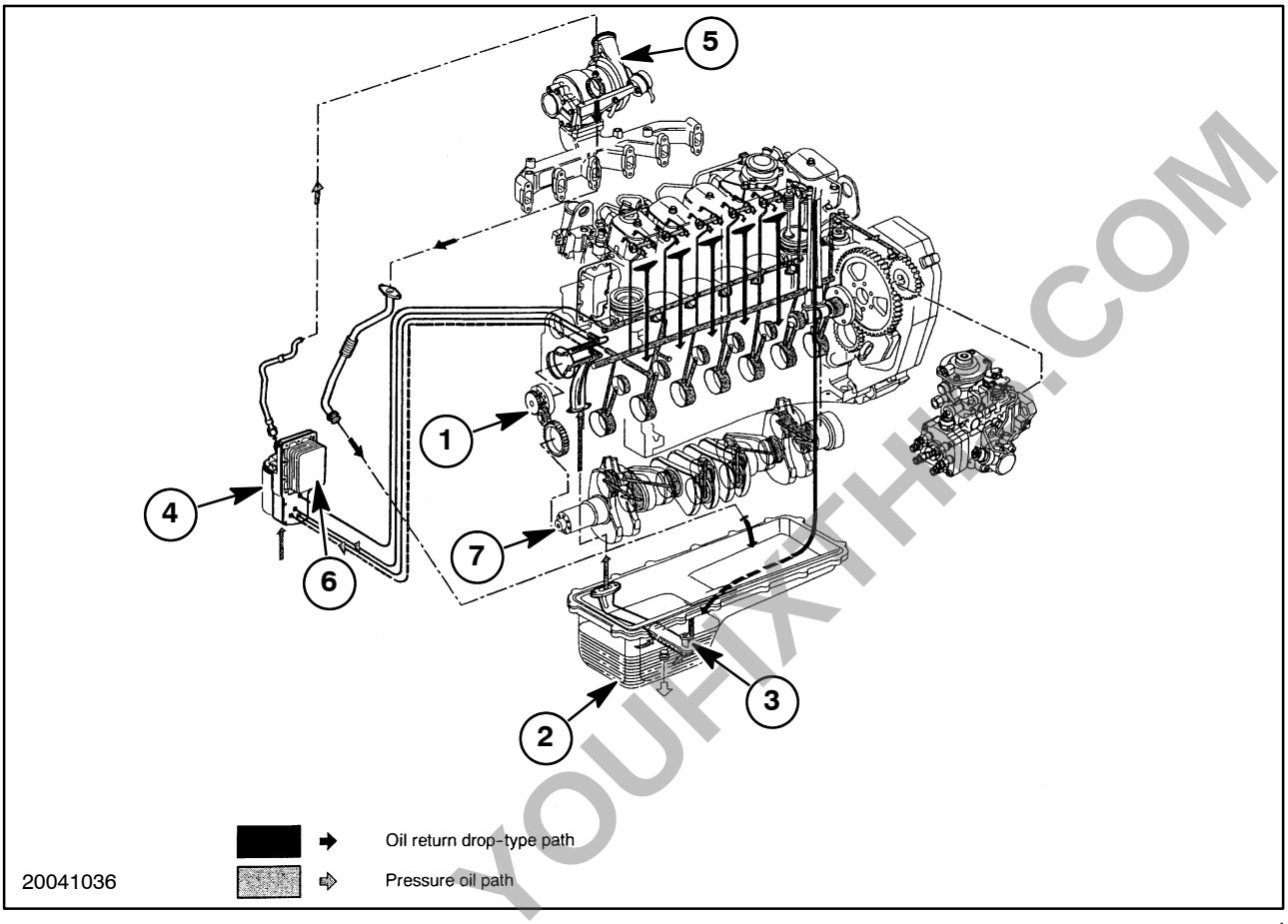


4

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INTRODUCTION



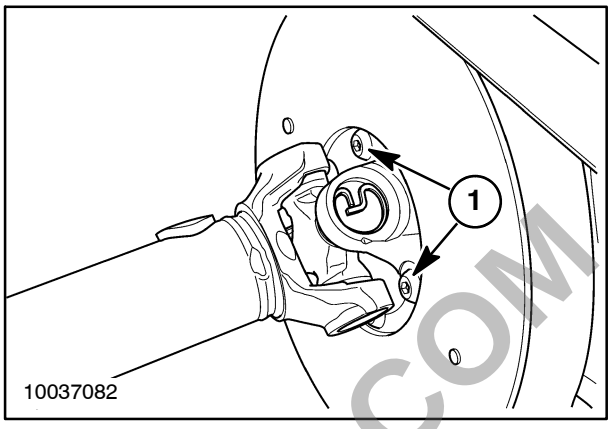
1

The oil pump, 1, is located at the right front corner of the engine. The pump pulls oil out of the sump, 2, through a strainer, 3. The oil is pushed through the oil filter, 4. Some of the oil goes to the turbocharger, 5, and back to the sump. The rest of the oil goes through the oil/water heat exchanger, 6, to the engine to lubricate the crankshaft, 7, camshaft and valves. The oil flows down through the engine and returns to the sump.

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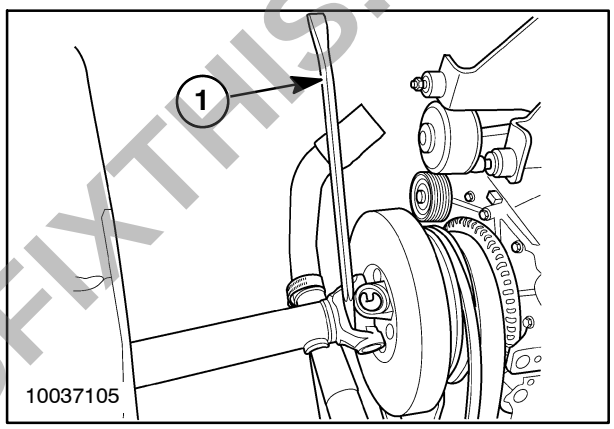
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4. Remove the four hex socket bolts, 1, in the yoke flange. A 6 mm Allen socket is required. The bolts can only be removed in the upper position.



4

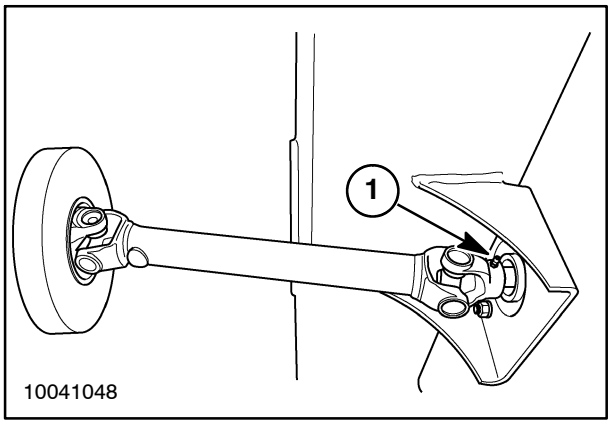
5. Use a pry bar, 1, in the “U”-joint, to rotate the driveline.



5

6. Loosen the set screw, 1, in the front yoke.
7. Move the hydraulic pump forward to get the driveline off.

IMPORTANT: *New M10 x 14 bolts with a locking patch, part number 9849338 must be ordered.*

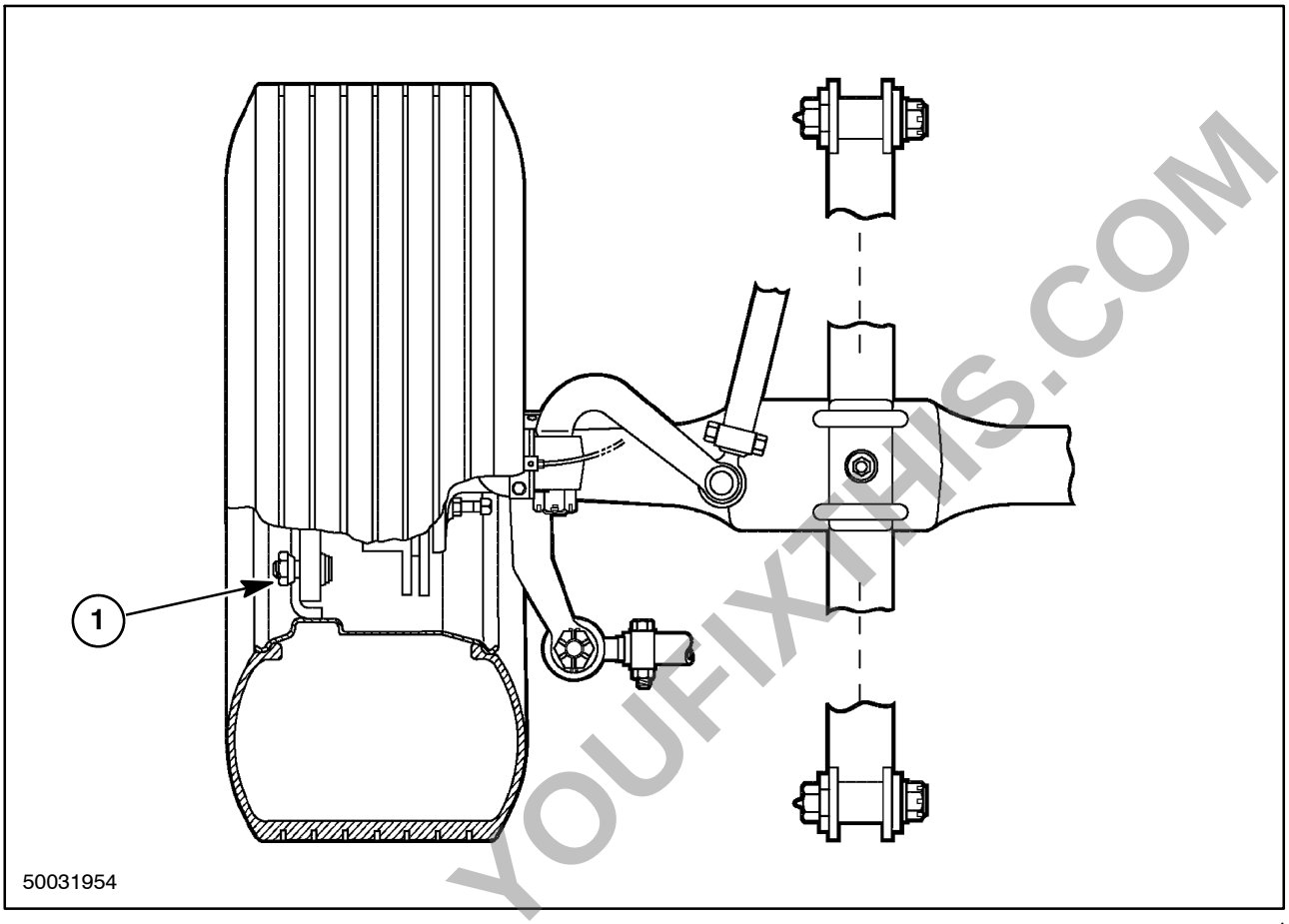


6

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MAINTENANCE



1

WHEEL LUG BOLTS

Torque the wheel lug nuts, 1, to 542 N·m (400 ft-lbs).

To prevent damage to the wheel or the fasteners, recheck the torque on the wheel hub bolts after 15 hours of operation and every 50 hours thereafter.

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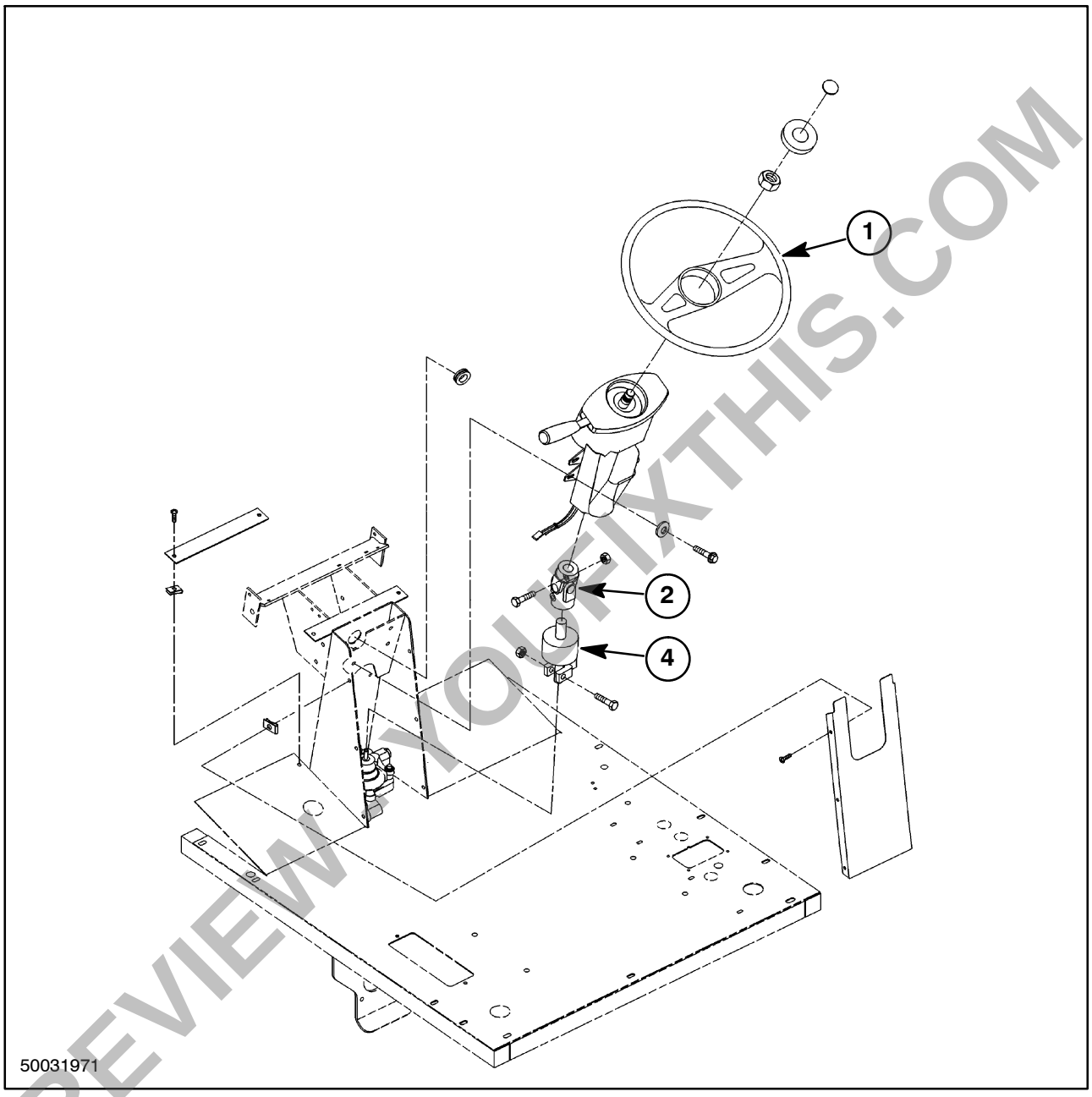
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PROBLEM	POSSIBLE CAUSE	CORRECTION
Constant noise.	Flat spot on pinion or ring gear teeth.	Replace.
	Flat spot on bearings.	Replace.
	Worn pinion splines.	Replace.
	Worn axle shaft dowel holes.	Replace.
	Worn hub studs.	Replace.
	Bent axle shaft.	Replace.
	Worn wheel bearings.	Replace.
Noisy on turns.	Worn differential side gears and pinions.	Replace.
	Worn differential spider.	Replace.
	Word differential thrust washers.	Replace.
	Worn axle shaft splines.	Replace.

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GENERAL INFORMATION



1

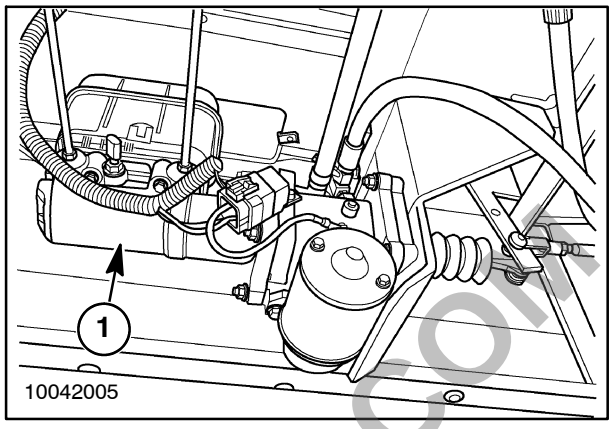
The steering wheel, 1, is mounted on a shaft containing a universal joint, 2. The steering wheel shaft is connected to the steering gear, 3, by a flexible coupling, 4. One end of a drag link, 5, is connected to an arm, 6, on the steering gear.

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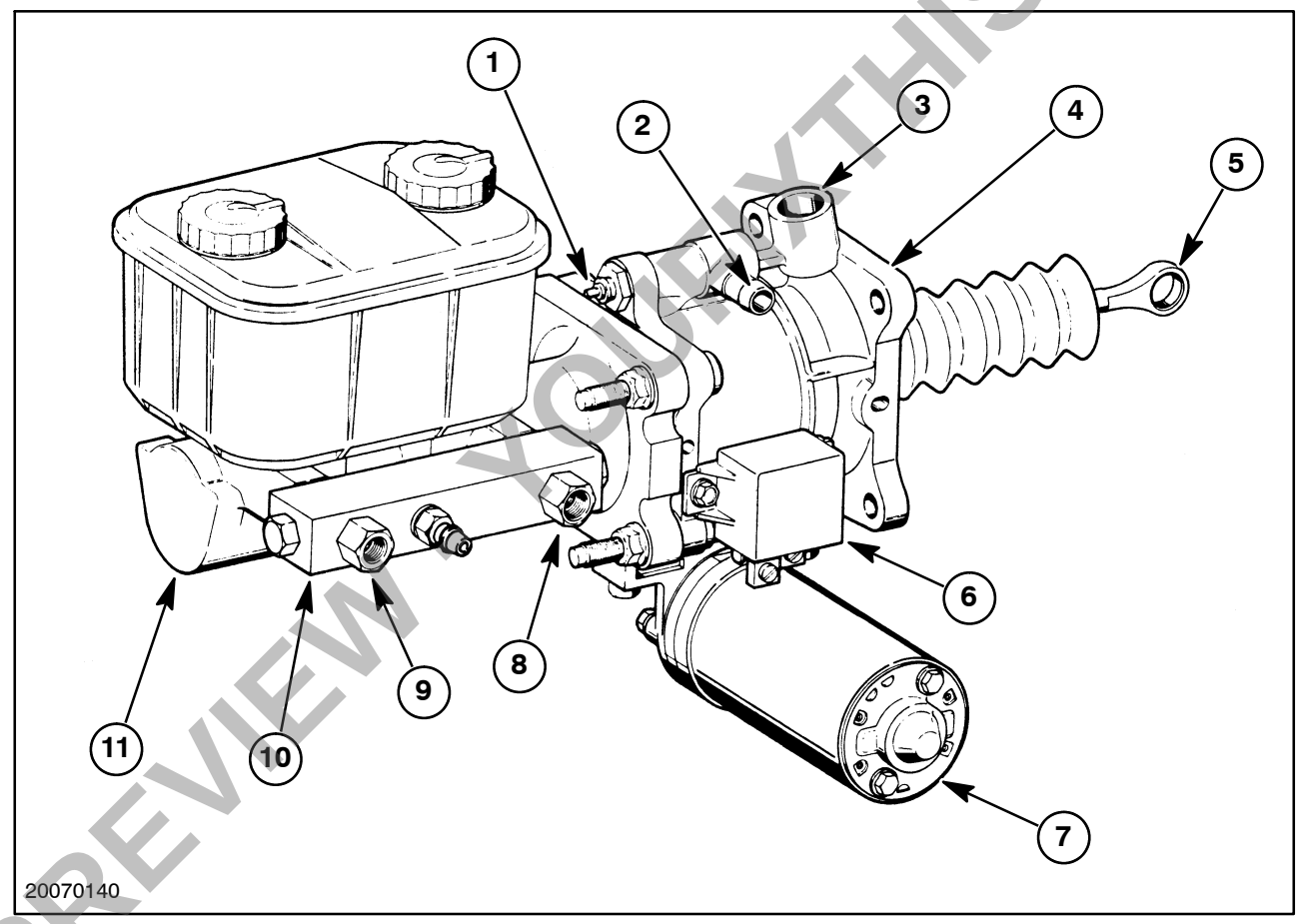
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HYDRO-MAX BOOSTER

The Hydro-Max power brake system, 1, is composed of a mini-master cylinder, a reserve system electric motor pump, a hydraulic-powered booster, and an electric relay. It supplies a hydraulic assist in service brake application and supplies the hydraulic pressure fluid circuit necessary for the parking brake system.



5



6

1. Flow Switch
2. Return Port
3. Inlet Pressure Port
4. Hydro-max Booster
5. Pedal Rod
6. Electric Motor Relay
7. Electric Pump Motor
8. Primary Port
9. Secondary Port
10. Pressure Differential Valve
11. Master Cylinder (Mini-master)

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TRAVELLING - D

Suspension - 40

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	Installation	2
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	Disassembly	5
	Assembly	5
	Spring Bushings	5

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SPECIAL TOOLS

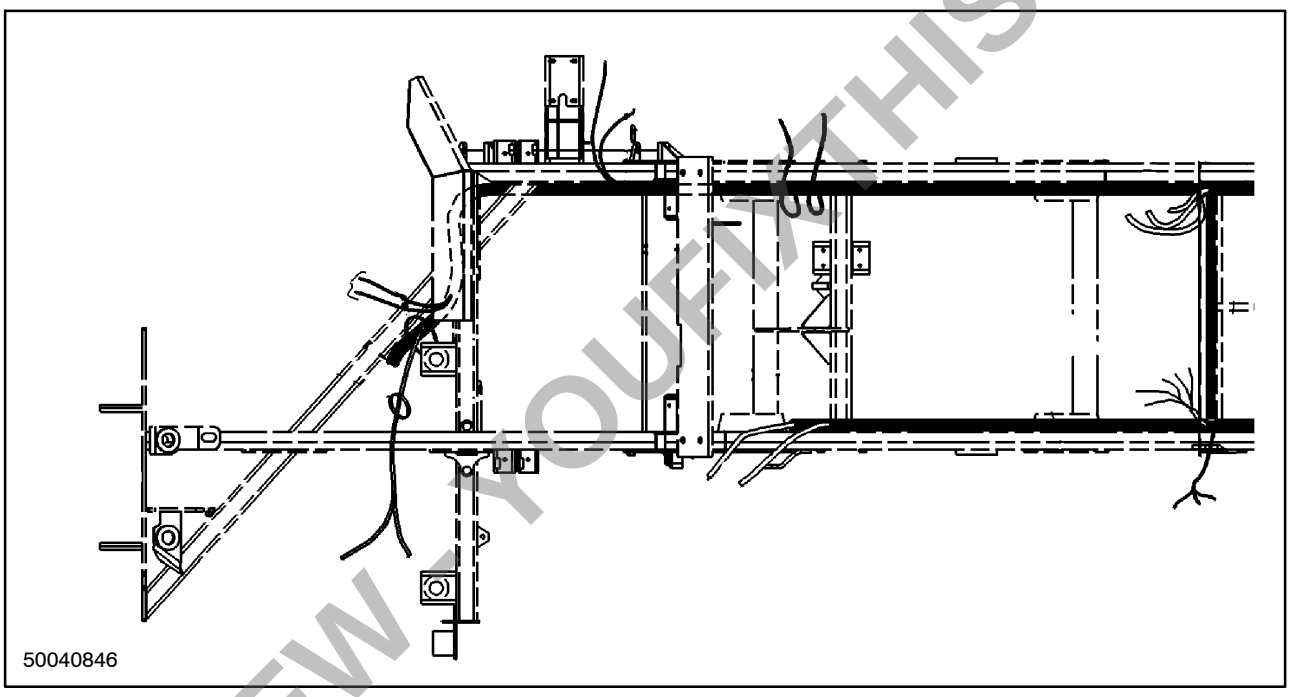
The following special tools are required for repairing the cab on the BW Bale Wagons.

- Cab lifting tool
- Cab supports
- Splitting stand

INTRODUCTION

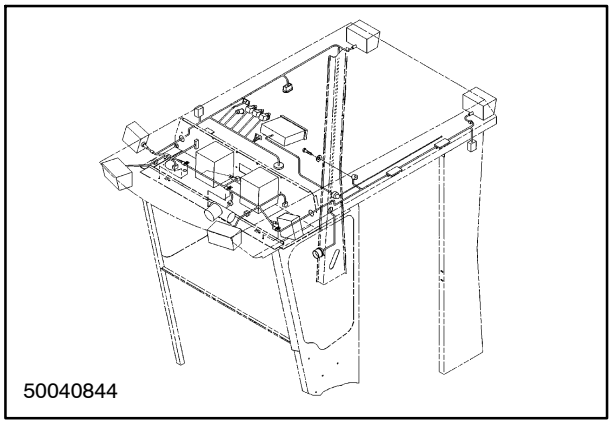
The BW bale wagon consists of two separate frames:

The main frame



1

and the cab frame.



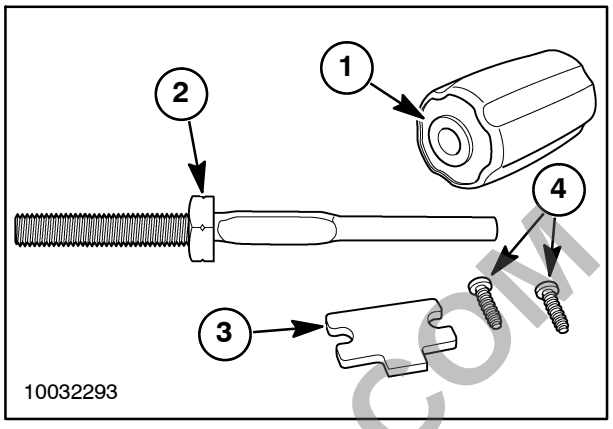
2

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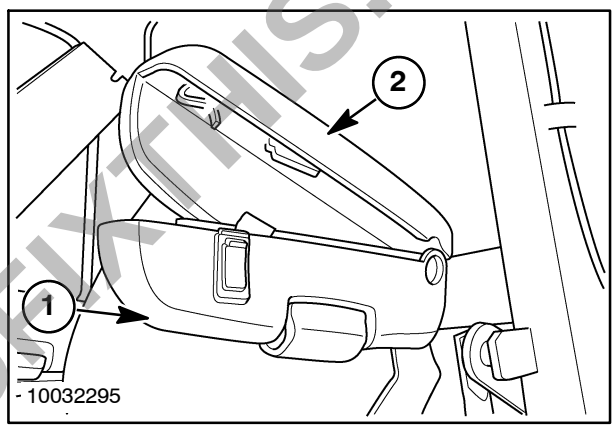
Adjustment

1. Height adjustment knob
2. Threaded rod w/ nut
3. Retaining plate
4. Two machine screws



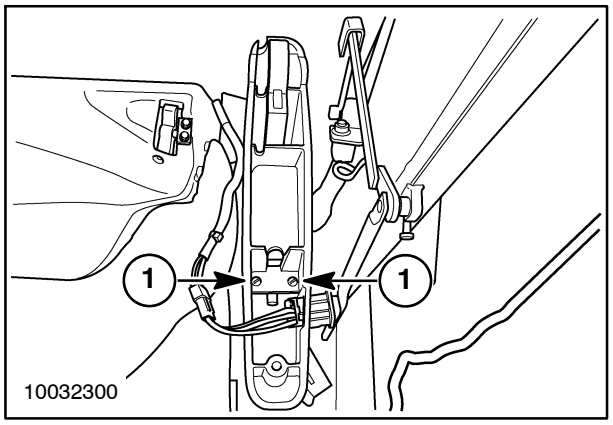
10

1. Remove pan head screw, 1, from underside of armrest.
2. Separate the top half of armrest, 2, from the bottom half that is bolted to the seat frame.



11

3. Remove two machine screws, 1, from retaining plate.



12

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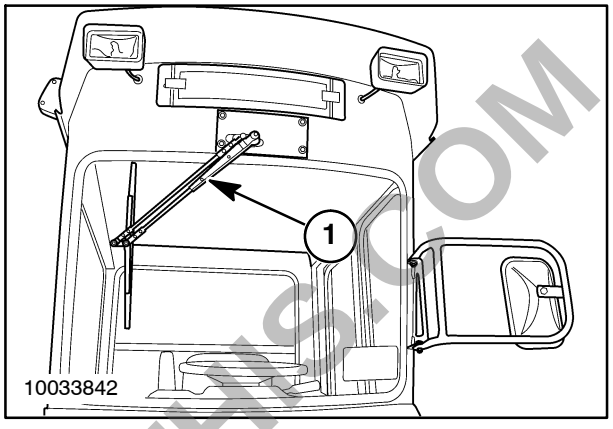
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OVERHAUL

WIPER BLADE

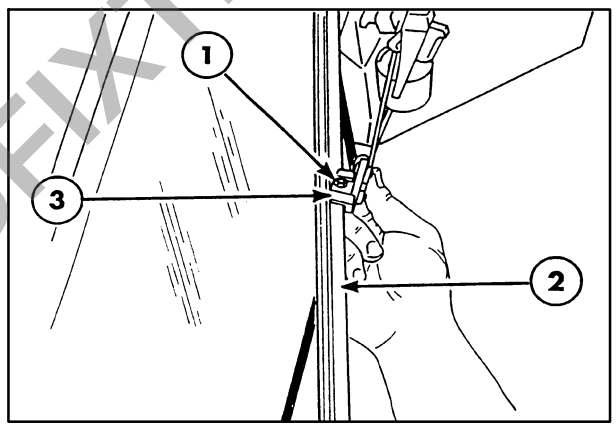
Replace

NOTE: *Replace the wiper blade, 1, when wiper performance starts to decrease. Streaking and smearing are indicators that the blade needs replacing.*



2

1. Remove mounting bolt, 1.
2. Slide 18″ blade, 2, out of the holder, 3.
3. Install new 18″ blade.

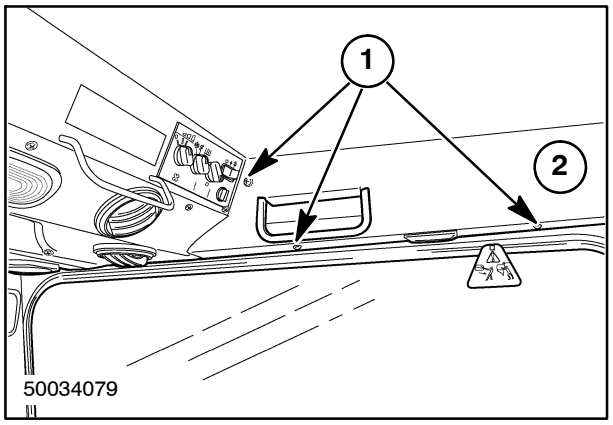


3

WIPER SWITCH

Replace

1. Remove four pan head screws, 1, from the right side overhead panel, 2.



4

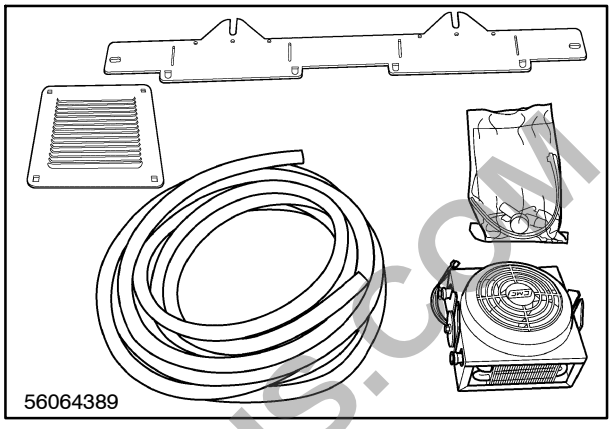
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HEATING SYSTEM (IF EQUIPPED)

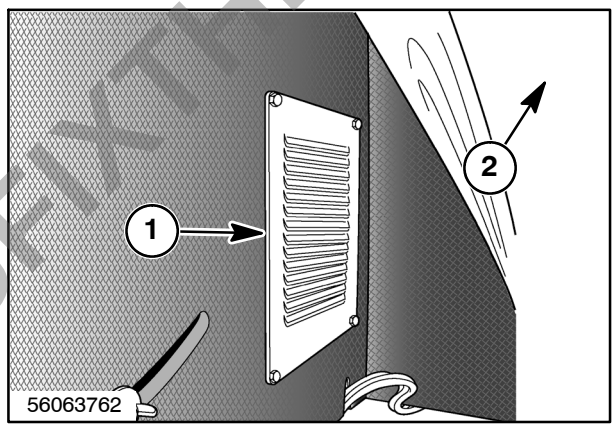
A cab heater is available through an authorized New Holland dealer. The kit includes the heater core, fan, hardware, hoses and the necessary electrical parts.

If the bale wagon is equipped with a heater, please refer to the installation instructions included with the kit.



1

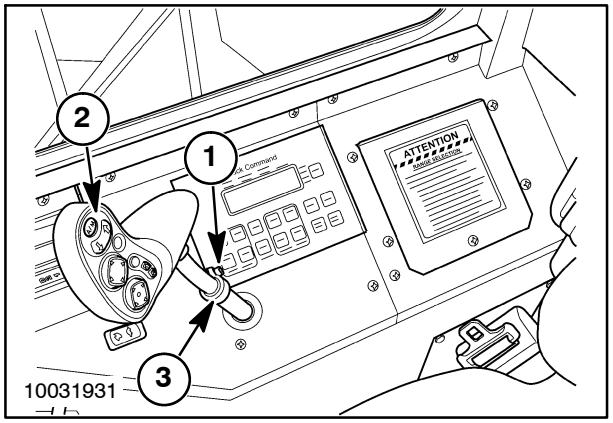
The heater is located in the right hand console, 1, of the cab under the fuse panel cover, 2.



2

Accessing Heater Components

1. Remove the truss head screws from panels.
2. Loosen bolt, 1, on the multi-function handle, 2.
3. Pull MFH, 2, and clamp, 3, from the support tube.



3

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6

Red-Orange Florescent Tape

Part #86547783

7

Red Reflective Tape

Part #86547781

8

Yellow Reflective Tape

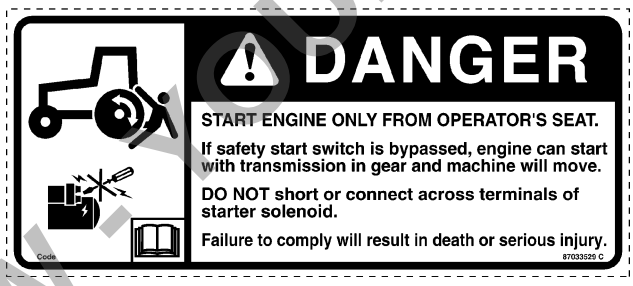
Part #86547782

9



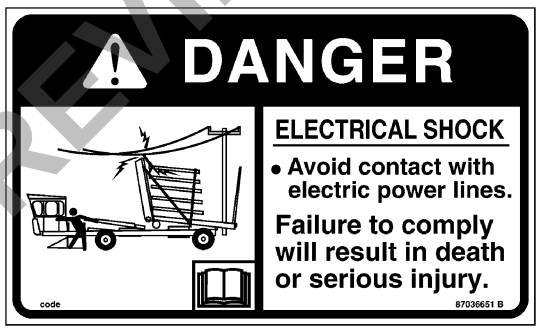
Part #87034700

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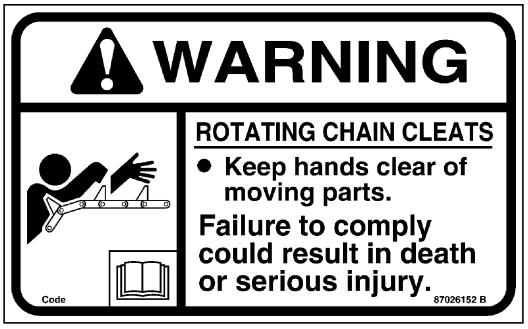
Part #87033529

11



Part #87036651

12

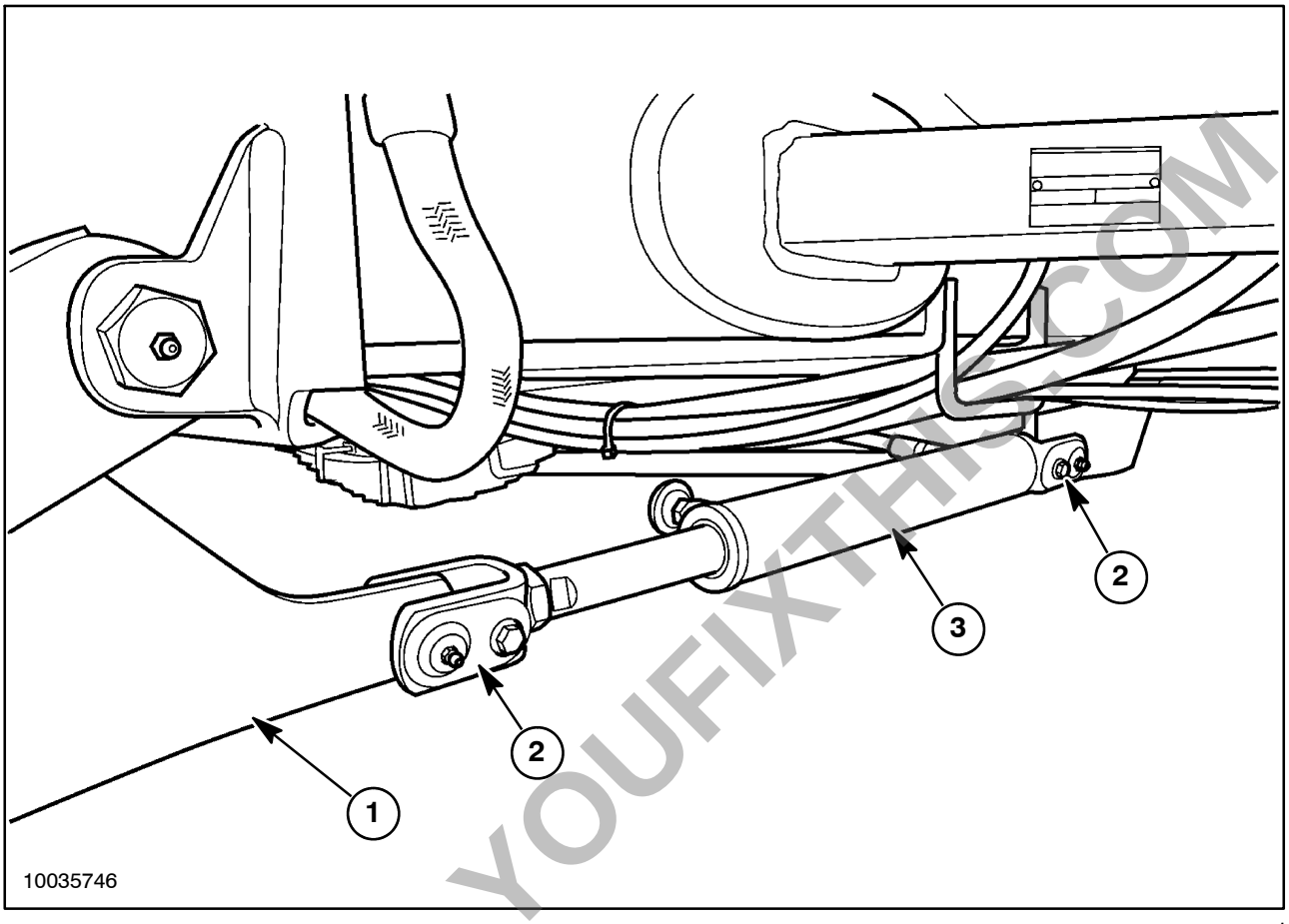


Part #87026152

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PICKING



1

BALE LOADER CYLINDER

Removal

1. Lower the bale loader, 1, to the ground and shut off the bale wagon engine.
2. Install jack stands or a type of crane device to hold the bale loader when the cylinder is removed.
3. Clean the fitting and the area around it on the cylinder and the hose. Disconnect the hose from the cylinder. Plug the hose and fitting.
4. Remove the pivot pin, 2, from each end of the cylinder. Note the quantity and location of the hardware.
5. Remove the cylinder, 3.

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DISTRIBUTION SYSTEMS - A

BOOK 1 - 87693296

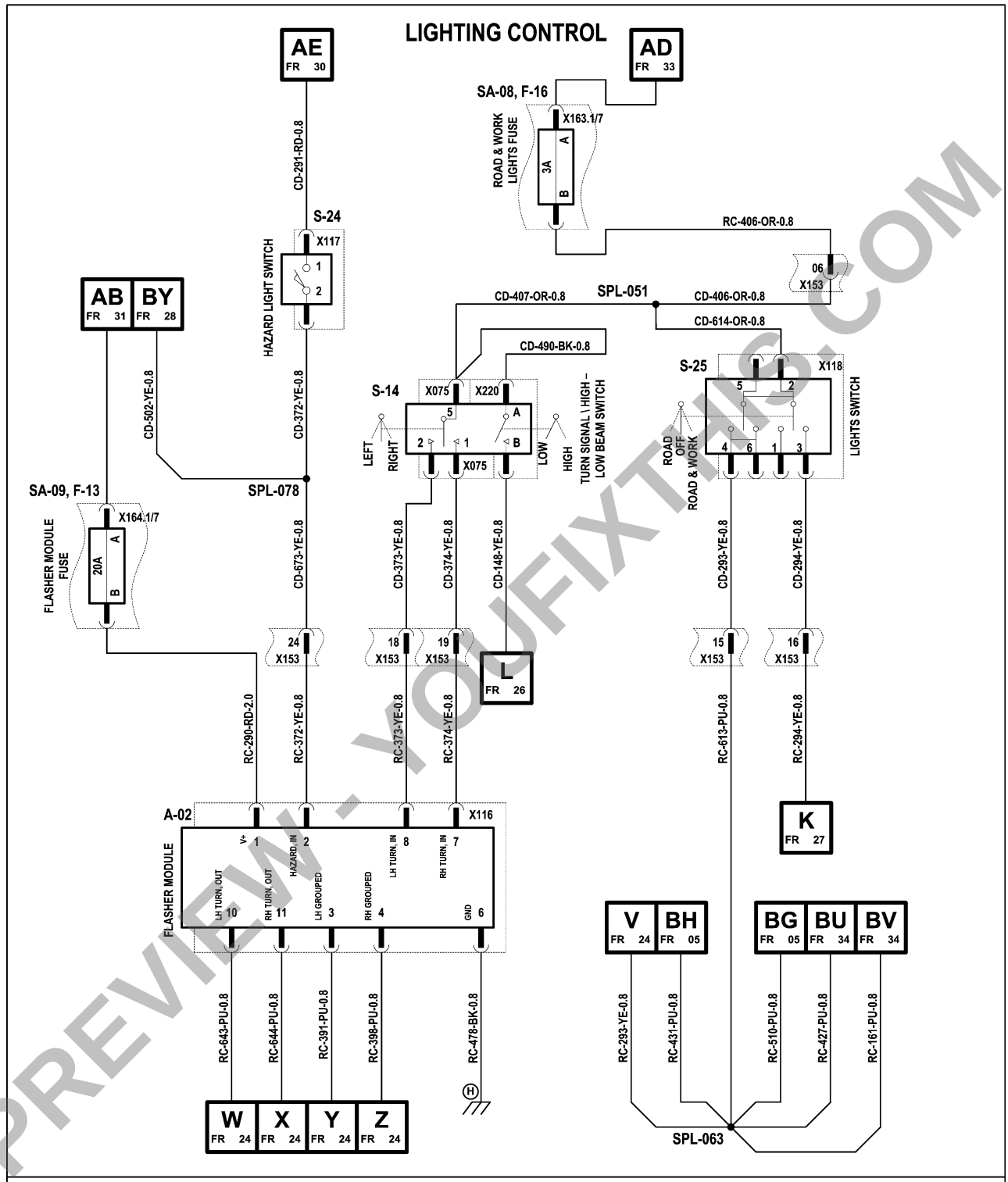
Primary Hydraulic Power System - 10 (Continued)

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A-02 =	FLASHER MODULE	S-25 =	ROAD/FIELD LIGHT SWITCH	X-xx =	xxx
F-13 =	FUSE TURN INDICATOR MODULE	X-xx =	xxx	X-xx =	xxx
F-16 =	ROAD AND WORK LIGHTS FUSE	X-xx =	xxx	X-xx =	xxx
S-14 =	TURN SIGNAL	X-xx =	xxx	X-xx =	xxx
S-24 =	HAZARD LIGHT SWITCH	X-xx =	xxx	X-xx =	xxx

FRAME-23

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