CAPACITIES		MXU100	MXU110	MXU115	MXU125	MXU135
Fuel tank	Litres	177	177	220	220	220
	US gals	46.7	46.7	58.1	58.1	58.1
Cooling system	Litres	23	23	25	25	25
(with cab)	US gals	6.07	6.07	6.6	6.6	6.6
Cooling system	Litres	21	21	23	23	n/a
(less cab)	US gals	5.54	5.54	6.07	6.07	n/a
Engine	Litres	10	10	15	15	15
(including filter)	US gals	2.64	2.64	3.96	3.96	3.96
Transmission/rear axle						
(with 12x12, Light Duty axle)	Litres	58	–	–	–	–
	US gals	15.3		–		
(with 12x12, Heavy Duty axle)	Litres	65	–	65	–	–
	US gals	17.1		17.1		
(with 24x24, Light Duty axle)	Litres	—	58.5	–	–	–
	US gals	—	15.4	–	–	–
(with 24x24, Heavy Duty axle)	Litres	—	—	65.5	—	—
	US gals	—	—	17.3	—	—
(with 16x16, Light Duty axle)	Litres	—	55	–	–	–
	US gals	—	14.5	–	–	–
(with 16x16, Heavy Duty axle)	Litres	—	—	62	—	—
	US gals	—	—	16.3	—	—
4WD Front hubs (w/o brakes)	Litres	—	—	1.25	—	—
(quantity for **one** hub only)	US qts	—	—	1.3	—	—
4WD Front hubs (with brakes)	Litres	—	—	3.0	—	—
(quantity for **one** hub only)	US qts	—	—	3.2	—	—
4WD Front axle differential	Litres	—	7.5	—	9.0	—
(All axles)	US qts	—	7.92	—	9.5	—

NOTE: *When operating remote cylinders, the rear axle oil level will be affected. When topping up the rear axle to accommodate the oil requirement of remote cylinders, no more than 20 litres (5.28 U.S. gallons) should be added to bring the oil level up to the upper mark on the dipstick when all rams are fully extended. Alternatively, remote cylinders with an oil capacity of up to 18 litres (4.75 U.S. gallons) may be connected to the tractor hydraulic system without adding oil, provided the tractor is being operated on level ground.*

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SAFETY RULES

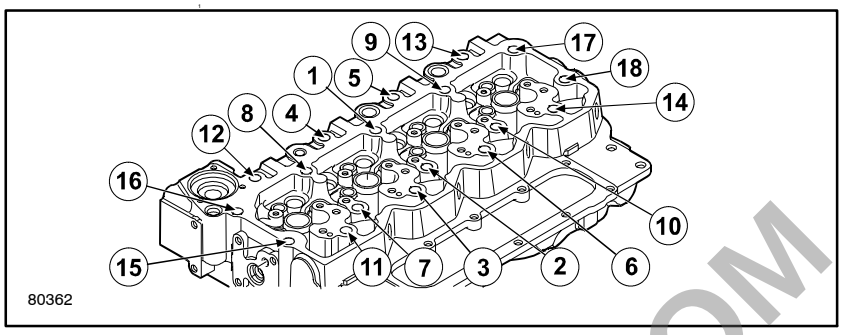
Generalities

- Carefully follow specified repair and maintenance procedures.
- Do not wear rings, wristwatches, jewels, unbuttoned or flapping clothing such as ties, torn clothes, scarves, open jackets or shirts with open zips which could get caught on moving parts. Use approved safety clothing such as anti-slipping footwear, gloves, safety goggles, helmets, etc.
- Wear safety glasses with side guards when cleaning parts using compressed air.
- Damaged or frayed wires and chains are unreliable. Do not use them for lifting or towing.
- Wear suitable protection such as approved eye protection, helmets, special clothing, gloves and footwear whenever welding. All persons standing in the vicinity of the welding process should wear approved eye protection. **NEVER LOOK AT THE WELDING ARC IF YOUR EYES ARE NOT SUITABLY PROTECTED.**
- Never carry out any repair on the machine if someone is sitting on the operator's seat, except if they are qualified operators assisting in the operation to be carried out.
- Never operate the machine or use attachments from a place other than sitting at the operator's seat or at the side of the machine when operating the fender switches.
- Never carry out any operation on the machine when the engine is running, except when specifically indicated. Stop the engine and ensure that all pressure is relieved from hydraulic circuits before removing caps, covers, valves, etc.
- All repair and maintenance operations should be carried out with the greatest care and attention.
- Disconnect the batteries and label all controls to warn that the tractor is being serviced. Block the machine and all equipment which should be raised.
- Never check or fill fuel tanks or batteries, nor use starting liquid if you are smoking or near open flames as such fluids are flammable.
- The fuel filling gun should always remain in contact with the filler neck. Maintain this contact until the fuel stops flowing into the tank to avoid possible sparks due to static electricity build-up.
- To transfer a failed tractor, use a trailer or a low loading platform trolley if available.
- To load and unload the machine from the transportation means, select a flat area providing a firm support to the trailer or truck wheels. Firmly tie the machine to the truck or trailer platform and block wheels as required by the transporter.
- Always use lifting equipment of appropriate capacity to lift or move heavy components.
- Chains should always be safely fastened. Ensure that fastening device is strong enough to hold the load foreseen. No persons should stand near the fastening point.
- The working area should be always kept CLEAN and DRY. Immediately clean any spillage of water or oil.
- Never use gasoline, diesel oil or other flammable liquids as cleaning agents. Use non-flammable non-toxic proprietary solvents.
- Do not pile up grease or oil soaked rags, as they constitute a great fire hazard. Always place them into a metal container.

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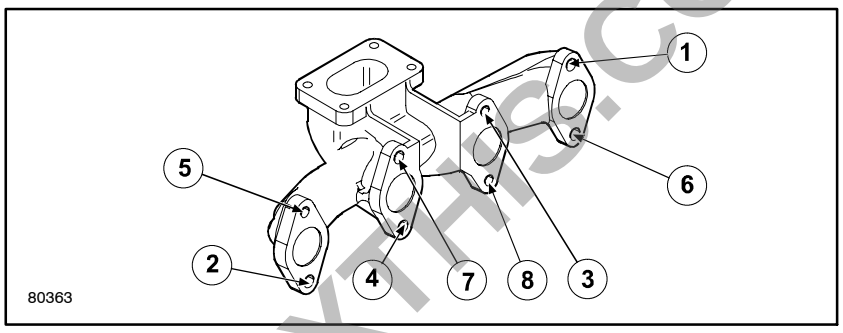
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Tightening sequence for cylinder head bolts



1

Tightening sequence for exhaust manifold bolts

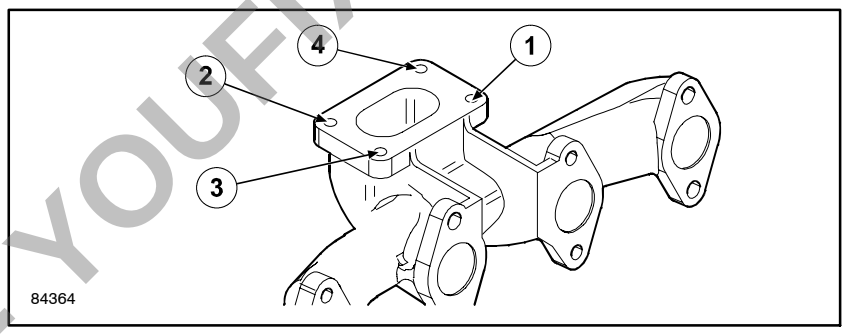


2

Tightening sequence for turbocharger nuts and bolts

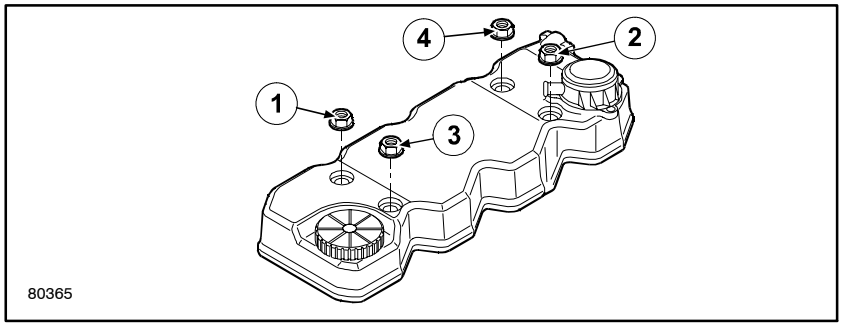
Sequence:

- Pre-tightening 4-3-1-2
- Tightening 1-4-2-3



3

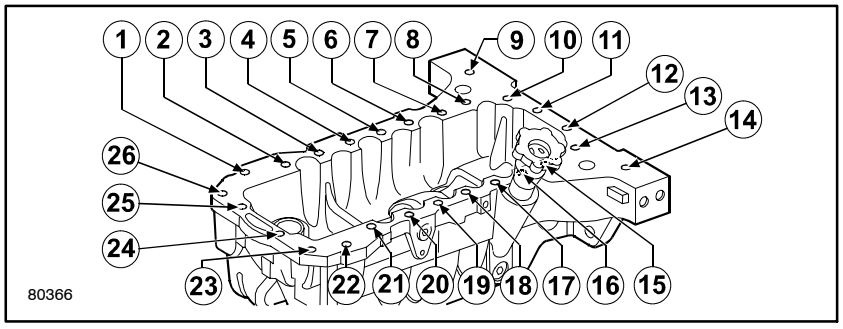
Tightening sequence for engine cover bolts



4

Tightening sequence for engine oil sump bolts

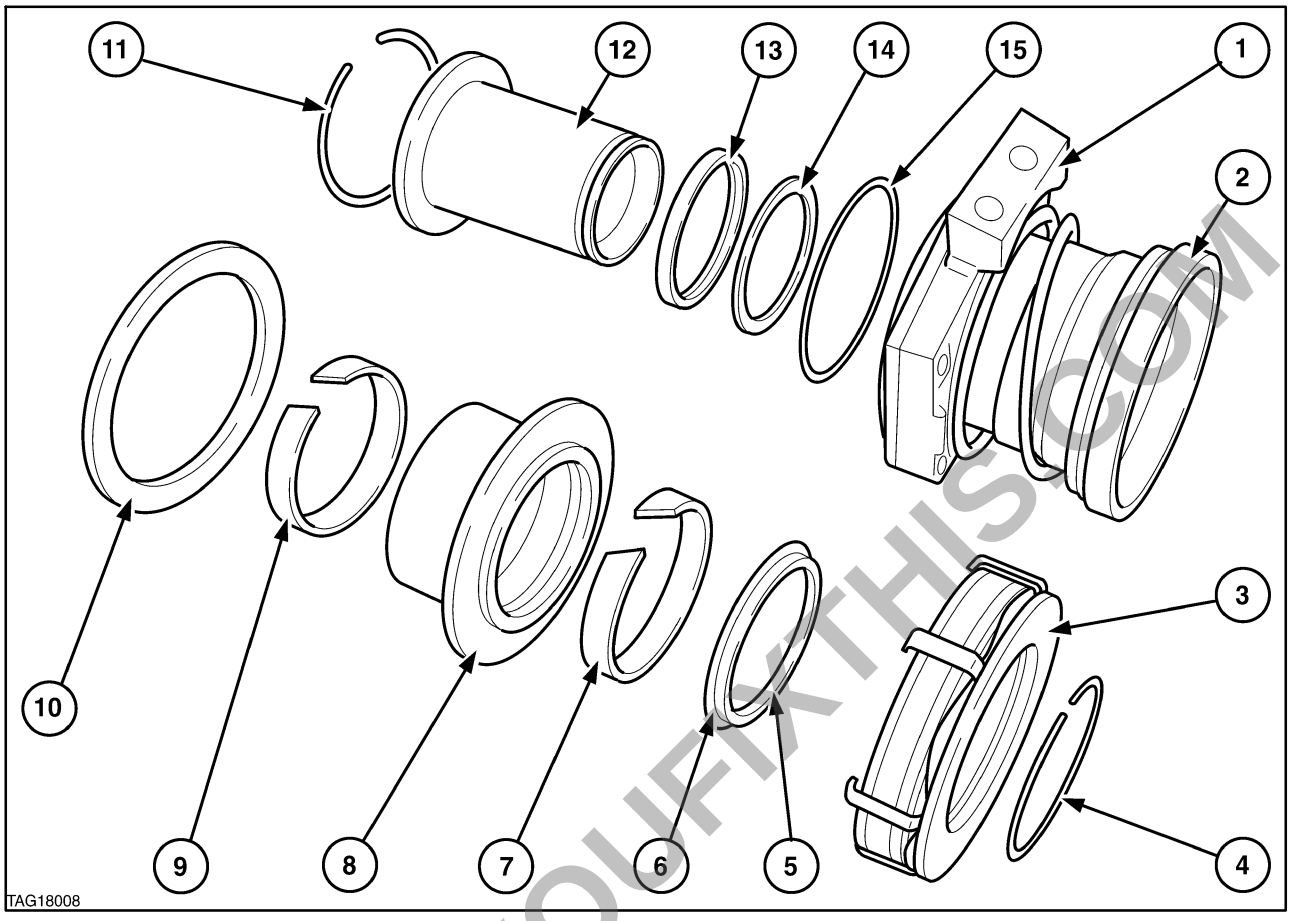
- First phase: from 1 to 16
- Second phase: from 17 to 32



5

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4

Release Bearing/Slave Cylinder Assembly

1. Housing
2. "O" Ring
3. Bearing Assembly
4. Snap Ring
5. Wiper Seal
6. "O" Ring
7. Guide Ring
8. Piston
9. Guide Ring
10. Seal Ring
11. Snap Ring
12. Guide Sleeve
13. Seal
14. Back up Seal
15. "O" ring

HYDRAULIC RELEASE BEARING / SLAVE CYLINDER

Inspection

1. Inspect the release bearing for the following, oil leakage, weak or broken return spring and wear or damage to the release bearing. Repair kits are available should seals or the bearing assembly require servicing.

Assembly Overhaul

With reference to Figure 4

1. Remove bearing retaining snap ring, item 4, and withdraw the bearing assembly.
2. Carefully pry the bearing cage claws open and withdraw the piston assembly.
3. In the dismantled condition it is wise to replace the seals with new items as a precautionary measure against future failure. Inspect the remaining components for wear or damage and replace as necessary.
4. When re-assembling coat all seals with clean brake oil of the correct specification as they are installed and assembled.

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SPECIFICATIONS

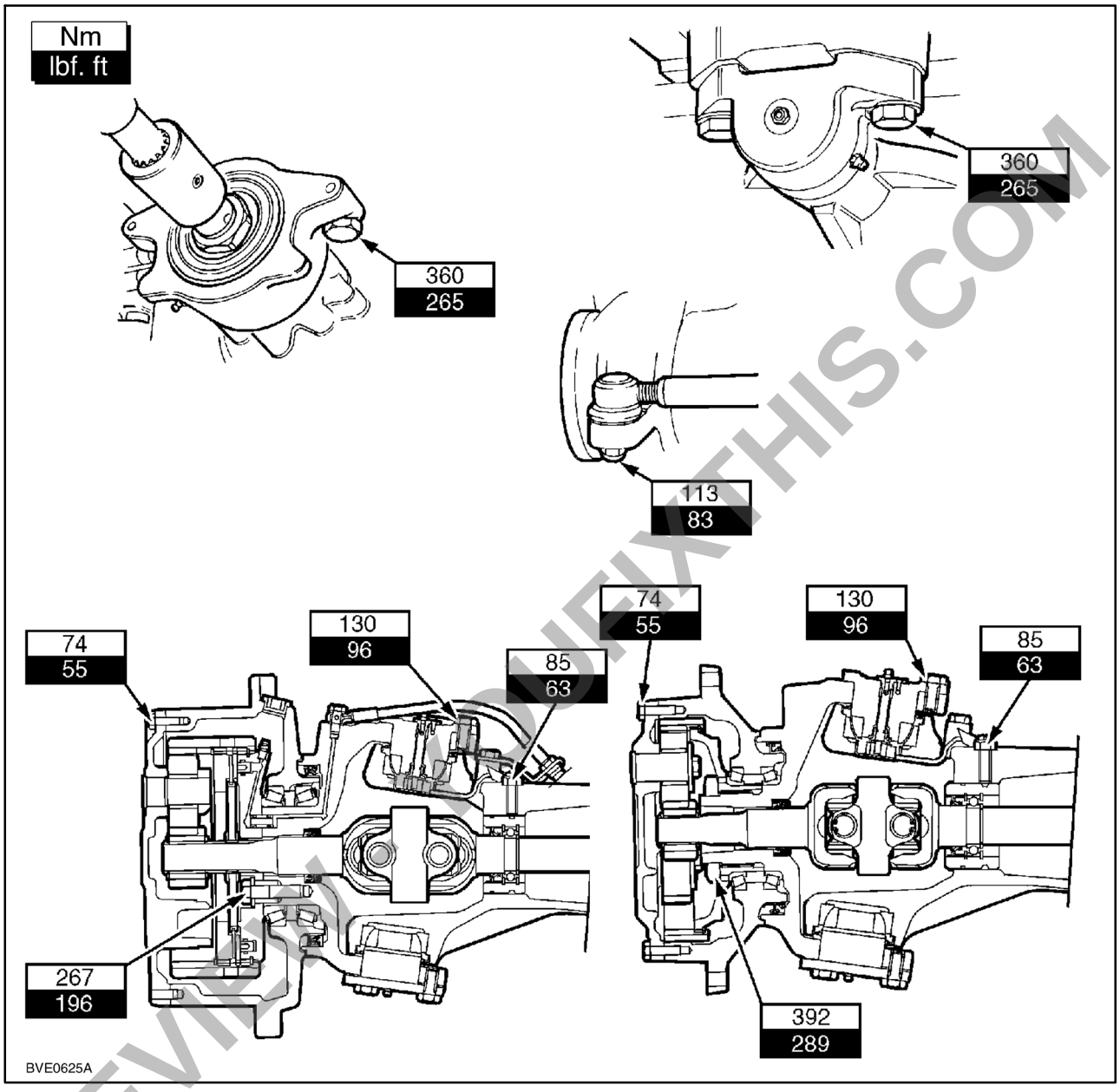
Transmission Type	16 forward and 16 reverse speeds using straight cut gears, four multi-wet plate clutches, one forward reverse friction cone synchronizer and one main range friction cone synchronizer
Control System	Electro-hydraulic with Electronic Management System
Hydraulic Control Valve	
Type	Separate Casting, multi spool with internal cast-in galleries
Control	By electrically operated Pulse Width Modulated (PWM) solenoid coils signalled by Electronic Management System
Hydraulic Accumulator	
Type	Diaphragm type, nitrogen charged with 0.7 litre hydraulic oil capacity
Charge Pressure	10 bar (145 lbf.in^2)
Multi-Wet Plate Clutches	
Type	Constant running, pressure lubricated, pressure applied, spring released
C1 and C2 clutches	
Number of Friction Plates	4 in each clutch
Number of Steel Plates	4 in each clutch
Number of wavy springs	4 in each clutch
C3 and C4 clutches	
Number of Friction Plates	9 in each clutch
Number of Steel Plates	9 in each clutch
Number of Belleville Washers	4 pairs in each clutch
Belleville washer stack height	24 mm
Pressure Lubrication	Maximum 7 bar (100 lbf.in^2) supplied by the steering gear pump
Lubricant Capacity (Transmission / Rear Axle)	
Heavy Duty Rear Axle	62.0 Litres
Light Duty Rear Axle	55.5 Litres
Lubricant	
Type	AKCELA Nexplore (MAT 3525)
Lubricant Operating Temperature	65°C (150°F)
Forward / Reverse synchronizer End-Float Adjustment Shim Sizes	mm 1.00 0.30 0.10 0.05
Synchronizer Wear Check	Minimum Gap

Main synchronizer 1-4, 5-8	mm	inches
	0,5	0.020
Foward / Reverse synchronizer	0,8	0.0315
Hi / Lo synchronizer	0,85	0.0335

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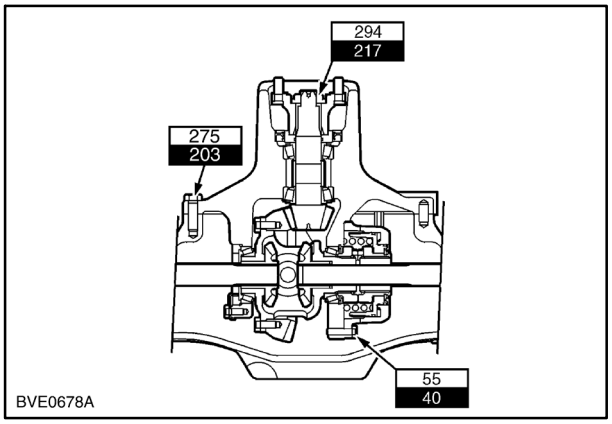
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TIGHTENING TORQUES



1

Suspended Front Axle



2

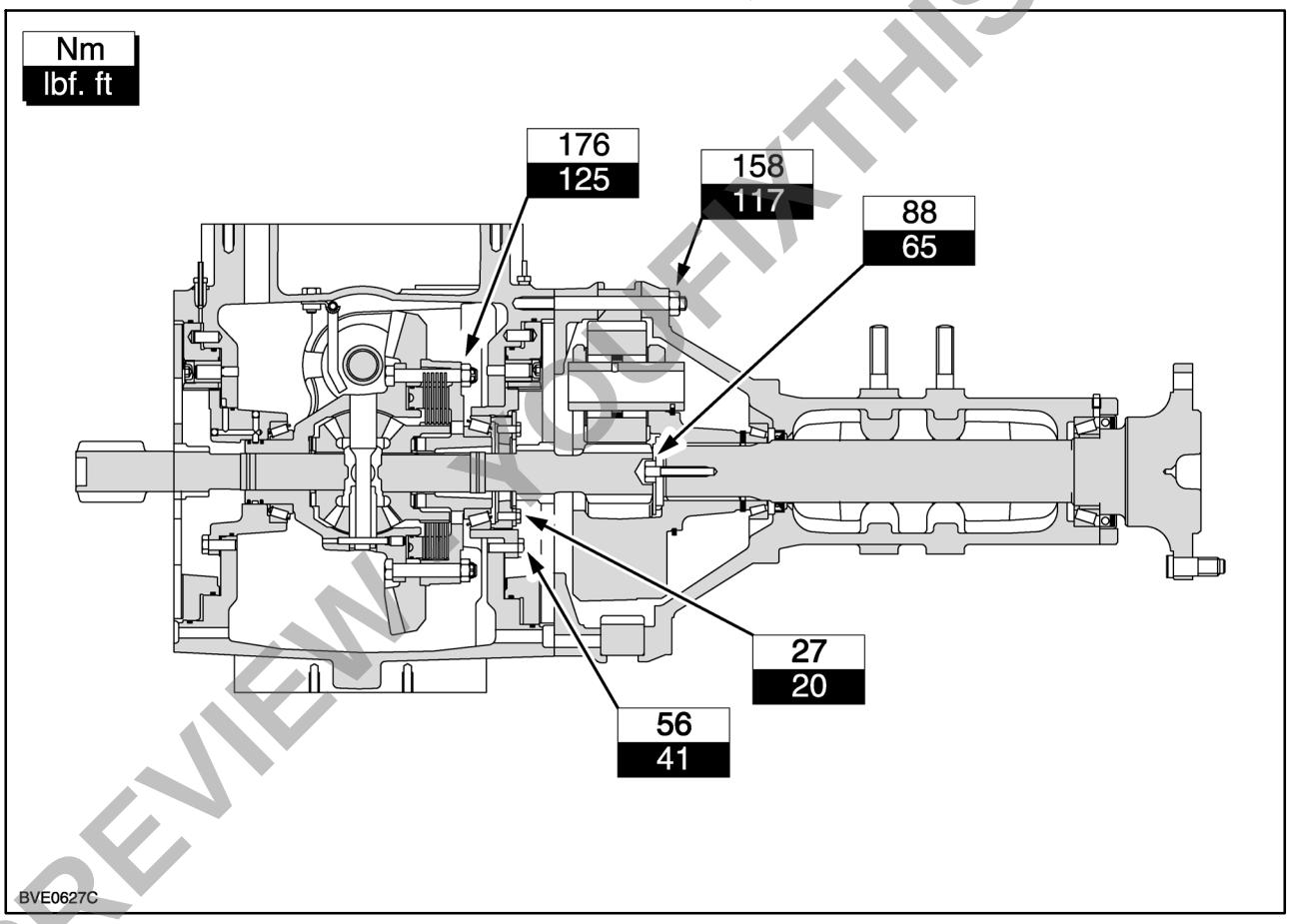
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FINAL DRIVE

Type	Epicyclic, with planetary spur gears
Reduction ratios:	
Light version	3:(3+65)=1:6
Heavy version	12:(12+69)=1:6.75
Thickness of planetary gear thrust washers mm	1
Thickness of planetary gear roller bearing spacer (9):	
Light version mm	3.95 – 4.00
Heavy version mm	10.95 – 11.00

TIGHTENING TORQUES

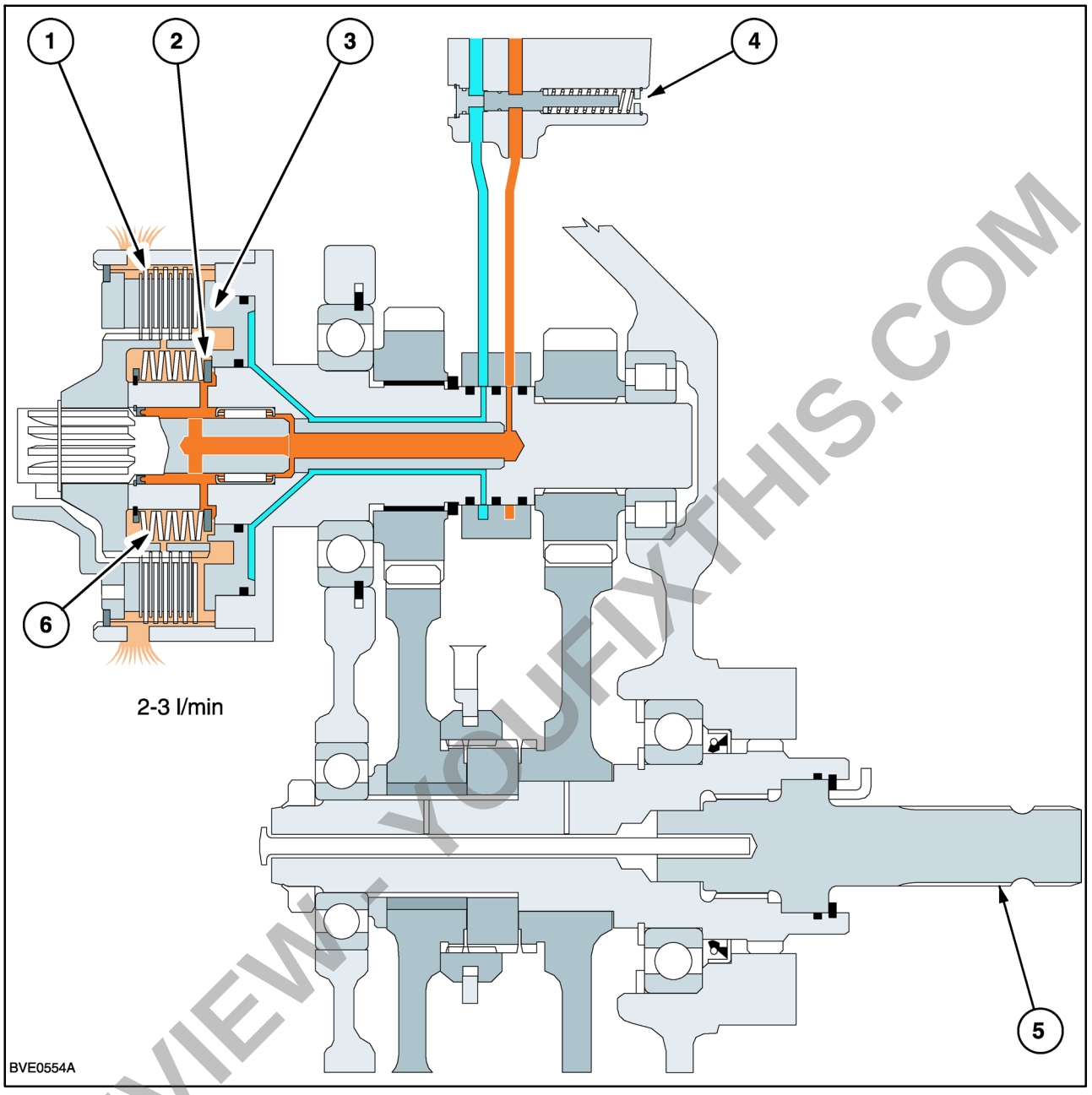


1

Rear Axle Cross-Section - Multi-Wet Plate Clutch

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19

PTO CONTROL CLUTCH-DISENGAGED

Lubrication Circuit Oil

Lubrication Oil @ Reduced Flow

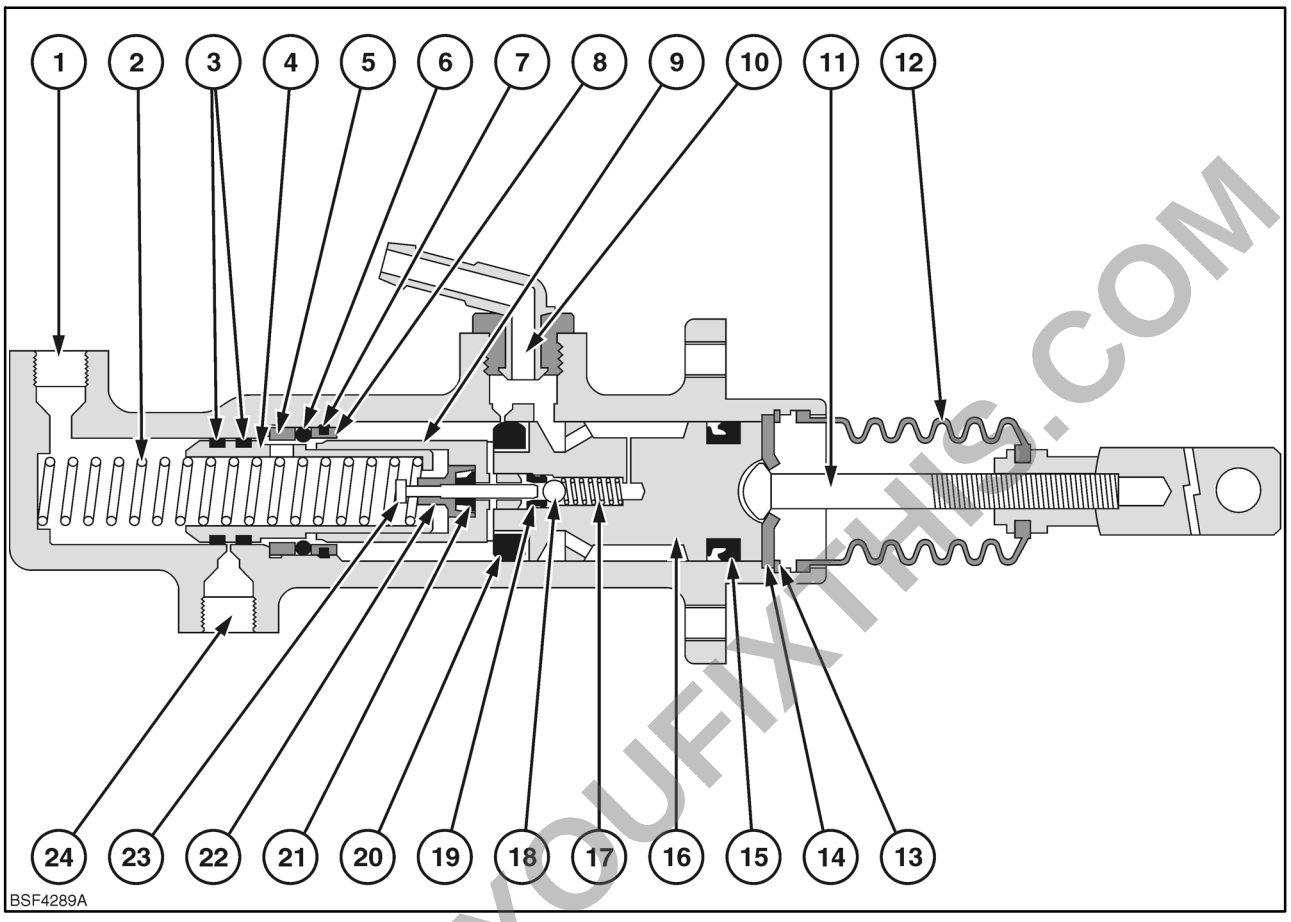
Return to Reservoir

1. Clutch Plates
2. Washer
3. Piston
4. Lubrication Valve
5. PTO Output Shaft
6. Bellville Springs

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SECTIONAL VIEWS



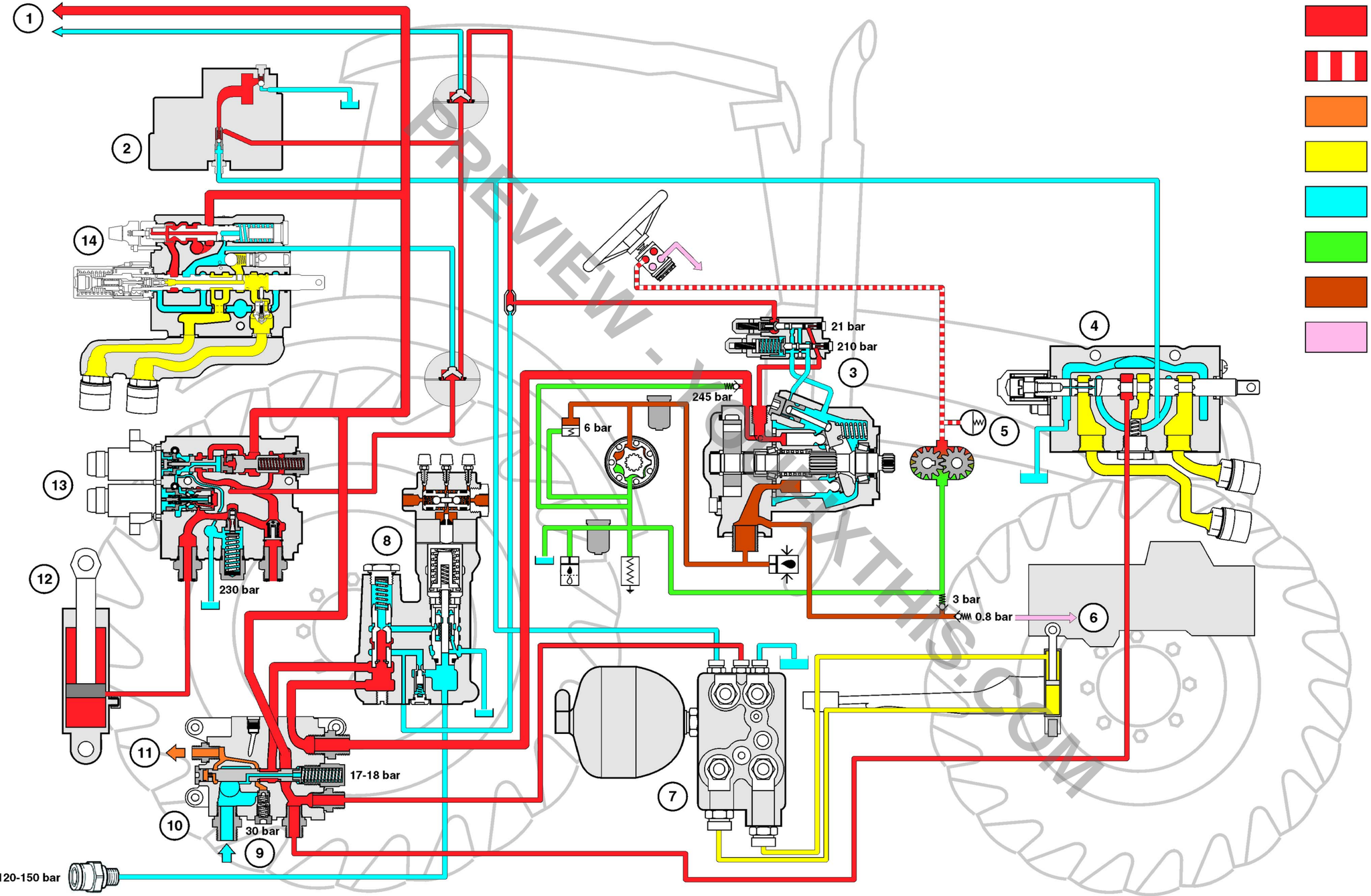
3

Balanced Brakes Differential Master Cylinder Sectional View

1. Outlet port to brake piston(s)
2. Piston return spring
3. Oil seal
4. Piston
5. Piston sleeve guide ring
6. O–ring
7. Piston sleeve guide ring retaining clip
8. Piston sleeve guide ring
9. Piston sleeve
10. Brake fluid reservoir inlet port
11. Push rod
12. Rubber boot
13. Circlip
14. Piston retaining washer
15. Oil seal
16. Piston
17. Check valve ball return spring
18. Check valve ball
19. Check valve ball seat
20. Oil seal
21. Check valve stem oil seal
22. Check valve stem guide
23. Check valve stem
24. Balance tube port

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BSF4140B

Variable Displacement Pump High Pressure Hydraulic Circuit 24 x 24 Models

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It is essential that the flow of oil through two or more remote valves operating simultaneously at different pressure is individually controlled otherwise oil will always flow to the circuit operating at the lowest pressure.

When operating two or more hydraulic services the operating pressure in the parallel gallery is at the highest operating pressure of the hydraulic system as sensed through the load sense line.

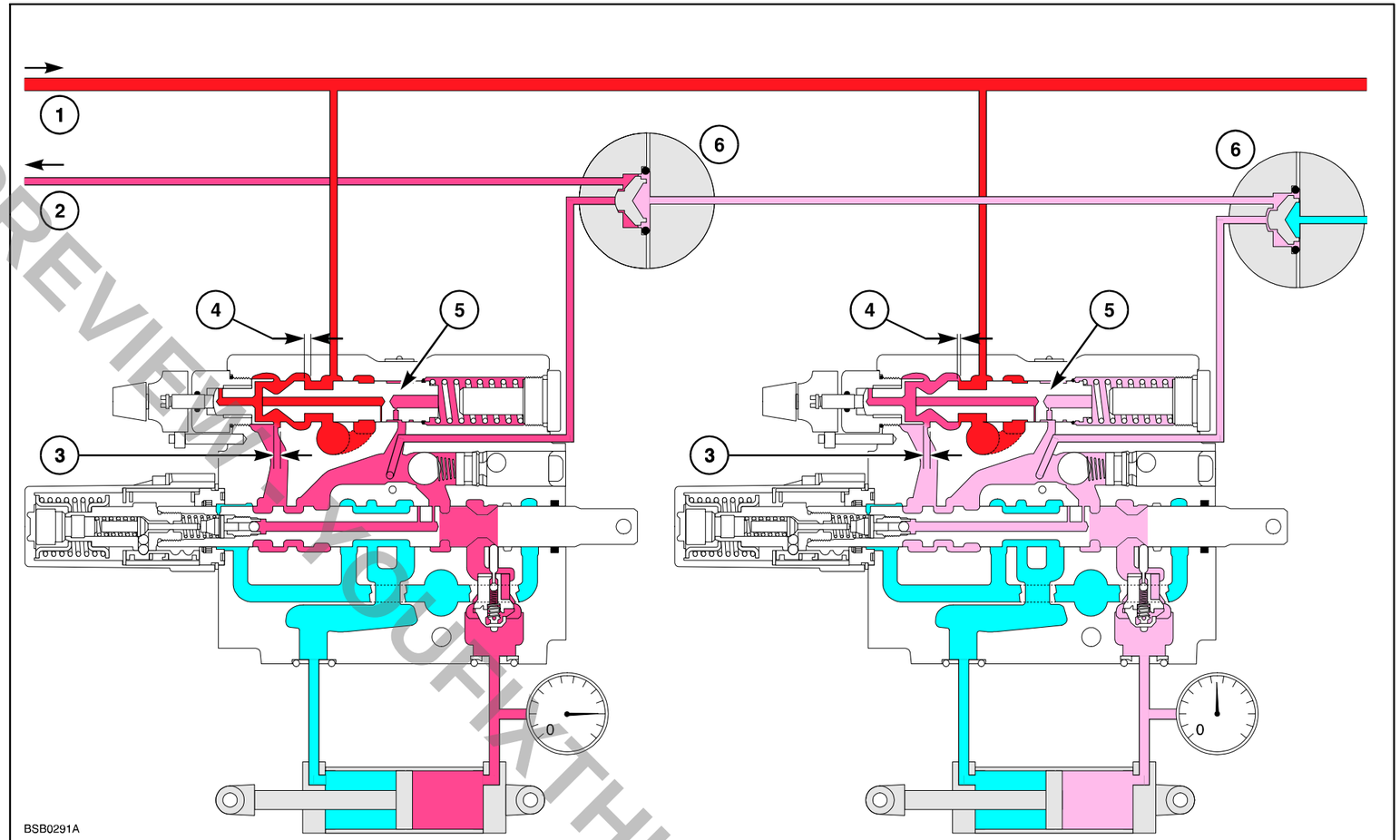
Check valves in the load sense line between each valve section ensure only the highest pressure is directed to the pump flow pressure compensating valve.

In the same manner as for single remote valve operation the differential pressure across the manually adjusted flow control restriction (3) is sensed by the flow compensating spool.

Because each remote valve is operating at a different pressures the flow control valve spools will move to different positions to achieve a state of equilibrium.

The flow across the metering land (4) of the lower pressure operating remote valve will be different to the flow across the metering land of the higher operating pressure remote valve.

The metering land on each flow control spool now maintains the required constant flow through the manually adjusted flow control restriction in each remote valve irrespective of the higher pump system pressure required to operate other hydraulic circuits.



18

Two Remote Valves Operating

Pump Pressure

Lower Pressure Remote Valve Operation

High Pressure Remote Valve Operation

Return To Reservoir

A. Remote Valve Operating At High Pressure

1. Parallel Gallery (Interconnecting Remote Valves Sections)

2. Load Sense Line (Interconnecting Remote Valves Sections)

B. Remote Valve Operating At Lower Pressure

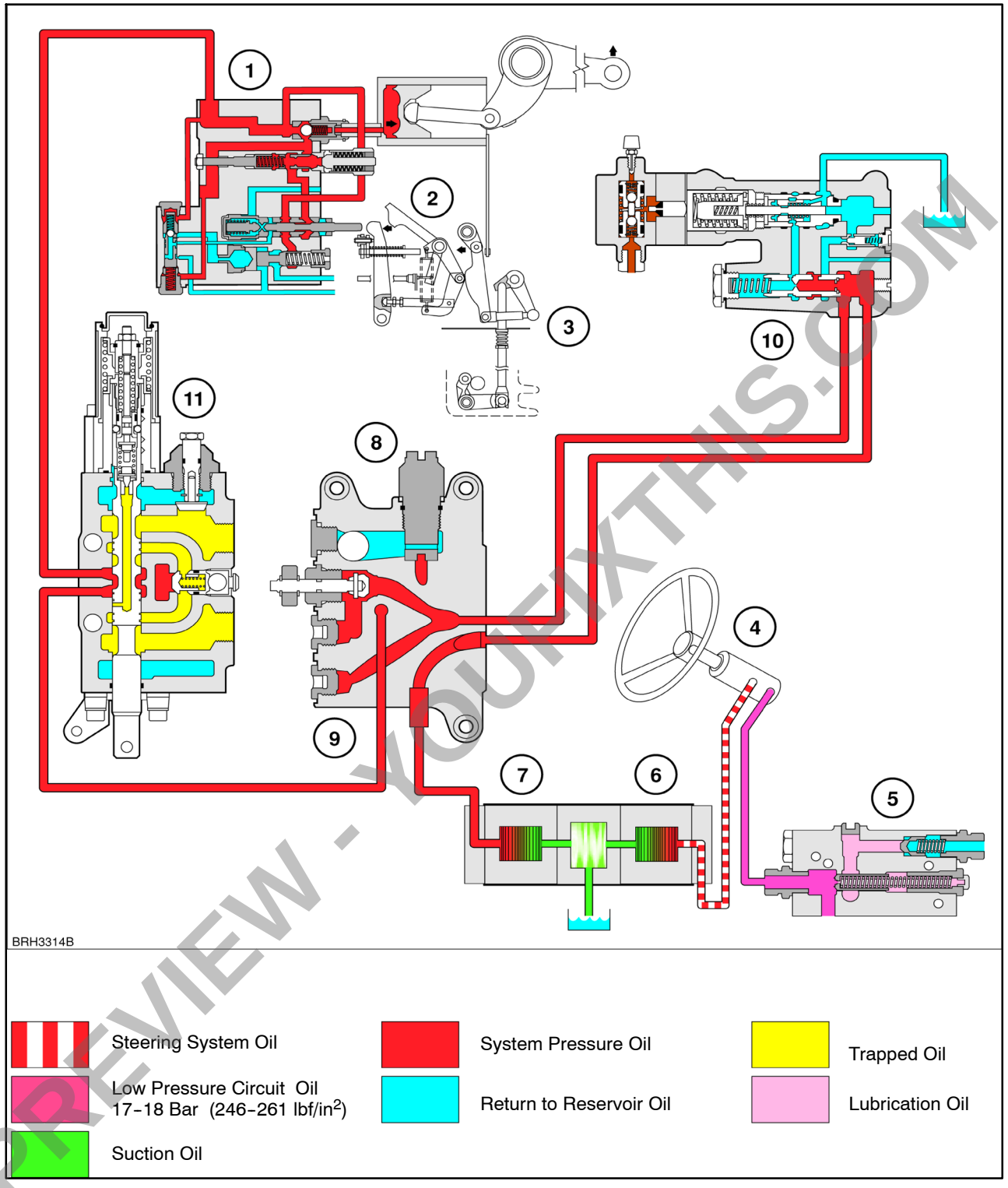
3. Manually Adjusted Flow Control Restriction

4. Spool Metering Lands

5. Flow Control Spool

6. Load Sense Line Check Valve

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28

1. Lift Control Valve
2. Lift Cylinder Safety Valve
3. Mechanical Hydraulic Lift Assembly
4. Steering Motor
5. Low Pressure Regulating Valve
6. Steering and Low Pressure Circuit Gear Pump
7. Fixed Displacement Pump
8. Pressure Relief Valve (195-205 Bar/2828- 2973 psi)
9. Subplate with Power Byond Tap
10. Trailer Brake Valve
11. Single/double Acting Remote Valve

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TURN ASSIST HYDRAULIC OPERATION

Hydraulic oil is fed from the steering pump (10) to the change or pilot valve (12). When the system is enabled by activating the Turn Assist switch, the solenoid (11) moves against the spring pressure to allow oil to activate the change or pilot valve (12). The change valve spool overcomes the spring pressure and allows the oil to reach the disributor spool (7) this directs the oil flow from the steering motor directly to the distributor spool and split valve.

If the steering wheel is rotated left for example, the pilot pressure is exerted on the distributor spool thus enabling oil to flow to the Split valve(4) which in turn allows the increased oil flow to activate the steering cylinder(3).

OPERATING AND MONITORING SYSTEM

The electrical and hydraulic systems allow safe operation and monitoring of system in the following mannner:

When the system is enabled by using the Turn Assist switch, the electronics perform a functional and status check. The split valve spool is checked to ensure that it is not stuck in such a manner that would allow the Turn Assist system to be active or operate in a dangerous way which may cause loss of control of the tractor. Should such a state exist the system activates the critical stop audible and visual alarms to the operator.If there is an invalid state that does not endanger the operator, only the visual alarm isactivated. If the split valve is stuck at the midpoint of travel, then the system is inbetween these two modes and will be unable to determine exactly which mode the tractor is in and the critical stop alarms are activated. If the distributor spool becomes stuck it will be forced back into place by hydraulic pressure and the system will revert to normal steering mode.

When the system has determined that the hydraulic components are functioning correctly the system then checks the operator inputs and verifies that the operator controls are working correctly. The solenoids,sensors, and switches are checked for correct operational voltage and current levels and any failure will cause the system to go into a failsafe mode. If there is any problems with any of these components the system deactivates itself and prevents any electrical engaement of the system. If there are no problems with the components then the system goes into standby mode awaiting operator inputs. The system constantly monitors itself checking for failures and illegal logic combinations during Turn Assist operation and notifies the operator via the visual and audible alarms in the event of a system error or component failure.

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SYSTEM LAYOUT

1. Receiver Dryer
2. Condenser
3. Evaporator
4. Quick Release Self Sealing Couplings
5. Compressor

Refrigerant

To achieve the absorption and the release of heat which is, in essence, the function of an air conditioning system, requires the use of a suitable “refrigerant” - a liquid that has a relatively low temperature boiling point, plus certain desirable safety and stability features.

The refrigerant used in the air conditioning system is refrigerant R-134a.

NOTE: *To help protect the environment legislation has been introduced in most territories banning the release into the atmosphere of refrigerants,including R134a. All service procedures contained in this manual can be carried out without the need to release refrigerant into the atmosphere.*

In order to prevent the incorrect type of refrigerant being charged to the system the service valves fitted to the tractor and necessary to connect up refrigerant recovery, evacuation and recycling/recharging equipment will be of two different sizes as recognised and specified by the air conditioning industry.

⚠ WARNING ⚠

*R-134a refrigerant is **not compatible** with R-12 refrigerant. **Do not** attempt to replace R134a refrigerant with R-12 refrigerant or test the system using gauges or equipment previously used with R12 as damage to the system will result.*

R-134a refrigerant is stable at all operating temperatures and able to absorb great quantities of heat.

The boiling point of R-134a is -22° C (-15° F) at atmospheric pressure.

If the pressure is increased, R-134a will readily vaporize to absorb heat at temperatures between -11.7° C (11° F) at 1.9 bar (27.5 lbf/in^2) and 0°C (32° F) at 42 lbf/in^2 (2.9 bar) in the evaporator.

At higher pressures, R-134a will condense and give off heat at temperatures between 48° C (118° F) at 12.4 bar (180 lbf/in^2) and 58° C (136° F) at 15.85 bar (230 lbf/in^2) in the condenser.

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16X16 CENTRAL CONTROL UNIT - DB (EDC, TRANSMISSION, REAR PTO, 4WD AND DIFF LOCK)

1. EDC CONTROL
2. TRANSMISSION CONTROL
3. AUTO FEATURES CONTROL
4. REAR PTO CONTROL
5. 4WD DIFF LOCK CONTROL
6. GEAR DISPLAY- STANDARD
7. GEAR DISPLAY - OPTIONAL
8. HAND THROTTLE POTENTIOMETER
9. EDC CONTROL PANEL
10. EDC MOUSE UNIT
11. RAISE / WORK SWITCH
12. RAISE / LOWER FENDER SWITCHES
13. EDC INFORMATION LAMPS
14. TRANSMISSION SHUTTLE LEVER
15. STARTER MOTOR SOLENOID
16. SHUTTLE LEVER NEUTRAL SWITCH
17. CLUTCH PEDAL SWITCH
18. CREEPER SWITCH
19. SENSOR GROUND
20. CHASSIS GROUND
21. POWER GROUND

CONNECTOR C100 (CN1a)

1. +12V VF SUPPLY (FUSE 13)
2. +12V VF SUPPLY (FUSE 13)
3. +12V VF SUPPLY (FUSE 13)
4. C3 PWM SOLENOID DRIVER
5. RAISE SOLENOID DRIVER
6. REVERSE SYNCHRO SOLENOID DRIVER
7. 1-4 SYNCHRO SOLENOID DRIVER
8. +12V VD SUPPLY (FUSE 13)
9. C1 PWM SOLENOID DRIVER
10. C2 PWM SOLENOID DRIVER
11. C4 PWM SOLENOID DRIVER
12. LOWER SOLENOID DRIVER
13. FORWARD SYNCHRO SOLENOID DRIVER
14. +12V (HOT) FUSE 12
15. CAN 1 - HI
16. CAN 1 - LO
19. CASE GROUND
20. +12V (EDC) FUSE 14
23. SENSOR RETURN
24. PROGRAMME ENABLE
25. POWER GROUND
26. POWER GROUND

CONNECTOR C101 (CN1b)

1. CLUTCH PEDAL POTENTIOMETER
2. ROCK SHAFT SENSOR
3. EDC POSITION CONTROL
4. DROP RATE CONTROL
5. HEIGHT LIMIT CONTROL
6. SENSITIVITY CONTROL
7. MAXIMUM SLIP CONTROL
8. EDC DRAFT CONTROL
9. EDC DRAFT PIN - RIGHT
10. EDC DRAFT PIN - LEFT
11. +12V SENSE
12. SHUTTLE LEVER FORWARD SWITCH
13. SHUTTLE LEVER REVERSE SWITCH
14. TRANSMISSION OIL TEMPERATURE
16. EDC +5V REFERENCE LINE
17. TRANSMISSION +5V REFERENCE LINE
18. WORK SWITCH
19. HIGH/MEDIUM NEUTRAL POSITION
20. RAISE SWITCH
21. CRANK DETECT
22. UPSHIFT SWITCH
23. DOWNSHIFT SWITCH
25. +8.5V DRAFT PIN SUPPLY
26. 1-2 & 3-4 TRANS NEUTRAL POSITION
27. SHUTTLE LEVER NEUTRAL SWITCH
28. SERVICE SWITCH
29. FENDER HITCH SWITCH - UP
30. FENDER HITCH SWITCH - DOWN
32. BUFFERED WHEEL SPEED
33. RADAR
34. WHEEL SPEED

CONNECTOR C239 (CN2)

1. C2 PWM SOLENOID RETURN
2. C3 PWM SOLENOID RETURN
3. C4 PWM SOLENOID RETURN
4. EDC RAISE SOLENOID RETURN
5. EDC LOWER SOLENOID RETURN
6. REVERSE SYNCHRO SOLENOID RETURN
7. FORWARD SYNCHRO SOLENOID RETURN
8. C1 PWM SOLENOID RETURN
9. RS232 OUT
10. RS232 IN
11. EDC RAISING LAMP
12. IMPLEMENT STATUS
13. 1-4 SYNCHRO SOLENOID RETURN
15. DISPLAY DATA
17. DISPLAY
18. REVERSE ALARM
19. EDC STATUS LAMP
20. REAR PTO SPEED SENSOR
21. POWER GROUND
22. SERIAL OUT
23. SERIAL IN
24. SLIP LAMP
25. EDC LOWERING LAMP
26. POWER GROUND

CONNECTOR C127 (CN3a)

1. HAND THROTTLE POSITION POT 1
2. HAND THROTTLE POSITION POT 2
3. 4-5 SYNCHRO POSITION POT
4. CRPM - SPEED INCREASE SWITCH
5. CRPM - SPEED DECREASE SWITCH
6. WORK SWITCH (2)
7. RAISE SWITCH (2)
8. CREEPER SWITCH
9. CREEPER RAIL SWITCH
10. BRAKE SWITCH - LEFT HAND
11. BRAKE SWITCH - RIGHT HAND
12. PTO (NORMALLY OPEN) SWITCH
13. PTO (NORMALLY CLOSED) SWITCH
14. AUTO ON / INCREASE SWITCH
15. HTS STEP SWITCH
16. SEAT SWITCH
17. THROTTLE IDLE SWITCH
18. FOR/REV SYNCHRO POT
19. HANDBRAKE SWITCH
20. HTS ON SWITCH
21. HTS PROGRAMME SWITCH
22. CRPM SWITCH
23. RANGE DISABLE SWITCH
24. AUTO 4WD
25. MANUAL 4WD
26. CREEPER NOT ENGAGED SWITCH

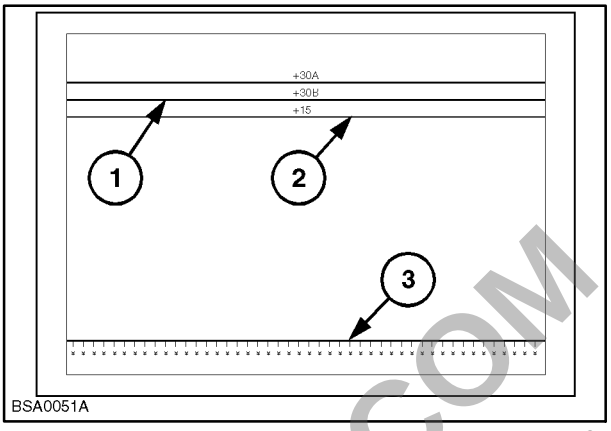
CONNECTOR C128 (CN3b)

1. 5-8 SYNCHRO SOLENOID RETURN
2. REAR PTO FENDER SWITCH - OFF
3. 50 KPH SOLENOID RETURN
4. REAR PTO FENDER SWITCH - ON
5. CREEPER SOLENOID
6. 50 KPH DUMP SOLENOID DRIVER
7. 2WD/4WD SOLENOID
8. REAR PTO BRAKE SOLENOID
10. 50 KPH DUMP SOLENOID RETURN
11. SET ENGINE SPEED SWITCH
13. 5-8 SYNCHRO SOLENOID DRIVER
14. REAR PTO SOLENOID DRIVER
15. 50 KPH SOLENOID DRIVER
16. DIFF LOCK SOLENOID
18. REAR PTO SOLENOID RETURN
21. PTO SHAFT TWIST SENSOR
22. ENGINE FLYWHEEL SPEED SENSOR
23. REAR PTO MANUAL ON SWITCH
24. REAR PTO BRAKE SWITCH
25. +12V SWITCHED FEED FROM FUSE 19
26. DOG ENABLE
27. REAR PTO ON LAMP
28. DIFF LOCK MANUAL LAMP
29. DIFF LOCK AUTO LAMP
30. DIFF LOCK MANUAL ON SWITCH
31. DIFF LOCK AUTO ON SWITCH
32. AUTO OFF / DECREASE SWITCH
33. GROUND SPEED PTO SWITCH
34. +12V SWITCHED FEED FROM FUSE 19

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6. The wiring is drawn between four lines three across the top of the page and one at the bottom of the page.

   The two upper most lines (1) marked +30A and +30B are the constant live lines.
   Below the +30 line is the +15 (2) which is the ignition key on live line.
   The lowest line is the ground/earth line.
   On the lower part of the page (3) a line is marked with numbers increasing by ten (10-20-30, etc.). This is the line used to reference wires and components.

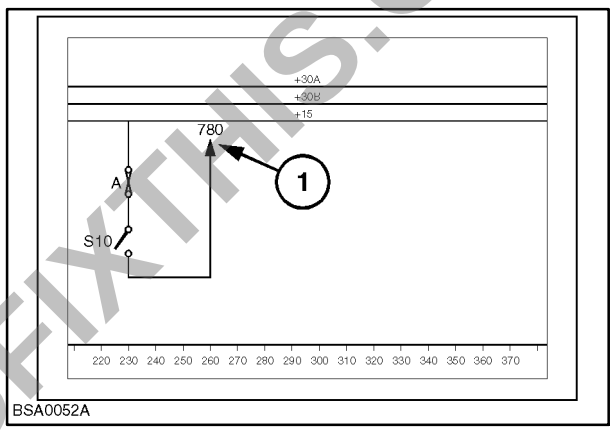


3

Example

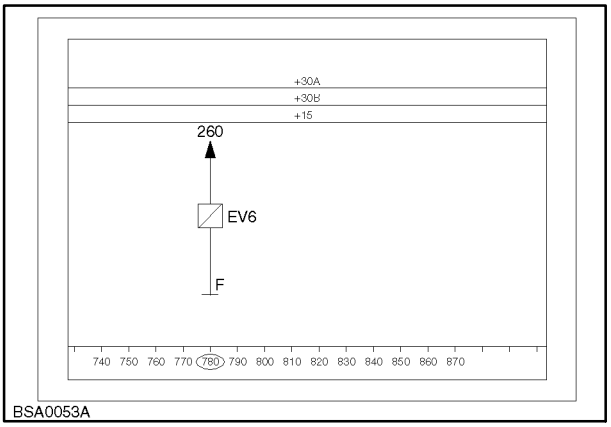
Figures 4 and 5 show a basic circuit drawn over two pages.

Power comes in from the ignition on live line +15 through fuse F3, which is located at point 230.



4

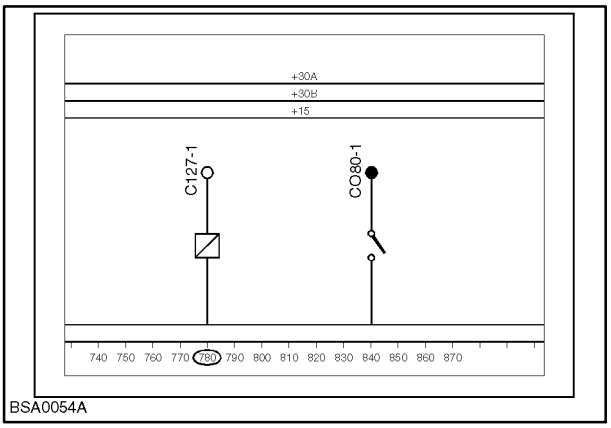
Power comes to switch S10. If the switch is operated, power continues up and stops with an arrow (1) and a number. The arrow indicates the wire continuing to another page. The Number 780 refers to the line reference where it appears on a new page. Note the line reference directly below the wire being traced ie. 260. Following the line reference until 780 is found. Using either the index or following the page reference line. When 780 is located on the reference line the number 260 will be observed at the top of the page. Note the arrow points back to the previous part of the circuit. From this point follow the wire down to solenoid EV6. The diagram now indicates that power goes to ground.



5

Where a circuit originates or terminates at a processor, ie, Transmission processor, EDC processor, Electronic Management Unit or Instrument cluster, the wire in the diagram is ended with a small circle and a connector reference number. A white circle (1) indicates a processor, a black circle (2) indicates an instrument cluster.

The diagrams have been constructed to ensure the minimum number of pin-outs, detailed above, are used. Due to this, many diagrams have been spread across 2 sheets and it will be necessary to follow from one page across to the next to complete a circuit.



6

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ERROR CODE 0003 – FOUR WHEEL DRIVE SOLENOID STUCK OFF

Possible failure modes:

1. Faulty solenoid
2. Faulty harness
3. Faulty controller

Solution:

NOTE: *When the cause of the error code has been rectified, clear the error code and test the system for normal operation.*

1. Check for other error codes.

   A. Turn the keystart OFF. Disconnect the 4WD solenoid connector **C034**. Turn the keystart ON and make sure 2WD is selected. Turn the Keystart OFF and ON. If only error code 0003 or 6022 is displayed continue to step 2.

   B. If error code 0004, 6021 or 6023 are displayed, continue to step 3.

2. Check for a short to ground.

   A. Turn the keystart OFF. Disconnect the controller connector **C128**. Check between connector **C128** pin **7 (Y/K)** and **ground**. If a short to ground is indicated, disconnect the inline harness connector **C019** and check between connector:

   C128 pin **7 (Y/K)** and **ground**

   C034 pin **1 (Y)** and **ground**

   to determine which harness is at fault. Repair or replace the harness as required.

   B. If the harness is okay, download the correct level of software. If the fault re-occurs, remove and replace the controller.

3. Check the 4WD solenoid.

   A. Measure the resistance between the solenoid terminals. If the resistance indicated is not between 5 – 11 Ohms at 20 degrees centigrade, remove and replace the solenoid.

   B. If the solenoid is okay, download the correct level of software. If the fault re-occurs, remove and replace the controller.

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CONTROLLER H ROUTINES

HA/HB CONTROLLER H ROUTINES

HA - Enhanced ADIC
HB - Basic ADIC

NOTE: *HA Enhanced ADIC is shown in the screen displays.*

HH	Service Menu	Page
H1	Not used	-
H2	Not used	-
H3	Configurations	12
H4	View software revision level	16
H5	Switch operation test	18
H6	Not used	-
H7	Not used	-
H8	Clear Electrically Erasable Programmable Read Only Memory (EEPROM)	20
H9	Voltmeter	22
HA	Not used	-
HB	Display stored fault codes	24
HC	Clear all stored fault codes	26
HD	Select Diagnostic mode (Display of fault codes)	28
HE	Display frequency inputs	30
HF	View controller hardware information	32

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CONTROLLERS

	Electronic Module			
Model/type / Function	24x24	16x16	24x24 16x16	12x12
	DA	DB	DD	GA
Rear PTO	✓	✓		✓
Differential Lock	✓	✓		✓
Four Wheel Drive	✓	✓		✓
Front PTO			✓	
Front Lift			✓	
Transmission 24x24	✓			
Transmission 16x16		✓		

The controller type is identified by a code which is attached to each module. The code, for example, 'DB' identifies it as the module used on a tractor with a 16x16 transmission controlling those functions highlighted in the table above.

All the modules on the tractor are linked by the CAN harness and this also links in the instrument cluster, gear display (16x16 only) and diagnostic connector.

Refer to the system diagrams at the end of this chapter for full processor details and inter connectivety.

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CASE IH MXU SERIES TRACTORS

MXU125 LIMITED
87675101-5 page 3

16x16 TRANSMISSION, WITH ELECTRONIC ENGINE MODELS PRODUCED FROM JANUARY 1, 2006

SCHEMATIC FRAME INDEX

Starting	Frame 1-2
Engine	Frame 3-7
Transmission	Frame 8-11
Hydraulics	Frame 12-16
Loader	Frame 17
PTO	Frame 18
Turn Assist	Frame 19
Front Suspension	Frame 20
Brakes	Frame 21
CAN	Frame 22
Power Distribution	Frame 23-26
Battery Isolator	Frame 27
Power Distribution	Frame 28-30
Lighting	Frame 31-37
Power Outlets	Frame 38
Radio	Frame 39
Wash/Wipe	Frame 40-41
HVAC	Frame 42

COMPONENT LEGEND

Label Prefix	Component Type
A	Modules
B	Sensors
D	Diodes
E	Miscellaneous
F	Fuses
G	Charging
H	Lamp and Lights
K	Relays
M	Motors
MF	Maxi Fuse
PF	Power Fuse
R	Resistors
S	Switches
X	Power Sockets
Y	Solenoid Valves

WIRE REFERENCES

CM-1000-W/Y-1.0
- WIRE GAUGE (SQUARE MM)
- WIRE COLOR
- CIRCUIT NUMBER
- HARNESS CODE

GROUND LOCATIONS

1. CAB RH FRONT CONSOLE GROUND
2. CAB RH FRONT POST GROUND
3. CAB RH REAR POST GROUND
4. CAB RH REAR CONSOLE GROUND
5. BOOST STUB AT STARTER
6. CAB FRAME GROUND
7. TRANSMISSION GROUND
8. ENGINE GROUND
9. BATTERY NEGATIVE GROUND

CODE	HARNESS
BM	Blower Unit
CM	Cab Main
CR	Roof
CS	Cab Switch Panel
ER	Electronic Remotes
FE	Front Electrical (Engine)
FM	Front Main
FS	Fast Steer
HZ	Hazard
LF	Cab Main
LT	Front Main
RF	Cab Main
RM	Front Main
SV	Cab Main

Color	Color Code	Function
Black	B	Ground, Chassis
Green	G	Key On
Lilac	L	Key Battery Feed
Light Green	LG	
Light Brown	LN	
Brown	N	Unfused
Orange	O	
Pink	P	
Red	R	General Lighting
Slate	S	
Turquoise	TQ	Processor Signal
Blue	U	Headlamps
White	W	Unfused Key On
Yellow	Y	

JUMPER BOX TO ANOTHER FRAME · REGULATED POWER · REFERENCE GROUND TO CONTROLLER · REFERENCE GROUND TO NET · TARGET FRAME FROM REFERENCE GROUND · TWISTED WIRE PAIR (NETWORK) · REFERENCE GROUND TO CHASSIS

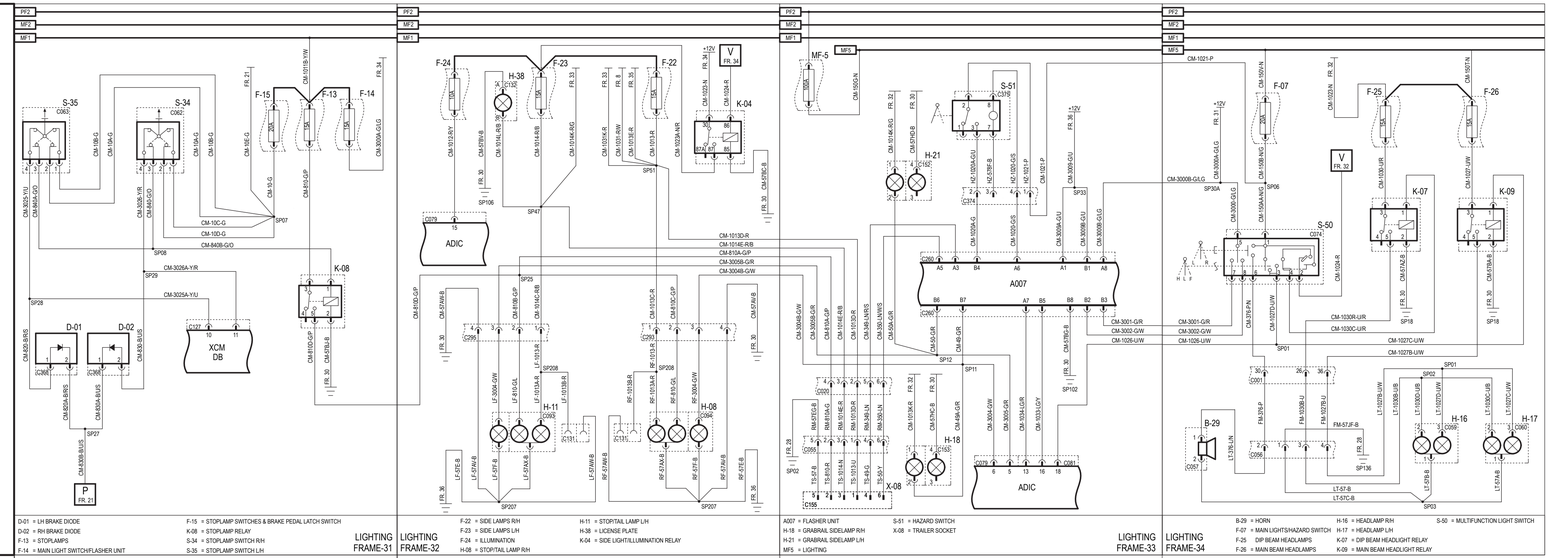
PROXIMITY OR SPEED SENSOR · FLUID LEVEL SENSOR · PRESSURE SENSOR · TEMPERATURE SENSOR · POTENTIOMETER

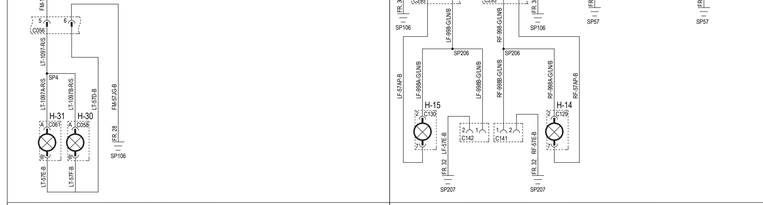
RANGE SWITCH · PRESSURE SWITCH · ROTATING BEACON · LAMP · SOLENOID

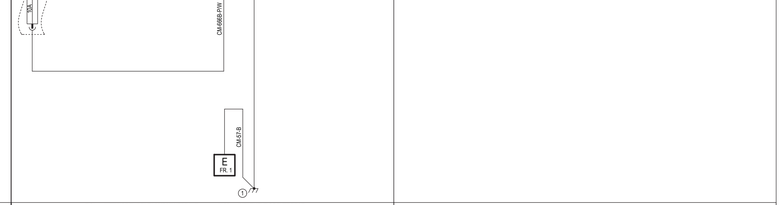
RELAY · BATTERY ISOLATOR SWITCH · DIODE · SWITCH WITH MOMENTARY CONTACT · MOMENTARY SWITCH (PEDAL)

FUSE · CONTROLLER · PTO SWITCH · TRANSMISSION CONTROL SWITCH · CONNECTOR

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COMPONENT INDEX
SN 87675101-5
MXU125 Limited

PROCESSORS, MODULES AND PANELS
- A001 GEAR SHIFT INDICATOR FR-08
- A006 INSTRUMENT CLUSTER KEYPAD FR-22
- A007 FLASHER UNIT FR-33
- A015 ENGINE ECU FR-37

SENSORS, SENDERS AND POTENTIOMETERS
- B-01 ENGINE FLYWHEEL SPEED SENSOR FR-05
- B-02 WATER IN FUEL SENSOR FR-04
- B-03 THROTTLE POTENTIOMETER (MECHANICAL ENGINE) FR-04
- B-04 HAND THROTTLE FR-05
- B-05 FUEL METERING UNIT FR-07
- B-06 BOOST PRESSURE/TEMPERATURE SENSOR FR-07
- B-07 OIL PRESSURE/TEMPERATURE SENSOR FR-07
- B-08 FUEL TEMPERATURE SENSOR FR-07
- B-09 CRANKSHAFT SPEED SENSOR FR-07
- B-10 CAMSHAFT SPEED SENSOR FR-07
- B-11 FUEL RAIL PRESSURE SENSOR FR-07
- B-12 COOLANT TEMPERATURE SENSOR FR-07
- B-13 CLUTCH POTENTIOMETER FR-09
- B-14 SYNCHRO POSITION POTENTIOMETER FR-09
- B-15 SPEED SENSOR FR-09
- B-16 LH DRAFT PIN FR-13
- B-17 ROCKSHAFT POTENTIOMETER FR-13
- B-18 RH DRAFT PIN FR-13
- B-20 PTO TWIST SENSOR FR-18
- B-23 PTO SPEED SENSOR FR-18
- B-29 HORN FR-34
- B-30 REVERSE ALARM FR-11
- B-31 FUEL TANK SENDER FR-04
- B-32 RADAR GUN FR-11
- B-33 STEERING ANGLE SENSOR FR-12
- B-37 1-4/5-8 SYNCHRO POTENTIOMETER FR-09
- B-38 TURN ASSIST SENSOR FR-19
- B-39 LINEAR POSITION (LVDT) SENSOR FR-19

DIODES
- D-01 LH BRAKE DIODE FR-31
- D-02 RH BRAKE DIODE FR-31

FUSES
- F-01 INTERIOR/PUDDLE LAMP/HANDBRAKE 10A FR-38
- F-07 MAIN LIGHTS/HAZARD SWITCH 20A FR-34
- F-08 STARTER SWITCH FUSE FR-02
- F-09 LOADER 25A FR-09
- F-11 FRONT/REAR WINDSHIELD WIPER 10A FR-41
- F-12 WIPER SWITCH/REAR WIPER PARK 10A FR-41
- F-13 STOPLAMPS 15A FR-34
- F-14 MAIN LIGHT SWITCH/FLASHER UNIT 15A FR-31
- F-15 STOPLAMP SWITCHES & BRAKE PEDAL LATCH SWITCH 20A FR-31
- F-16 TRAILER BRAKE 15A FR-21
- F-17 ACCESSORY SOCKETS 25A FR-37
- F-18 BLOWER MOTOR/SEAT 15A FR-39
- F-20 RADAR/DIAGNOSTICS 10A FR-11
- F-21 GRID HEATER FR-04
- F-22 SIDE LAMPS R/H 15A FR-32
- F-23 SIDE LAMPS L/H 15A FR-32
- F-24 ILLUMINATION 10A FR-32
- F-25 DIP BEAM HEADLAMPS 15A FR-34
- F-26 MAIN BEAM HEADLAMPS 15A FR-34
- F-27 FRONT WORKLAMPS 15A FR-35
- F-30 REAR/LOWER WORKLAMPS 15A FR-35
- F-32 FLASHER UNIT 30A FR-36
- F-33 DIAGNOSTICS CONNECTOR/ENGINE ECU FR-26
- F-34 INSTRUMENT CLUSTER FR-26
- F-35 PROCESSORS FR-26
- F-36 INSTRUMENT CLUSTER IGNITION FR-24
- F-37 TRANSMISSION IGNITION FR-24
- F-38 REAR PTO/HPL FR-24
- F-39 HPL/SEAT/EDC FR-25
- F-41 FRONT SUSPENSION/PTO FR-25
- F-42 FRONT SUSPENSION FR-25
- F-43 STARTER SWITCH (RUN) FR-03
- F-44 FRONT B+ 25A FR-38
- F-51 TURN ASSIST FUSE FR-19

CHARGING
- G-01 BATTERY FR-01
- G-02 ALTERNATOR FR-01

LAMP AND LIGHTS
- H-01 REAR PTO LAMP FR-18
- H-08 STOP/TAIL LAMP R/H FR-32
- H-11 STOP/TAIL LAMP L/H FR-32
- H-14 WORKLAMP R/H FR-36
- H-15 WORKLAMP L/H FR-36
- H-16 HEADLAMP R/H FR-34
- H-17 HEADLAMP L/H FR-34
- H-18 GRABRAIL SIDELAMP R/H FR-33
- H-20 SMV LAMP- REAR L/H FR-37
- H-21 GRABRAIL SIDELAMP L/H FR-33
- H-23 SMV LAMP-REAR R/H FR-37
- H-30 CORNER LAMP R/H FR-35
- H-31 CORNER LAMP L/H FR-35
- H-38 LICENSE PLATE FR-32

RELAYS
- K-03 IGNITION RELAY FR-23
- K-04 SIDE LIGHT/ILLUMINATION RELAY FR-32
- K-05 STARTER (CRANK) RELAY FR-01
- K-06 BLOWER MOTOR RELAY FR-42
- K-07 DIP BEAM HEADLIGHT RELAY FR-34
- K-08 STOPLAMP RELAY FR-31
- K-09 MAIN BEAM HEADLIGHT RELAY FR-34
- K-10 PNEUMATIC TRAILER BRAKE SUPPLY RELAY FR-21
- K-11 HYDRAULIC TRAILER BRAKE SUPPLY RELAY FR-21
- K-12 STOPLAMP SWITCH/AIR BRAKE-RELAY FR-21
- K-13 ENGINE COLD ADVANCE RELAY FR-03
- K-14 REVERSE ALARM RELAY FR-11
- K-15 BLOWER MOTOR RELAY FR-42
- K-19 WORKLAMP LOWER FRONT-RELAY FR-35
- K-20 WORKLAMP LOWER REAR RELAY FR-36
- K-21 ELECTRONICS SUPPLY FR-23
- K-25 GRID HEATER RELAY FR-03

MOTORS
- M-01 STARTER MOTOR AND SOLENOID FR-01

MAXI FUSE
- MF1 ENGINE IGNITION FR-23
- MF2 LIGHTING/IGNITION/RADIO/WORKLAMPS FR-02
- MF3 B+/PROCESSORS FR-26
- MF4 IMPLEMENT SOCKET REAR 40 AMP FR-38
- MF5 LIGHTING 100 AMP FR-33
- MF6 ACCESSORY/CAB 80 AMP FR-38

POWER FUSE
- PF1 POWER E, ELECTRONICS SUPPLY FR-01
- PF2 POWER B+, MAIN SUPPLY FR-01

RESISTORS
- R-01 GRID HEATER FR-03

SWITCHES
- S-01 IGNITION SWITCH FR-02
- S-02 FOOT THROTTLE - ELECTRONIC ENGINE FR-03
- S-03 CONSTANT ENGINE SPEED PROGRAM SWITCH FR-05
- S-04 CONSTANT ERPM ON/OFF SWITCH FR-05
- S-05 ENGINE INCDEC SWITCH FR-05
- S-06 AIR CLEANER SWITCH FR-04
- S-07 DE-GAS BOTTLE FR-04
- S-08 SHUTTLE SWITCH FR-02
- S-09 CLUTCH SWITCH FR-02
- S-10 DUPLICATE TRANSMISSION CONTROL - DOWNSHIFT FR-08
- S-11 DUPLICATE TRANSMISSION CONTROL - UPSHIFT FR-08
- S-12 DUPLICATE TRANSMISSION CONTROL - RANGE FR-08
- S-15 CREEPER SENDING SWITCH FR-10
- S-16 CREEPER SENSE FORWARD SWITCH FR-10
- S-18 GEARSHIFT FR-08
- S-19 CREEPER GEAR SWITCH FR-10
- S-20 TRANSMISSION OIL PRESSURE SWITCH FR-12
- S-21 TRANSMISSION AUTO FUNCTION SWITCH FR-08
- S-22 TRANSMISSION OIL TEMPERATURE SENSOR FR-11
- S-23 OIL TEMPERATURE SWITCH FR-12
- S-24 HPL FILTER SWITCH S3 FR-12
- S-26 HPL SWITCH L/H FR-12
- S-27 HPL SWITCH R/H FR-12
- S-28 LO CHARGE SWITCH S2 FR-12
- S-29 FAST RAISE/LOWER SWITCH FR-11
- S-30 4WD ACTIVATED SWITCH FR-10
- S-31 DIFF LOCK ACTIVATED SWITCH FR-11
- S-32 DIFF LOCK SWITCH FR-11
- S-34 STOPLAMP SWITCH R/H FR-31
- S-35 STOPLAMP SWITCH L/H FR-31
- S-36 4WD SWITCH FR-10
- S-38 REAR PTO BRAKE SWITCH FR-18
- S-40 REAR PTO SWITCH FR-18
- S-50 MULTIFUNCTION LIGHT SWITCH FR-34
- S-51 HAZARD SWITCH FR-33
- S-52 HANDBRAKE SWITCH FR-21
- S-56 BRAKE FLUID LEVEL SWITCH FR-21
- S-57 PAS PRESSURE SWITCH FR-12
- S-59 CALIBRATION/SELECT SWITCH FR-08
- S-63 HIGH RANGE SWITCH FR-09
- S-64 LOW RANGE SWITCH FR-09
- S-67 FRONT WORKLAMP SWITCH FR-36
- S-68 REAR WORKLAMP SWITCH FR-36
- S-76 TURN ASSIST SWITCH FR-19

POWER SOCKETS / CONNECTORS
- X-01 JOYSTICK LOADER CONTROL SOCKET FR-17
- X-02 JOYSTICK LOADER CONTROL SOCKET FR-17
- X-05 IMPLEMENT SOCKET REAR FR-38
- X-06 TRAILER SOCKET FR-33
- X-13 EST DIAGNOSTIC CONNECTOR FR-26
- X-14 LOADER POWER CONNECTOR FR-17

SOLENOID VALVES
- Y-01 LOADER VALVE 1 FR-17
- Y-02 LOADER VALVE 2 FR-17
- Y-03 INJECTOR 1 FR-07
- Y-04 INJECTOR 2 FR-07
- Y-05 INJECTOR 3 FR-07
- Y-06 INJECTOR 4 FR-07
- Y-07 INJECTOR 5 FR-07
- Y-08 INJECTOR 6 FR-07
- Y-09 REVERSE SYNCHRO SOLENOID FR-09
- Y-10 FORWARD SYNCHRO SOLENOID FR-09
- Y-13 CREEPER GEAR SOLENOID FR-10
- Y-17 EDC LOWER SOLENOID FR-13
- Y-18 EDC RAISE SOLENOID FR-13
- Y-19 DIFF LOCK SOLENOID FR-11
- Y-20 4WD SOLENOID FR-10
- Y-21 PTO BRAKE SOLENOID FR-18
- Y-22 PTO CLUTCH SOLENOID FR-18
- Y-30 5-8 SYNCHRO SOLENOID FR-09
- Y-31 C1 VALVE FR-09
- Y-32 C3 VALVE FR-09
- Y-33 C4 VALVE FR-09
- Y-34 C2 VALVE FR-09
- Y-35 1-4 SYNCHRO SOLENOID FR-09
- Y-42 ITALIAN TRAILER BRAKE SOLENOID FR-19

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SECTION 01 – SEPARATING THE TRACTOR

BOOK 1 - 87520738

Chapter 2 – Separating Engine and Front Support from the Transmission

CONTENT

Section	Description	Page
	Tightening Torques	2
	Special Tools	2
	Overhaul	3
	Engine and Front Support from the Transmission	3
	Removal	3
	Installation	10

SECTION 01 – SEPARATING THE TRACTOR

BOOK 1 - 87520738

Chapter 3 – Separating Transmission, Engine and Front Support from the Rear Axle

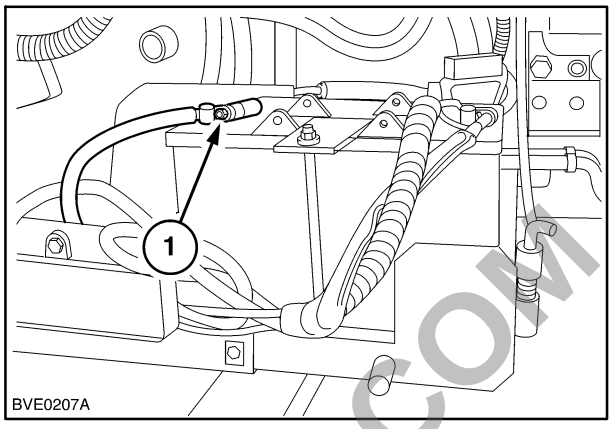
CONTENT

Section	Description	Page
	Tightening Torques	2
	Special Tools	2
	Overhaul	3
	Transmission, Engine and Front Support from the Rear Axle	3
	Removal	3
	Installation	7

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14. Install the four wheel driveshaft (refer to four wheel driveshaft installation in this chapter).
15. Refill the driveline with the correct specified oil.
16. Connect the battery negative cable (1) and install the battery cover.

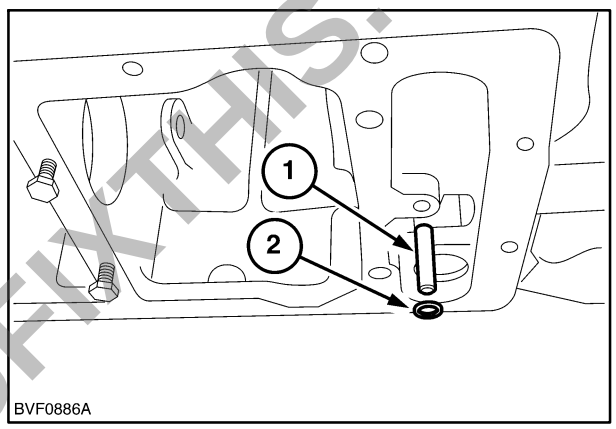


69

FOUR WHEEL DRIVESHAFT OIL SUPPLY MANIFOLD

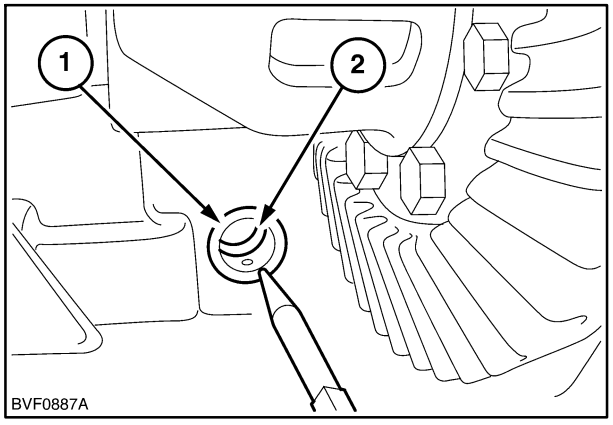
Removal

1. Remove the four wheel drive clutch (refer to four wheel drive clutch removal in this chapter).
2. Remove the power take-off (PTO) housing (refer to PTO housing removal in the PTO section.
3. Remove the O-ring (2) and the oil supply manifold retaining pin (1).



70

4. Using a suitable punch, remove the oil supply manifold (1) and the bearing (2).

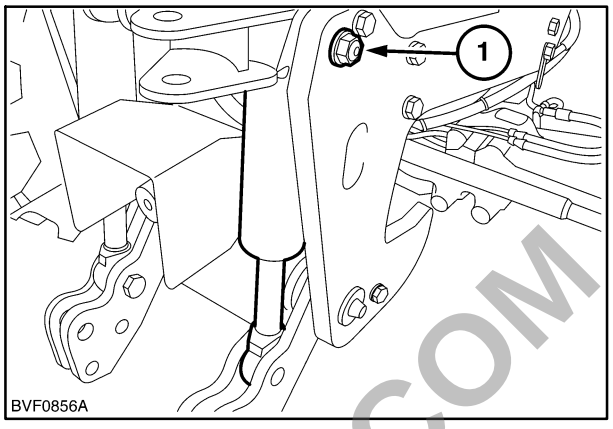


71

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7. Remove the retaining nut (1), slide out the pin and remove the hydraulic front lift ram.



29

Installation

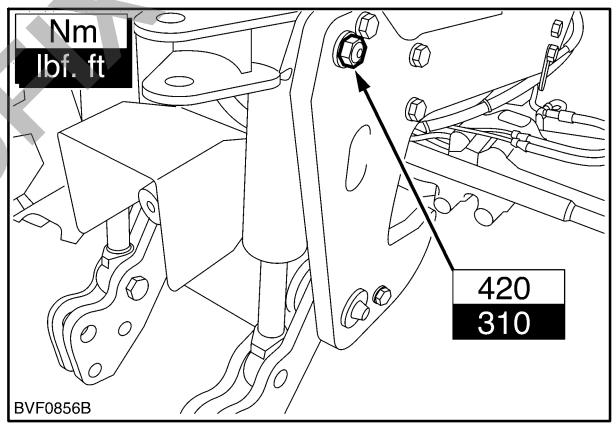
⚠ WARNING ⚠

Handle all components with the greatest care.

Do not insert hands or fingers between the parts.

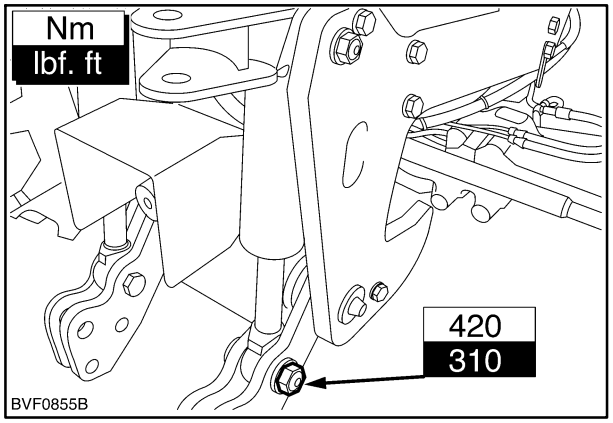
Wear goggles, gloves and footwear.

1. Install the hydraulic front lift ram and slide in the pin. Install the retaining nut and tighten to the specified torque value.



30

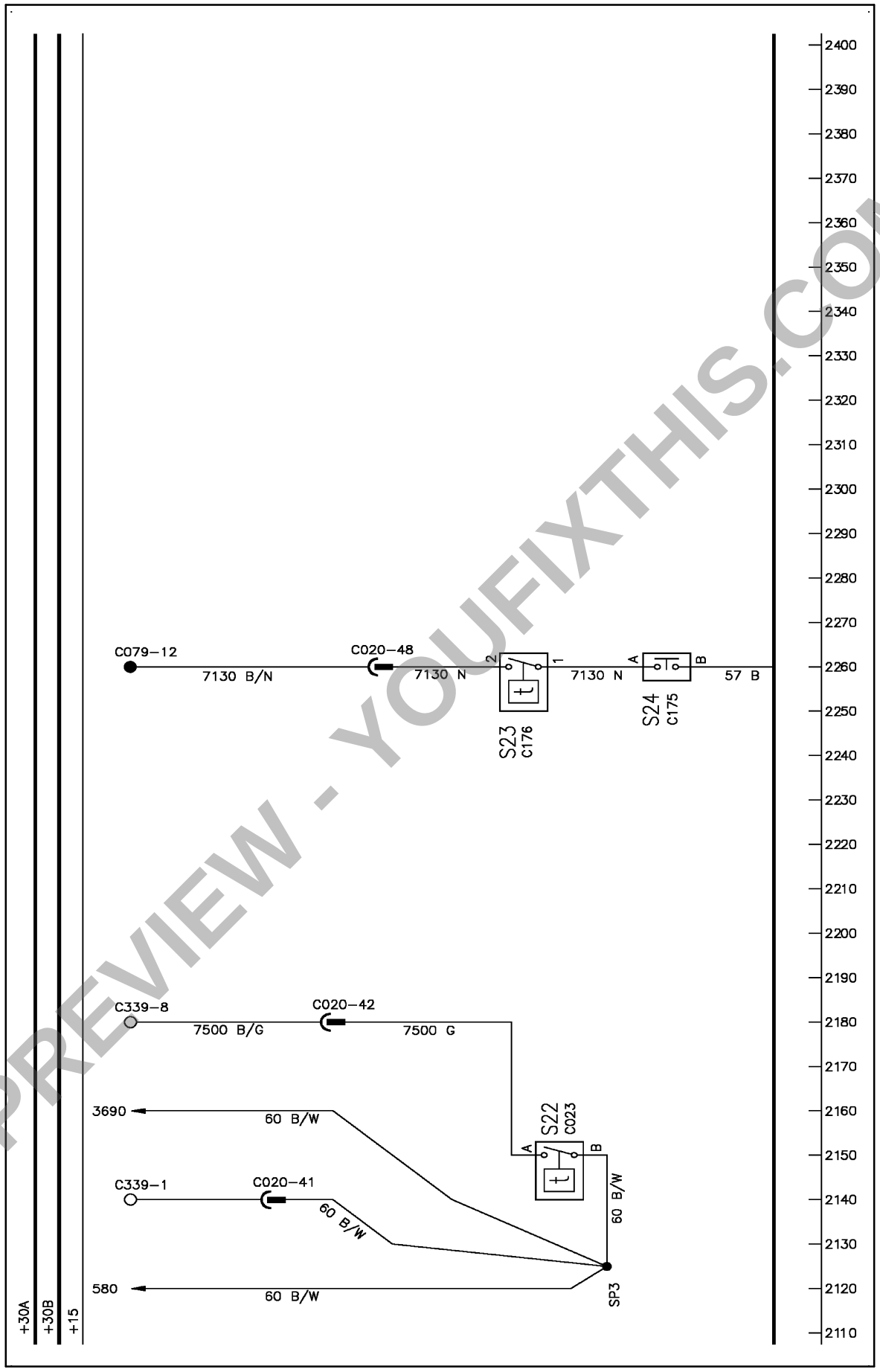
2. Install the hydraulic front lift ram lower retaining nut and bolt. Tighten to the specified torque value.



31

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ERROR CODE 3040 - COLD START RELAY SHORT TO VCC

Effects:

Possible starting difficulty

Possible failure modes:

1. Faulty connector
2. Faulty fuel heater relay
3. Faulty harness
4. Faulty engine controller

Solution:

NOTE: *When the cause of the error code has been rectified, clear the error code and test the system for normal operation.*

1. Before proceeding clear the error code with the approved diagnostic equipment. Run the tractor under normal conditions and retest.

   A. If the error code is not indicated, check that the system is operating correctly.

   B. If the error code is indicated, continue to step 2.

2. Check the fuel heater relay connector **C354** and the engine controller connector **C242**.

   A. Ensure the connectors are connected, not damaged, the pins are in the correct position and that the fit is tight. Repair or replace as required.

   B. If the connectors are okay, continue to step 3.

3. Check for a short to +Ve voltage.

   A. Disconnect connector **C242** and remove the fuel heater relay **C354**. Turn the keystart ON. Check between connector:

   C354 pin **1 (K)** and **ground**

   C354 pin **2 (P)** and **ground**

   If a short to +Ve is indicated, repair or replace the harness as required.

   B. If the harness is okay, replace the fuel heater relay.

   If the fault persists, download the the correct level of software. If the fault re-occurs, remove and replace the engine controller.

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