
TM120, TM130, TM140, TM155, TM175, TM190 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 TM Series Repair manual. Complete Repair part # 87611238.

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 TM Series Tractors.

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⚠ WARNING ⚠

All maintenance and repair work described in this manual must be performed exclusively by NEW HOLLAND service technicians in strict accordance with the instructions given and using any specific tools necessary.

⚠ WARNING ⚠

Anyone who performs the operations described herein without strictly following the instructions is personally responsible for resulting injury or damage to property.

⚠ WARNING ⚠

The Manufacturer and all organizations belonging to the Manufacturer's distribution network, including but not restricted to national, regional or local distributors, will accept no responsibility for personal injury or damage to property caused by abnormal function of parts and/or components not approved by the Manufacturer, including those used for maintenance and/or repair of the product manufactured or marketed by the Manufacturer. In any case, the product manufactured or marketed by the Manufacturer is covered by no guarantee of any kind against personal injury or damage to property caused by abnormal function of parts and/or components not approved by the Manufacturer.

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GENERAL INSTRUCTIONS

IMPORTANT NOTICE

All maintenance and repair operations described in this manual should be carried out exclusively by the authorized workshops. All instructions detailed should be carefully observed and special equipment indicated should be used if necessary.

Everyone who carries out service operations described without carefully observing these prescriptions will be directly responsible of deriving damages.

SHIMMING

At each adjustment, select adjusting shims, measure them individually using a micrometer and then sum up recorded values. Do not rely on measuring the whole shimming set, which may be incorrect, or on the rated value indicated for each shim.

ROTATING SHAFT SEALS

To correctly install rotating shaft seals, observe the following instructions:

- Let the seal soak into the same oil as it will seal for at least half an hour before mounting;
- Thoroughly clean the shaft and ensure that the shaft working surface is not damaged;
- Place the sealing lip towards the fluid. In case of a hydrodynamic lip, consider the shaft rotation direction and orient grooves in order that they deviate the fluid towards the inner side of the seal;
- Coat the sealing lip with a thin layer of lubricant (oil rather than grease) and fill the gap between the sealing lip and the dust lip of double lip seals with grease;
- Insert the seal into its seat and press it down using a flat punch. Do not tap the seal with a hammer or a drift;

- Take care to insert the seal perpendicularly to its seat while you are pressing it. Once the seal is settled, ensure that it contacts the thrust element, if required;
- To prevent damaging the sealing lip against the shaft, place a suitable protection during installation.

O RINGS

Lubricate the O rings before inserting them into their seats. This will prevent the O rings from roll over and twisting during mounting, which will jeopardize sealing.

SEALERS

Apply silicone/gasket eliminator over the mating surfaces marked with an X.

Before applying the sealer, prepare the surface as follows:

- remove possible scales using a metal brush;
- thoroughly degrease the surfaces using one of the following cleaning agents: trichlorethylene, diesel fuel or a water and soda solution.

BEARINGS

It is advisable to heat the bearings to 80° to 90°C (176° to 194°F) before mounting them on their shafts and cool them down before inserting them into their seats with external tapping.

SPRING PINS

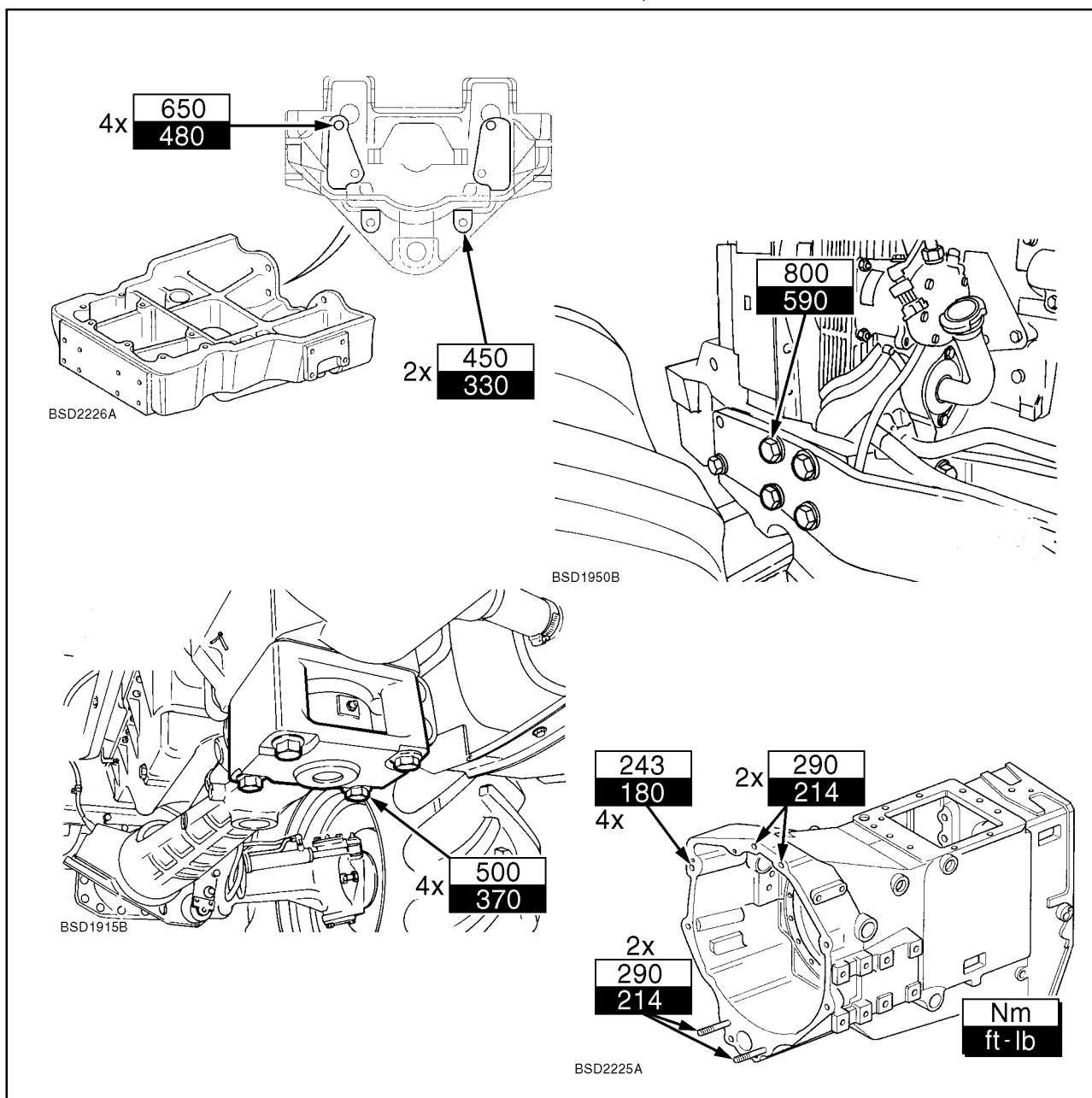
When mounting split socket spring pins, ensure that the pin notch is oriented in the direction of the effort to stress the pin.

Spiral spring pins should not be oriented during installation.

SECTION 10 - ENGINE**Chapter 1 - Separating and Removing The Engine****CONTENTS**

Section	Description	Page
	Tightening Torques	2
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TIGHTENING TORQUES



The following general nut and bolt installation torque requirements (lubricated) apply to any operation not previously listed.

INCH SERIES	ft-lb	N·m
$\frac{1}{4}$ - 20	8	11
$\frac{1}{4}$ - 28	8	11
$\frac{5}{16}$ - 18	14	19
$\frac{5}{16}$ - 24	17	23
$\frac{3}{4}$ - 16	23	31
$\frac{3}{4}$ - 24	33	45
$\frac{7}{16}$ - 14	48	65
$\frac{7}{16}$ - 20	55	75
$\frac{1}{2}$ - 13	65	88
$\frac{1}{2}$ - 20	75	102
$\frac{9}{16}$ - 18	90	122
$\frac{5}{6}$ - 18	138	187

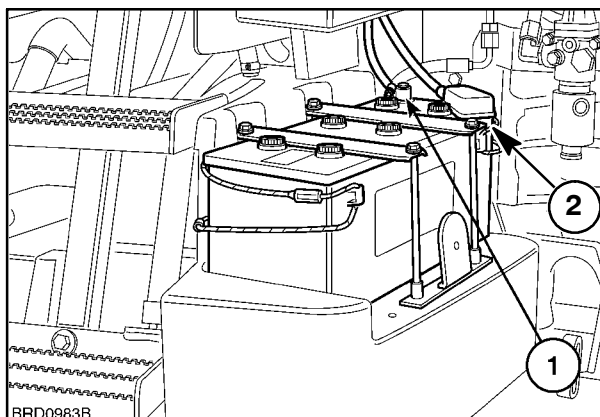
SPECIAL TOOLS

(Prior Tool Numbers, where applicable, shown in brackets)

Description	New Holland Tool Number	Prior Tool Number
Engine Lifting Brackets	82932534 and 82852825	-
Engine revolving stand	380000301 or 380000361	-
Engine overhaul brackets kit - Use with 380000301	380000313	-
Tractor splitting kit	380000569	MS.2700 C
Engine support brackets (for use with tractor splitting kit)	380000500	

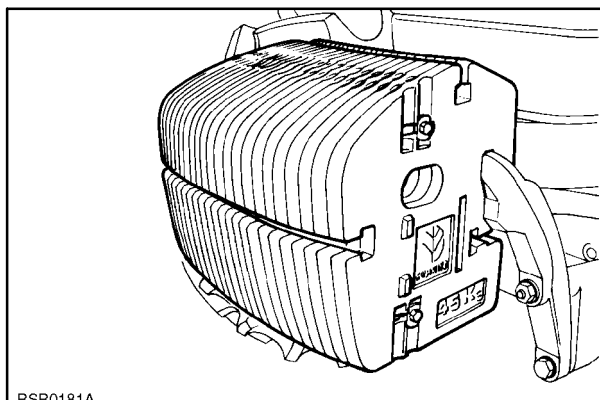
SEPARATING AND REMOVING THE ENGINE**FRONT AXLE AND SUPPORT****Separating Front Axle and Support from Engine**

1. Disconnect battery ground lead (1) and then disconnect the positive lead (2).



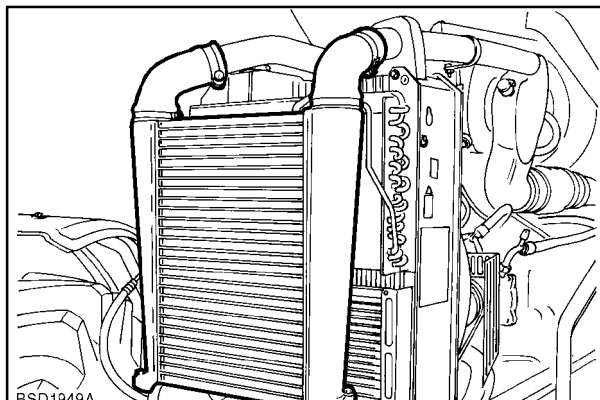
2

2. If front weights are fitted to the front of the tractor remove using suitable hoist with adequate safe working load.



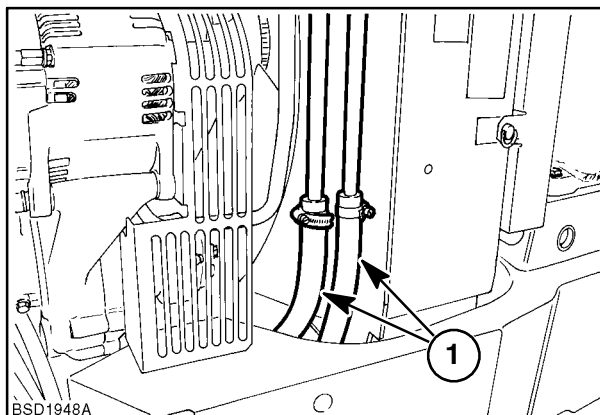
3

3. Disconnect air to air intercooler pipes.



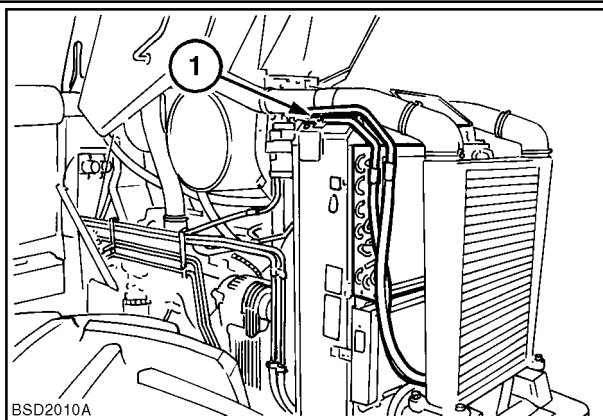
4

4. Disconnect transmission oil cooler hoses (1) and drain oil into clean container.



5

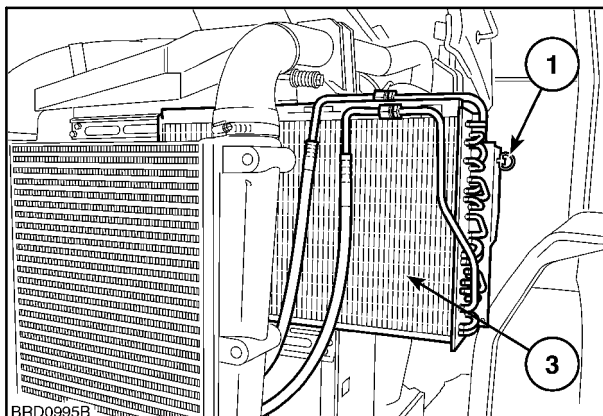
5. Remove clips (1) securing air conditioning condensor tubes to side of radiator.



6

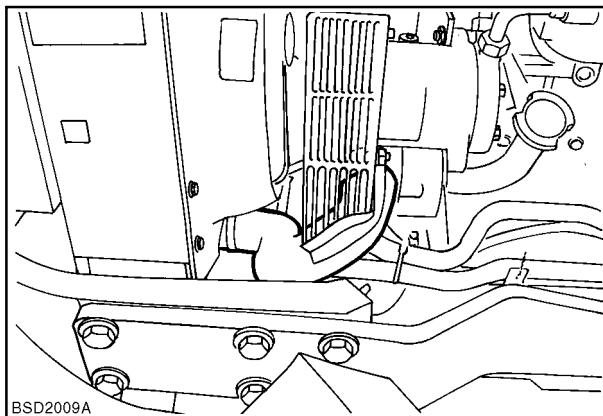
6. Withdraw condensor from front of radiator and place in a safe place on side of engine.

NOTE: *Never* disconnect the hoses to the condenser unless the air conditioning system has been evacuated as described in Section 50 of this Repair Manual.



7

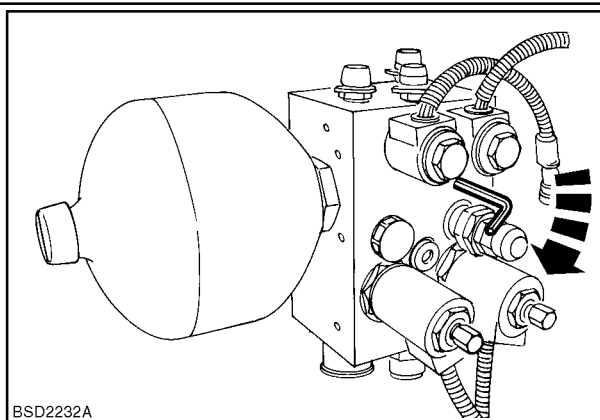
7. Drain the cooling system fluid into a clean container and disconnect the radiator hoses. Disconnection of the radiator lower hose provides a suitable drain point. Place a large clean tray under the vehicle to capture the fluid for future use.



8

Tractors fitted with suspended front axle

1. Depressurize the suspension system by rotating screw on top of the suspension load sense unload valve clockwise. When the tractor has lowered completely onto the front support stops rotate the screw counterclockwise to normal operating position.

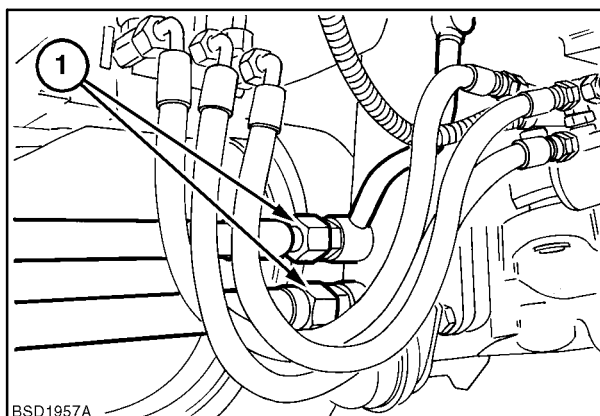


9

2. Disconnect the pipes to the front axle suspension cylinders.

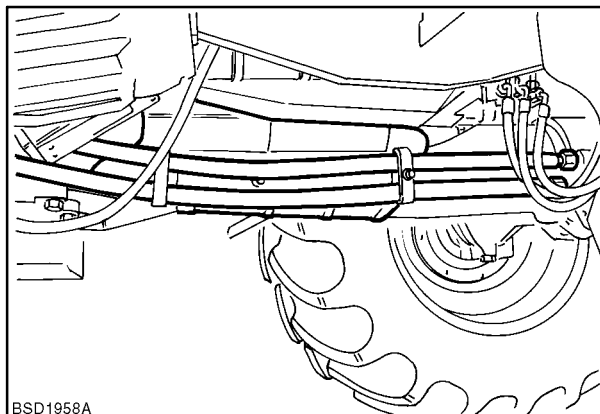
⚠ WARNING ⚠

On tractors with suspended front axle ensure suspension has been fully lowered as described above before disconnecting suspension cylinder hoses.



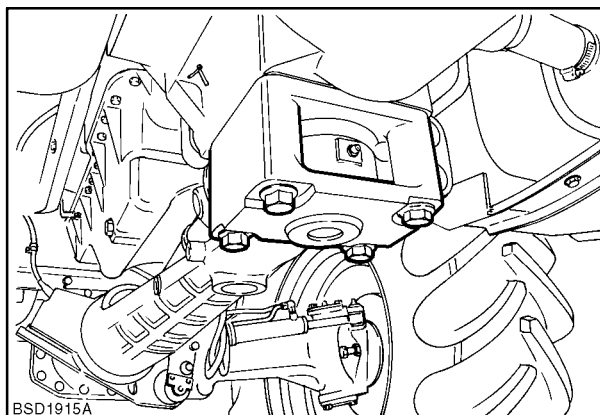
10

3. Remove suspension pipes and guard.



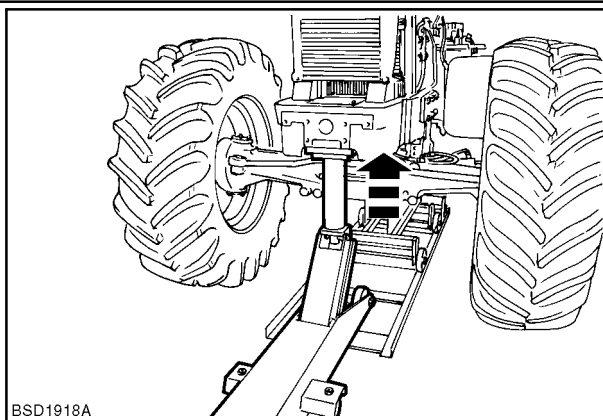
11

4. Remove the rear pivot block bolts.



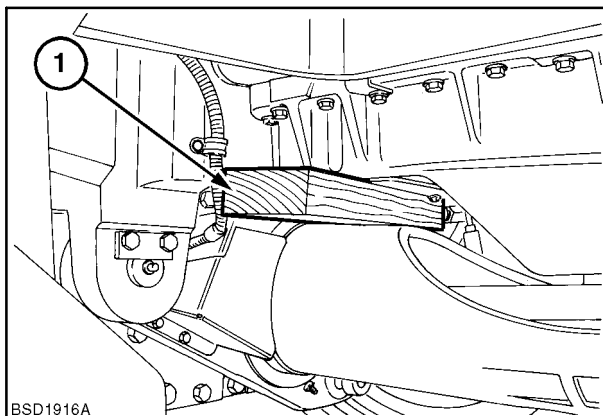
12

5. Position trolley jack beneath front support and raise front of tractor.



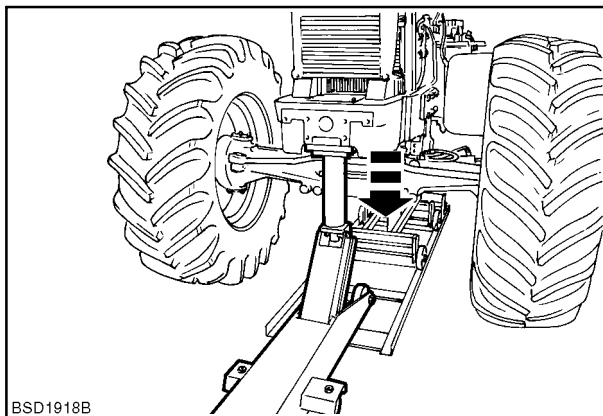
13

6. Position a suitable piece of strong timber between oil pan and suspension arm.



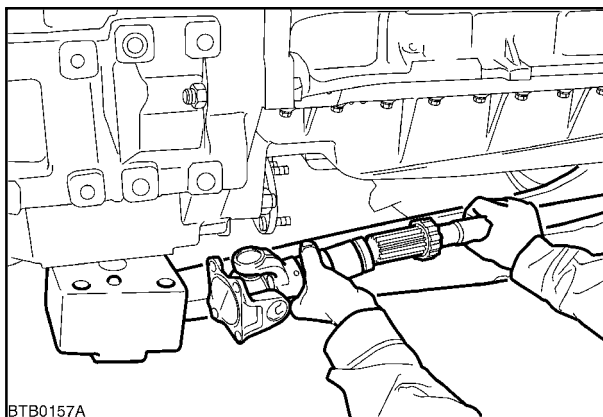
14

7. In a controlled manner lower the front of the tractor to the ground. The lowering action will cause the suspension arm pivot block to separate from the transmission casing.



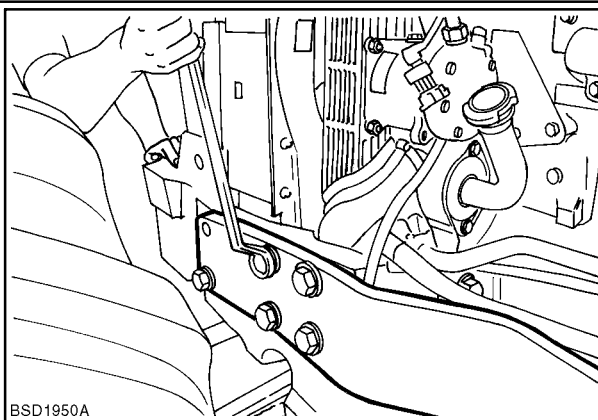
15

8. Disconnect and remove front wheel drive shaft universal joint.



16

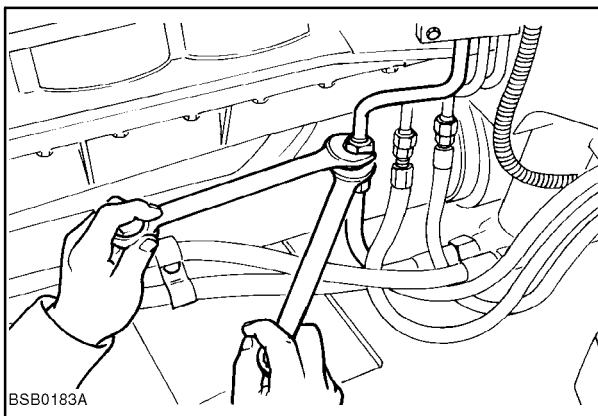
9. Remove engine side rails



17

10. Disconnect the 2 steering tubes and differential lock tube from the right hand side.

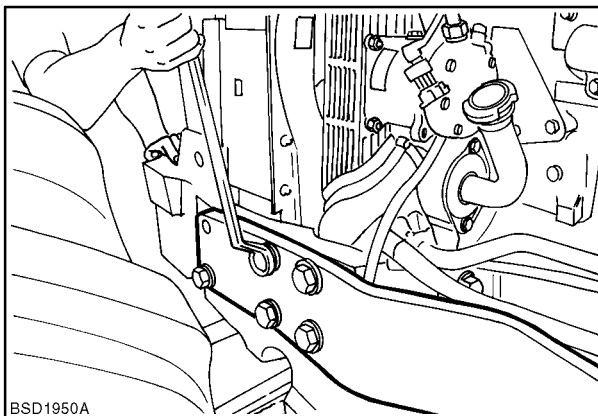
NOTE: If front axle brakes are fitted, disconnect the common brake pipe to the axle.



18

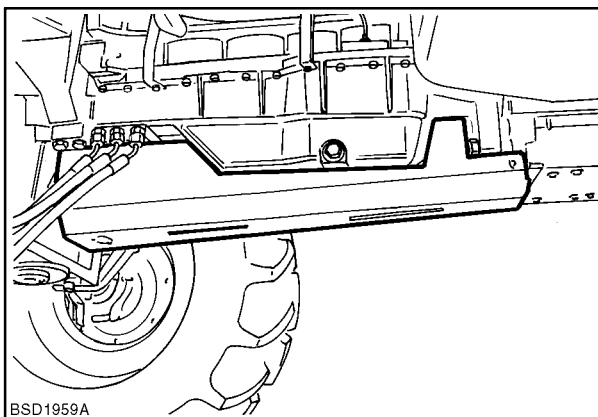
Tractors fitted with standard FWD axle

1. Remove engine side rails where fitted.



19

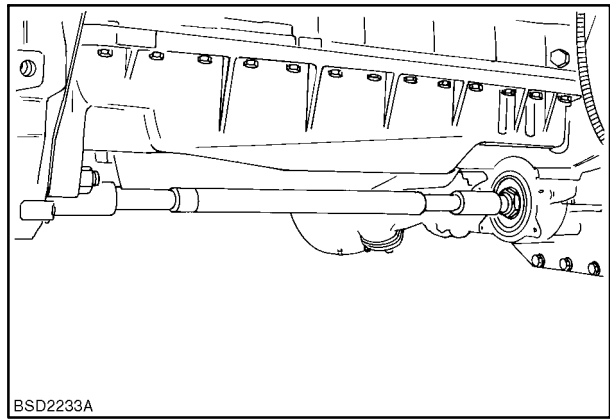
2. Remove front wheel drive shaft guard, if fitted.



20

3. Remove drive shaft.

NOTE: The type of driveshaft fitted is dependant on type of axle installed.

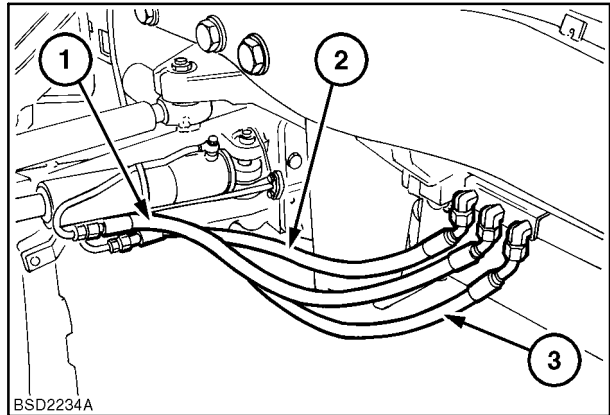


21

4. Disconnect power steering hoses (1) and (2) on each side of the tractor.
Disconnect differential lock hose (3).

NOTE: Pipework will vary depending on type of axle installed.

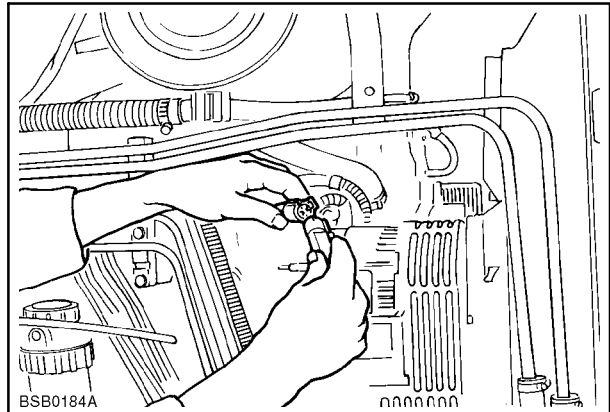
NOTE: If front axle brakes are fitted, disconnect the common brake pipe to the axle.



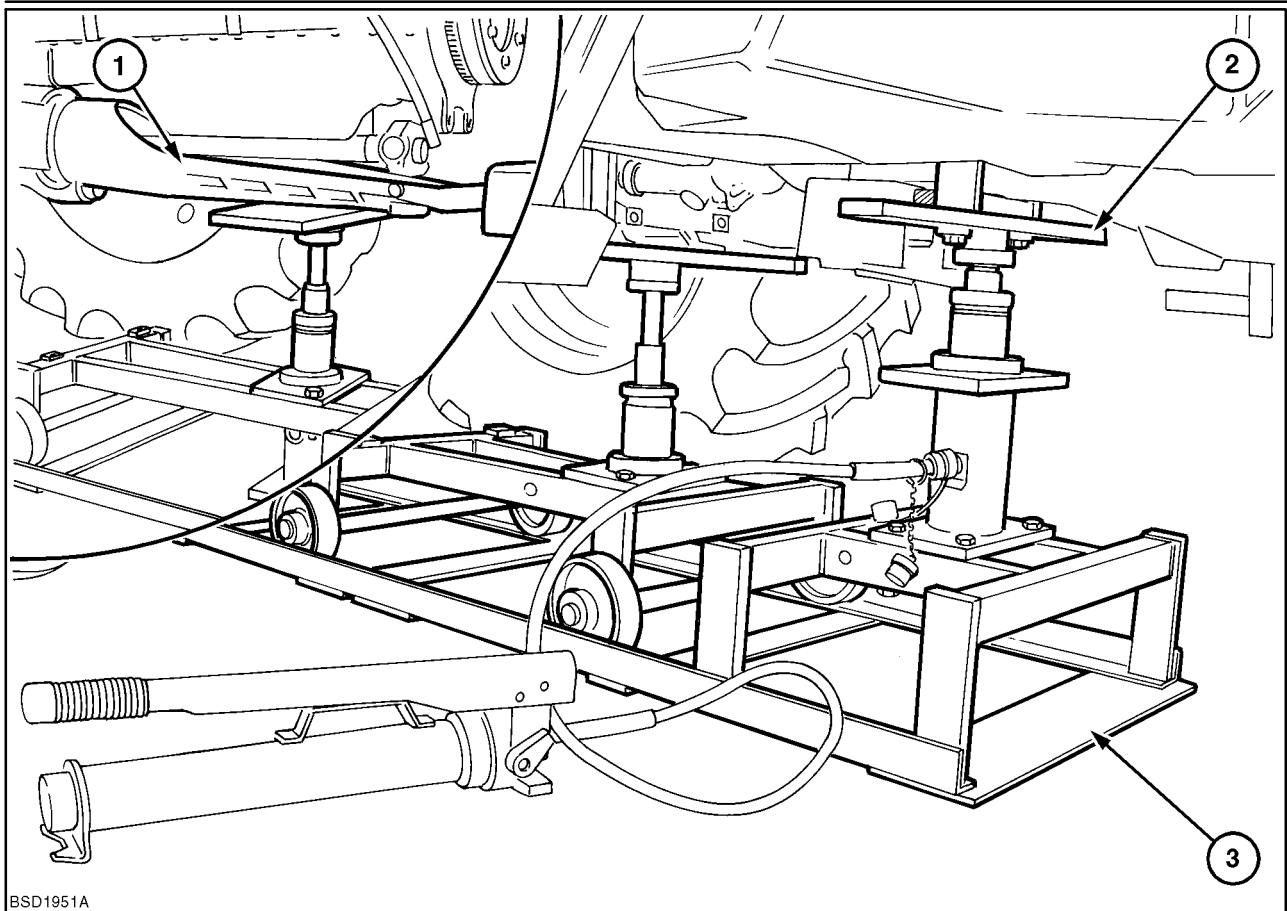
22

5. Inspect the harness connections between the engine and front support and disconnect where necessary to enable the front support and axle to be separated from the engine.

NOTE: The type and number of connections to be disconnected is dependant on the build option and ancillary equipment fitted to the front of the tractor.



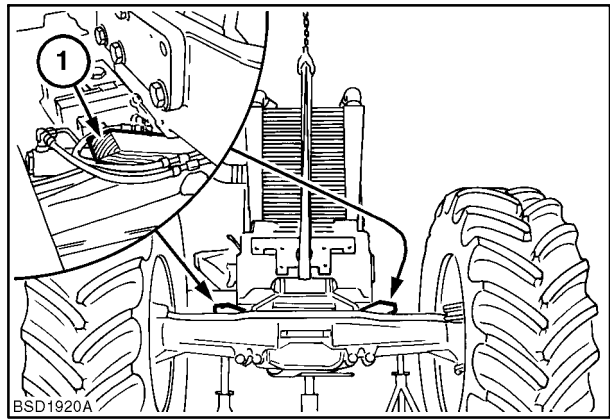
23



6. Position splitting kit (3) **380000569** beneath tractor.
7. Use supports part of kit to support the transmission (2) on the splitting stand.
8. On tractors with suspended front axle support the suspension arm using the wheeled splitting trolley (1) which is part of tractor splitting kit.

NOTE: On tractors not fitted with suspended front axle the engine may be supported using brackets **380000500** and wheeled splitting trolley as illustrated in Figure 54.

9. Position wooden wedges (1) between the front axle and support. These prevent articulation of the axle and must be used.

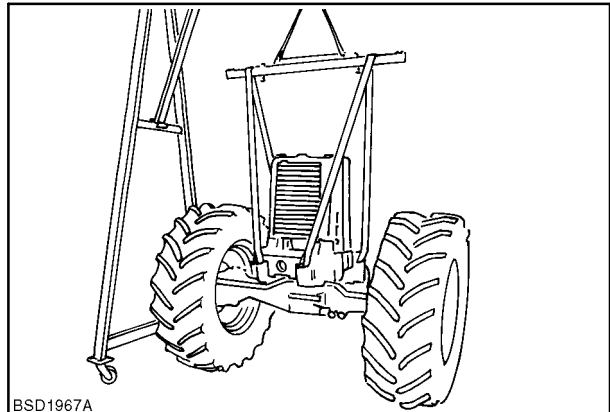


25

10. Using spreader bar and suitable chains or slings attach the front and rear of the support assembly to a moveable overhead hoist.

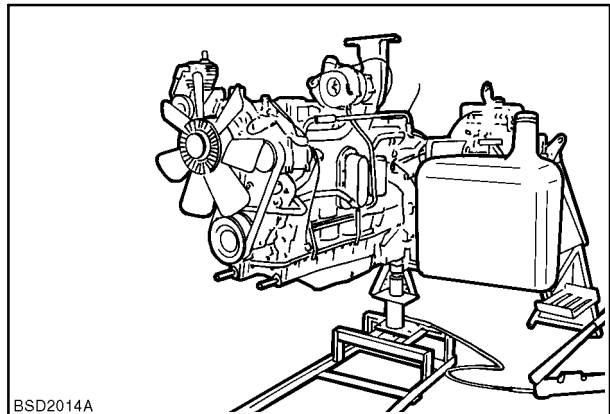


Always ensure the support is adequately supported and will remain stable when separated from the engine. Failure to provide adequate support may cause the assembly to be unstable with possible personal injury if the support tips forwards or backwards.



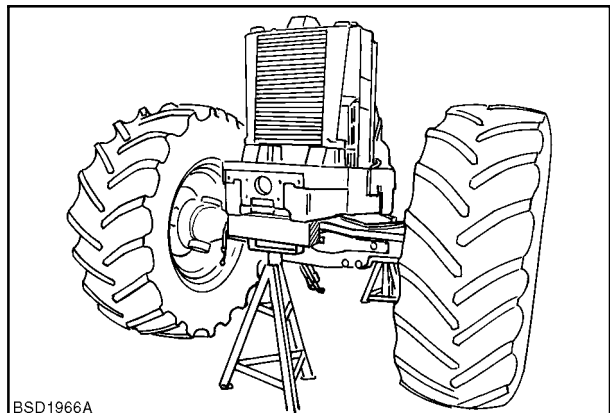
26

11. Remove front support to engine securing bolts and separate front support from the engine.
12. Separate front support from engine.



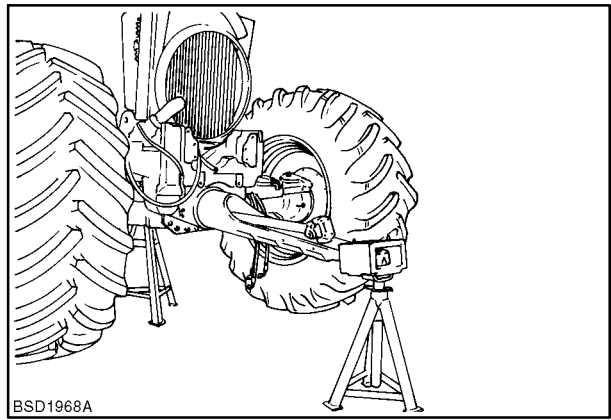
27

13. Support assembly on axle stands at front and rear of support.



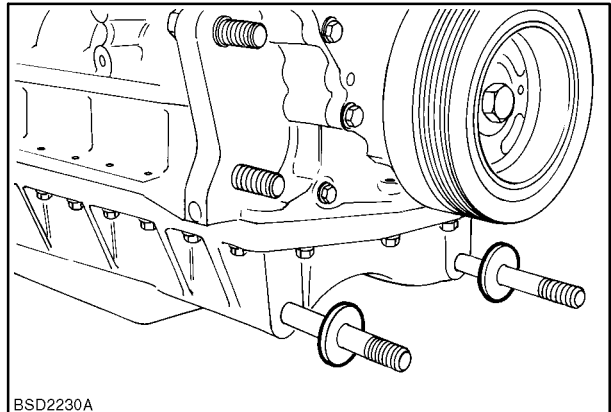
28

14. On tractors with suspended front axle position stands under the support and suspension arm.



29

15. Identify for use during reassembly the two shims positioned between the engine sump and front support.

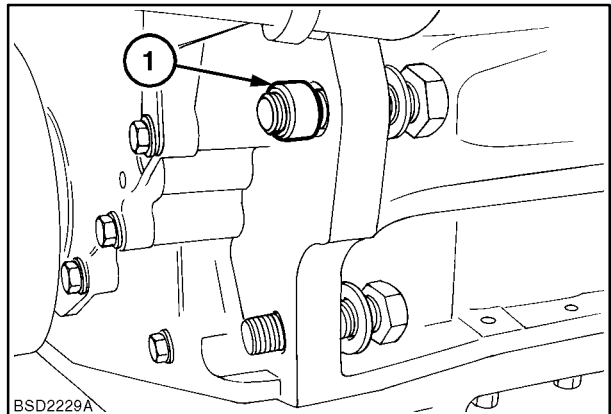


30

Installation

The following procedure must be observed when reassembling the front support to the engine.

1. Install spacers on two outer mounting bolts (1) on either side of the engine.

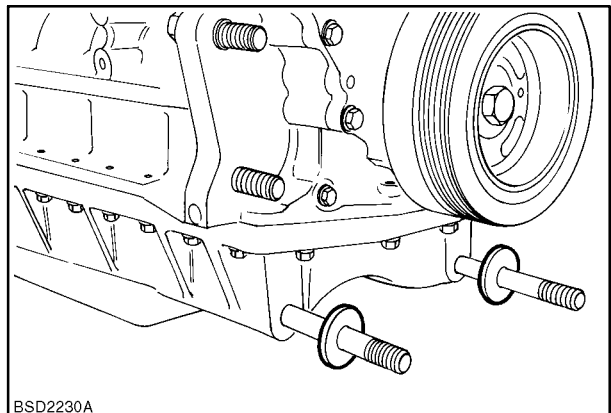


31

2. Ensure shims, Figure 30 removed during disassembly are repositioned in the same location as when disassembled.

NOTE: If a new front support or the engine oil pan has been removed and replaced during overhaul it is necessary to recalculate the new shim thickness to be installed using the following procedure.

3. Install 4.5 mm yellow shim part number 82026240 onto each of the engine mounting studs.



32



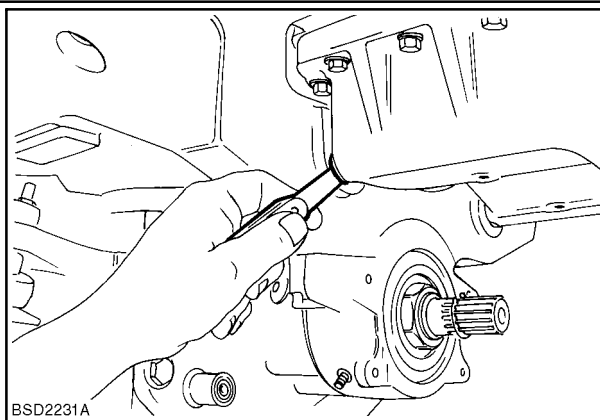
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4. Assemble front support to engine and torque the four upper retaining bolts to specified torque
5. Using feeler gauges measure space between each shim and front support.



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6. Add feeler gauge dimension to the 4.1mm shim thickness already installed and select appropriate shims from following list.

Color Code	Shim Thickness	Part Number
Yellow	4.5 mm	82026240
Green	4.8 mm	82026241
Red	5.1 mm	82026242
Blue	5.4 mm	82026243
White	5.7 mm	82026244
Black	6.0 mm	82026245
Pink	6.3 mm	82026246
Light Blue	6.6 mm	82026247
Gold	6.9 mm	82026248
Lime	7.2 mm	82026249
Orange	7.5 mm	82026250
Blue/Grey	7.8 mm	82026251

7. Separate front support from engine and replace 4.1mm shims with shims of calculated thickness.
8. Reinstall front support and tighten retaining bolts to specified torques.

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