

## CALIFORNIA

### Proposition 65 Warning

**WARNING:** Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

**WARNING:** Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer, birth defects, and other reproductive harm. **Wash hands after handling.**

# *5400 series tractors*

*For models ORCHARD 5460SA-5470SA-5475SA*



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*Chapter 2*

**INTRODUCTION - SAFETY INSTRUCTIONS AND  
WARRANTY**

## 2 . INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY

Make sure all required equipment is in place and in good working order. **DO NOT** remove or disconnect any safety devices.

### 2.10.4 - Equipment check

Before you begin your working day, take time to check the tractor and ensure that all systems operate correctly.

- **DO NOT SMOKE** while refueling the tractor. Keep away from naked flames (Fig. 5).
- Shut down the engine and wait for it to cool before refueling.

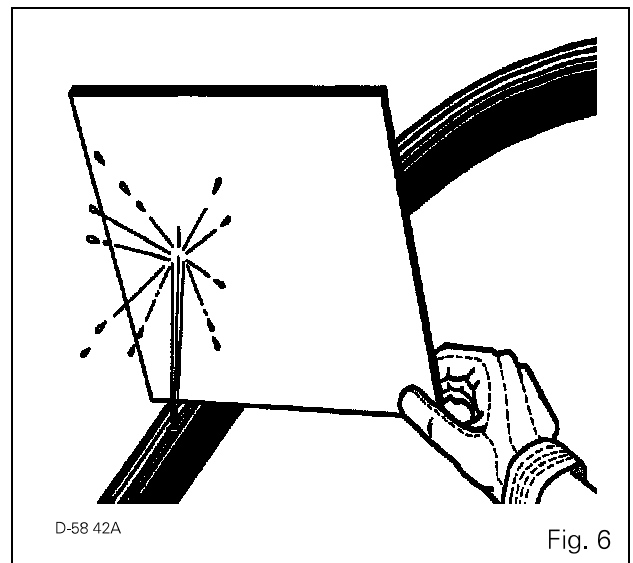


- Check for loose, broken, missing, or damaged parts. Ensure any repairs have been carried out correctly. Ensure that all safety devices are in place.
- Check that the safety belt is in good condition. If not, replace the damaged safety belt.
- Ensure that implements and attachments are properly installed and that the tractor and implement PTO (rpm) ratios are correct.
- Check tire condition (no cuts or bulges) and pressure. Replace worn or damaged tires. Check that the foot and parking brakes are operating correctly. Adjust if necessary.
- Check the oil level. Add oil as necessary.
- Perform all servicing procedures outlined in the Servicing and Adjustments chapter in this book.
- Check that the PTO shaft locking devices are engaged.
- Check that the tractor PTO guard and the shaft guards are in place and operating correctly.
- Check the tractor and implement hydraulic system. Ensure any damaged or leaking parts are repaired or replaced.



**WARNING: Fuel or hydraulic fluid under pressure can penetrate the skin or eyes and cause serious personal injury, blindness, or death.**

**Leaks of pressurized fluid may not be visible. Use a piece of cardboard or wood to detect leaks. DO NOT USE YOUR BARE HANDS. Wear safety goggles for eye protection. If any fluid penetrates the skin, seek medical advice within the next few hours from a doctor familiar with this type of injury, as surgery will be necessary (Fig. 6).**



Before pressurizing the fuel or hydraulic system, ensure that all connections are tight and that lines, pipes, and hoses are free from damage. Release the pressure before disconnecting fuel or hydraulic systems.

Make sure that all hydraulic systems are correctly installed and not crossed over.



**WARNING: Liquid cooling systems build up pressure as the engine temperature increases. Stop the engine and let the system cool before removing the radiator plug.**

- Check the engine cooling system and add coolant if required.

### 2.10.5 - Clean the tractor

- Keep working surfaces and engine compartments clean.
- Before cleaning the machine, always lower implements to the ground, set the transmission to neutral, engage the parking brake, shut down the engine, and remove the ignition key.
- Clean steps, pedals, and floor. Remove grease or oil. Brush away dust and mud. In winter, scrape away snow and ice. Remember - slippery surfaces are hazardous.
- Remove or put away implements, buckets, chains, and hooks.

## 2. INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY



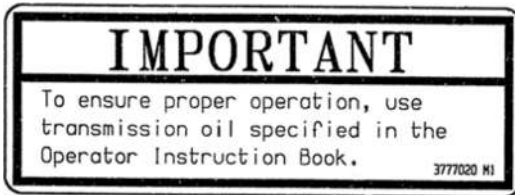
X3B-4280863F1

Located on the right-hand side on the cab recirculation filter.



4280862M1

Located on the cab back left-hand pillar.



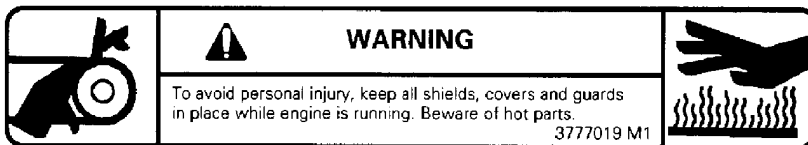
3777020 M1

Located on the fenders at the rear of the tractor.



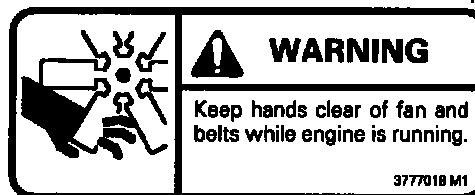
3808361M3

Located on top of the hood (access to radiator cap).



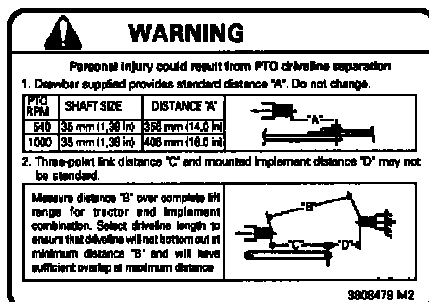
3777019 M1

Located on the sides of the radiator.



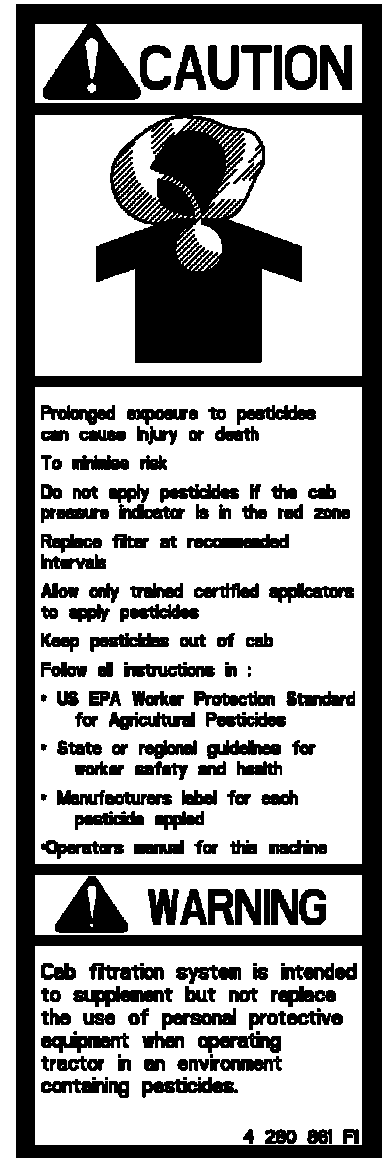
3777018 M1

Located on the sides of the radiator.



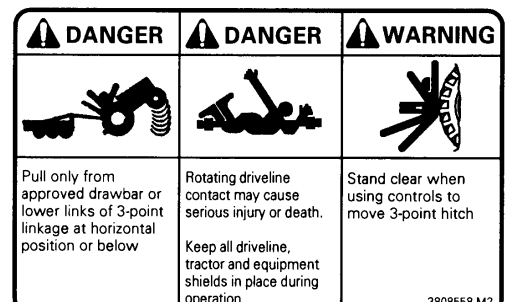
3808479 M2

Located on the fenders at the rear of the tractor.



4 280 861 F1

Located on the cab back left-hand pillar.



3808558 M2

Located on the fenders at the rear of the tractor.

### 3.5 - SEAT

#### 1. Weight adjustment:

Your seat should be adjusted to your weight. Weight is indicated by a height/weight indicator (6).

Turn the lever to increase or decrease the weight. The operator should not be sitting in the seat during the adjustment procedure.

*NOTE: The setting for the operator's weight should be checked and adjusted as necessary before the vehicle is started up.*

#### 2. Height adjustment:

Once the weight has been set, adjust the seat height. Turn the lever to increase or decrease the height.

#### 3. Legroom adjustment:

Raise the lever, adjust the longitudinal position then release the lever.

#### 4. Backrest angle adjustment:

Pull the lever, adjust the angle then release the lever.

#### 5. Armrest angle adjustment:

If required, you can fold the armrests back or set their height by turning the thumb wheels under the armrests.

#### 6. Height/weight indicator

#### 7. Lumbar support adjustment:

Adjust the lumbar support by turning the handle to either the left or right.

#### 8. Headrest:

Adjust the height of the headrest by raising or lowering it to its stop (it audibly clicks into its adjustment notches).

The headrest can be removed by pulling it upwards past its stop.

#### 9. Storage space for books and user instructions



**WARNING:** *Never adjust the seat while the tractor is moving.*

**CONTENTS**

**4.1 - RUNNING-IN .....4.5**  
 4.1.1 The following precautions should be taken during the running-in period ..... 4.5

**4.2 - START-UP .....4.5**  
 4.2.1 Starting the engine ..... 4.5  
 4.2.2 Cold weather starting ..... 4.5

**4.3 - STOPPING THE ENGINE .....4.5**

**4.4 - DRIVING THE TRACTOR .....4.6**  
 4.4.1 Foot throttle. .... 4.6  
 4.4.2 Choosing the correct gear ratio ..... 4.6  
 4.4.3 Towing the tractor ..... 4.6

**4.5 - TRANSMISSION .....4.6**  
 4.5.1 Engaging the transmission ..... 4.6  
 4.5.2 Transmission control ..... 4.6  
 4.5.3 Selecting the ratio at start-up ..... 4.7  
 4.5.4 Parking brake ..... 4.8  
 4.5.5 PowerShuttle. .... 4.9  
 4.5.6 Creeper gearbox ..... 4.9

**4.6 - BRAKES .....4.10**

**4.7 - DIFFERENTIAL LOCK.....4.10**

**4.8 - POWER TAKE-OFF.....4.10**  
 4.8.1 Interchangeable 540 and 1000 rpm PTO achieved by changing the shaft ..... 4.11

**4.9 - STEERING .....4.11**

**4.10- ELECTRONIC LINKAGE .....4.12**  
 4.10.1 Attaching an implement from the operator's seat. .... 4.13  
 4.10.2 Lowering ..... 4.13  
 4.10.3 Lifting. .... 4.13  
 4.10.4 Depth control. .... 4.13  
 4.10.5 Attaching a tool using external controls ..... 4.14  
 4.10.6 Transport ..... 4.15  
 4.10.7 Active transport control system ..... 4.15  
 4.10.8 Use when working ..... 4.16  
 4.10.9 Operation at headlands ..... 4.16

**4.11- AUXILIARY HYDRAULICS.....4.17**  
 4.11.1 Types of spool valve or equipment ..... 4.17  
 4.11.2 Hydraulic spool valve control ..... 4.17  
 4.11.3 100 l/min open center ..... 4.18

**4.12- THREE-POINT LINKAGE ASSEMBLY.....4.19**  
 4.12.1 Lower links ..... 4.19  
 4.12.2 Top link ..... 4.19  
 4.12.3 Lift rods ..... 4.20  
 4.12.4 Stabilizers ..... 4.21  
 4.12.5 Adjustment procedure ..... 4.21

**4.13- DRAWBARS AND HITCHES .....4.22**  
 4.13.1 Perforated bar ..... 4.22  
 4.13.2 Swinging drawbar ..... 4.22

**4.14- TRANSMISSION CONTROL .....4.23**  
 4.14.1 Differential lock control ..... 4.23  
 4.14.2 Four-wheel drive front axle ..... 4.23



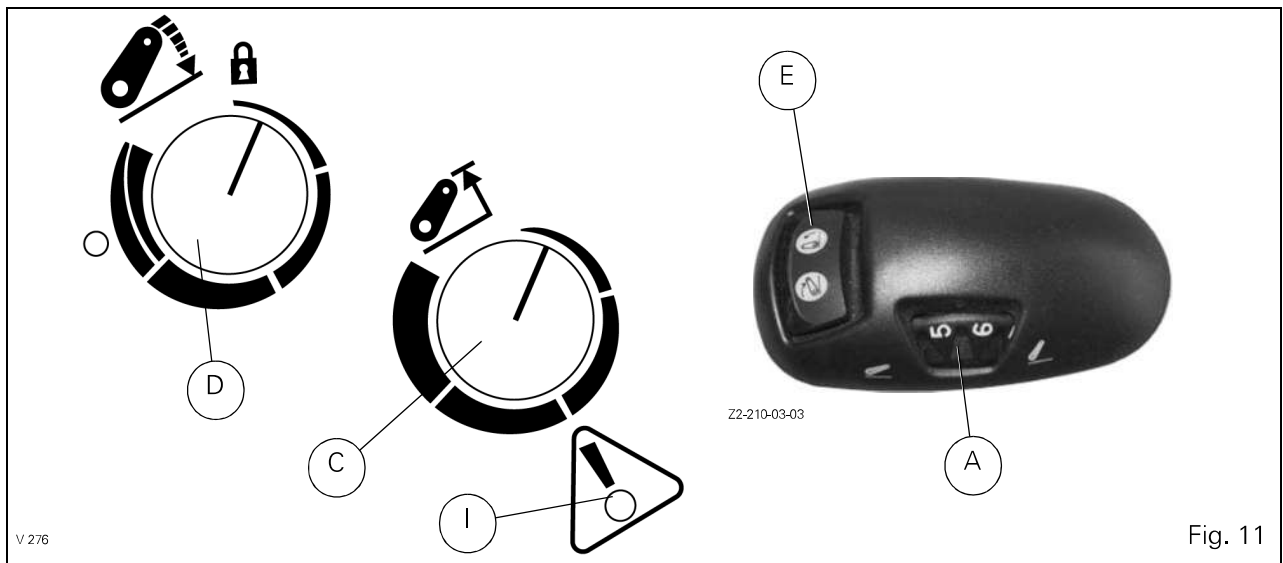
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### 4.10.1 - Attaching an implement from the operator's seat

Start up the engine. Indicator lights I and J come on.

- J lights up for approximately 0.5 seconds.
- I stays on until the console is activated.
- Adjust the control knobs.
- Move the function selector knob (B Fig. 10) clockwise to the lowest control position.
- Move Lift/Lower selector switch E to the Lift position.
- Adjust the position of the arms using control knob A.
- Lifting indicator light H comes on.

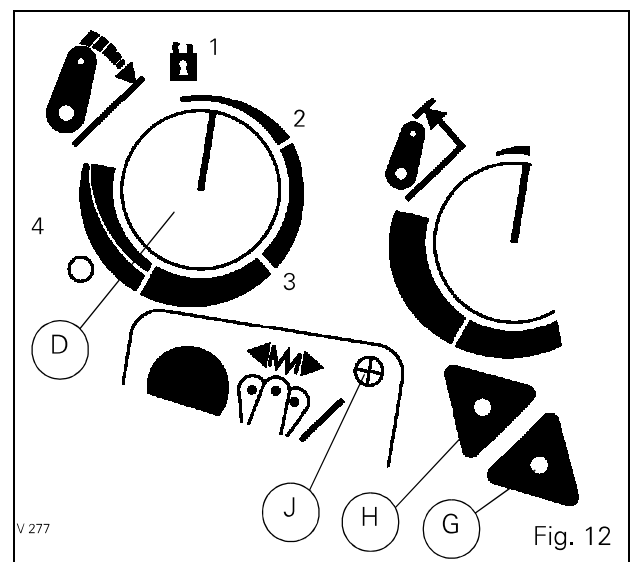
### 4.10.2 - Lowering

To lower the drawbar, turn knob A counterclockwise. Lowering indicator light G comes on.

In automatic mode, the lowering speed depends on 2 parameters: the weight of the implement and the traveling speed.

Legend Fig. 12:

1. Lowering lock position
2. Lowering speed slow
3. Lowering speed fast
4. Automatic mode



### 4.10.3 - Lifting

To lift the drawbar, turn knob A clockwise. Lifting indicator light H comes on.

### 4.10.4 - Depth control

Positions 1 (minimum) to 7 (maximum) on knob A determine the working depth.

Between positions 8 and 9, the linkage is floating.

### 4.14 - TRANSMISSION CONTROL

Tractors are normally fitted with this system, which comprises 3 functions:

#### 4.14.1 - Differential lock control

When the engine is started, the differential is not locked. A single press of the differential lock switch will engage it, while pressing it again will release the differential lock.

Special cases:

- In automatic mode, the differential lock will disengage when the 3-point linkage lifts and will re-engage when the linkage is lowered.
- The differential lock disengages automatically at speeds above 14 kph (8.70 mph) and will not re-engage when the speed drops.
- Pressing one of the brake pedals (whether or not locked together) will disengage the differential permanently, unless it is disengaged temporarily by the linkage.

#### 4.14.2 - Four-wheel drive front axle

Press the 4WD switch to engage the four-wheel drive front axle. Press again to disengage the front axle.

The front axle disengages automatically at speeds above 14 kph (8.70 mph).

Special cases:

- The four-wheel drive front axle will not disengage above 14 kph (8.70 mph) if the operator presses the switch for more than two seconds.
- The front axle will remain engaged regardless of ground speed if the operator presses the switch while the tractor is traveling at a speed in excess of 14 kph (8.70 mph).
- The front axle will be engaged automatically if the operator applies the parking brake while the tractor is traveling at a speed in excess of 2 kph (1.24 mph).
- If both brake pedals are depressed the front axle will engage to provide 4-wheel braking, regardless of ground speed.

#### 4.14.3 - Power take-off control

The following safety features protect the tractor and the implement:

- If the main PTO switch is on when starting the engine, the PTO is disengaged and causes the PTO indicator light to flash on the instrument panel. No error will be transmitted or displayed. In order to start the PTO, the PTO switch must be set to the off position, and then on.
- Protection against engine stalling:  
If PTO engagement causes the engine speed to drop by more than 50% below initial speed, the transmission control will cut out the PTO solenoid valve and send an error message via the CAN bus and cause the PTO indicator light to flash on the instrument panel.
- If engine speed exceeds 1800 rpm while the Economy PTO is engaged, the PTO will be disengaged and its indicator light on the instrument panel will flash.

#### 4.14.4 - Speed limiting

On versions restricted to 30 kph (18.64 mph), speed is limited by the electronic transmission control.

- When the tractor reaches 28 kph (17.40 mph), the indicator light for the Powershift ratio engaged (C or D) will flash.
- When the tractor reaches 30 kph (18.64 mph), all Powershift indicator lights will flash together.
- When the tractor reaches 33 kph (20.50 mph), the electronic transmission control will automatically shift down a ratio (D to C; C to B) to reduce speed.

#### 4.14.5 - Cold temperature conditions

If ambient temperature drops below -10°C (14°F), the transmission will be locked in Powershift ratio C, Powershift indicator lights A and D on the instrument panel will flash.

#### 4.14.6 - Creeper gears

If the operator engages the creeper gears while the tractor is in range 3 or 4, the electronic transmission control will automatically shift to range 2 without changing the Powershift ratio.

#### 4.14.7 - Hydraulic pressure (low pressure)

- A. The electronic control unit operates on the hydraulic oil pressure indicator light to prevent it illuminating at low speed.
- B. The indicator light comes on for a few seconds when the engine is started. If it lights up subsequently, there is a problem.
- C. When the indicator light comes on for more than two seconds, the electronic control unit disengages the functions involved to prevent damage.

#### Fault detection

In the event of a dysfunctioning, the system shifts to the D ratio and the low-pressure indicator light (17 bar) comes on. Depending on the temperature, it is not unusual for the indicator lights to remain lit for a few minutes after switching off the ignition.

#### Servicing

Check the hydraulic accumulator pressure once per year.

#### Legend:

TC: transmission controller.

PTO: Power take-off.

### 5.4 - OPERATOR SERVICE GUIDE

#### 5.4.1 - Engine, fuel and cooling systems

1. Check/clean the dry air filter elements (chapter 5.18).
2. Check radiator coolant level (chapter 5.11).
3. Clean the radiator/cooler element fins (chapter 5.11).
4. Check the level of smoke emission from the exhaust.

#### 5.4.2 - Electrical circuit and instruments

5. Check the condition of the battery and the electrolyte level.
6. Check the tightness of battery connections and battery safety.

#### 5.4.3 - Front axle and steering

7. Check the oil level in the front axle and final drives (4WD).
8. Lubricate drive shaft/universal joints (4WD) (chapter 5.7).
9. Check the steering and wheel alignment (including tire wear and damage).

#### 5.4.4 - Transmission and hydraulics

10. Check transmission/auxiliary hydraulic oil level.
11. Grease trumpet housing bearings (chapter 5.7).

#### 5.4.5 - General

12. Check and top up the windshield washer bottle (chapter 5.8).
13. Lubricate all points with grease or oil as specified in the Operator Instruction Book (chapter 5.7).
14. Lubricate door locks (chapter 5.7).

### 5.12.1 - Filtering the hydraulic system

- **Change the 150-micron suction strainer** every 1200 hours (1 Fig. 18).
  - Unscrew the strainer and discard it.
  - Lightly oil the rubber seal.
  - Screw on the new strainer until the seal touches it. Tighten an extra half-turn. Do not tighten excessively.

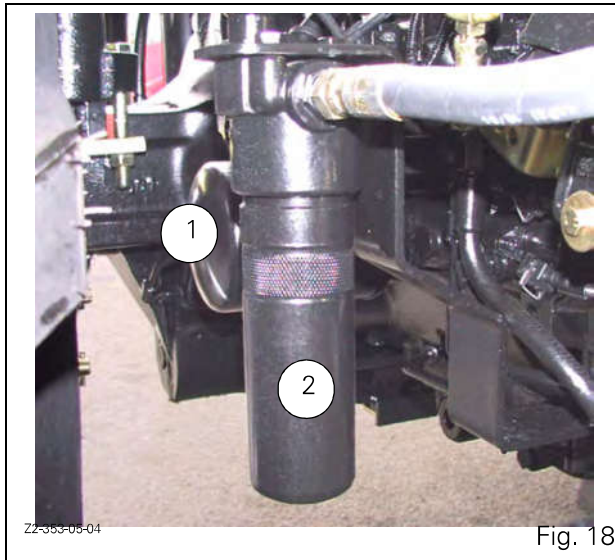


Fig. 18

- **Change the 15-micron filter** every 400 hours. Replace the high pressure filter element located on the right-hand side of the housing (2 Fig. 18).
  - Unscrew the filter bowl, pull out the filter element, allow to drain fully, and discard it.
  - Replace the seal every 1200 hours or as necessary.
  - Slide the new filter element onto the filter head.

**To avoid contamination by foreign material (mud, etc.), do not completely remove the protective plastic until the filter element is in place.**

  - Screw the filter bowl back on, tightening by hand until it locks.

*NOTE: When using hydraulic implements taking a large quantity of oil out of the transmission (hydraulic motors, high capacity cylinders), top up oil to the maximum level.*

*After changing the oil or the filter, let the engine run until the oil pressure is obtained. Wait for the 5 bar (72.5 lbf/in<sup>2</sup>) indicator light to go out and check for leaks. Recheck the oil level and top up if necessary.*

### 5.12.2 - Transmission oil cooler

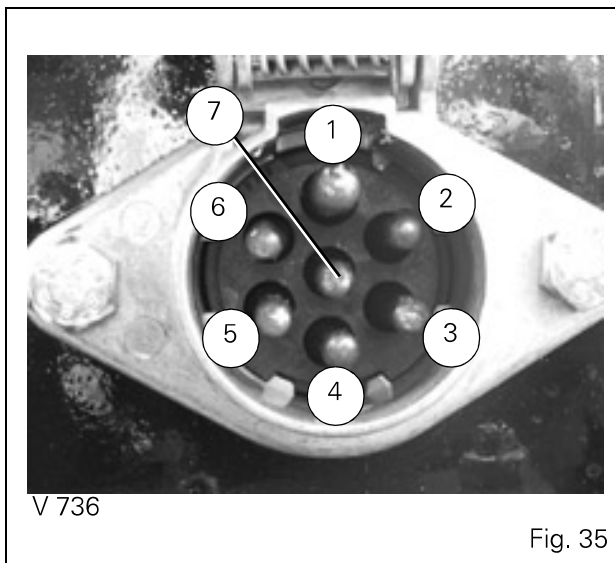
**Clean the transmission cooler fins** every 400 hours (this interval is flexible).

## 5 . SERVICING AND ADJUSTMENTS

### 5.22.4 - Trailer socket (ASAE)

Connection (Fig. 35).

1. Ground (white wire)
2. Rear work light (grey wire)
3. Left direction indicator and flashing warning light (yellow wire)
4. Open
5. Right direction indicator and flashing warning light (green wire)
6. Clearance lights, side lights, and identification lights (brown wire)
7. 20 A fuse box, unswitched (red wire).



### 5.22.5 - Adjusting the headlights

The headlights are adjusted by tightening or loosening the three screws as required.

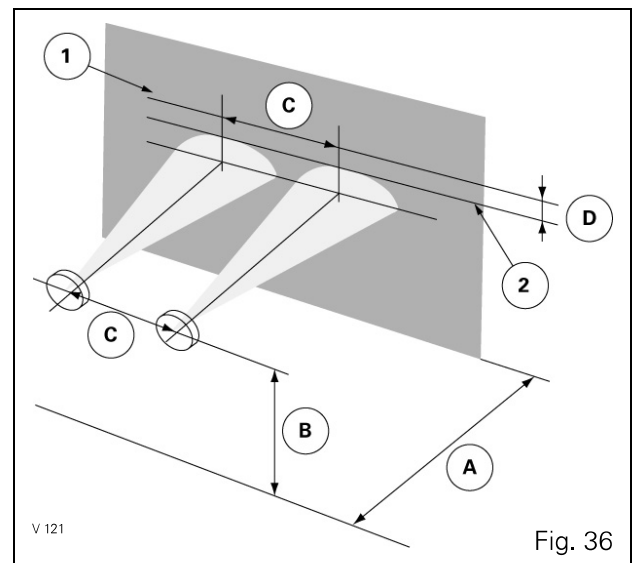
**NOTE:** Do not touch the iodine bulbs with your fingers.

Legend (Fig. 36)

- A. Distance between the headlights and a wall or a screen.
- B. Height from the center of the headlights to the ground.
- C. Headlights center to center distance.
- D. Height after adjustment.

#### 5.22.5.1 - Headlight adjustment procedure

1. Position the tractor on a level surface facing a wall or a screen 7.5 m (295.3 ft) away (distance A).
2. Trace a horizontal line (1) on the wall, corresponding to the height (B).
3. Trace two vertical lines on the wall, corresponding to the width (C).
4. Trace a horizontal line (2) on the wall corresponding to  $D = (B \times 0.1)$  (for example:  $B$  1130 mm (447.48 in)  $\times$  0.1 =  $D$  113 mm (447.48 in)). Adjust each headlight individually by masking the opposite light and aligning the upper edge of the lighted zone with the top of line 2.



### 6.1 - ENGINE

Specifications	5460SA	5470SA	5475SA
Perkins engine	1104C-44TA	-	-
SISU engine	-	44DTA	44DTA
Number of cylinders	4	4	4
Turbocharging	yes	yes	yes
Intercooler	air/air	air/air	air/air
Bore mm (in)	105 (4.13)	108	108
Stroke mm (in)	127 (5)	120 (4.28)	120 (4.28)
Cubic capacity (l)	4.4 (268.5)	4.4 (268.5)	4.4 (268.5)
Nominal power (ISO kW)	83.5	90	98
At engine speed in rpm	2200	2200	2200
Maximum torque (ISO Nm)	471 (347.6 lbf ft)	500 (369 lbf ft)	540 (398.5 lbf ft)
Engine speed at maximum torque	1400	1320	1400
Idle speed	950	950	950
Maximum speed unloaded (rpm)	2354	2354	2354
Lubrication	By gear pump - suction strainer and external filter(s) with interchangeable cartridge(s)		
Valves	Overhead, operated by valve lifters		
Valve clearance (cold):			
Inlet - mm (in)	0.20 (0.010)	0.35 (0.014)	0.35 (0.014)
Exhaust - mm (in)	0.45 (0.020)	0.35 (0.014)	0.35 (0.014)
Engine oil cooler	yes	yes	yes

#### 6.1.1 - Injection and air filter

Specifications	5460SA	5470SA	5475SA
Fuel filter with bowl	no	no	no
Number of elements	1	2	2
Injection pump	Lucas DP 210	Bosh VE 10	
Injectors and injector port: Fuel injection type	Mechanical		
Cold weather starting	Glow plugs	Grid heater	
Air filter: two-stage, dry element with blockage indicator.			

*Chapter 7*  
**ACCESSORIES AND OPTIONS**

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