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**Massey Ferguson®**

**1528 / 1531  
Hydrostatic Compact Tractor**

**WORKSHOP SERVICE MANUAL  
4283034M2**

**01 - General Information**

**Contents**

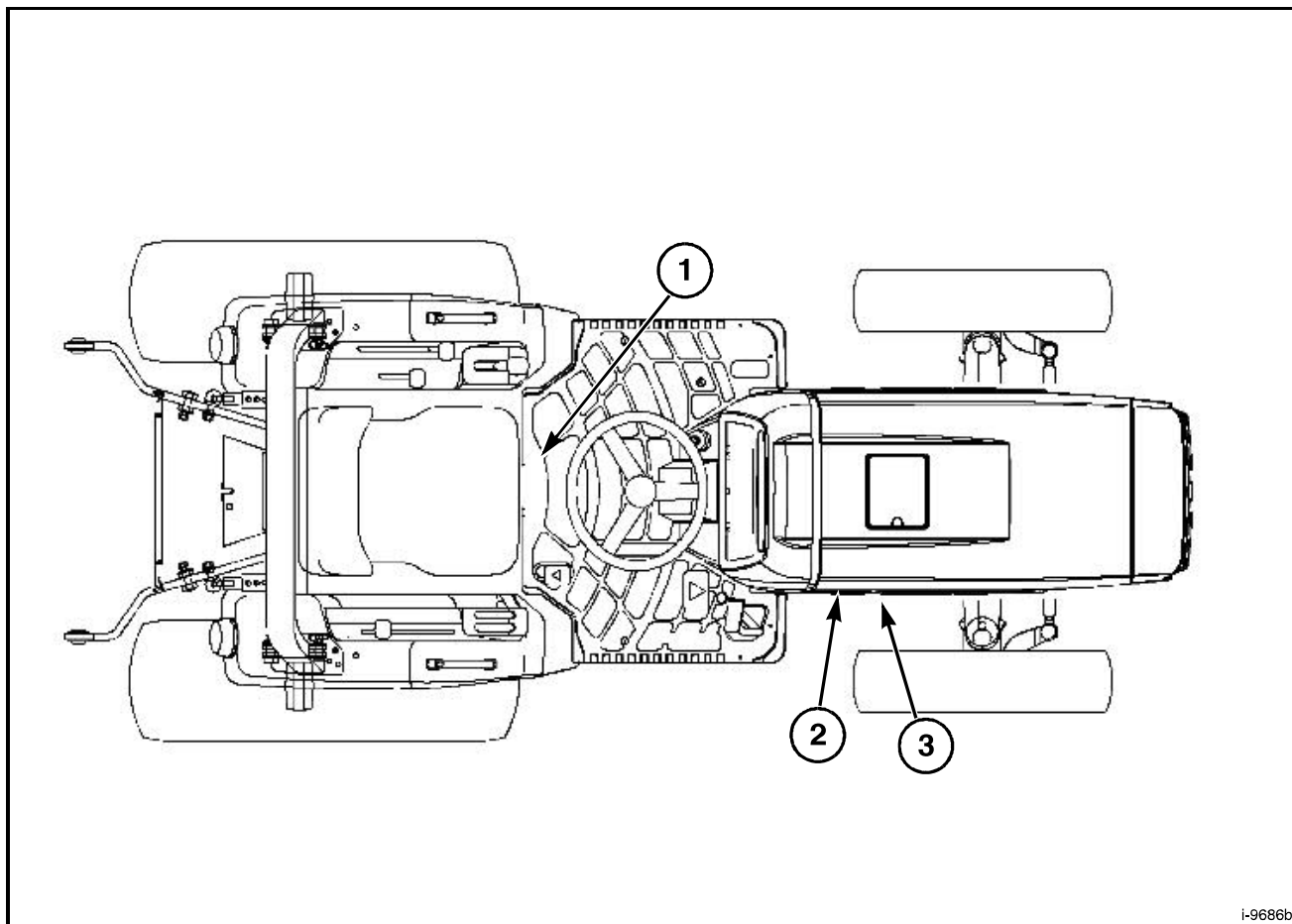
GENERAL INFORMATION

Tractor Types and Punched Identification Marks .....	01-1
Name Plate .....	01-2
Engine .....	01-3
Transmission .....	01-4
Standard .....	01-4
Hydrostatic .....	01-4
Power Take-Off (PTO) .....	01-4
Hydraulic System .....	01-5
Electrical System .....	01-5
Capacities .....	01-5
Maximum Load Capacity .....	01-6
Traveling Speeds .....	01-7
General Dimensions .....	01-8
General Precautions for Separation and Re-Installation .....	01-10
Before Operation .....	01-10
Precautions to be Followed When Installing Common Parts .....	01-10
INDEX .....	01-15



## GENERAL INFORMATION

### TRACTOR TYPES AND PUNCHED IDENTIFICATION MARKS



i-9686b

FIG. 1

**FIG. 1:** Shown is the Model name plate (1).

Punched model name and serial number (2) is on the right side of the frame.

Cast engine model name and punched engine serial number (3) on the right side wall the cylinder block.

## General Information

### ENGINE

Engine Make .....	Iseki Diesel
Engine Model	
Model 1528 Standard Tractor .....	E3CF-VB27
Model 1528 Hydrostatic Tractor .....	E3CF-VB22
Model 1528 Hydrostatic Tractor with left-hand brake pedal .....	E3CD-WB04
Model 1531 Tractor .....	E3CD-VB32
Type .....	Indirect Injection Overhead Valve
Aspiration .....	Natural
Displacement	
Model 1528 Tractor .....	1463 ml (89.28 cu in)
Model 1528 Tractor with left-hand brake pedal .....	1498 ml (91.4 cu in)
Model 1531 Tractor .....	1498 ml (91.4 cu in)
Number of Cylinders .....	3
Bore	
Model 1528 Tractor .....	86 mm (3.39 in)
Model 1528 Tractor with left-hand brake pedal .....	87 mm (3.43 in)
Model 1531 Tractor .....	87 mm (3.43 in)
Stroke .....	84 mm (3.30 in)
Engine Horsepower (Gross)	
Model 1528 Tractor .....	21.2 kW (28.4 hp) @ 2500 rpm
Model 1531 Tractor .....	24.6 kW (33.0 hp) @ 2600 rpm
Engine Horsepower (Net)	
Model 1528 Tractor .....	20.9 kW (28.0 hp) @ 2500 rpm
Model 1531 Tractor .....	23.9 kW (32.0 hp) @ 2600 rpm
PTO Horsepower (Estimate)	
Model 1528 Standard Tractor .....	18.1 kW (24.2 hp) @ 581 PTO rpm
Model 1528 Hydrostatic Tractor .....	16.6 kW (22.3 hp) @ 581 PTO rpm
Model 1531 Tractor .....	19.3 kW (25.9 hp) @ 604 PTO rpm
Firing Order .....	1-3-2
Compression Ratio .....	21.7-1
Low Idle Speed	
Model 1528 Tractor .....	930-970 rpm
Model 1531 Tractor .....	980-1020 rpm
High Idle Speed	
Model 1528 Tractor .....	2650-2750 rpm
Model 1531 Tractor .....	2760-2860 rpm
Valve Clearance (Cold) - Intake .....	0.35 mm (0.014 in)
Air Cleaner .....	Single stage, dry element
Engine Cooling .....	Liquid, forced circulation
Cold Starting Aid .....	Glow plugs (3)

## General Information

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### TRANSMISSION

#### Standard

##### Type

Primary..... Gear Type, 3 speeds forward, 1 reverse with 3 speed range  
Gear Speeds.....9 gears forward, 3 reverse  
Clutch.....Dry dual clutch  
Brakes..... Mechanically actuated sealed wet disk

#### Hydrostatic

##### Type

Primary..... Infinite  
Range..... 3-speed sliding mesh  
Clutch..... None  
Brakes..... Mechanically actuated sealed wet disk

### POWER TAKE-OFF (PTO)

##### Type

1528 Standard Tractor..... Engine driven  
1528 and 1531 Hydrostatic Tractors.....Independent, engine driven

##### Control

1528 Standard Tractor..... Foot clutch control  
1528 and 1531 Hydrostatic Tractors..... Electrohydraulic control

##### Clutch

1528 Standard Tractor..... Mechanically-engaged, single-plate dry disc  
1528 and 1531 Hydrostatic Tractors.....Hydraulically engaged, multi-plate wet disc

Rear PTO Shaft..... 35 mm (1.375 in) diameter, six spline

Output..... Clockwise rotation

##### PTO Speed @ Engine speed

Model 1528 Tractor..... 581 rpm @ 2500 rpm

Model 1531 Tractor..... 604 rpm @ 2600 rpm

##### Mid-PTO Shaft (Option)

Shaft Size..... 25.4 mm (1 in) diameter, 15 spline

Output..... Clockwise rotation

##### Mid-PTO Speed @ Engine speed

Model 1528 Tractor.....2000 rpm @ 2500 rpm

Model 1531 Tractor.....2080 rpm @ 2600 rpm

### HYDRAULIC SYSTEM

#### Steering System

Type..... Hydrostatic

Pump..... Separate engine-mounted gear pump

#### Maximum Output

Model 1528 Tractor..... 9.8 litre/min (2.6 US gal/min)

Model 1531 Tractor..... 10.2 litre/min (2.7 US gal/min)

Pressure..... Relief valve setting 11.8 MPa (1711 psi)

#### Main Hydraulic System

Pump..... Engine-mounted

#### Maximum Output

Model 1528 Tractor..... 28.0 litre/min (7.4 US gal/min)

Model 1531 Tractor..... 29.2 litre/min (7.7 US gal/min)

Pressure..... Relief valve setting 14 710 kPa (2134 psi)

#### Rear Linkage

Type..... Three-point hitch

Size..... Category I

Control..... Operated by single position control lever

#### Lift Capacity

Measured at ball ends..... 1100kg (2425 lb)

Measured at 24 inches..... 730 kg (1610 lb)

### ELECTRICAL SYSTEM

System Voltage..... 12 volt, negative (-) ground

Battery cca @ 18 degrees C (0 degrees F)..... 582 cca (80D26R)

Charging..... 40 amp alternator with internal regulator/rectifier

### CAPACITIES

#### Engine Crankcase with Filter

Model 1528 Tractor..... 3.6 litres (3.8 US qt)

Model 1531 Tractor..... 5.0 litres (5.3 US qt)

#### Transmission

1528 Standard Tractor..... 18.0 litres (4.8 US gal)

1528 and 1531 Hydrostatic Tractors..... 29.0 litres (7.7 US gal)

Fuel Tank..... 30.0 litres (7.9 US gal)

Cooling system..... 5.5 litres (5.8 US qt)

Front Drive Axle..... 4.5 litres (4.7 US qt)

## General Information

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### MAXIMUM LOAD CAPACITY

Weight Distribution (Reference information using Ag tire option)

#### Front Axle Weight

Standard Tractors .....455 kg (1003 lb)

Hydrostatic Tractors .....465 kg (1025 lb)

#### Rear Axle Weight

Standard Tractors .....620 kg (1367 lb)

Hydrostatic Tractors .....635 kg (1400 lb)

#### Total Weight

Standard Tractors .....1075 kg (2370 lb)

Hydrostatic Tractors .....1100 kg (2425 lb)







#### Maximum Weight Capacities

Front Axle Capacity .....875 kg (1929 lb)

Rear Axle Capacity .....1005 kg (2216 lb)

Total Capacity .....1690 kg (3725.8 lb)

Traveling Speeds

	Shift Position	1528 / ST28A / MT255B				1531 / ST33A			
	Range	mph	kph	mph	kph	mph	kph	mph	kph
	Tire	Turf		Ag		Turf		Ag	
Forward									
Hydrostatic		3.12	5.02	3.27	5.26	3.25	5.22	3.40	5.47
		6.72	10.81	7.04	11.32	6.99	11.25	7.32	11.78
		12.51	20.13	13.10	21.08	13.01	20.93	13.62	21.92
Reverse									
Hydrostatic		2.19	3.52	2.29	3.68	2.27	3.66	2.38	3.83
		4.70	7.57	4.93	7.93	4.89	7.87	5.12	8.24
		8.76	14.09	9.17	14.75	9.11	14.65	9.53	15.34

NOTE: Model 1528 tractors - Ground speed indicated at 2500 engine rpm with 12.5/80-18 agriculture type rear tires, 36 x 13.5-15 turf and 12.5/80-18 R-4 tires.

Model 1531 tractors - Ground speed indicated at 2600 engine rpm with 12.5/80-18 agricultural type rear tires, 36 x 13.5-15 turf and 12.5/80-18 R-4 tires.



# General Information

## GENERAL DIMENSIONS

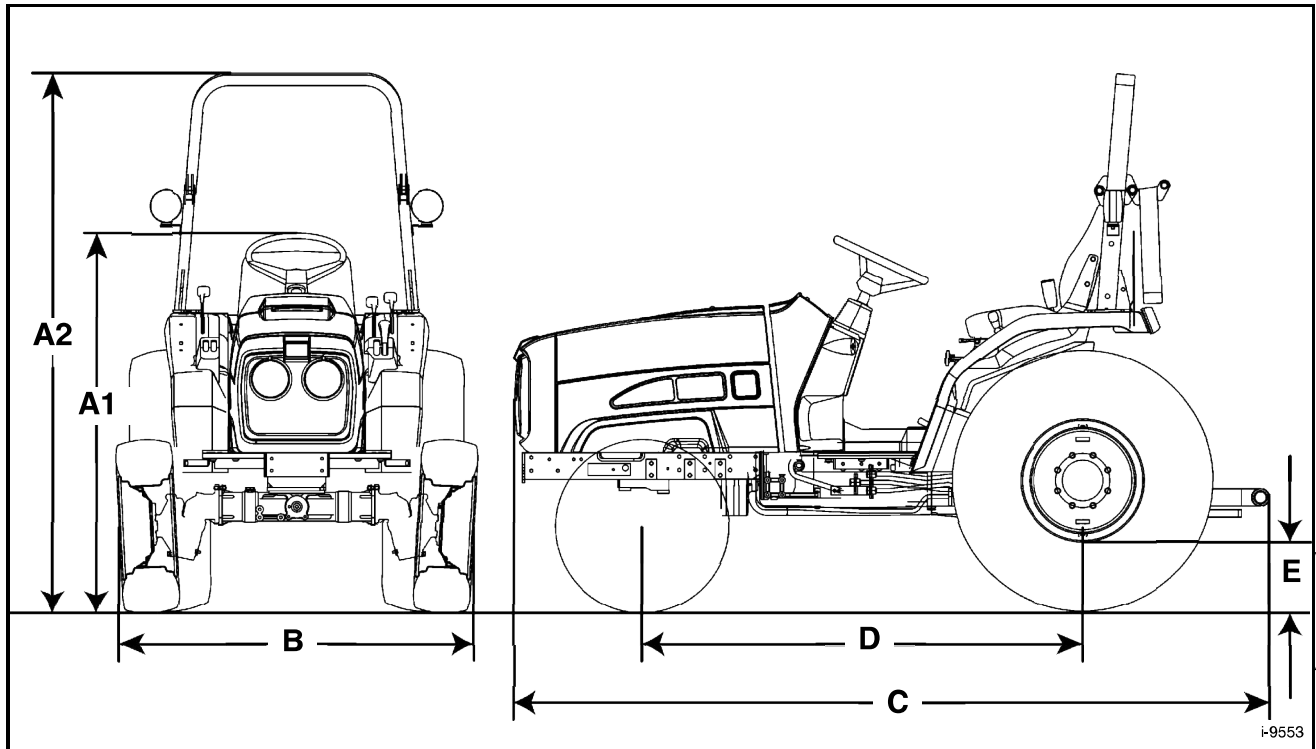


FIG. 4

General Dimensions 1528 STD, 1528 HST, 1531		AG	Turf	R-4
		Front - 7x14 6PR Rear - 9.5x24 6PR	Front - 24x8.50-14 Rear - 36x13.50-15	Front - 25x8.50-14 Rear - 12.50/80-18
A1	Height to Steering Wheel	1425 mm (56.1 in)	1400 mm (55.1 in)	1425 mm (56.1 in)
A2	Overall Height to ROPS	2020 mm (79.5 in)	1995 mm (78.5 in)	2020 mm (79.5 in)
B	Overall Width	1360 mm (53.5 in) width of wheel	1360 mm (53.5 in) width of front wheel	1360 mm (53.5 in) width of front wheel
C	Overall Length	2855 mm (112.4 in)	2855 mm (112.4 in)	2855 mm (112.4 in)
D	Wheelbase	1665 mm (65.6 in)	1665 mm (65.6 in)	1665 mm (65.6 in)
E	Minimum Ground Clearance	235 mm (9.3 in)	215 mm (8.5 in)	235 mm (9.3 in)
-	Turning Radius (w/o brake)	2900 mm (114.2 in)	2900 mm (114.2 in)	2900 mm (114.2 in)
-	Weight	1100 kg (2423 lb)	1040 kg (2291 lb)	1100 kg (2423 lb)

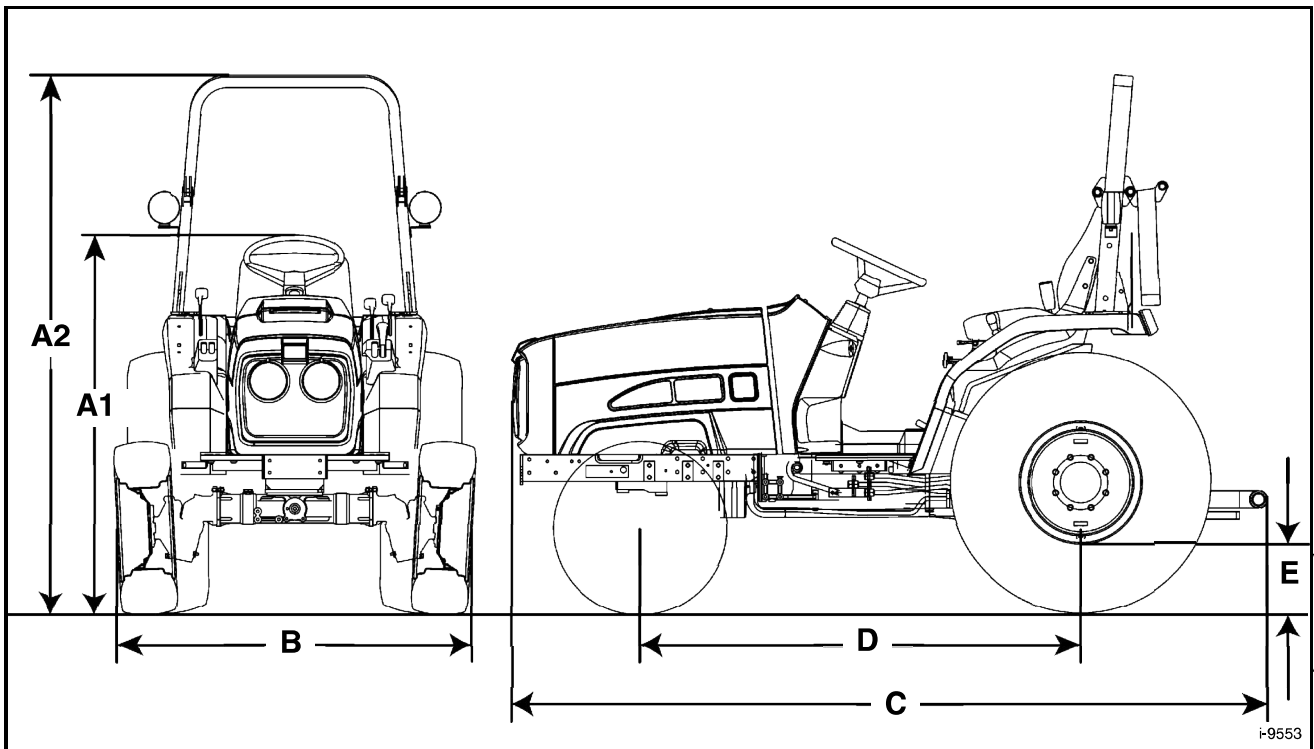


FIG. 5

General Dimensions 1528, 1531 with left-hand brake pedal		AG	Turf	R-4
		Front - 7x14 6PR Rear - 9.5x24 6PR	Front - 24x8.50-14 Rear - 36x13.50-15	Front - 25x8.50-14 Rear - 12.50/80-18
A1	Height to Steering Wheel	1425 mm (56.1 in)	1400 mm (55.1 in)	1425 mm (56.1 in)
A2	Overall Height to ROPS	2045 mm (80.5 in)	2020 mm (79.5 in)	2045 mm (80.5 in)
B	Overall Width	1360 mm (53.5 in) width of wheel	1360 mm (53.5 in) width of front wheel	1360 mm (53.5 in) width of front wheel
C	Overall Length	2855 mm (112.4 in)	2855 mm (112.4 in)	2855 mm (112.4 in)
D	Wheelbase	1665 mm (65.6 in)	1665 mm (65.6 in)	1665 mm (65.6 in)
E	Minimum Ground Clearance	235 mm (9.3 in)	215 mm (8.5 in)	235 mm (9.3 in)
-	Turning Radius (w/o brake)	2900 mm (114.2 in)	2900 mm (114.2 in)	2900 mm (114.2 in)
-	Weight	1120 kg (2469 lb)	1060 kg (2337 lb)	1060 kg (2337 lb)
-	Turning Radius (with brake)	2300 mm (90.6 in)	2300 mm (90.6 in)	2300 mm (90.6 in)

## General Information

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### GENERAL PRECAUTIONS FOR SEPARATION AND RE-INSTALLATION

#### Before Operation

Always be safety-conscious in selecting clothes to wear and suitable tools to use.

Before disassembly, be sure that you familiarize yourself with the assembled condition for subsequent reference in reassembly.

Keep parts and tools in proper order during operations.

When servicing electrically live parts, be sure to disconnect the negative battery terminal.

To prevent oil or water leaks, use the liquid gasket as required.

When reassembling disassembled parts, discard used gaskets, O-rings, or oil seals and install new ones.

When lifting up only the front or rear part of the tractor, be sure to wedge the grounded wheels.

When the tractor is jacked up, be sure to support the entire tractor with something like a stand. Lifting it up with a jack only is a dangerously unstable procedure.

When replacing parts, use authorized, genuine AGCO parts only. AGCO assumes no responsibility for accidents, operating problems or damage caused by the use of imitation parts. Also, the use of unauthorized parts will result in relatively poor machine performance.

#### Precautions to be Followed When Installing Common Parts

##### Roller or Ball Bearings

When a bearing is fitted in by the outer race, use an installer, which is specially designed to push only the outer race and vice versa.

The installer must be designed to install the bearing on the shaft in a parallel position.

When installing a bearing, which appears the same on both sides, install it so that the face, which has the identification number faces in a direction for easy visual identification. All the bearings, which are to be installed in the transmission case should be placed so that their identification number faces outward.

If a shaft or a hole where a bearing is to be installed has a stopper, the bearing should be pushed in completely until it is seated against the stopper.

Installed bearings should turn smoothly.

### **Oil Seals**

Oil seal installer should be designed so as not to deform the oil seals.

During installation, be careful not to damage the lips, and assure that it is pushed in parallel to the shaft or hole.

When oil seals are installed, there should be neither turnover of the lips nor dislocation of the springs.

When a multi-lip seal is installed, the grooves between lips should be filled with grease, not adhesive.

Use a lithium-based grease.

There should be no oil or water leaks through the installed oil seals.

### **O-Rings**

O-rings should be coated with grease before installing.

Installed O-rings should have no slack or twist.

Installed O-rings should maintain proper air tightness.

## General Information

### Snap Rings

Snap ring installers should be designed so as not to permanently deform the snap rings.

Installed snap rings should be seated securely in the groove.

Be careful not to overload the snap-ring to the extent that it is permanently deformed.

#### FIG. 6: How to install the snap-ring:

When installing the snap-ring (1) install it as shown with its round edge side (2) turned toward the part to be retained. This round edge is formed when the snap-ring is pressed out.

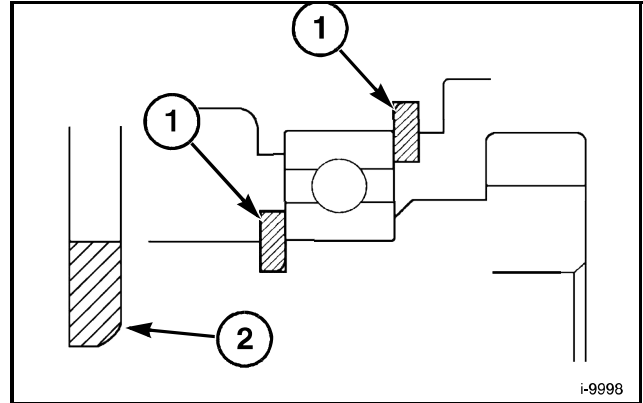


FIG. 6

### Spring (Roll) Pins

FIG. 7: Spring pins should be driven in properly and tightly.

Spring pins should be installed so that their seams should face the direction from which the load is applied.

The roll pins installed in the transmission or other parts where much force is applied should be retained with wire.

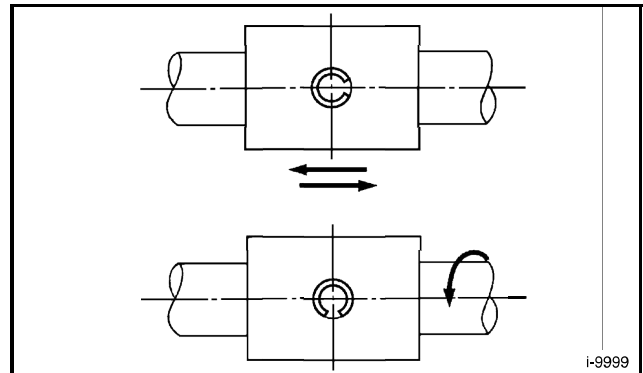


FIG. 7

### Cotter Pins

FIG. 8: When installed, cotter pins should be bent securely at the ends as shown.

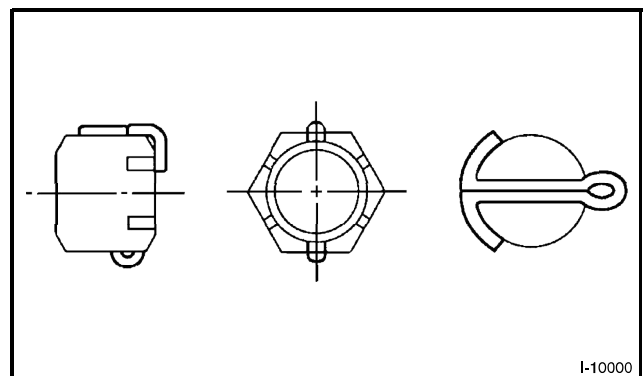


FIG. 8

### **Bolts and Nuts**

Special bolts are installed at several locations, so be sure not to interchange them with other bolts.

Bolts and nuts should be tightened to their specified torque with a torque wrench.

When locking the bolts or nuts with wire or a lock washer, be sure to wind the wire paying sufficient attention to its winding direction and bend the lock washer for secure locking.

When locking bolts and nuts with an adhesive, apply the adhesive on the thread and tighten securely.

Apply an adhesive (THREE BOND TB 1104) to parts through which there is any possibility of oil leaks, such as stud bolts and tapped-through parts.

Each lock nut must be tightened securely.

When tightening bolts and nuts, refer to the tightening torque table.

### **Grease Fittings**

After installation, each grease fitting should be filled with grease.

When installing grease fittings of types B and C, be sure to turn the fitting tips in a direction that will provide easy access for a grease gun.

### **Other Precautions**

Be sure not to damage any finished surfaces or parts.

Always refrain from forcing installation.

Each lever knob should be installed coated with an adhesive (SUPER THREE CEMENT TB1702).

Each contact surface should be coated with an adhesive (THREE BOND TB1215) and tightened evenly with bolts. Adhesive coated surfaces should be installed within 30 minutes after application of the adhesive.

Precautions for applying adhesives:

- The surface or the thread where an adhesive is to be applied should be completely free of chips and oil.
- The surface or the thread where an adhesive is to be applied should be completely free of any oiliness.

**NOTES**

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**INDEX****B**

Bolts and Nuts ..... 01-13

**C**

Capacities ..... 01-5

Cotter Pins ..... 01-12

**D**

Dimensions ..... 01-8

**E**

Electrical System Specifications ..... 01-5

Engine Model ..... 01-3

Engine Specifications ..... 01-3

**F**

Fuel Tank ..... 01-5

**G**

General Dimensions ..... 01-8

General Precautions for  
Separation and Installation ..... 01-10

Grease Fittings ..... 01-13

**H**

Hardware ..... 01-13

Horsepower ..... 01-3

Hydraulic System Specifications ..... 01-5

**M**

Maximum Load Capacity ..... 01-6

**N**

Name Plate ..... 01-2

**O**

Oil Seals ..... 01-11

O-Rings ..... 01-11

Other Precautions ..... 01-13

**P**

Power Take-Off Specifications ..... 01-4

Precautions to be Followed  
When Installing Common Parts ..... 01-10

Precautions, Other ..... 01-13

PTO Specifications ..... 01-4

**R**

Roller or Ball Bearings ..... 01-10

**S**Separation and Installation,  
General Precautions ..... 01-10

Snap Rings ..... 01-12

Speeds ..... 01-7

Spring (Roll) Pins ..... 01-12

**T**Tractor Types and Punched  
Identification Marks ..... 01-1

Transmission Specifications ..... 01-4



**NOTES**

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**1528 / 1531  
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4283034M2**

**02 - Splitting the Tractor**

**Contents**

SPLITTING THE TRACTOR

Disassembly of Function Blocks .....	02-1
Removing / Installing Side Covers .....	02-1
Hood and Front Grill .....	02-2
Seat, Fenders, Floor Deck, and Related parts .....	02-4
Remove the Exterior parts as a Set .....	02-10
Radiator .....	02-13
Separation of Engine from Front Transmission .....	02-13
Removal of Engine .....	02-16
Separation of Front Transmission Case from Middle Transmission Case .....	02-16
Separation of Middle Transmission Case from Rear Transmission Case .....	02-18
Separation of Rear Axle Housing from Rear Transmission Case .....	02-19
Removal of Cylinder Case .....	02-19
Removal of Front Axle .....	02-20
Removal of Power Steering Unit .....	02-21
INDEX .....	02-23

**NOTES**

## SPLITTING THE TRACTOR

### DISASSEMBLY OF FUNCTION BLOCKS

**FIG. 1:** To release the hood, move the open/close lever (1) in the direction shown by the arrow.

Open the hood by grasping and lifting up the front of the hood (2) fully until locking the stand of the hood.

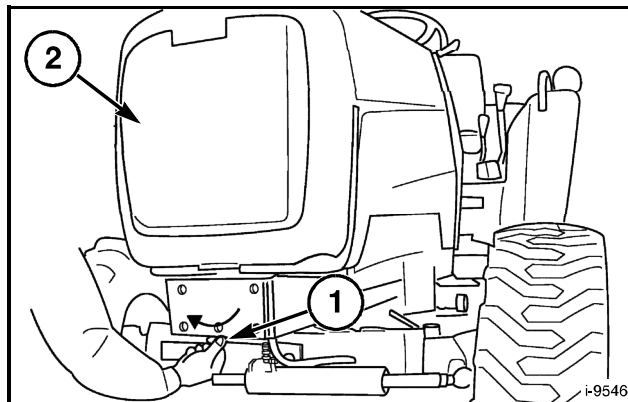


FIG. 1

**FIG. 2:** Support the hood with the stand (1).

To close, lift the hood, disengage the pin from the stand, and lower the hood. The hood is locked in place when the lever is pressed.



**CAUTION:** Make sure the lock pin of the stand is placed in notch (2) when opening the hood. If pin is not placed in notch, hood may fall down suddenly.

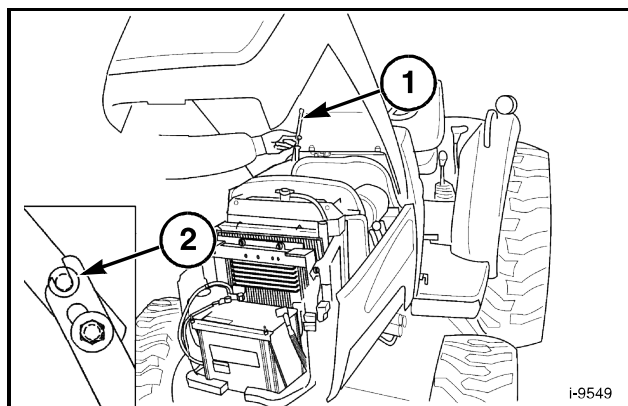


FIG. 2

### Removing / Installing Side Covers

**FIG. 3:** When the top of a side cover (1) pulled out with the hood open, the lock can be disengaged.

Remove a side cover by slipping the cover off the two hinges on the bottom.

When installing a side cover, place the cover on the hinges at the bottom, and push on the top.

The muffler is adjacent to the left side cover. Make sure to allow the muffler to cool before removing the side cover.

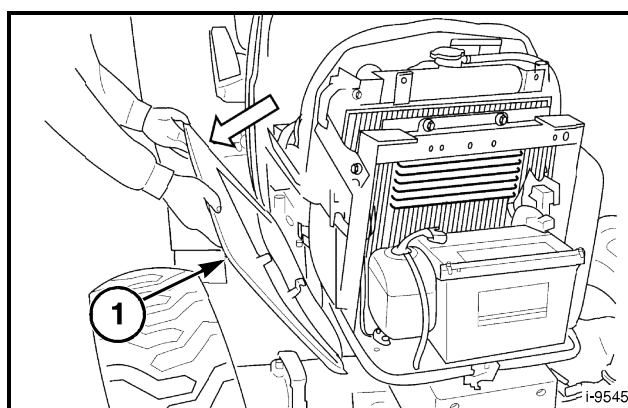
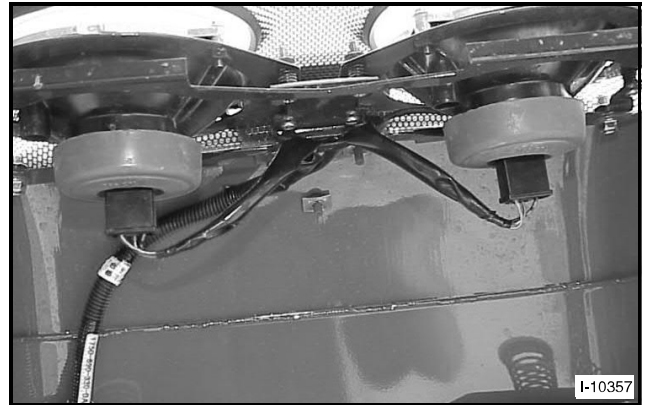


FIG. 3

# Splitting the Tractor

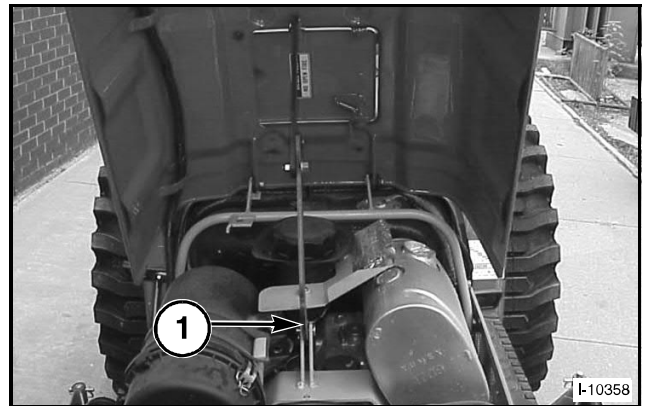
## Hood and Front Grill

**FIG. 4:** Open hood. Unplug headlight wires.



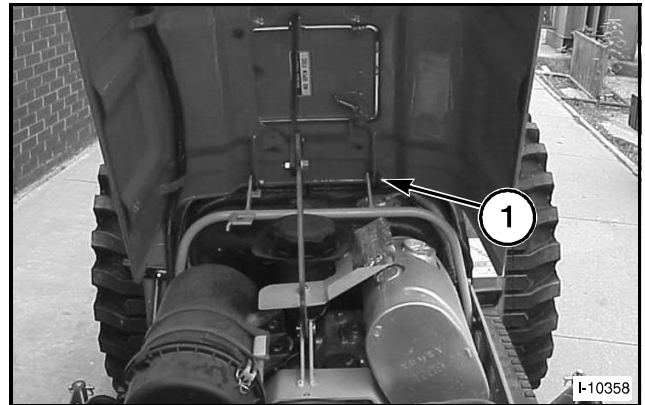
**FIG. 4**

**FIG. 5:** Unpin hood support (1) at the engine bracket.



**FIG. 5**

**FIG. 6:** Remove clip (1) and washer. Remove hood off pins.



**FIG. 6**

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