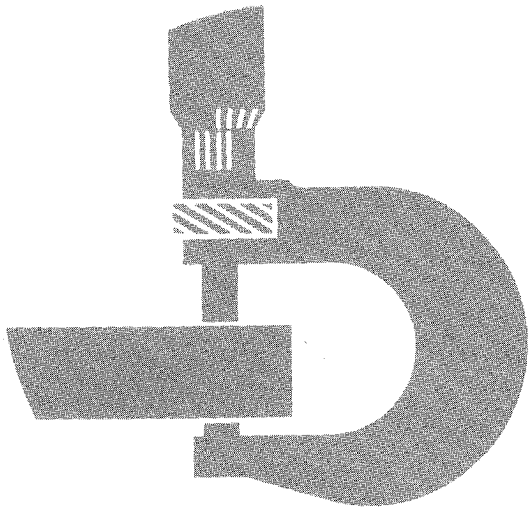
480C
Forklift



TECHNICAL MANUAL

TM1249
LITHO IN U.S.A. (REVISED)

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Best wishes.

480C FORKLIFT TECHNICAL MANUAL TM-1249 (JUN-81)

SECTION AND GROUP CONTENTS

All information, illustrations and specifications contained in this technical manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice. Wherever applicable, specifications and design information are in accordance with SAE and ICED standards.

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INTRODUCTION

This technical manual is part of a twin concept of service.

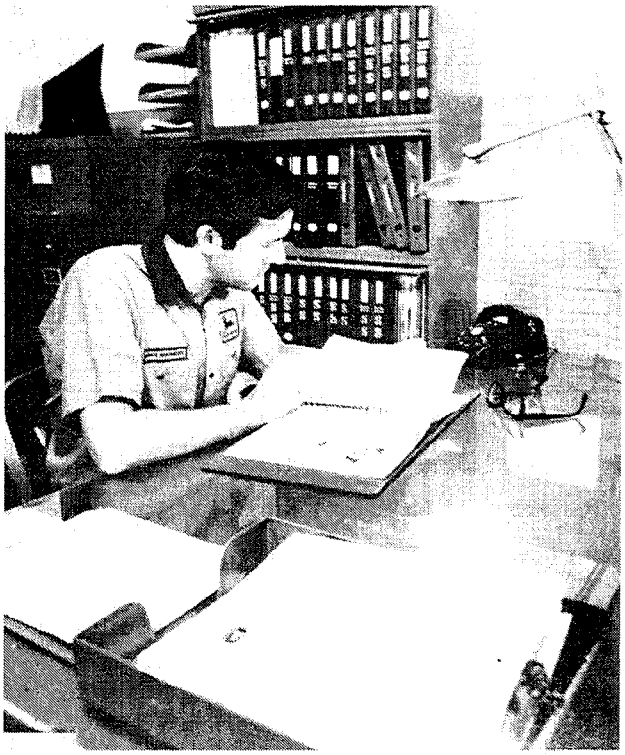
FOS Manuals - for reference

Technical Manuals - for actual service

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

Fundamentals of Service (FOS) Manuals cover basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic types of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.

Technical Manuals are concise service guides for a specific machine. Technical manuals are on-the-job guides containing only the vital information needed by an experienced service technician.



Some features of this technical manual:

- John Deere ILLUSTRUCTION format emphasizing more detailed pictures and a minimum use of words.
- Detailed repair procedures outlined in individual sections.
- System diagnostic testing detailed in separate section.
- Table of contents of all sections at the front of the manual and a listing of all groups and headings at the front of each section.
- Special tools and specifications listed at the front of each group they are used in.
- Special tools illustrated in numerical order at end of manual.
- Alphabetical listing of all major components, specifications, and special tools.
- General specifications, lubricating requirements, and a summation of safety rules.

This technical manual was planned and written for you - an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Refer to it when you need to know correct service procedures or specifications.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.

45A;X2252V, X2253N T30,I [101 090681

SAFETY AND YOU

CAUTION: This safety symbol is used for important safety messages. When you see this symbol, follow the safety message to avoid personal injury.

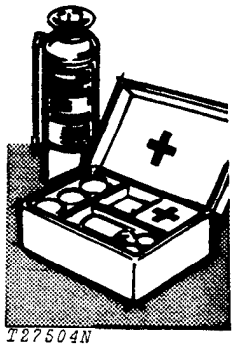
45A;T81389 T30;I II02 280581

Be prepared for an accident or fire.

Know where the first aid kit and fire extinguisher are.

Know how to use them.

Know where to get help.



T27504N

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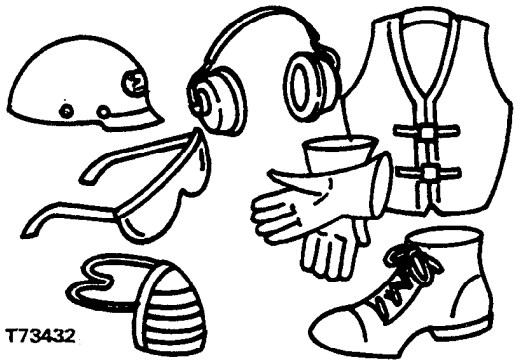
Wear safety equipment.



T73432

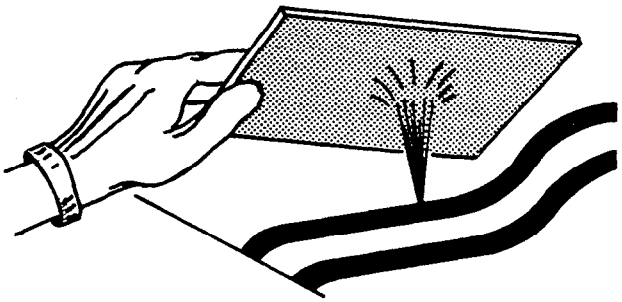
45A;T73432 T30;I II04 280581

Wear fairly tight clothing.

45A;T45672 T30;I II05 280581

CAUTION: Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious injury. Before disconnecting lines, be sure connections are tight and lines, pipes and hoses are not damaged. Use a piece of cardboard or wood, rather than hands, to search for leaks.

If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.



45A;T80991 T30;I 1106 280581

KEEP SHOP AND STORAGE AREA CLEAN

Maintenance area should be well-ventilated.

Keep maintenance area clean and dry.

Store flammable materials in a cool and well-ventilated area out of reach of unauthorized personnel.

45A;T27508 N T09;I 1107 280581

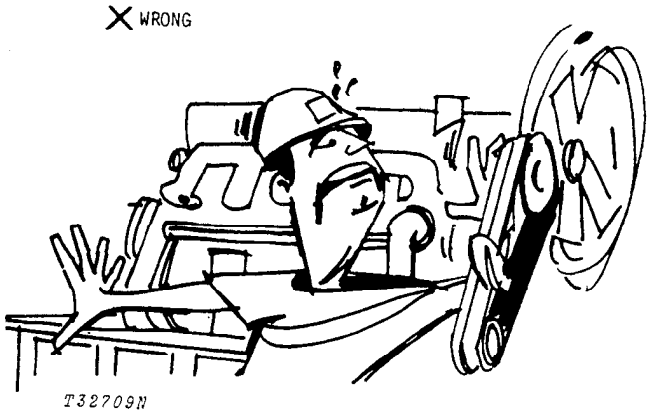
FOLLOW SAFE WORKING CONDITIONS

Do not work on the equipment unless you are approved to do so. Then be sure you know the correct procedure.

Do not work on equipment while it is being operated.

Keep hands away from moving parts.

When the engine is running, do not work on equipment unless the procedure is approved.



T32709N

If you must work on the machine with the engine running, ALWAYS USE TWO service technicians. One must be at the controls. The other must be within sight of the operator.

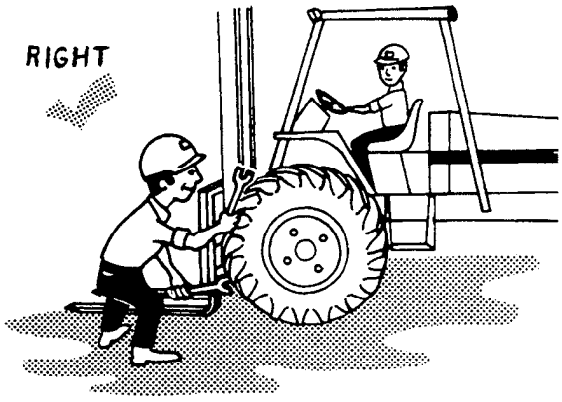
Put a support under all raised equipment.

If the machine is parked on a slope, use blocks to hold it in place.

Do not lift heavy parts by yourself. Use a hoist or jack.

TAKE CARE! WATCH OUT FOR OTHER PEOPLE IN THE AREA.

When you drill, grind or hammer metal, wear safety glasses.



45A;T32709 N T81390 T30;I 1108 070781

OBSERVE SERVICE PRECAUTIONS

Keep ALL equipment free of dirt and oil.

Clean oil, grease, mud, ice or snow from the operator's station, steps and hand rail.

Do not remove the radiator cap unless the engine is cool. First, loosen the cap slowly to the stop. Then release all pressure in the cooling system before you remove the cap.

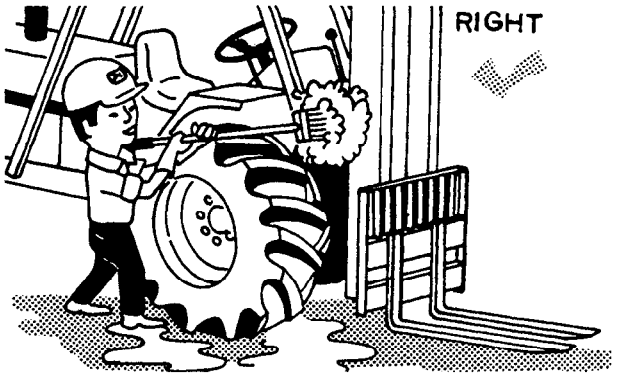
Check the exhaust system regularly for leaks.

Release hydraulic pressure before you work on the hydraulic system.

When you check hydraulic pressure, be sure to use the correct test gauge.

Before you work on the fuel system, close the fuel shutoff valve.

Before you work on the electrical system, or make major repairs, disconnect the battery ground strap.

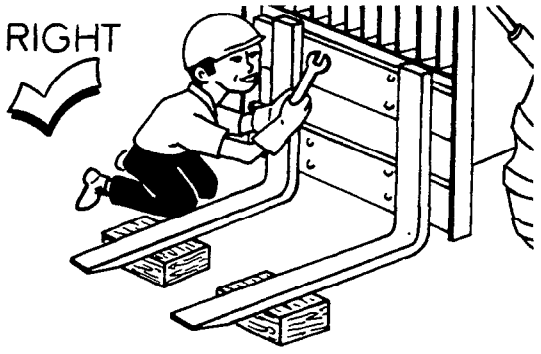


45A;T81391 T30;I II09 280581

Put blocks under forks if you must work on raised mast or carriage.

Before you work on hydraulic system, release hydraulic pressure.

Before you overhaul the forklift or work on the electrical system, disconnect the battery.

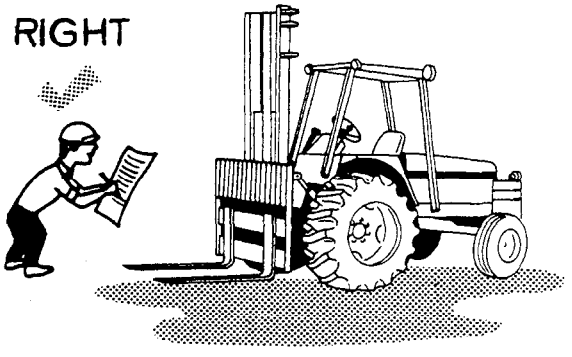


45A;T81392 T30;I II10 280581

CHECK SAFETY EQUIPMENT ON MACHINE

All protective parts (shields, guards, ROPS, etc.) should be in good condition and fastened in place.

Check for leaks in all systems:
Air intake system
Engine oil system
Transmission-hydraulic system
Fuel system
Cooling system



45A;T81393 T30;I II11 280581

AVOID EXPLOSIONS OR FIRE

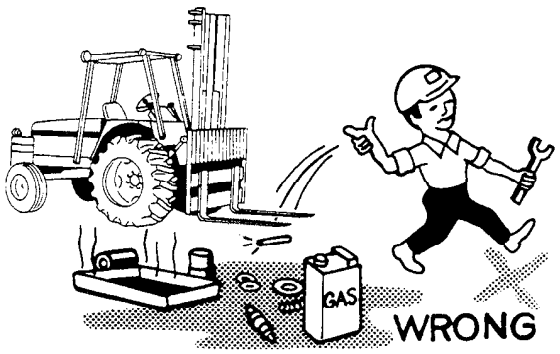
Do not smoke while you fill the fuel tank.

Do not smoke while you work with material that will start on fire easily.

Stop the engine before you fill the fuel tank.

Do not fill fuel tank if engine is hot.

Do not use gasoline or diesel fuel for cleaning parts. Use solvents that will not start on fire.



45A;T01394 T30;I 1112 280581

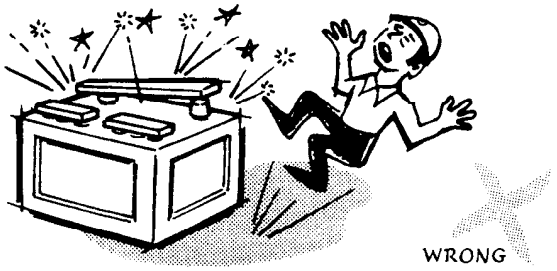
OBSERVE BATTERY PRECAUTIONS

Do not put metal objects across terminals to check the battery charge.

When you charge a battery, be sure there is enough ventilation.

Keep sparks and flames away from batteries.

Do not smoke near battery.



45A;T27506 T30;I 1113 280581

480C FORKLIFT

(Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with ICED and SAE Standards. Except where otherwise noted, these specifications are based on a unit equipped with 16.9-24 drive tires, 11L-15 steering tires, pallet fork, and standard equipment.)

Power (@2200 engine rpm): **SAE** **DIN**
Gross ..... 56 hp (42 kW)
Net ..... 52 hp (39 kW) 55 PS

Net engine flywheel power is for an engine equipped with fan, air cleaner, water pump, lubricating oil pump, fuel pump, alternator, and muffler. Gross engine power is without fan. Flywheel power ratings are under SAE standard conditions of 500 ft. altitude and 85°F. temperature and DIN 70 020 standard conditions of 760 mm Hg barometer (sea level) and 20°C. temperature.

Engine: John Deere 4-cylinder diesel, valve-in-head, 4-stroke cycle
Bore and stroke .... 4.02 x 4.33 in. (102 x 110 mm)
Piston Displacement ..... 219 cu. in. (3.589 L)
Compression ratio ..... 16.2 to 1
Max. torque @ 1 400 rpm .....142 lb-ft (193 N·m) (22.1 kg-m)
NACC or AMA (U.S. Tax) horsepower 25.65
Main bearings 5
Lubrication ..... Pressure system w/full-flow filter
Cooling .....Pressurized w/thermostat and fixed bypass
Fan .....Suction
Air cleaner .....Dry
Electrical system .....12 volt w/alternator
Battery (12 volt) .... Reserve capacity: 110 minutes

Clutch Disconnect ... Hand operated, single 10 in. (254 mm) plate

Transmission .....8-speed transmission w/hydraulically actuated no-clutch direction reverser.

Gear:	Travel Speeds: mph		km/h	
	Fwd.	Rev.	Fwd.	Rev.
1	1.6	1.4	2.6	2.3
2	2.3	2.0	3.7	3.2
3	3.5	3.0	5.6	4.8
4	4.8	4.1	7.7	6.6
5	6.3	5.4	10.1	8.7
6	9.0	7.8	14.5	12.6
7	13.5	11.6	21.7	18.7
8	18.7	16.1	30.1	25.9

Final Drives .....Inboard, planetary
Brakes ..... Hydraulically actuated, wet-disk. Foot-operated individually or simultaneously.

Steering ..... Power (hydrostatic)
Turning radius (brake applied w/o fork) ..... 10 ft. 10 in. (3.30 m)
Turning clearance (brake applied w/o fork) ..... 22 ft. 6 in. (6.86 m)
Wheel rotation, max. left to max. right ..... 3 turns

T303 III14 280581

Tires:

Drive	Steering
16.9-24, 8 ply rating, R4	11L-15, 8 ply rating, F3
19.5L-24, 8 ply rating, R4, low profile, tubeless	7.50/8.00-16, 10 ply rating, F3

Wheel Tread (front and rear) ..... 62 in. (1.58 m)

Dimensions:

Overall width ..... 6 ft. 7 in. (2.01 m)
Ground clearance, min. ..... 1 ft. 2 in. (356 mm)
Reach from center line of drive wheels to front of fork carriage ..... 2 ft. 8 in. (813 mm)

Capacities:	U.S.	Imp.	Liters
Cooling system	3.0 gal.	2.5 gal.	11.4
Fuel tank	19.5 gal.	16.3 gal.	73.8
Engine lubrication, including filter	1.5 gal.	1.3 gal.	5.7
Hydraulic system ...	12.5 gal.	10.4 gal.	47.3

SAE Operating Weight (w/required counterweights):

14 ft., 6000-lb capacity .....11,440 lb. (5190 kg)
21 ft. 6 in., 5000-lb. capacity ...11,310 lb. (5129 kg)
28 ft., 5000-lb. capacity .....12,160 lb. (5513 kg)

Shipping Weight:

Two 4-ft. (1.22 m) 5000-lb. (2268 kg) pallet tines ..... 350 lb. (159 kg)
Two 4-ft. (1.22 m), 6000-lb. (2722 kg) pallet tines ..... 425 lb. (193 kg)

Additional Standard Equipment:

Electric hour meter
Under-hood muffler w/extension and rain cap
Cold weather starting aid
Overhead guard
Hand throttle
Foot throttle
Differential lock
Fenders
Fuel filter
Key switch safety start
Antifreeze
Fuel gauge
Oil pressure indicator light
Alternator charge indicator light
Coolant temperature gauge
Appropriate counterweight
Lights
Transistorized voltage regulator
Horn
Air cleaner restriction indicator

Special Equipment:

Engine coolant heater
Vandal protection
Load backrest extension
Parking brake

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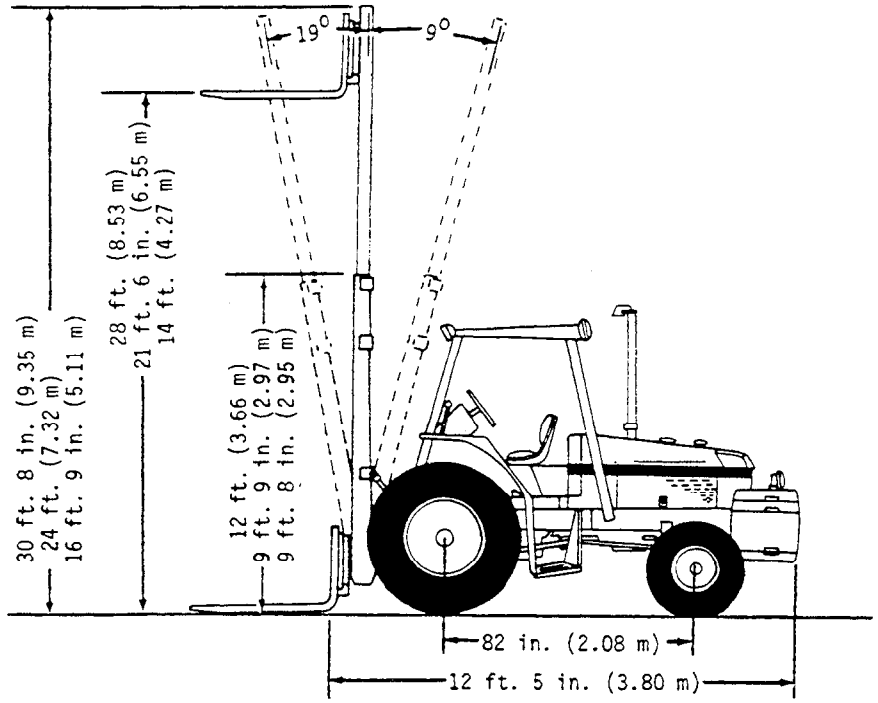


Operating Information	Maximum Lifting Height		
	14 ft. (4.27 m)	21 ft. 6 in. (6.55 m)	28 ft. (8.53 m)
Max. lift capacity*	4000 lb. (1815 kg) 6000 lb. (2722 kg) Standard and free lift	5000 lb. (2268 kg) 4000 lb. (1815 kg)	5000 lb. (2268 kg)
Lift Capacity at full height*	4000 lb. (1815 kg) 6000 lb. (2722 kg)	2500 lb. (1134 kg) 2500 lb. (1134 kg)	1000 lb. (454 kg)
Side-shift . . . 3 in. (76 mm) to right and left of center	Yes	Yes	No
Rate of lift @ 2200 engine rpm (max. load)	52 fpm 15.9 (m/min)	76 fpm (23.2 m/min)	76 fpm (23.2 m/min)
Rate of lift @ 2200 engine rpm (empty)	55 fpm (16.8 m/min)	86 fpm (26.3 m/min)	86 fpm (26.3 m/min)
Rate of drop (max. load)	29 fpm (8.8 m/min)	54 fpm (16.5 m/min)	54 fpm (16.5 m/min)
Rate of drop (empty)	33 fpm (10.1 m/min)	68 fpm (20.7 m/min)	68 fpm (20.7 m/min)

*Measured at 24 in. (610 mm) from heel of fork with load centered

45A;T78487 45A;TB1358 T30:I 11116 290581

GENERAL INFORMATION

When you service the forklift, check the periodic service chart on the left fender. See copy of chart below.

The 480C operator's manual has details for forklift service.

PERIODIC SERVICES

REFER TO OPERATOR'S MANUAL FOR DETAILED INFORMATION

INTERVAL HOURS	ITEM NO	COMPONENTS	SERVICE POINTS	DESCRIPTION OF SERVICE	CAPACITY OR MEASUREMENT	APPROVED SERVICE MATERIAL
△ 10 OR DAILY	1	AIR CLEANER*	1	CHECK UNLOADER VALVE, RESTRICTION INDICATOR AND CLEAN ELEMENT AS REQUIRED	OPERATOR'S MANUAL	
	2	TRANSMISSION	1	CHECK OIL LEVEL	TO TOP MARK WITH DIPSTICK RESTING ON TOP OF FILLER TUBE	HY GARD OR EQUIVALENT
	3	RADIATOR	1	CHECK COOLANT LEVEL, DRAIN AND REFILL - SPRING AND FALL	MIDWAY BETWEEN CORE AND FILLER NECK	OPERATOR'S MANUAL
	4	FUEL FILTER	1	REPLACE AS REQUIRED	OPERATOR'S MANUAL	
	5	MAST SPROCKET BEARINGS	4	LUBRICATE	SEVERAL SHOTS	SAE MPG
	6	STEER AXLE AND STEERING CYLINDER	6	LUBRICATE	SEVERAL SHOTS	SAE MPG
	7	ENGINE OIL	1	CHECK LEVEL	BETWEEN MARKS ON DIPSTICK	SEE OIL CHART
	8	STEER WHEELS	2	SERVICE ONLY WHEN UNIT IS BEING OPERATED IN EXTREME WET AND MUDDY CONDITIONS	OPERATOR'S MANUAL	
	9	MAST PIVOTS AND TRUNION BAR**	3	LUBRICATE FITTINGS	2 SHOTS	SAE MPG
	10	CAPSCREWS AND BOLTS		CHECK FOR TIGHTNESS	OPERATOR'S MANUAL	
□ 50	11	TIRES	4	CHECK AIR PRESSURE	OPERATOR'S MANUAL	
	12	TRANSMISSION AND HYDRAULIC SYSTEM	2	REPLACE 2 FILTER ELEMENTS (BREAK IN ONLY)	OPERATOR'S MANUAL	
⌓ 100	13	BATTERY	1	CHECK ELECTROLYTE LEVEL AND TERMINALS	TO BOTTOM OF FILLER NECK REMOVE ANY CORROSION	DISTILLED WATER
	14	CARRIAGE CHAIN		LUBRICATE	BRUSH ON	ENGINE OIL
	15	SPARK ARRESTING MUFFLER		CLEAN	OPERATOR'S MANUAL	
	16	MAST CHANNEL	2	LUBRICATE	SEVERAL SHOTS	SAE MPG
	17	TILT CYLINDER PIVOT PINS	4	LUBRICATE	BRUSH	ENGINE OIL
	18	CONTROL LEVERS	6	LUBRICATE	TRACE	ENGINE OIL
▱ 200	19	ENGINE OIL AND FILTER	1	DRAIN, REFILL AND REPLACE FILTER	SEE CHART BELOW	SEE OIL CHART
	20	CARRIAGE CHAIN	2	CHECK TENSION	OPERATOR'S MANUAL	
	21	FAN BELT	1	CHECK TENSION	3/4 INCH (19 mm) FLEX WITH 20 LB (89 N) FORCE	
	22	FUEL TANK SUMP	1	DRAIN SEDIMENT AND WATER	OPERATOR'S MANUAL	
	23	HYDRAULIC FILTER	1	REPLACE	OPERATOR'S MANUAL	
	24	AIR INTAKE HOSES	2	CHECK CONNECTIONS		
▭ 500	25	FUEL FILTER	1	REPLACE ELEMENT CLEAN GLASS BOWL	OPERATOR'S MANUAL	
	26	DRIVE AXLE BEARINGS	2	LUBRICATE BEARINGS	8 SHOTS	SAE MPG
	27	TRANSMISSION FILTER	1	REPLACE ELEMENT	OPERATOR'S MANUAL	
⬡ 1000	28	CRANKCASE VENT TUBE	1	REMOVE AND CLEAN		DIESEL FUEL
	29	ENGINE VALVE TAPPETS	1	ADJUST CLEARANCE	OPERATOR'S MANUAL	OPERATOR'S MANUAL
	30	ENGINE SPEEDS	1	CHECK SPEEDS		
	31	STEER WHEEL BEARINGS	2	CLEAN REPACK AND ADJUST	OPERATOR'S MANUAL	SAE MPG
	32	STARTER	1	LUBRICATE WICKS	SATURATE WICKS	10W 20 OIL
	33	TRANSMISSION	2	DRAIN AND REFILL CLEAN INTAKE SCREEN	12.5 GAL (47.3 L)	HY-GARD OR EQUIVALENT

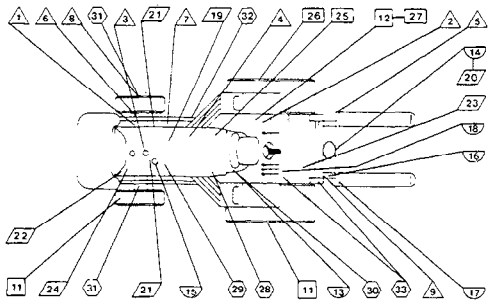
ENGINE OIL

AIR TEMP	JOHN DEERE TORQ GARD SUPREME OIL	SINGLE VISCOSITY OIL API SERVICE CD/SC	MULTI VISCOSITY OIL API SERVICE CC/SE
ABOVE 32°F (0°C)	SAE 30	SAE 30	NOT RECOMMENDED
32°F TO 10°F (0°C TO 23.3°C)	SAE 10W 20	SAE 10W	SAE 10W 20 SAE 10W 30
BELOW 10°F (23.3°C)	SAE 5W 20	SAE 5W	SAE 5W 20

* REPLACE ELEMENT ANNUALLY OR AS REQUIRED WITH JD FILTER

** LUBRICATE MAST PIVOT POINTS EVERY 5 HOURS UNDER ADVERSE CONDITIONS

WHEN FORKLIFT IS USED DURING PREVAILING AIR TEMPERATURES BELOW −10°F (−23°C), CHANGE OIL AFTER EVERY 100 HOURS OF OPERATION OR EVERY 6 WEEKS OF INTERMITTENT OPERATION WHICHEVER OCCURS FIRST



CAPACITIES

ITEM	U.S. MEASURE	METRIC
FUEL TANK	19.5 GAL	74 L
COOLING SYSTEM	12 QT	11.5 L
ENGINE CRANKCASE	6 QT	5.7 L
TRANSMISSION REFILL QUANTITY	12.5 GAL	47.3 L

454;T81395 T30;1 IV17 290581

LUBRICANTS

Engine Oils

Use John Deere TORQ-GARD SUPREME® engine oil.

Use John Deere TORQ-GARD SUPREME SAE 10W-20 oil or equivalent during the first 100 hours of operation for break-in.

Oils other than TORQ-GARD SUPREME should have one of the following specifications.

SINGLE VISCOSITY OILS	MULTI-VISCOSITY OILS
API Service CD/SC MIL-L-2104C Series 3	API Service CC/SE MIL-L-46152

Oils and Air Temperature

SAE ENGINE OILS			
Air Temperature	John Deere TORQ-GARD SUPREME Oil	Other Oils	
		Single Viscosity Oil	Multi-Viscosity Oil
Above 32°F (0°C)	30	30	Not recommended.
32° to -10°F (0° to -23°C)	10W-20	10W	10W-30
Below -10°F (-23°C)	5W-20	5W	5W-20

If you use SAE 5W-20 or SAE 5W oil, your engine may use more oil. Check the oil level often.

Transmission-Hydraulic Oils

Use John Deere HY-GARD® Transmission and Hydraulic Oil (J20A) or an equivalent.

Greases

Use John Deere Multi-Purpose Grease or equivalent for all grease fittings and front wheel bearings.

Storing Lubricants

Store lubricants in clean containers in an area protected from dust, moisture and other contamination.

When you handle lubricants, use clean containers.

45A;T80330 T30:I IV18 290581

Section 01
WHEELS

CONTENTS

T30;0100 01 260581

SPECIAL TOOLS

NOTE: Order tools from your SERVICE-GARD™ Catalog, unless otherwise indicated.

Number	Name	Use
D-05019ST	Heavy Duty Wheel Lift	Remove and install wheels
D-24206WK	Shop Stand	Support the unit while removing wheels

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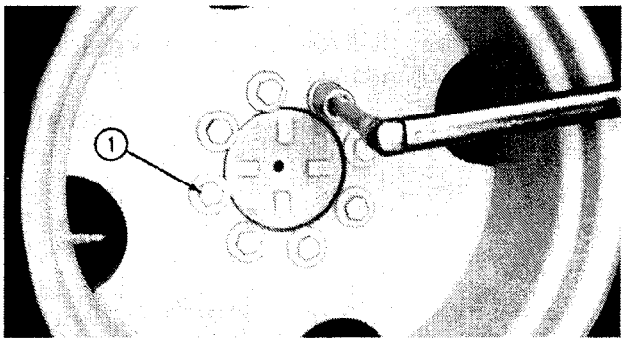
WHEEL SPECIFICATION

1. Cap screws torque .....(576 N·m) 425 lb-ft



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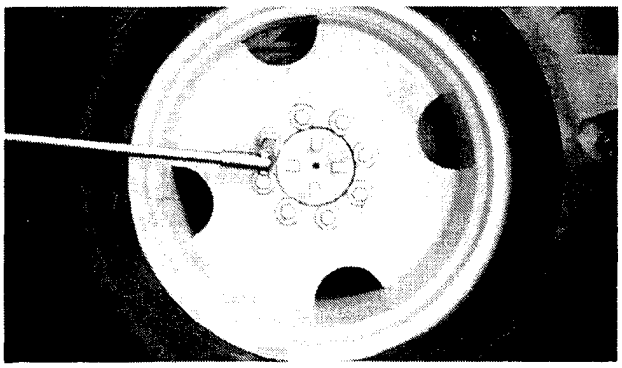
REMOVE WHEEL ASSEMBLY

CAUTION: A drive forklift wheel weighs approximately (121 kg) 267 lbs.

1. Loosen cap screws before lifting the wheel off the ground.



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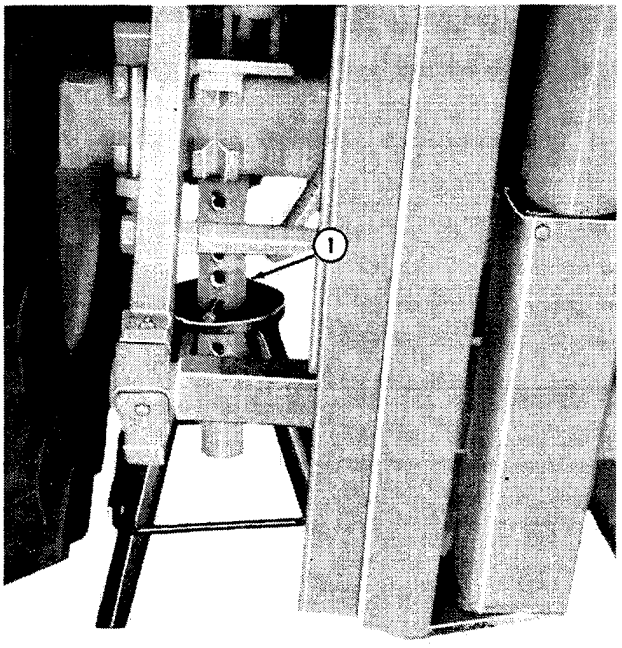
2. Lift the wheel off the ground using a service jack or hoist of at least (907 kg) 2-ton capacity.
3. Put a shop stand (1) such as D-24206WK under the axle housing.

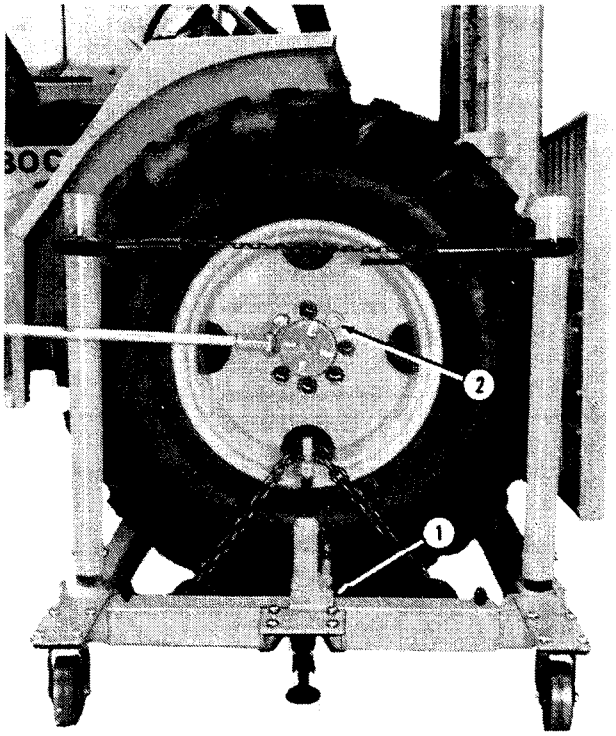


46A;T80631 T30;0110 04 210481

4. Put the D-05019ST Wheel Lift (1) under wheel. Fasten safety chain around the upper portion of tire.

5. Remove the cap screws (2). Pull wheel assembly away from axle.

6. Inspect all parts for damage; replace parts as necessary.



46A;T80632 T30;0110 05 210481

REMOVE TIRE

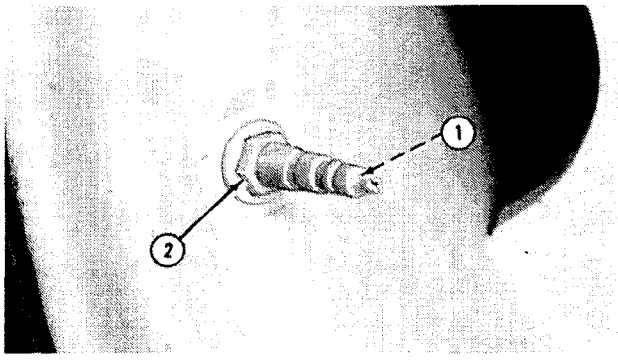
1. The tire can be removed without removing the wheel from the forklift. See the John Deere Off-The-Road Tire Maintenance Manual to remove the tire from the wheel.

CAUTION: Failure to follow proper procedures when demounting a tire from a wheel or rim can produce an explosion which may result is serious bodily injury. DO NOT attempt to demount a tire unless you have the proper equipment and experience to perform the job safely. Have it done by a qualified tire repair service.

T30;0110 06 210481

2. Always completely deflate the tire by removing the valve core (1) from valve before attempting any demounting operation. Check the valve stem by running a probe through it to make sure the valve stem is not plugged. Remove valve nut (2).

3. Inspect all parts for damage; replace parts as necessary.



46A;T80633 T30;0110 07 210481

INSTALL TIRE

CAUTION: Failure to follow proper procedures when mounting a tire on a wheel or rim, can produce an explosion which may result is serious bodily injury. DO NOT attempt to mount a tire unless you have the proper equipment and experience to perform the job safely. Have it done by a qualified tire repair service.

NOTE: See the John Deere Off-The-Road Tire Maintenance Manual to mount the tire on the wheel.

T30;0110 08 210481

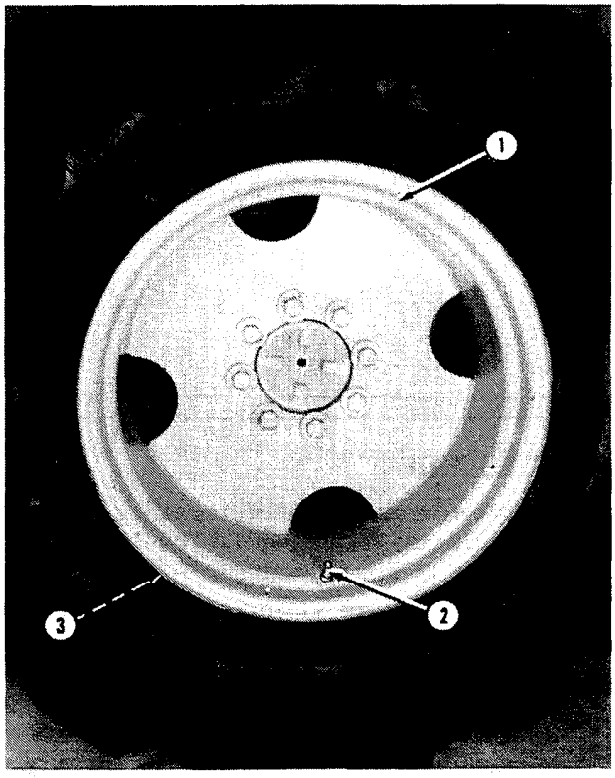
1. Make sure all parts are clean and free from rust or grease before assembly.

2. To prevent slipping of the wheel under load, the inside and outside of wheel (1) must be free of paint, rust, oil, grease, dirt or other foreign material before installation.

3. Install valve stem (2) in rim base and tighten valve core housing finger tight.

CAUTION: Serious bodily injury can occur from explosion when mounting and inflating tires if safe procedures are not followed.

4. Before mounting tire on rim, add soap lubricant to beads of the tire (3).



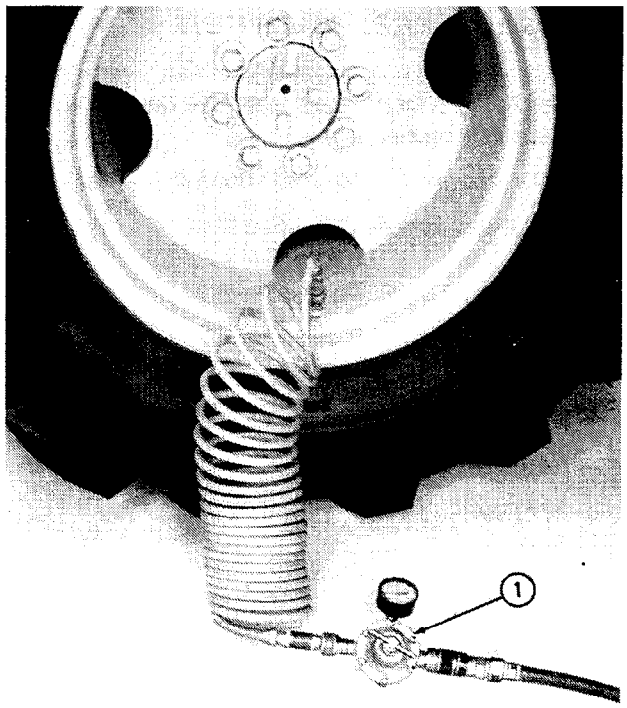
46A;T80634 T30;0110 09 210481

5. Clear the area of all persons.

6. Use a pressure regulating valve (1) with clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of the tire while inflating.

7. Use only recommended air pressure. Pressure over this limit can cause an explosion.

8. Add air until side flange of tire slides out against the rim.



46A;T80635 T30;0110 10 210481

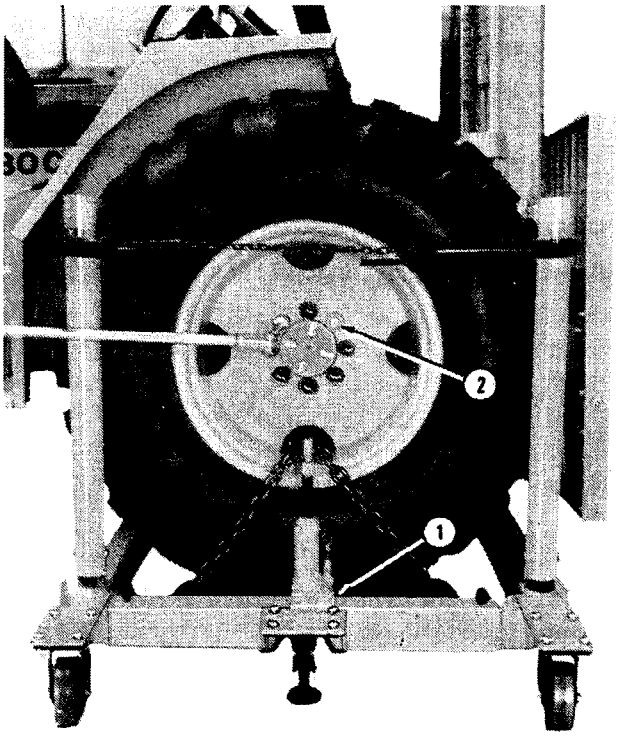
Tire Size	Type	Ply Rating	Operating Pressure
16.9-24	R-4	8	(190 ± 20 kPa)(1.9 ± 0.2 bar) 28 ± 3 psi
19.5L-24	R-4	8	(170 ± 10 kPa)(1.6 ± 0.1 bar) 24 ± 2 psi

9. Check air pressure in both drive tires with an accurate gauge having (10 kPa) (0.01 bar) or 1 psi graduations. Be sure that tire pressures are equal for both drive tires.

T30;0110 11 210481

INSTALL WHEEL ASSEMBLY

1. Thoroughly clean the cap screws, washers, and the tapped holes in the flanged axle. Use compressed air to dry all parts and tapped holes.
2. Install the wheel using a D-05019ST Wheel Lift (1).
3. Install cap screws (2).

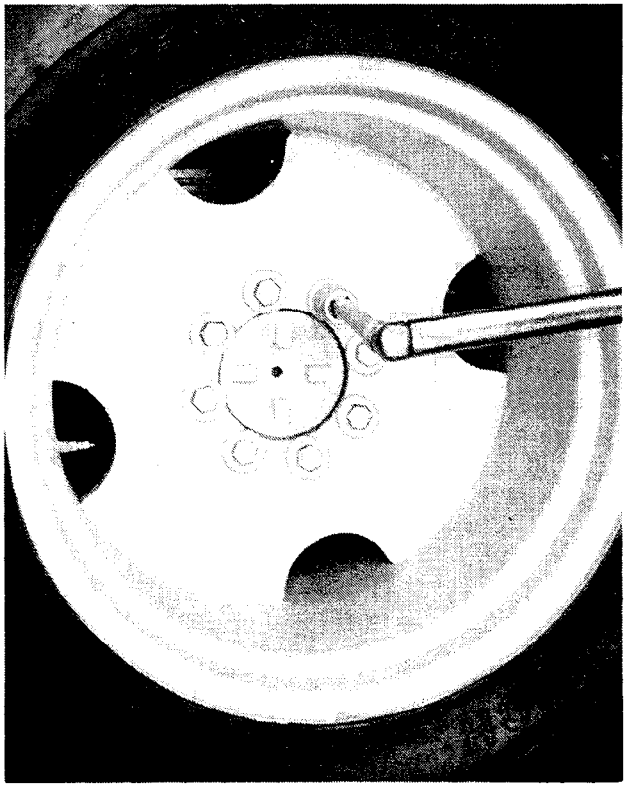


46A;T80632 T30;0110 12 210481

4. Tighten cap screws to (285 N·m) 210 lb-ft.
5. Lower the forklift to the ground.

IMPORTANT: If a power wrench is used, be sure that the cap screws are engaged to prevent stripping. Operate the wrench slowly to prevent thread damage.

6. Cross tighten the cap screws to (576 N·m) 425 lb-ft.



46A;T80636 T30;0110 13 210481

SPECIAL TOOLS

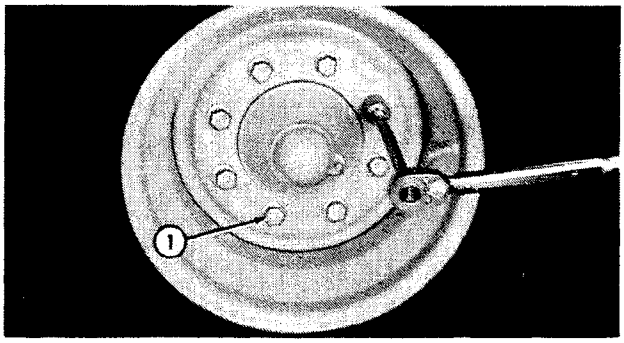
NOTE: Order tools from your SERVICE-GARD™ Catalog, unless otherwise indicated.

Number	Name	Use
D-01182AA	Shop Stand	Support the unit while removing wheels.

T30;0120 01 210481

WHEEL SPECIFICATION

1. Cap screws torque .. (136 ± 14 N·m) 100 ± 10 lb-ft

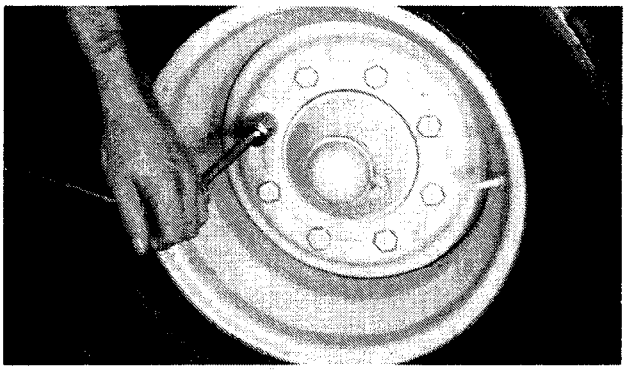


46A;T80637 T30;0120 02 210481

REMOVE WHEEL ASSEMBLY

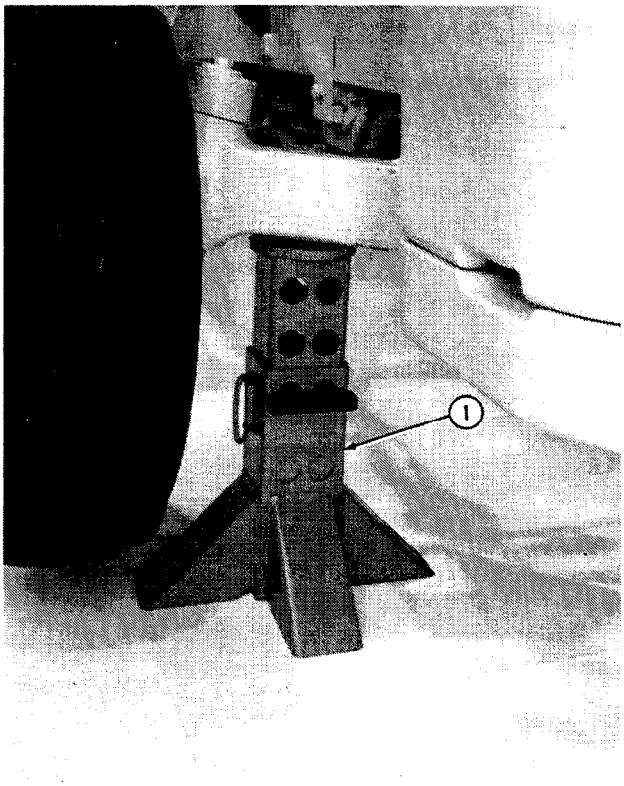
CAUTION: A front forklift wheel weighs approximately (27 kg) 60 lbs.

1. Loosen cap screws before lifting the wheel off the ground.



46A;T80638 T30;0120 03 210481

2. Lift the wheel off the ground using a service jack or hoist of at least (907 kg) 2-ton capacity.
3. Put a shop stand such as D-01182AA under the axle.



46A;T80639 T30;0120 04 210481

4. Remove the cap screws. Pull wheel assembly away from wheel hub.

5. Inspect all parts for damage; replace parts as necessary.

46A;T80640 T30;0120 05 210481

REMOVE TIRE

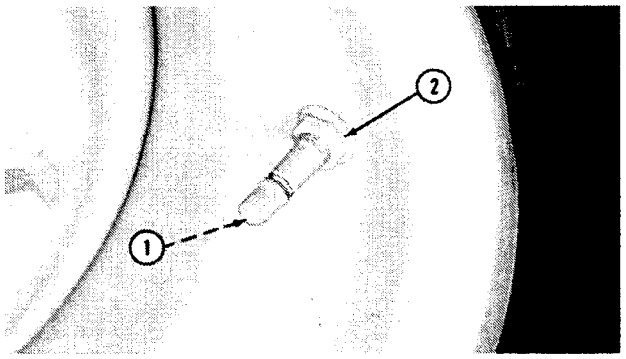
1. The tire can be removed without removing the wheel from the forklift. See the John Deere Off-The-Road Tire Maintenance Manual to remove the tire from the wheel.

CAUTION: Failure to follow proper procedures when demounting a tire from a wheel or rim can produce an explosion which may result in serious bodily injury. DO NOT attempt to demount a tire unless you have the proper equipment and experience to perform the job safely. Have it done by a qualified tire repair service.

T30;0120 06 210481

2. Always completely deflate the tire by removing the valve core (1) from valve before attempting any demounting operation. Check the valve stem by running a probe through it to make sure the valve stem is not plugged. Remove valve nut (2).

3. Inspect all parts for damage; replace parts as necessary.



46A;T80641 T30;0120 07 210481

INSTALL TIRE

CAUTION: Failure to follow proper procedures when mounting a tire on a wheel or rim, can produce an explosion which may result in serious bodily injury. DO NOT attempt to mount a tire unless you have the proper equipment and experience to perform the job safely. Have it done by a qualified tire repair service.

NOTE: See the John Deere Off-The-Road Tire Maintenance Manual to mount the tire on the wheel.

1. Make sure all parts are clean and free from rust or grease before assembly.

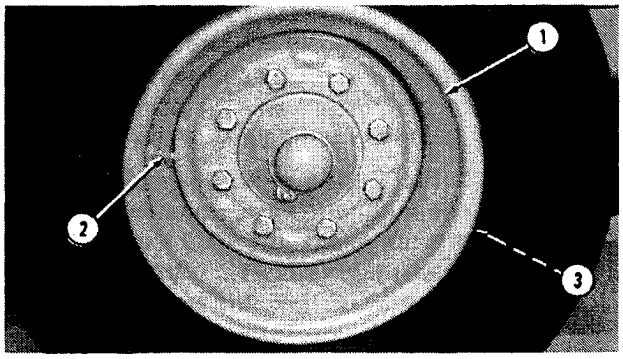
T30;0120 08 210481

2. To prevent slipping of the wheel under load, the inside and outside of wheel (1) must be free of paint, rust, oil, grease, dirt or other foreign material before installation.

3. Install valve stem (2) in rim base and tighten valve core housing finger tight.

CAUTION: Serious bodily injury can occur from explosion when mounting and inflating tires if safe procedures are not followed.

4. Before mounting tire on rim, add soap lubricant to beads of the tire (3).



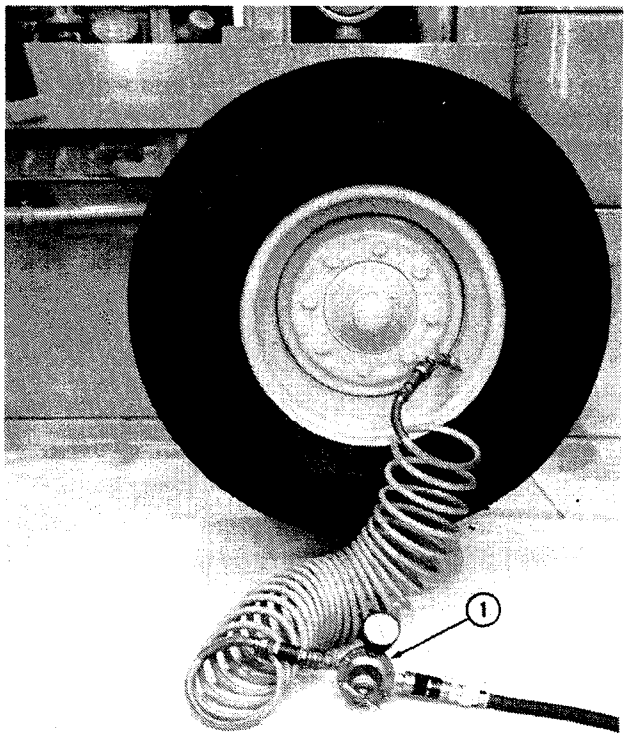
46A;T80642 T30;0120 09 210481

5. Clear the area of all persons.

6. Use a pressure regulating valve (1) with clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of the tire while inflating.

7. Use only recommended air pressure. Pressure over this limit can cause an explosion.

8. Add air until side flange of tire slides out against the rim.



46A;T80667 T30;0120 10 210481

Tire Size	Type	Ply Rating	Operating Pressure
7.50-16	F-3	10	(410 ± 40 kPa)(4.1 ± 0.4 bar) 60 ± 6 psi
11L-15	F-3	8	(300 ± 30 kPa)(3 ± 0.2 bar) 44 ± 4 psi

9. Check air pressure in both front tires with an accurate gauge having (10 kPa) (0.01 bar) or 1 psi graduations. Be sure that tire pressures are equal for both tires.

T30;0120 11 210481

INSTALL WHEEL ASSEMBLY

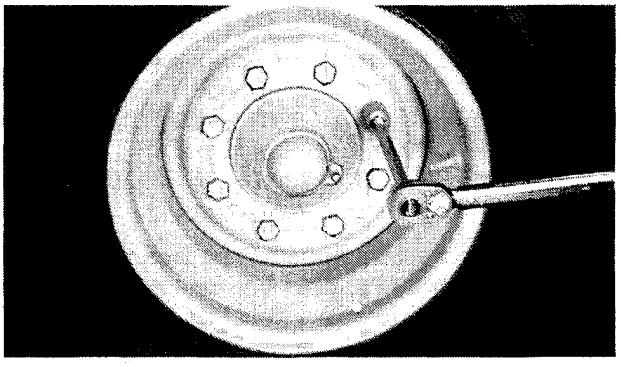
1. Thoroughly clean the cap screws and the tapped holes in the wheel hub. Use compressed air to dry all parts and tapped holes.
2. Install the wheel.

46A;T80640 T30;0120 12 210481

3. Install and tighten cap screws to (68 ± 7 N·m) 50 ± 5 lb-ft.
4. Lower the forklift to the ground.

IMPORTANT: If a power wrench is used, be sure that the cap screws are engaged to prevent stripping. Operate the wrench slowly to prevent thread damage.

5. Cross tighten the cap screws to (136 ± 14 N·m) 100 ± 10 lb-ft.



46A;T80668 T30;0120 13 210481

Section 02
AXLES AND SUSPENSION SYSTEMS

CONTENTS

T30:0200 01 140781

SPECIAL TOOLS

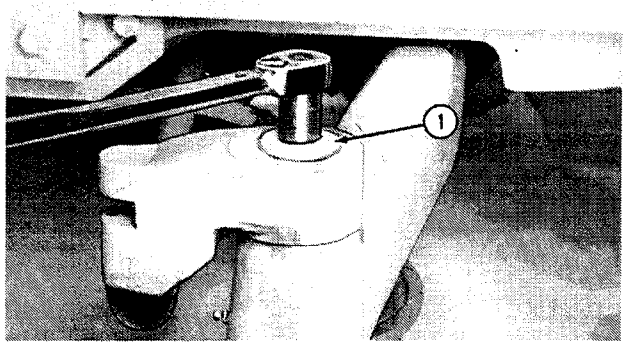
NOTE: Order tools from your SERVICE-GARD™ Catalog, unless otherwise indicated.

Number	Name	Use
D-01045AA	Bushing, Bearing and Seal Driver Set	To install bushings, bearing cups and oil seal cup.
D-01047AA	17½ and 30-Ton Puller Set	To remove axle pivot pin.
D-24206WK	Shop Stand	Supports the unit.

T30;0230 72 180681

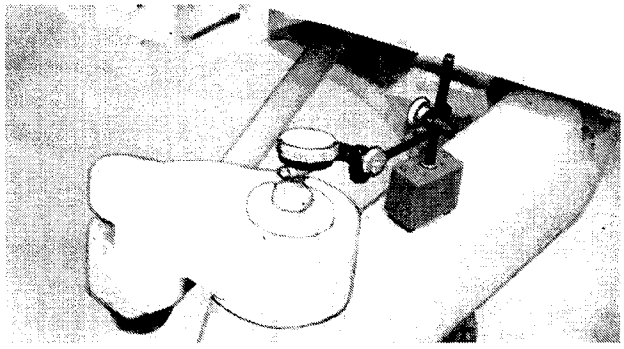
SPINDLE AND KNUCKLE SPECIFICATIONS

1. Cap screws torque .....(230 N·m)
170 lb-ft



47A;T80769 T30;0230 73 180681

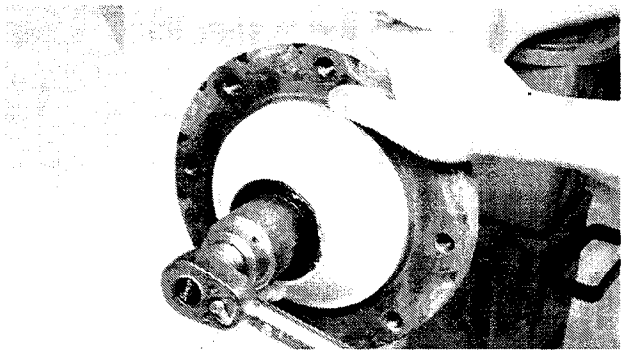
2. Install washers to get an end play of (0.13 to 0.14 mm) 0.005 to 0.045 in.



47A;T80770 T30;0230 74 180681

WHEEL HUB SPECIFICATION

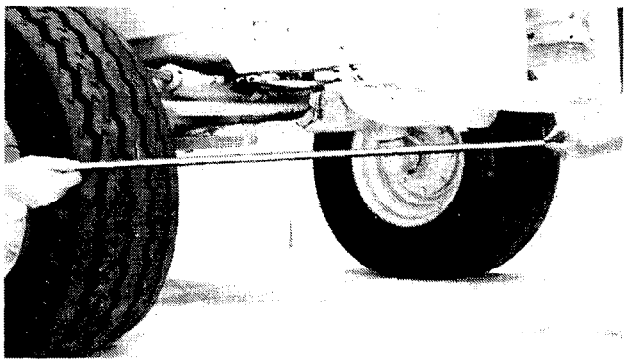
1. Slotted nuts torque .....(47 N·m)
35 lb-ft



47A;T80772 T30;0230 75 180681

TOE-IN SPECIFICATION

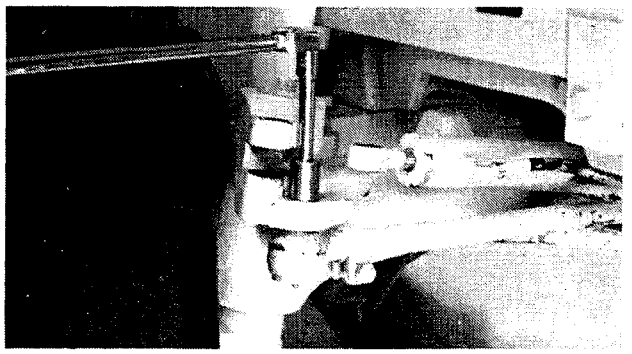
1. The distance between the front marks must be (6.5 ± 3 mm) 0.25 ± 0.12 in. less than the distance between the rear marks.



47A;T80811 T30;0230 78 180681

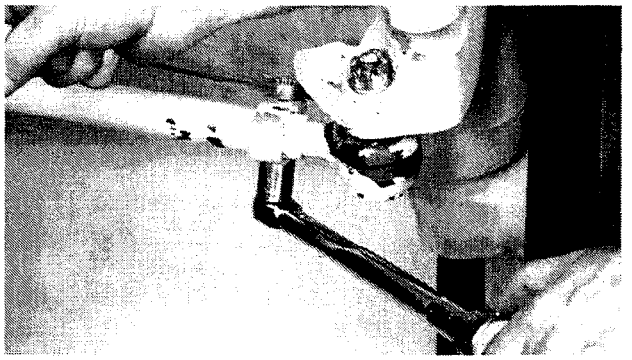
TIE ROD SPECIFICATIONS

1. Nuts torque ..... (75 N·m)
55 lb-ft



47A;T80808 T30;0230 76 180681

2. Cap screw torque ..... (54 +7 −0 N·m)
40 +5 −0 lb-ft

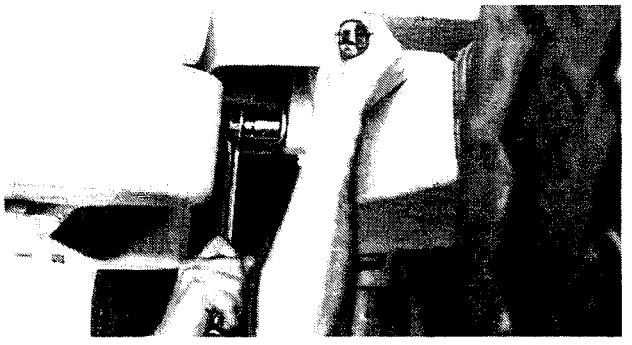


47A;T80933 T30;0230 77 180681

NON-POWERED AXLE SPECIFICATIONS

1. Cap screw and nut torque ..... (298 N·m)
220 lb-ft

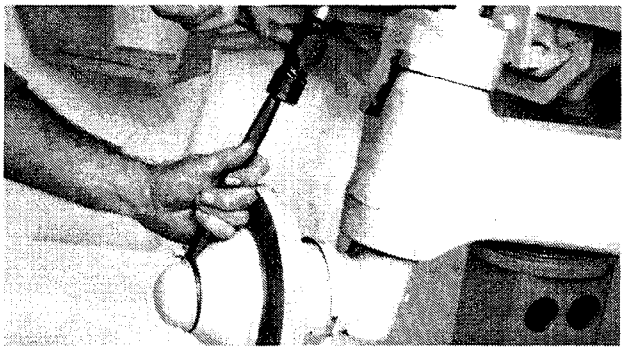
2. Install shims to get (0.00 to 0.38 mm) 0.000 to 0.015 in. of play.



47A;T82056 T30;0230 79 180681

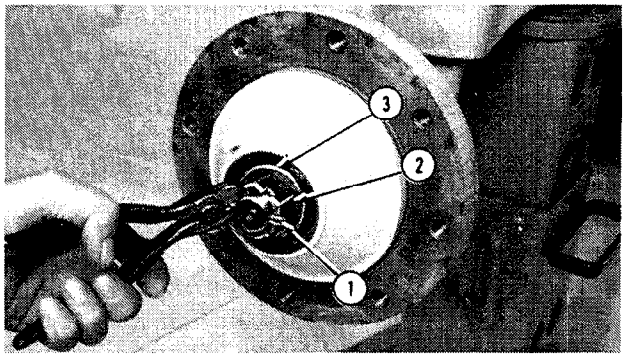
REMOVE HUB ASSEMBLY

1. To remove rear wheels (Group 0120).
2. Remove cap.



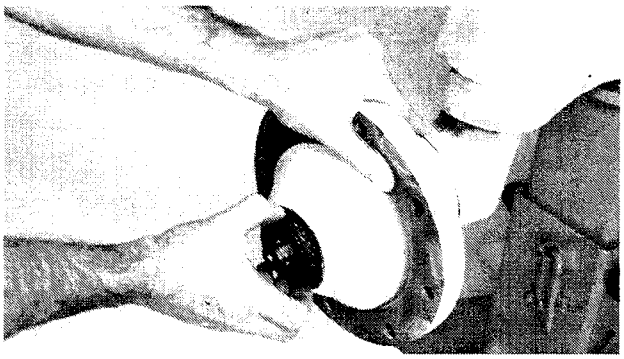
47A;T80751 T30;0230 01 050581

3. Remove cotter pin (1), slotted nut (2) and special washer (3).



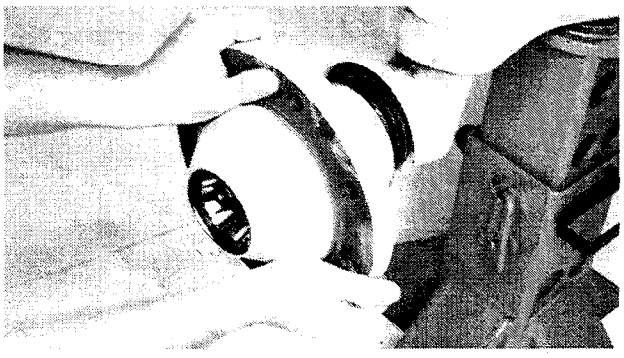
47A;T80752 T30;0230 02 050581

4. Remove outer bearing.



47A;T80753 T30;0230 03 060581

5. Remove hub.

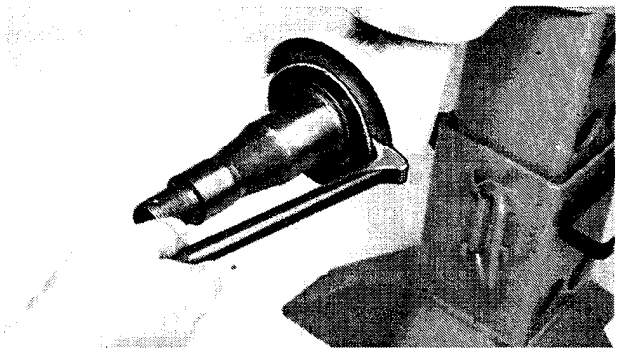


47A;T80754 T30;0230 04 060581

6. Remove inner bearing.

47A;T80755 T30;0230 05 060581

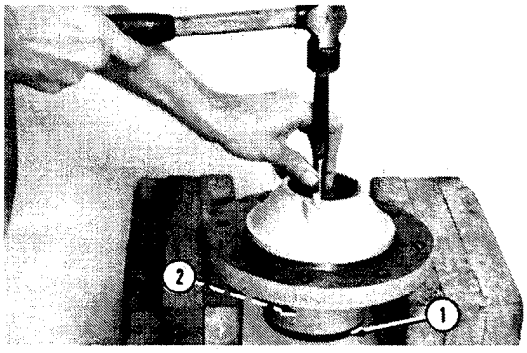
7. Remove grease seal.



47A;T80756 T30;0230 06 060581

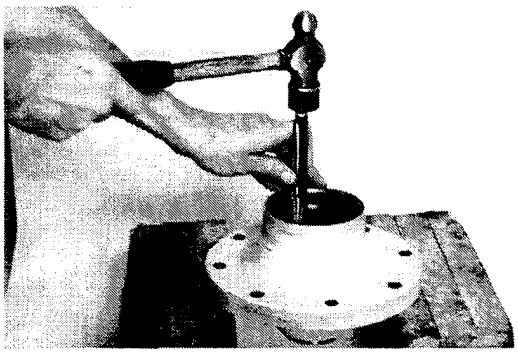
DISASSEMBLE HUB

1. Remove seal cup (1) and inner bearing cup (2).



47A;T80757 T30;0230 07 060581

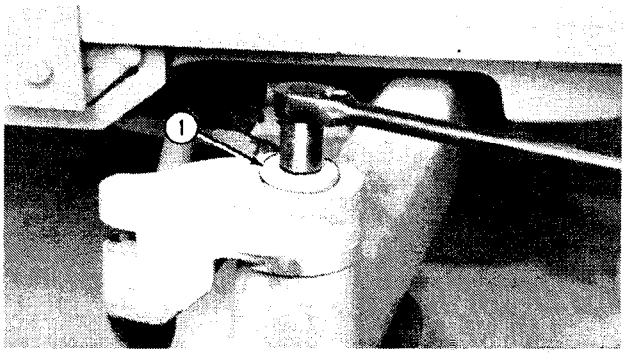
2. Turn hub over and remove the outer bearing cup.



47A;T80758 T30;0230 08 060581

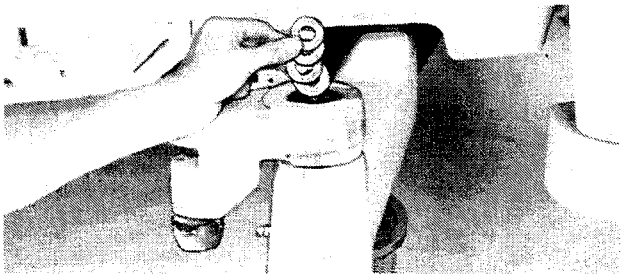
REMOVE SPINDLE AND KNUCKLE ASSEMBLY

1. Remove cap screw, lock washer and special washer (1).



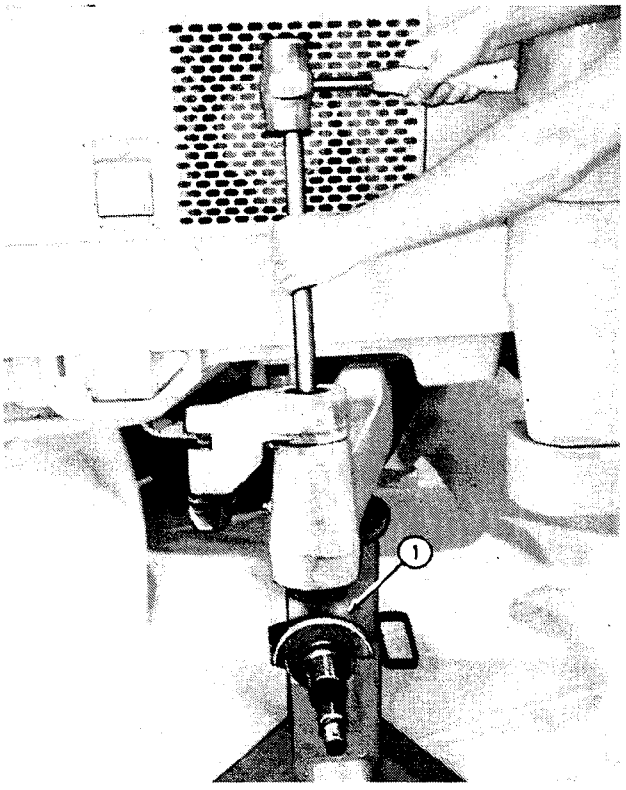
47A;T80762 T30;0230 09 060581

2. Remove thrust washers.



47A;T80766 T30;0230 10 060581

3. Remove spindle and knuckle (1) with brass drift.

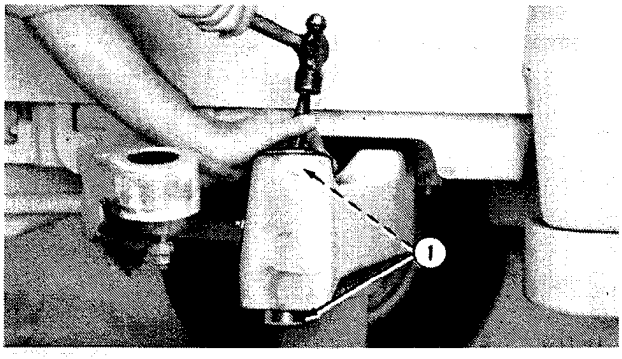


47A;T80763 T30;0230 11 060581

4. Remove special washers.

47A;T80764 T30;0230 12 060581

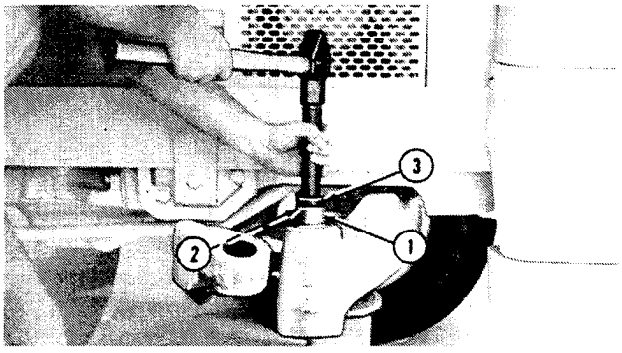
5. Remove bushings (1).



47A;T80765 T30;0230 13 060581

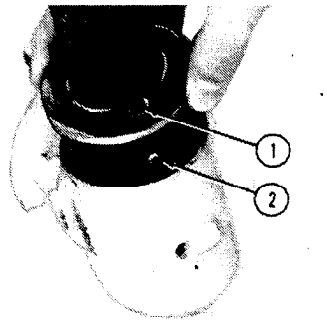
INSTALL SPINDLE AND KNUCKLE ASSEMBLY

1. Install new bushings (1) with 27511 disk (2), 27513 disk (3) and handle from the D-01045AA Bushing, Bearing and Seal Driver Sets.



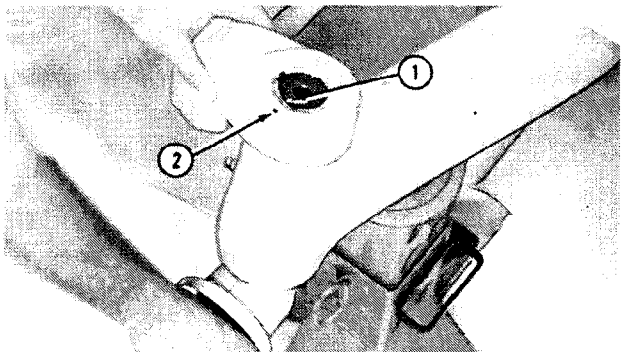
47A;T80766 T30;0230 14 060581

2. Install washers, with slot on washers (1) in alignment with spring pin (2).



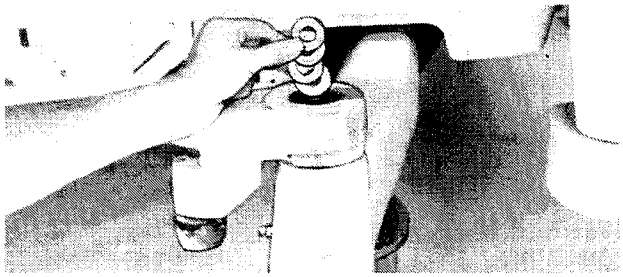
47A;T80927 T30;0230 15 060581

3. Install spindle and knuckle assembly with punch marks on spindle (1) and steering arm (2) in alignment.



47A;T80767 T30;0230 16 060581

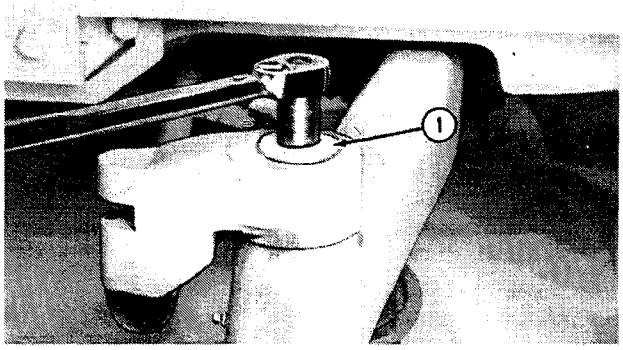
4. Install a nominal thickness of thrust washers.



47A;T80768 T30;0230 17 060581

5. Install special washer (1), lock washer and cap screw. Tighten cap screw to (230 N·m) 170 lb-ft.

NOTE: Steering arm must turn freely.



47A;T80769 T30;0230 18 060581

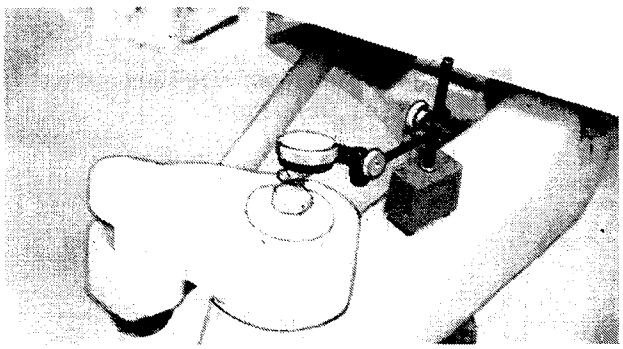
ADJUST FOR SPINDLE AND KNUCKLE END-PLAY

1. Use a dial indicator to measure endplay on the spindle and knuckle assembly.

2. Add or remove thrust washers to obtain (0.13 to 1.14 mm) 0.005 to 0.045 in. end play.

3. Tighten cap screw to (230 N·m) 170 lb-ft.

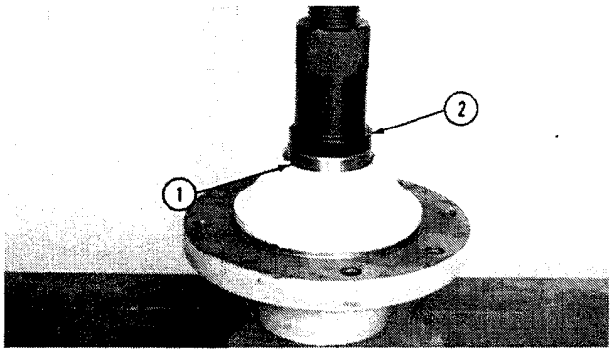
4. Put multi-purpose grease in grease fittings to lubricate the knuckle bushings.



47A;T80770 T30;0230 19 060581

ASSEMBLE HUB

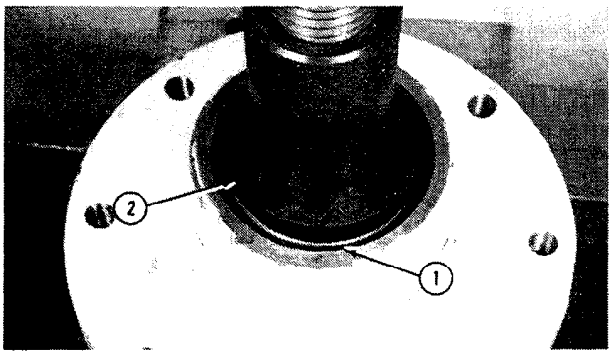
1. Use a press and 27525 Disk (2) from the D-01045AA dirver set to install outer bearing cup (1).



47A;T80759 T30;0230 20 060581

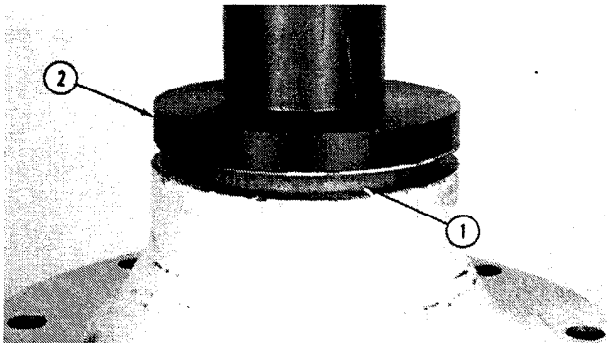
2. Use a press and 27534 Disk (2) to install inner bearing cup (1).

3. Put multi-purpose grease on the inner and outer bearing cups.



47A;T80760 T30;023021 060581

4. Use a press and 27551 Disk (2) to install seal cup (1).

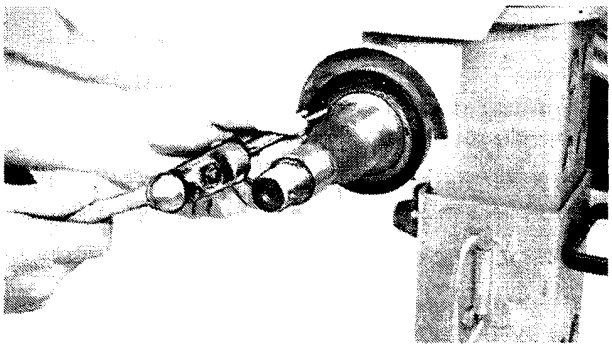


47A;T80761 T30;0230 22 060581

INSTALL HUB ASSEMBLY

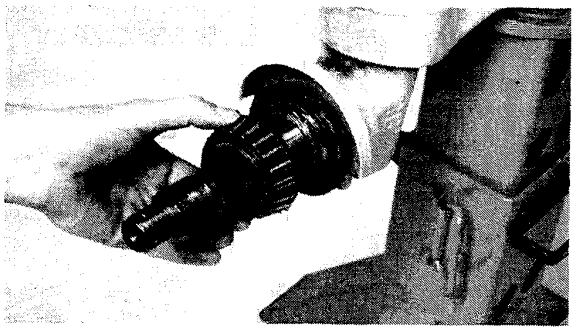
1. Install grease seal with "stamped side" facing driver. The seal must be tight against the bottom.

2. Put multi-purpose grease on lip of seal.



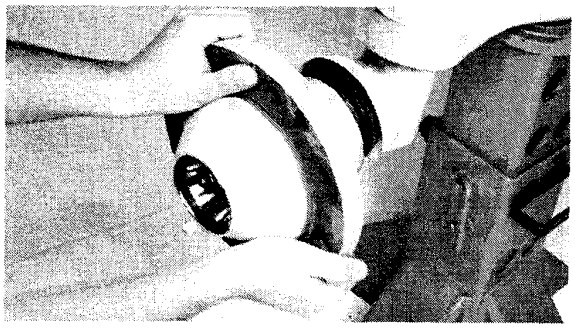
47A;T80771 T30;0230 23 060581

3. Install inner bearing.



47A;T80755 T30,0230 24 060581

4. Install hub.



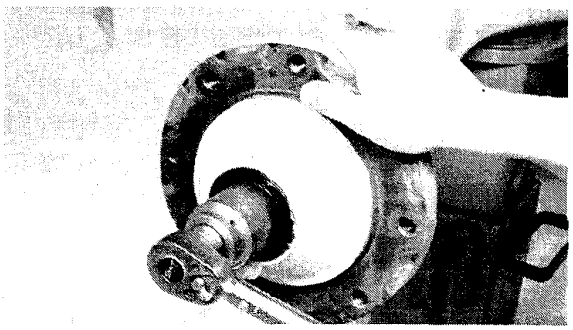
47A;T80754 T30,0230 25 060581

5. Install outer bearing.

47A;T80753 T30,0230 26 060581

ADJUST WHEEL HUB BEARINGS

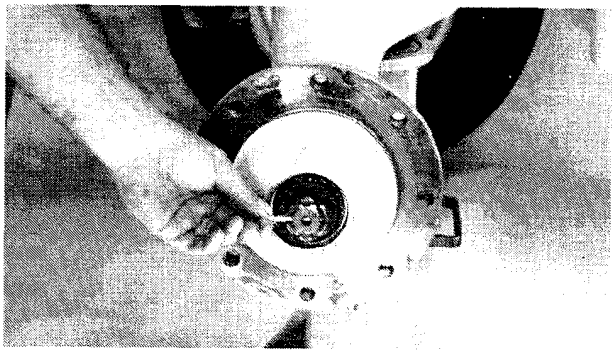
1. Install special washer and slotted nut.
2. Tighten slotted nut to (47 N·m) 35 lb-ft.
3. Turn hub several times and tighten nut again to (47 N·m) 35 lb-ft.



47A;T80772 T30,0230 28 010681

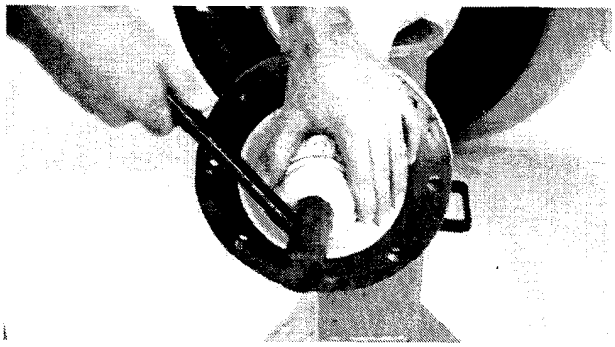
CONTINUE TO INSTALL HUB ASSEMBLY

1. If hole in knuckle is aligned with slot in nut when nut is tightened to specified torque, turn nut counterclockwise one slot and install cotter pin.



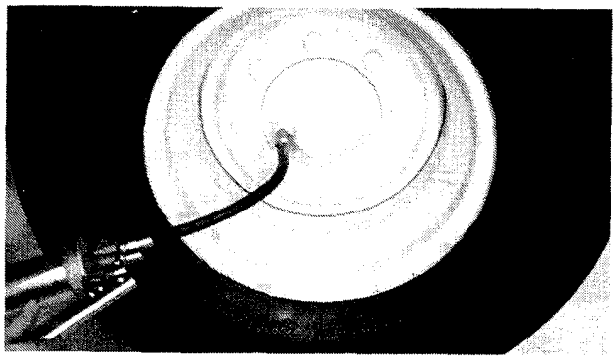
47A;T80773 T30;0230 29 010681

2. Install cap.



47A;T80774 T30;0230 30 060181

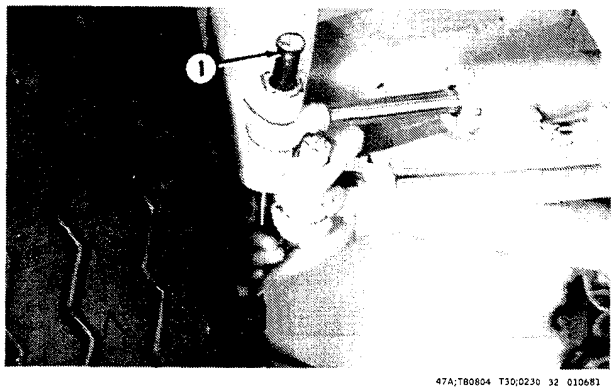
3. Install wheels (Group 0120).
4. Fill hub assembly with multi-purpose grease.



47A;T80797 T30;0230 31 010681

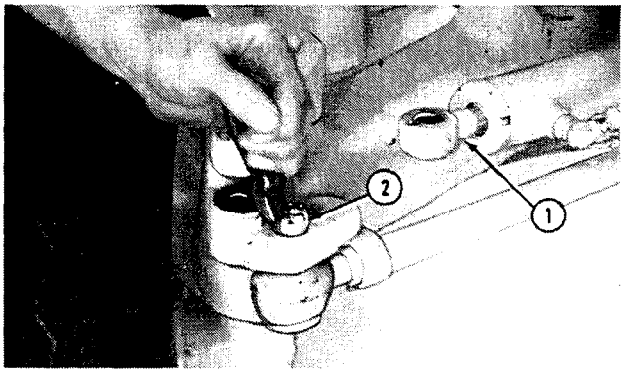
REMOVE TIE ROD (RIGHT SIDE SHOWN)

1. Remove pin (1).



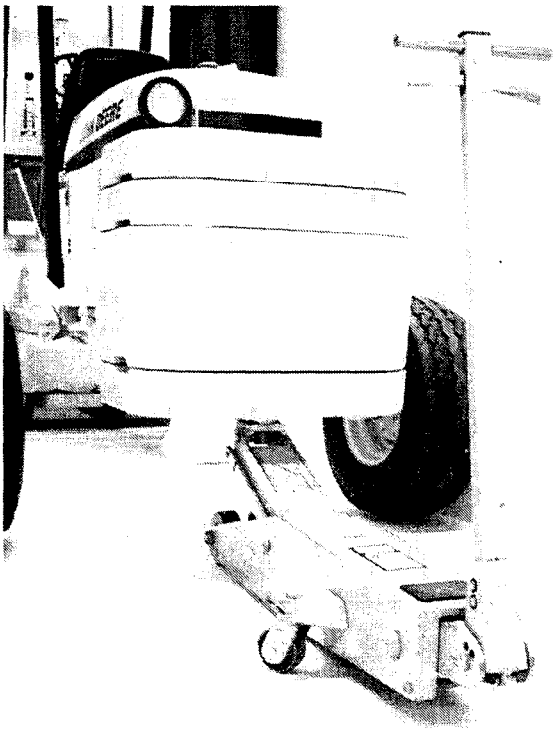
47A;T80804 T30;0230 32 010681

2. Put the steering cylinder (1) in the retracted position.
3. Remove cotter pin and loosen nut (2).



47A;T80805 T30;0230 33 010681

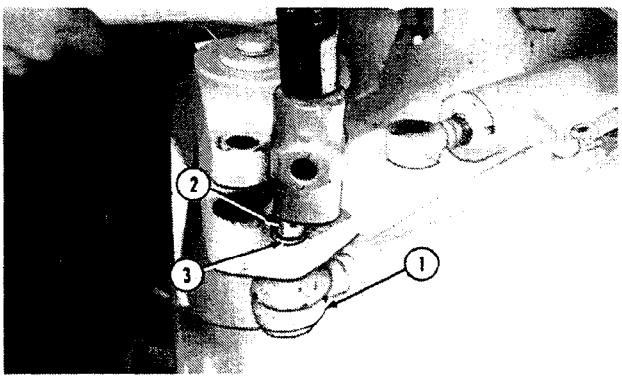
4. Put a service jack under counterweight. Lift unit high enough to gain access for removal of tie rod and sockets.



47A;T80934 T30;0230 27 010681

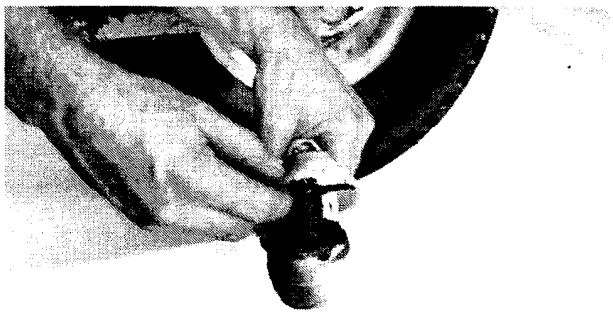
IMPORTANT: Be careful not to damage socket threads during removal.

5. Hit on nut (2) to loosen socket (1).
6. Remove nut and washer (3). Pull socket from steering arm.



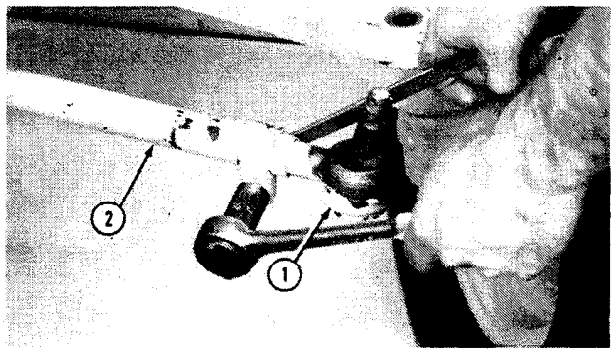
47A;T80806 T30;0230 34 010681

7. Remove cover only if replacement is necessary.



47A;T80807 T30;0230 35 010681

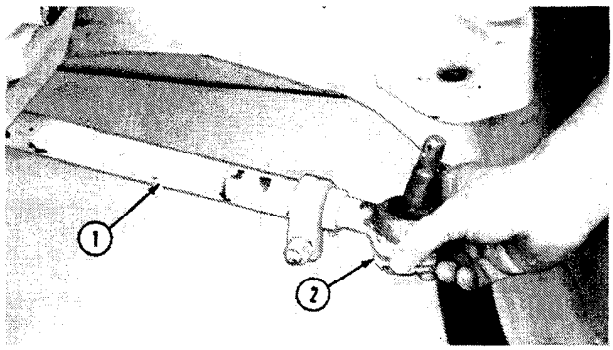
8. Loosen clamp. Remove socket (1) from tube (2).
9. Inspect parts for wear or damage; replace if necessary.



47A;T80928 T30;0230 36 010681

INSTALL TIE ROD

1. Slide clamp onto tube (1).
2. Install socket (2). Tighten clamp cap screw finger tight until the toe-in adjustment is made.

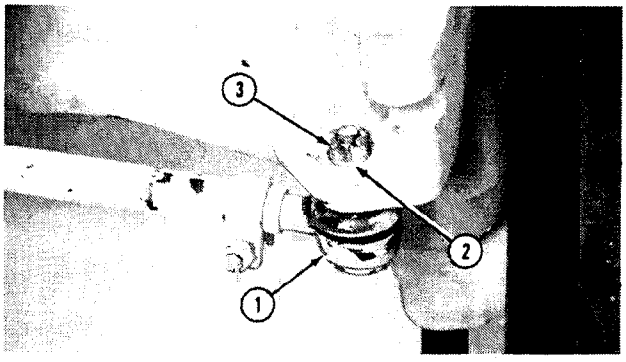


47A;T80929 T30;0230 37 010681

3. Install cover.

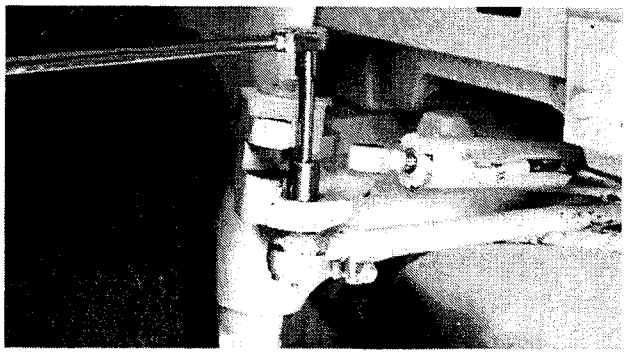
47A;T80807 T30;0230 38 010681

4. Connect socket (1) and fasten with washer (2) and nut (3).



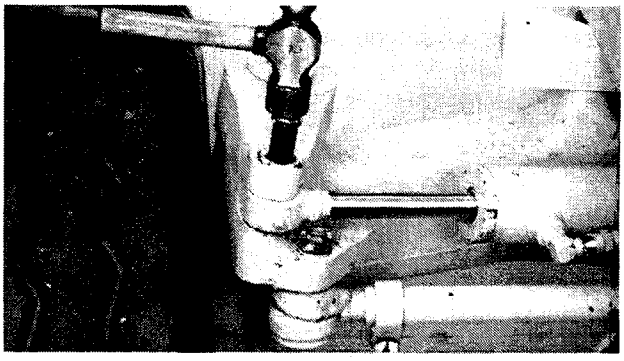
47A;T80930 T30;0230 39 010681

5. Tighten nut to (75 N·m) 55 lb-ft.
6. Tighten nut to nearest slot and install cotter pin.



47A;T80808 T30;0230 40 010681

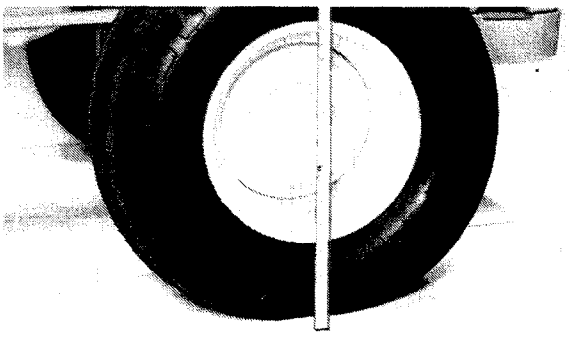
7. Connect steering cylinder and fasten with pin and cotter pin.



47A;T80931 T30;0230 42 010681

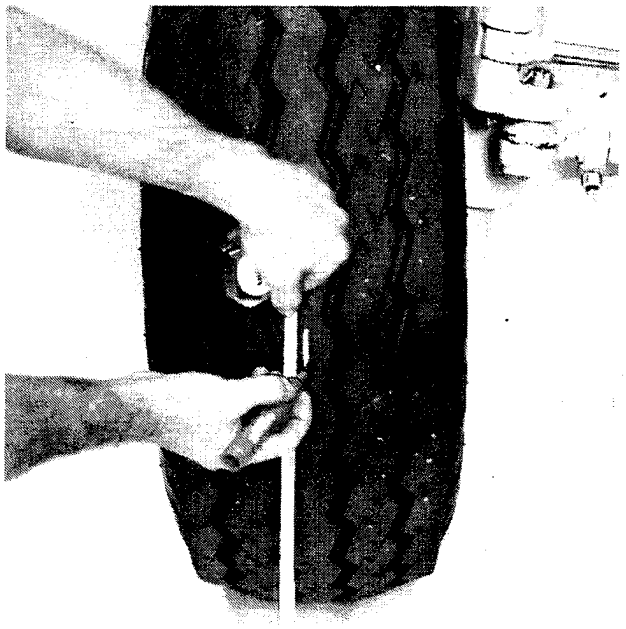
ADJUST TOE-IN

1. Put the rear wheels in a straight ahead position.
2. Measure the distance from the ground to the center of the wheel hub.



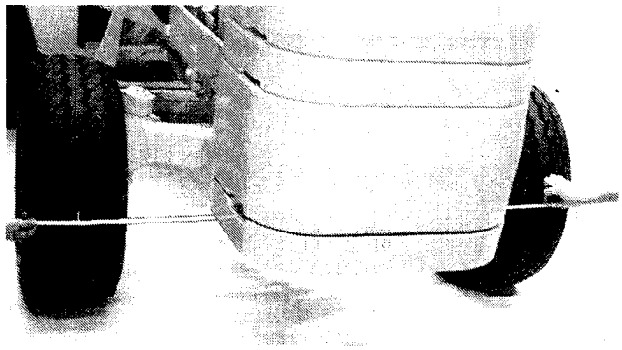
47A;T80809 T30;0230 43 010681

3. Using the same dimension from the previous step, make a mark on the front and rear center of each tire.



47A;T80932 T30;0230 44 010681

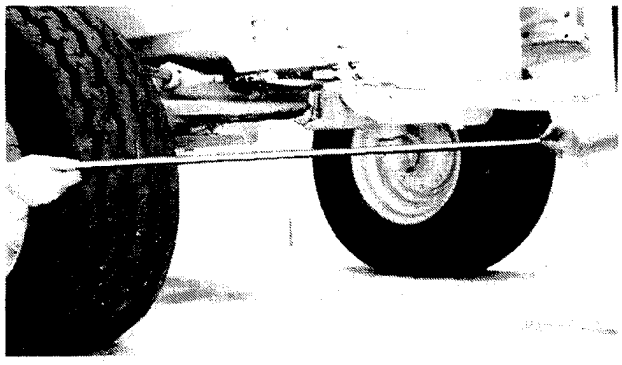
4. Measure the distance between rear marks.



47A;T80810 T30;0230 45 010681

5. Measure the distance between front marks.

6. The distance between the front marks must be (6.5 ± 3 mm) 0.25 ± 0.12 in. less than the distance between the rear marks.



47A;T80811 T30;0230 46 010681