MASSEY FERGUSON
GC2300
TRACTOR

TRACTOR
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INTRODUCTION

The purpose of this manual is to assist dealers and distribute in the efficient repair and maintenance of Massey Ferguson and AGCO machinery. Carrying out the procedures as detailed, together with the use of special tools where appropriate will enable the operations to be completed within the time stated in the repair time schedule.

NOTE: To assist with locating information, each division of the manual is preceded by a contents page listing the operations in numerical order.

Each operation is given in sequential order. To complete the operation in the minimum time it is essential that these instructions are preformed in given order unless otherwise stated. When applicable, the callout numbers in the text reference components in the appropriate illustration. Where performance of an operation requires the use of a special tool, the tool is called out in that operation.

INDEXING

For convenience, the manual is divided into parts sections with each page number bearing the part and section number. Page numbers are located at top outside of each page. Beneath the page number is written title of manual division.

Page Number Example: 7A-15

Part 7 Section A, Page 15

This simplifies cross-referencing and enables the subject to be found easily.

NOTE: Page numbers will be consecutive within each sub-section. A void of page numbers may be used between these sub-sections in order to provide space for future amendments and also to indicate the beginning/end of adjacent sub-sections.

SPECIAL TOOLS

Where the use of a special tool is specified in an operation, the tool number will be shown under the operation.

The use of the special tools mentioned in the text contributes to a safe, efficient and profitable repair. Some operations are impracticable without their use.

Make certain proper tools are available when starting the job.

REPAIRS & REPLACEMENTS

When service parts are required, it is essential that only genuine Massey Ferguson and AGCO replacements are used. Attention is particularly drawn to the following points concerning repairs and the fitting of replacement parts accessories:

Safety features embodied in the tractor may be impaired if other than genuine parts are fitted.

In certain territories, legislation prohibits the fitting of parts not to the tractor manufacturer's specification.

Torque wrench setting figures given in the Workshop Manual must be strictly adhered to.

Locking devices where specified must be fitted. If the efficiency of a locking device is impaired during removal it must be renewed.

The tractor warranty may be invalidated by the fitting of other than genuine Massey Ferguson, AGCO, and Challenger parts. All Massey Ferguson and AGCO replacements have the full backing of the manufacturer's warranty. Massey Ferguson and AGCO Distributors and Dealers are obliged to supply only genuine service parts.

REPAIR TIME SCHEDULE

The operations listed in the Repair Time Schedule refer to those described in this manual. The time set against each operation in the schedule is established by performing the actual operations on standard machines using special tools where applicable. The Repair Time Schedule for use with this manual is issued as a separate publication.

NOTE: Repair Time Schedules are issued to Massey Ferguson and AGCO Distributors and Dealers only and are not for general publication.

AMENDMENTS

Under normal conditions, revised pages issued carry the same number as the existing pages requiring amendment. The new pages are inserted in place of the existing ones. The old pages should then be discarded.

In some cases additional pages or completely new sections may be issued. These pages are to be inserted immediately following the page carrying the next lowest page number, or section number as appropriate. Where new pages are required to be positioned between existing pages, the new page numbers will contain a suffix letter:

Example New Page Number: 7A-16a.

This page is inserted after existing page number 7A-16 and before page number 7A-17. Correspondingly a further new page numbered 7A-16b would be positioned after 7A-16a but before 7A-17.

NOTE: Service Bulletins and Amendment Sheets are issued to the Massey Ferguson and AGCO Distributors and Dealers only and are not for general publication.

SAFETY PRECAUTIONS

- Make sure that all personnel are in a safe position before starting the engine, or operating ANY of the controls.
- Always stop the engine before leaving the operator's platform.
- Wait for all moving parts to stop COMPLETELY before starting any work on the tractor.
- Before starting service procedures, attached equipment should be resting on the ground and all hydraulic control levers operated back and forth several times with the engine stopped.
- If it becomes necessary to go under raised attachment (i.e: to perform adjustments, etc.), safety standards must be used to support the attachment.
- Make sure the battery ground cable is disconnected before working on or near the electrical system or electrical system components.
- Keep hands, feet and clothing a safe distance away from moving belts, pulleys and other moving parts. Make sure all safety shields are installed.
- Be extra careful when performing any checks, inspections, adjustments or tests that require operating the engine, the hydraulic controls, OR with the machine in motion.
- Make sure dependable jacks of adequate lifting capacity AND suitable stands (or wooden blocking) are used to securely block up the machine when removing any of the wheels or axles.

CAUTION: PERSONAL INJURY MAY RESULT IF THESE PRECAUTIONS ARE NOT FOLLOWED.

Look for this symbol to point out important safety precautions. It means - ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED.

- Before any attempt is made to disconnect or remove any hydraulic component, make sure the hydraulic pressure within the system is relieved and the engine is stopped.
- Carry out the repair procedures in a "common sense" manner. Safety procedures cannot be over-emphasized when working on, or around machinery, especially when working on engine driven and/or hydraulically actuated equipment.
- Safety also depends upon the skill of the service man in the use of tools and other shop equipment while performing the recommended service procedures.
- Exercise extreme caution when testing hydraulic or fuel system components as fluid ejected under high pressure can easily penetrate skin causing serious infection.
- When it is necessary to remove hoods, shields, ROPS, etc. to conduct repair operation, all items must be reinstalled to unit and secured in original fashion.
- Modification of ROPS is not permissible. Do not weld, drill or modify ROPS in any manner. Damaged or modified ROPS must be replaced.

GENERAL INFORMATION

Model Name and Identification Numbers

FIGS. 1, 2 & 2a: The name plate (1) which gives the model name, type, production serial number, and production year of the machine, is located on the left-hand side of the rear fender (2).

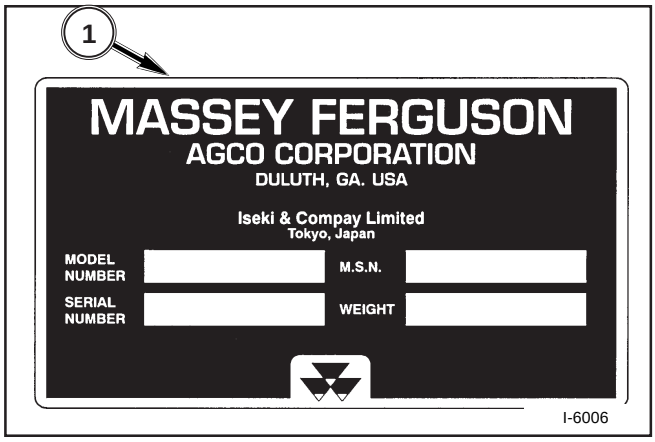


FIG. 1

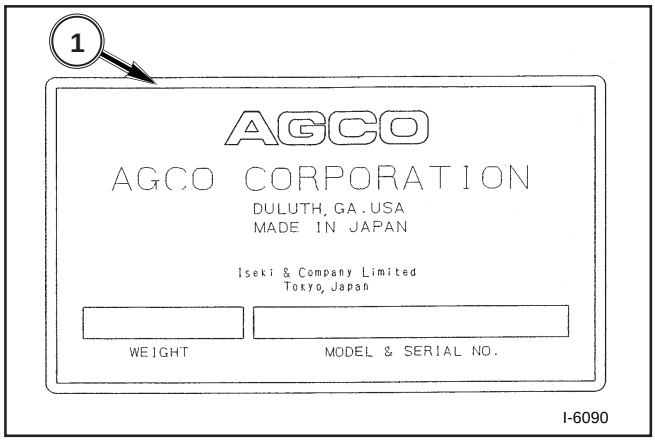


FIG. 2

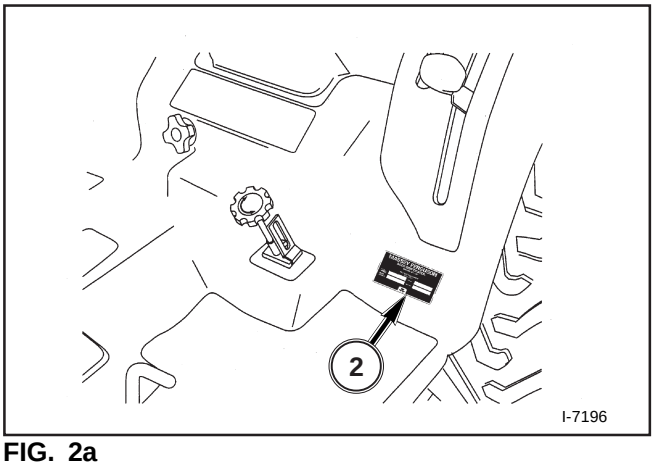


FIG. 2a

Chasis

FIG. 3: The chassis number is punched on the plate provided on the right-hand side of the chassis (1).

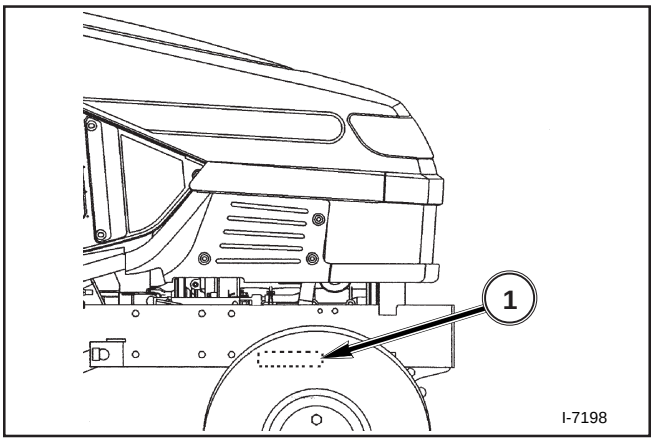


FIG. 3

Engine Model and Serial Number

FIG. 4: The engine model name (1) is cast into the left-hand side wall of the cylinder block.

The serial number (2) is punched into the left-hand side wall of the cylinder block.

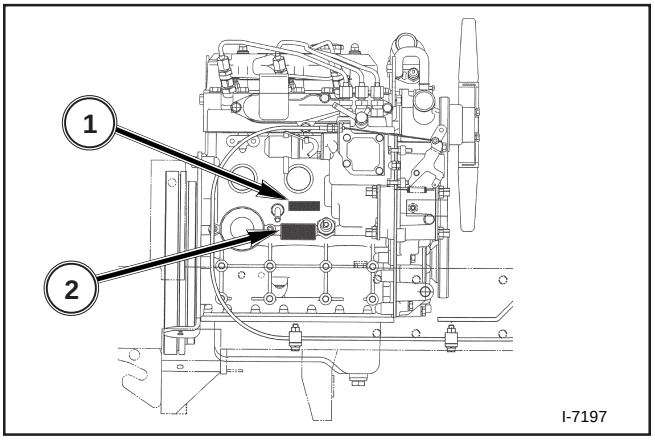


FIG. 4

Specifications

ENGINE		
Make		Iseki Diesel
Model		E3112-B12
Type		Indirect injection, overhead valve
Aspiration		Natural
Displacement		68.5 cu. in. (1123 cc)
Number of Cylinders		3
	Bore	3.08” (78.2 mm)
	Stroke	3.07” (78.2 mm)
Engine Horsepower (Gross)		22.5 HP (16.5kW) @ 2600 rpm
	Net	21.6 PS (15.9 kW) @ 2600 rpm
PTO Horsepower (Estimate)		17.5 @ PTO rpm
Firing Order		1-3-2
Compression Ratio		22.5 to 1
Low Idle Speed		1250 to 1300 rpm
High Idle Speed		2760 to 2860 rpm
Valve Clearance (Cold): Intake		0.010” (0.25 mm)
Exhaust		0.010” (0.25 mm)
Air Cleaner		Single stage, dry element
Engine cooling		Liquid, forced circulation
Cold Starting Aid		Glow plugs (3)

TRANSMISSION	
Primary	Hydrostatic
Range	2 speed constant mesh (2 forward, 2 reverse)
Clutch	None
Brakes	Mechanically actuated sealed wet disk

POWER TAKE-OFF (PTO)	
Type	Independent, engine driven
Control	Hydraulic control
Clutch	Mechanically engaged, multi-plate wet disk
Rear PTO; Shaft	1.375” (35mm) diameter, six spline
Output	Clockwise rotation
Engine Speed @ 540 PTO rpm	2532 rpm
Mid PTO; Shaft	1.000” (25.4) diameter, fifteen spline
Output	Clockwise rotation
Engine Speed @ 2100 PTO rpm	2476 rpm

HYDRAULICS		
Steering System		Hydrostatic (power)
	Pump	Transmission-mounted gear pump with flow divider
	Maximum Output	2.0 U.S. gals./min. (7.5 l/min.)
	Pressure	Relief valve setting 1209 psi (8335 kPa)
Main Hydraulic System		Transmission-mounted gear pump
Maximum Output		6.1 U.S. gals./min. (23.1 l/min.)
Pressure		Relief valve setting 1920 psi (13244 kPa)
Rear Linkage; Type		Three-point hitch
	Size	Category 1
Control		Position control
	Lift Capacity	1191 lbs. (540 kg) measured at ball ends

ELECTRICAL SYSTEM	
System Voltage	12 volt, negative (-) ground
Battery cca @ 0F (-18)	390 cca
Charging	40 amp alternator with internal regulator/rectifier

TREAD WIDTH SETTINGS		
Front 4WD		
	Ag. Tires (“Dished In” Only)	36.6” (930 mm)
	Turf Tires (“Dished In” Only)	36.6” (930 mm)
Rear 4WD		
	Ag. Tires (“Dished In “ Only)	33.1” (840 mm)
	Turf Tires (“Dished In” Only)	33.1” (840 mm)

MAXIMUM AXLE LOADING	
Front 4WD	1940 lbs (880 kg)
Rear Axle	2094 lbs. (950 kg)

TRANSMISSION & RELATED PARTS
AGRI TIRE (REVOLUTION OF SHAFTS)

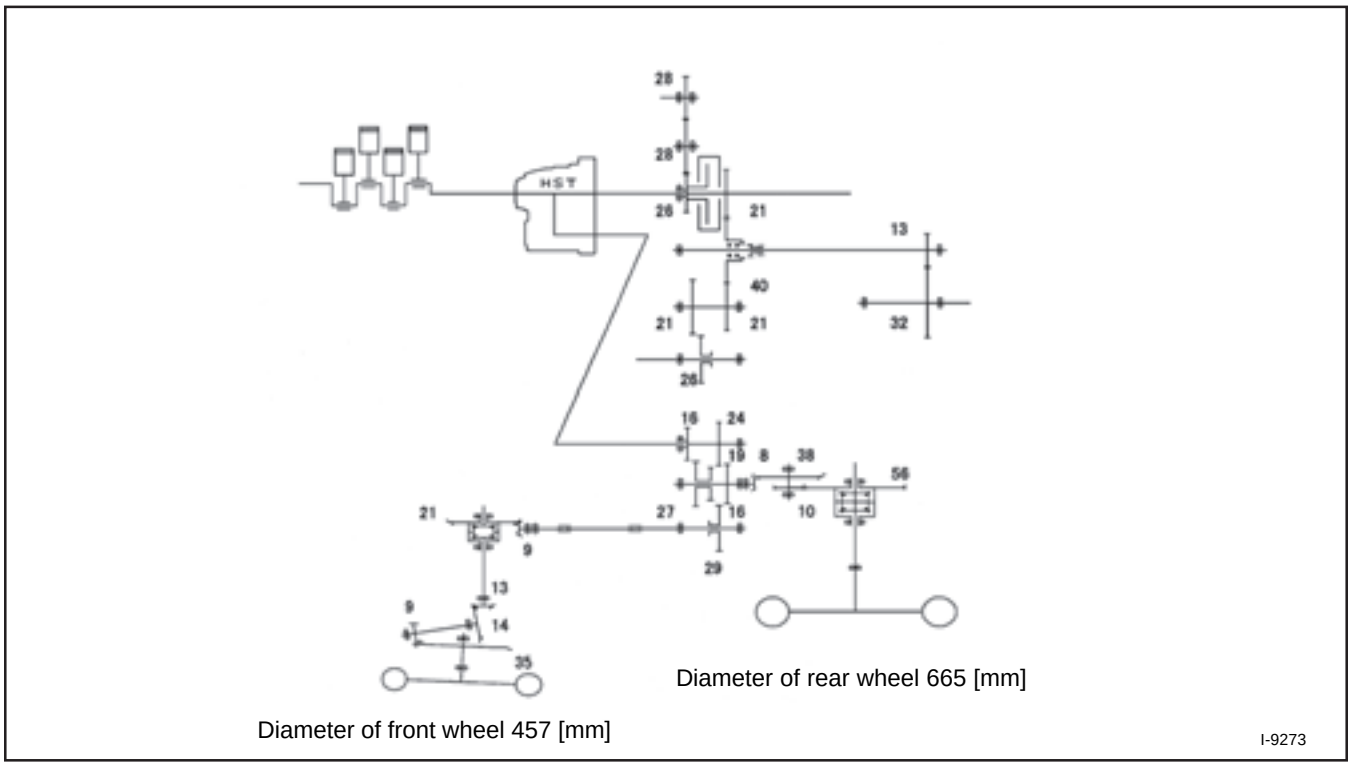


FIG. 5

FIG. 5: Drive Train Diagram shown.

Engine Speed [RPM]	2600
HST Pump Capacity (cc)	21.0
HST Motor Capacity (cc)	21.0
HST Volumetric Efficiency	95%

Drive System

		L	H
Input Shaft	RPM	2600	2600
HST Output Shaft	RPM	2470	2470
Drive Pinion	RPM	1463.70	3120
Wheel Pinion	RPM	308.15	656.84
Rear Wheel Shaft	RPM	55.03	117.29
Rear Wheel Speed	Km/h	6.90	14.70
Front Drive Shaft	RPM	807.56	1721.38
Front Ring Gear	RPM	346.10	737.73
Front Kingpin	RPM	321.38	685.04
Front Wheel Shaft	RPM	82.64	176.15
Front Wheel Speed	Km/h	7.12	15.17

PTO System

		Rear	Mid
Input Shaft	RPM	2600	2600
PTO Counter Shaft	RPM	1365	1365
Rear PTO Shaft	RPM	554.53	
Mid PTO Idle Gear	RPM		2600
Mid PTO Shaft	RPM		2100

Gear Pump System

Input Shaft	RPM	2600
Counter Gear	RPM	2414.29
Input SHaft	RPM	2414.29

NOTE: Front axle lead ratio is 3.12%.

TURF TIRE (REVOLUTION OF SHAFTS)

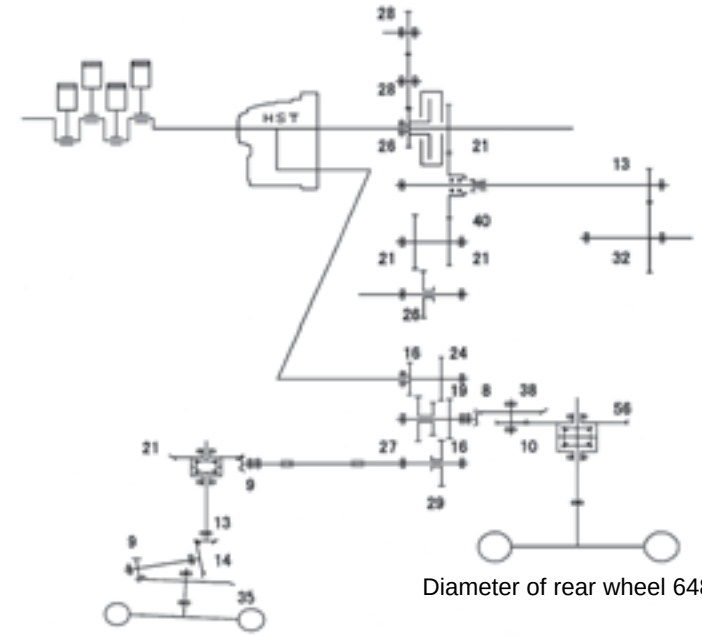


FIG. 6

FIG. 6 &7: Drive Train Diagram shown.

Engine Speed [RPM]	2600
HST Pump Capacity (cc)	21.0
HST Motor Capacity (cc)	21.0
HST Volumetric Efficiency (-)	0.95

Drive System

		L	H
Input Shaft	RPM	2600	2600
HST Output Shaft	RPM	2470	2470
Drive Pinion	RPM	1463.70	3120
Wheel Pinion	RPM	308.15	656.84
Rear Wheel Shaft	RPM	55.03	117.29
Rear Wheel Speed	Km/h	6.72	14.33
Front Drive Shaft	RPM	807.56	1721.38
Front Ring Gear	RPM	346.10	737.73
Front Kingpin	RPM	321.38	685.04
Front Wheel Shaft	RPM	82.64	176.15
Front Wheel Speed	Km/h	7.01	14.94

PTO System

		Rear	Mid
Input Shaft	RPM	2600	2600
PTO Counter Shaft	RPM	1365	1365
Rear PTO Shaft	RPM	554.53	
Mid PTO Idle Gear	RPM		2600
Mid PTO Shaft	RPM		2100

Gear Pump System

Input Shaft	RPM	2600
Counter Gear	RPM	2414.29
Input SHaft	RPM	2414.29

NOTE: Front axle Lead Ratio is 4.29 (%).

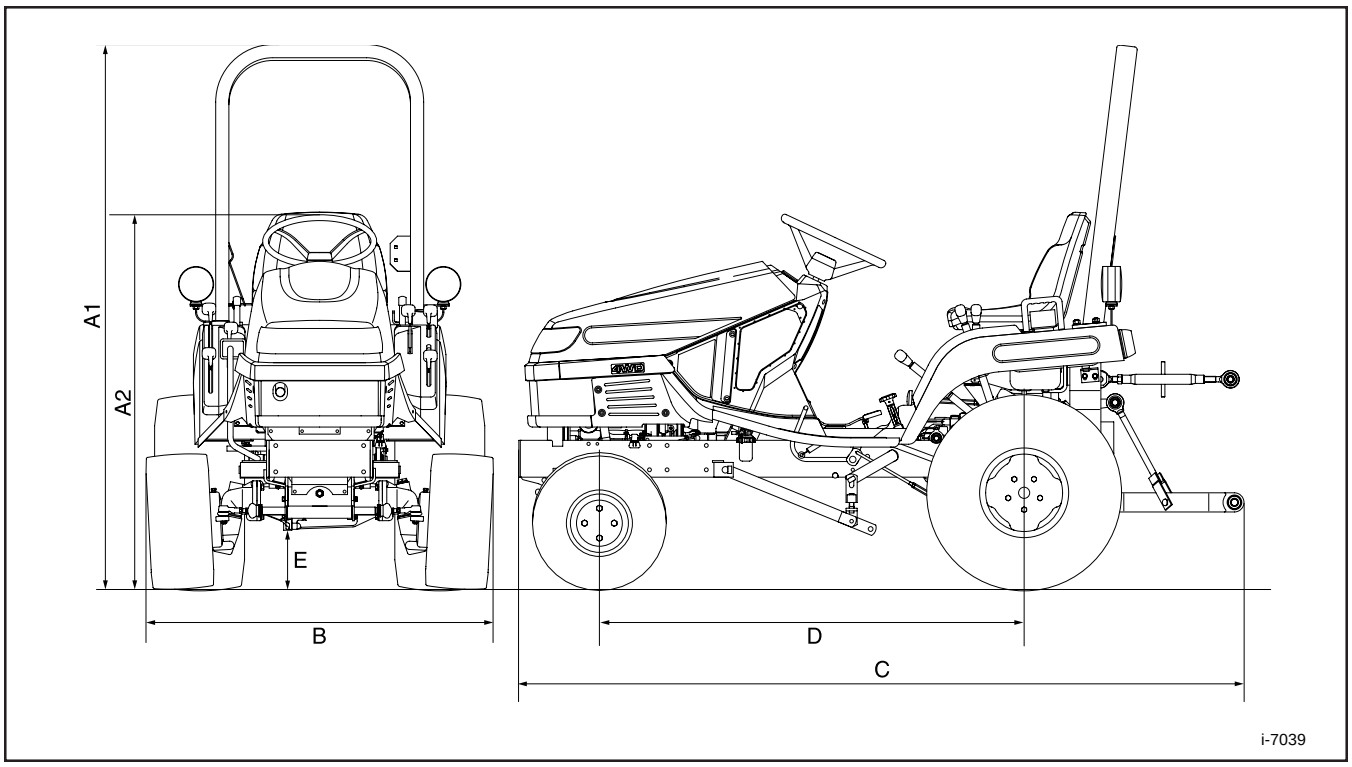


FIG. 7

		Ag. 4WD	Turf 4WD
A1	Overall Height ROPS	51.2” (1300 mm)	
A2	Height of Steering Wheel	72.4” (1840 mm)	
B	Overall Width	45.9” (1165 mm)	
C	Overall Length	97.6” (2480 mm)	
D	Wheelbase	57.1” (1450 mm)	
E	Min. Ground Clearance	6.9” (175 mm)	6.7” (170 mm)
	Turning Radius w/o Brake	100: (2550 mm)	
	Weight	1367 lbs. (620 kg)	

LUBRICATION & PERIODIC MAINTENANCE

SPECIFICATIONS & CAPACITIES

ENGINE OIL

Use the appropriate SAE viscosity. Oil must meet or exceed; MIL-L-46152 requirements, API Service “CC”.

Capacity (Crankcase and filter) ..... 2.7 U.S. qt. (2.6 liters)

Recommended Viscosity:

- 78° F (25°C) and Above ..... SAE 30 W, 10 W - 30
- 32° - 78° F (0° - 25° C) ..... SAE 20 W, 10 W - 30
- Below 32° F (0° C) ..... SAE 10 W, 10 W - 30
- 15 W - 40 may be used in ambient temperatures above 14° F (-10° C)

Recommended Change Intervals:

- Initial Oil and Filter Change ..... 50 hours
- Oil and Filter Change, Thereafter ..... Every 150 hours

Engine Coolant

Freezing Protection (Original Factory Fill) ..... -30° F (-34° C)

Recommended Coolant ..... 50/50 mixture ethylene glycol and water

System Capacity ..... 4.9 U.S. qts. (4.6 liters)

Fuel Tank

Capacity ..... 5.5 U.S. gals. (21 liters)

Fuel recommended, Above 39° F (4° C) ..... No. 2 or No. 2-D

Fuel recommended, Below 39° F (4° C) ..... No. 1 or No. 1-D

Transmission & Differential Housing (Including Hydraulic System)

Capacity - US qts. (liters): ..... 2.9 U.S. qals. (11.0 liters)

Recommended Lubricant ..... MF Permatran III®, AGCO 821XL or equivalent

Recommended Change Interval:` ..... First 50 hours, every 300 hours

Front Axle (4-WD Only)

Capacity ..... 4.2 U.S. qts (4.0 liters)

Recommended Change Lubricant ..... MF Permatran III®, AGCO 821XL or equivalent

Recommended Change Interval: ..... First 50 hours, every 600 hours thereafter

Grease Fittings

Grease Interval (All Fittings) ..... Every 50 hours

Recommended Grease ..... Lithium base grease No. 2

NOTE: Change intervals stated above are for normal usage. Due to adverse operating conditions that may be experienced (extremely dusty of muddy), change intervals may need to be more frequent.

PERIODIC MAINTENANCE SCHEDULE

Items marked (*) indicate initial service interval only. Subsequent (later) intervals marked “•”. Intervals above are for normal usage. Severe operating conditions (wet, dusty, etc.), or when previous servicing has indicated need for more frequent action, intervals may need to be more often.

MAINTENANCE SCHEDULE

Recommended Interval, Each						Item to Check	Action Required
Day	50 hr.	150 hr	200 hr	300 hr	Year		
•						All controls, switches	Inspect and repair
•						All fasteners, hardware	Check and tighten
•						Hoses, fan belt, wiring	Inspect and repair
	•					Grease fittings	Lubricate
•						Engine oil level	Check and replenish
	(*)	•				Engine oil & filter	Replace
•						Transmission oil level	Check and replenish
	(*)		•			Transmission oil & filter	Replace and clean
	•					Front axle oil level	Check and replenish
	(*)			•		Front axle oil	Replace
•						Air screens & radiator	Clean off debris
•						Radiator coolant level	Check and replenish
					•	Radiator coolant	Drain, flush & replace
•						Fan belt tension	Check and adjust
•						Air cleaner dust ejector	Clean
	•					Air cleaner element	Inspect, clean or replace
•						Fuel tank level	Fill
•						Fuel filter sediment bowl	Inspect and clean
				•		Fuel filter element	Replace and bleed
	•					Battery & cables	Check, clean & tighten
	•					Battery electrolyte level	Check and replenish
•						Light, flashers	Check and repair
•						Brake adjustment	Check and adjust
•						Tire pressure & condition	Check and adjust
•						Wheel bolt torque	Check and tighten
				•		Front wheel adjustment	Check and adjust
•						Steering free-play	Check and repair
				•		Front axle end-float	Check and adjust

Items marked (*) indicate initial service interval only. Subsequent (later) intervals marked "•". Intervals above are for normal usage. Severe operating conditions (wet, dusty, etc.), or when previous servicing has indicated need for more frequent action, intervals may need to be more often.

LUBRICATION AND FILL POINTS

FIG. 8: Filing points.

1. Engine Oil Level Gauge
2. 4WD Axle
3. Engine Oil
4. Coolant
5. Brake Pedal Linkage
6. Transmission Oil Check Window
7. Transmission Oil
8. Fuel
9. Lift Rod Turnbuckle

Ref.	Description	Type
A.	Crankcase	Engine Oil
B.	Engine Radiator	Engine Coolant
C.	Fuel Tank	Diesel Fuel
D.	Rear Housing	Hydraulic Oil
E.	4WD Axle	Hydraulic Oil
F.	Brake Pivots	Grease
G.	Leveling Turnbuckle	Grease

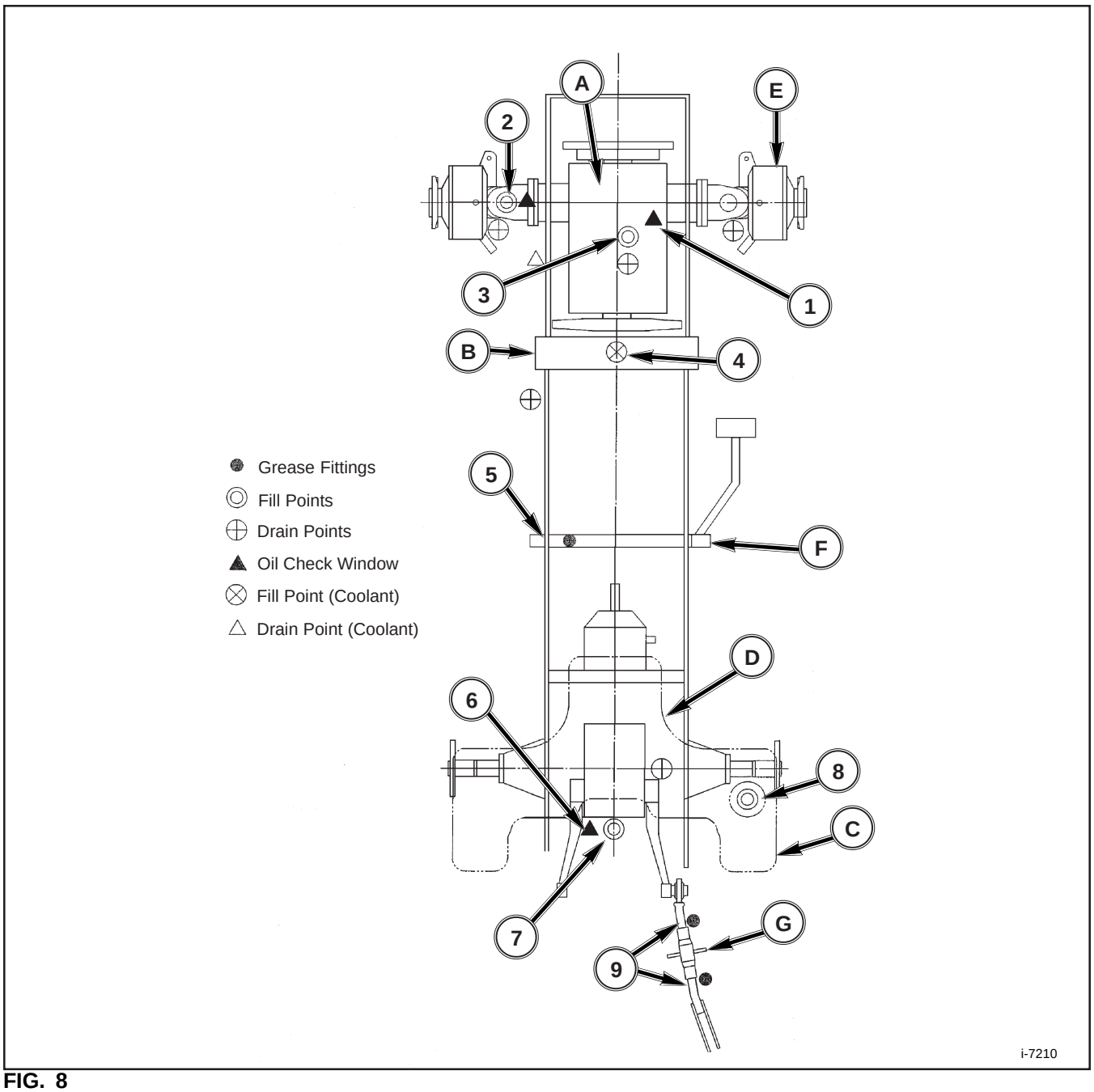


FIG. 8

STANDARD TORQUE CHART

TORQUE CHART FOR METRIC FASTENERS (ZINC COATED)						
Nominal Size in mm	Strength Class- ISO 4.6 (4T)		Strength Class- ISO 8.8 (7T)		Strength Class- ISO 10.9 (9T)	
	Torque Nm (lbf ft)		Torque Nm (lbf ft)		Torque Nm (lbf ft)	
	Min.	Max.	Min.	Max.	Min.	Max.
M3	0.5 (0.3)	0.7 (0.5)	1.3 (0.9)	1.7 (1.3)	1.8 (1.3)	2.4 (1.8)
M4	1.2 (0.9)	1.6 (1.2)	3.1 (2.3)	4.1 (3.0)	4.3 (3.2)	5.7 (4.2)
M5	2.2 (1.6)	3.0 (2.2)	6.0 (4.4)	8.0 (5.9)	8.5 (6.3)	1.5 (8.5)
M6	4.0 (2.9)	5.0 (3.7)	10 (7.4)	14 (10.3)	14 (10.3)	20 (14.8)
M8	9.5 (7.0)	12.5 (9.2)	25 (18.4)	35 (26)	36 (26)	46 (34)
M10	19 (14)	25 (18)	50 (37)	70 (52)	72 (53)	96 (71)
M12	33 (24)	43 (32)	90 (66)	120 (89)	120 (89)	160 (118)
M16	84 (62)	110 (81)	200 (148)	260 (192)	300 (221)	40 (295)
M20	160 (118)	210 (155)	420 (310)	560 (413)	600 (443)	800 (590)
M24	280 (207)	360 (266)	720 (531)	860 (634)	1000 (738)	1300 (959)
M30	540 (398)	720 (531)	1400 (1033)	1800 (1328)	2100 (1549)	2800 (2065)
M36	950 (700)	1250 (922)	2500 (1844)	3300 (2434)	3600 (2655)	4800 (3540)

TORQUE CHART FOR INCH FASTENERS (ZINC COATED)						
Nominal Size	Strength Class- GRADE 2		Strength Class- GRADE 5		Strength Class- GRADE 8	
	Torque Nm (lbf ft)		Torque Nm (lbf ft)		Torque Nm (lbf ft)	
	Min.	Max.	Min.	Max.	Min.	Max.
1/4	6.8 (5)	8.1 (6)	10.8 (8)	15 (11)	16.2 (12)	21.7 (16)
5/16	13.5 (10)	16.2 (12)	22 (16)	30 (22)	31 (23)	42 (31)
3/8	24 (18)	28 (21)	39 (29)	53 (39)	56 (41)	75 (55)
7/16	41 (30)	46 (34)	64 (47)	85 (63)	91 (67)	121 (89)
1/2	61 (45)	70 (52)	99 (73)	131 (97)	140 (103)	185 (137)
5/8	122 (90)	142 (105)	198 (146)	263 (194)	279 (206)	371 (274)
3/4	217 (160)	250 (185)	350 (258)	464 (342)	495 (365)	658 (485)
7/8	-	-	569 (420)	759 (560)	800 (590)	1071 (790)
1	-	-	847 (625)	1119 (825)	1200 (885)	1580 (1165)
1-1/8	-	-	1051 (775)	1390 (1025)	1681 (1240)	2224 (1640)
1-1/4	-	-	1491 (1100)	1966 (1450)	2386 (1760)	3159 (2330)
1-1/2	-	-	2576 (1900)	3390 (2500)	4121 (3040)	5437 (4010)

NOTE: Above torques are for "rigid" joints, or joints meeting the following conditions:

1. Damage will not occur to joined members of an assembly.

2. It is desirable to use a higher clamping force.

3. Fastener threads are NOT lubricated prior to assembly.

The following conditions will require a torque value different than stated above:

1. Reduced torque required; non-parallel clamping surfaces, thick or highly compressible gaskets are used, or when a higher torque may damage joined assemblies.
2. Clip nuts, weld nuts, self-tapping hardware, or any condition that causes reduced thread engagement will warrant a torque less than stated above.
3. Special torque values, stated in this manual, must be strictly adhered to as stated in the specific operation.

NOTE: A number of special torques are used in assembly of tractors. See list.

SEALANT & ADHESIVES

Sealant and adhesives quoted in this workshop service manual are listed below.

NOTE: Where use of a specific sealant or retaining compound is required, this recommendation will be listed in the relevant operation. It should be understood that additional requirements are normally considered normal workshop practice. For example; use of gasket sealant on gaskets (unless specified otherwise), sealing of tapered (pipe) threads, lubrication of seals/o-rings.

Description	Three-Bond® Product	North American Equivalent	European Equivalent
Gasket Spray	-	Univ. Gasket Sealant - 1904 865 M2	Hylomar - 1861 152
Gasket Compound	-	Permatex Compound - ***	Hylomar - 1861 117
Retaining Compound	TB 1305	Loctite 271 - ***	Loctite 271 - ***
Retaining Compound	TB 1379B	Loctite 277 - ***	Loctite 275 - ***
Retaining Compound	TB 1303B	Retaining Compound - 1904 886 M2 Loctite 609 (formerly 601)	Loctite 601 - ***
Gasket Eliminator	TB 1104	-Tube - 1904 888 M2 Gasket -50 ml - 3303 226 M1 Eliminator -300 ml - 841 742 M1	-
Instant Gasket	TB 1215	-	Loctite 515
For threaded bolts installed in tapped through holes	TB 1104	-	-
Silicone Sealant (RTV)	TB 1211	Silicone RTV - 1904 889 M2 Dow Corning RTV - ***	-
Pipe Sealant	TB 1130	Pipe Sealant - 1904 887 M2 Loctite Hydraulic Sealant - *** Loctite PST - ***	Loctite 572 - ***

Loctite 572 - ***

* As available through AGCO/Massey Ferguson Parts in United States and Canada.

** As available through Central Parts Operation, Massey Ferguson Urmston Manchester.

***As available through local retail outlets under brand/type indicated. Equivalent substitutes may be used.

Three-Bond Sealants are available at the following address:

Three-Bond U.S.A. Inc. Detroit Branch

2000 Town Center Suite 1480

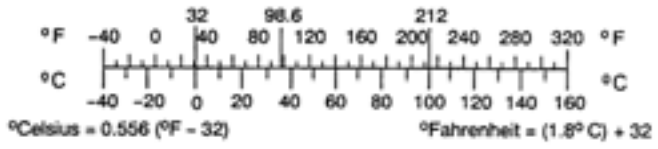
Southfield, MI 48075

Telephone: 313-353-2225

CONVERSION TABLES

	MULTIPLY:	BY:		To Get: MULTIPLY	BY:		To Get:
LINEAR	inches	x 25.4	=	millimeters (mm)	x 0.03937	=	inches
	feet	x 0.3048	=	meters (m)	x 3.281	=	feet
	yards	x 0.9144	=	meters (m)	x 1.0936	=	yards
	miles	x 1.6093	=	kilometers (km)	x 0.6214	=	miles
	inches	x 2.54	=	centimeters (cm)	x 0.3937	=	inches
	microinches	x 0.0254	=	micrometers (um)	x 39.37	=	microinches
AREA	inches²	x 645.16	=	millimeters² (mm²)	x 0.00155	=	inches²
	inches²	x 6.4516	=	centimeters² (cm²)	x 0.155	=	inches²
	feet²	x 0.0929	=	meters² (m²)	x 10.764	=	feet²
	yards²	x 0.8361	=	meters² (m²)	x 1.196	=	yards²
	acres	x 0.4047	=	hectometers² (hm²)	x 2.471	=	acres
			=	hectares (ha)			
VOLUME	inches³	x 16387	=	millimeters³ (mm³)	x 0.000061	=	inches³
	inches³	x 16.387	=	centimeters³ (cm³)	x 0.06102	=	inches³
	inches³	x 0.01639	=	liters	x 61.024	=	inches³
	quarts	x 0.94635	=	liters	x 1.0567	=	quarts
	gallons	x 3.7854	=	liters	x 0.2642	=	gallons
	feet³	x 28.317	=	liters	x 0.03531	=	feet³
	feet³	x 0.02832	=	meters³ (m³)	x 35.315	=	feet³
	fluid oz.	x 29.57	=	milliliters (ml)	x 0.03381	=	fluid oz.
	yards³	x 0.7646	=	meters³ (m³)	x 1.3080	=	yards³
	teaspoons	x 4.929	=	milliliters (ml)	x 0.2029	=	teaspoons
	cups	x 0.2366	=	liters	x 4.227	=	cups
	bushel	x 35.239	=	liters	x 0.02838	=	bushels
	bushel	x 0.03524	=	meters³ (m³)	x 28.378	=	bushels
MASS	ounces (av)	x 28.35	=	grams (g)	x 0.03527	=	ounces (av)
	pounds (av)	x 0.4536	=	kilograms (kg)	x 2.2046	=	pounds (av)
	tons (2000 lbs)	x 907.18	=	kilograms (kg)	x 0.001102	=	tons (2000 lbs)
	tons (2000 lbs)	x .90718	=	metric tons(t)	x 1.1023	=	tons(2000 lbs)
	tons (long) (2240 lbs)	x 1016.05	=	kilograms (kg)	x .000984	=	tons (long) (2240 lbs)
FORCE	ounces - f (av)	x 0.278	=	newtons (N)	x 3.597	=	ounces - f (av)
	pounds - f (av)	x 4.488	=	newtons (N)	x 0.2248	=	pounds - f (av)
	kilograms - f	x 9.807	=	newtons (N)	x 0.10197	=	kilograms - f
PRESSURE OR STRESS	pounds/sq.in.	x 6.895	=	kilopascals (kPa)	x 0.145	=	pounds/sq. in.
	pounds/sq.in.	x 0.0689	=	bar	x 14.503	=	pounds/sq. in.
POWER	horsepower	x 0.746	=	kilowatts (kW)	x 1.34	=	horsepower
	ft-lbf/min.	x 0.0226	=	watts (W)	x 44.25	=	ft - lbf/min.
TORQUE	pound - inches	x 0.11298	=	newton-meters (N.m)	x 8.851	=	pound-inches
	pound - feet	x 1.3558	=	newton-meters (N.m)	x 0.7376	=	pound-feet
VELOCITY	miles/hour	x 1.6093	=	kilometers/hour (km/h)	x 0.6214	=	miles/hour
	feet/sec.	x 0.3048	=	meters/sec. (m/s)	x 3.281	=	feet/sec.
	kilometers/hr.	x 0.27778	=	meters/sec. (m/s)	x 3.600	=	kilometers/hr.
	miles/hours	x 0.4470	=	meters/sec. (m/s)	x 2.237	=	miles/hour

TEMPERATURE



MetConv.doc

INCHES	DECIMALS	MILLI-METERS	INCHES TO MILLIMETERS		MILLIMETERS TO INCHES		FARENHEIT & CENTIGRADE			
			In.	mm.	mm.	In.	° F	° C	° C	° F
1/64	.015625	.3969	.0001	.00254	.001	.000039	-20	-28.9	-30	-22
1/32	.03125	.7937	.0002	.00508	.002	.000079	–15	–26.1	–28	–18.4
3/64	.046875	1.1906	.0003	.00762	.003	.000118	–10	–23.3	–26	–14.8
1/16	.0625	1.5875	.0004	.01016	.004	.000157	–5	–20.6	–24	–11.2
5/64	.078125	1.9844	.0005	.01270	.005	.000197	0	–17.8	–22	–7.6
3/32	.09375	2.3812	.0006	.01524	.006	.000236	1	–17.2	–20	–4
7/64	.109375	2.7781	.0007	.01778	.007	.000276	2	–16.7	–18	–0.4
1/8	.125	3.1750	.0008	.02032	.008	.000315	3	–16.1	–16	3.2
9/64	.140625	3.5719	.0009	.02286	.009	.000354	4	–15.6	–14	6.8
5/32	.15625	3.9687	.001	.0254	.01	.00039	5	–15.0	–12	10.4
11/64	.171875	4.3656	.002	.0508	.02	.00079	10	–12.2	–10	14
3/16	.1875	4.7625	.003	.0762	.03	.00118	15	–9.4	–8	17.6
13/64	.203125	5.1594	.004	.1016	.04	.00157	20	–6.7	–6	21.2
7/32	.21875	5.5562	.005	.1270	.05	.00197	25	–3.9	–4	24.8
15/64	.234375	5.9531	.006	.1524	.06	.00236	30	–1.1	–2	28.4
1/4	.25	6.3500	.007	.1778	.07	.00276	35	1.7	0	32
17/64	.265625	6.7469	.008	.2032	.08	.00315	40	4.4	2	35.6
9/32	.28125	7.1437	.009	.2286	.09	.00354	45	7.2	4	39.2
19/64	.296875	7.5406	.01	.254	.1	.00394	50	10.0	6	42.8
5/16	.3125	7.9375	.02	.508	.2	.00787	55	12.8	8	46.4
21/64	.328125	8.3344	.03	.762	.3	.01181	60	15.6	10	50
11/32	.34375	8.7312	.04	1.016	.4	.01575	65	18.3	12	53.6
23/64	.359375	9.1281	.05	1.270	.5	.01969	70	21.1	14	57.2
3/8	.375	9.5250	.06	1.524	.6	.02362	75	23.9	16	60.8
25/64	.390625	9.9219	.07	1.778	.7	.02756	80	26.7	18	64.4
13/32	.40625	10.3187	.08	2.032	.8	.03150	85	29.4	20	68
27/64	.421875	10.7156	.09	2.286	.9	.03543	90	32.2	22	71.6
7/16	.4375	11.1125	.1	2.54	1	.03937	95	35.0	24	75.2
29/64	.453125	11.5094	.2	5.08	2	.07874	100	37.8	26	78.8
15/32	.46875	11.9062	.3	7.62	3	.11811	105	40.6	28	82.4
31/64	.484375	12.3031	.4	10.16	4	.15748	110	43.3	30	86
1/2	.5	12.7000	.5	12.70	5	.19685	115	46.1	32	89.6
33/64	.515625	13.0969	.6	15.24	6	.23622	120	48.9	34	93.2
17/32	.53125	13.4937	.7	17.78	7	.27559	125	51.7	36	96.8
35/64	.546875	13.8906	.8	20.32	8	.31496	130	54.4	38	100.4
9/16	.5625	14.2875	.9	22.86	9	.35433	135	57.2	40	104
37/64	.578125	14.6844	1	25.4	10	.39370	140	60.0	42	107.6
19/32	.59375	15.0812	2	50.8	11	.43307	145	62.8	44	112.2
39/64	.609375	15.4781	3	76.2	12	.47244	150	65.6	46	114.8
5/8	.625	15.8750	4	101.6	13	.51181	155	68.3	48	118.4
41/64	.640625	16.2719	5	127.0	14	.55118	160	71.1	50	122
21/32	.65625	16.6687	6	152.4	15	.59055	165	73.9	52	125.6
43/64	.671875	17.0656	7	177.8	16	.62992	170	76.7	54	129.2
11/16	.6875	17.4625	8	203.2	17	.66929	175	79.4	56	132.8
45/64	.703125	17.8594	9	228.6	18	.70866	180	82.2	58	136.4
23/32	.71875	18.2562	10	254.0	19	.74803	185	85.0	60	140
47/64	.734375	18.6531	11	279.4	20	.78740	190	87.8	62	143.6
3/4	.75	19.0500	12	304.8	21	.82677	195	90.6	64	147.2
49/64	.765625	19.4469	13	330.2	22	.86614	200	93.3	66	150.8
25/32	.78125	19.8437	14	355.6	23	.90551	205	96.1	68	154.4
51/64	.796875	20.2406	15	381.0	24	.94480	210	98.9	70	158
13/16	.8125	20.6375	16	406.4	25	.98425	212	100.0	75	167
53/64	.828125	21.0344	17	431.8	26	1.02362	215	101.7	80	176
27/32	.84375	21.4312	18	457.2	27	1.06299	220	104.4	85	185
55/64	.859375	21.8281	19	482.6	28	1.10236	225	107.2	90	194
7/8	.875	22.2250	20	508.0	29	1.14173	230	110.0	95	203
57/64	.890625	22.6219	21	533.4	30	1.18110	235	112.8	100	212
29/32	.90625	23.0187	22	550.8	31	1.22047	240	115.6	105	221
59/64	.921875	23.4156	23	584.2	32	1.25984	245	118.3	110	230
15/16	.9375	23.8125	24	609.6	33	1.29921	250	121.1	115	239
61/64	.953125	24.2094	25	635.0	34	1.33858				
31/32	.96875	24.4062	26	660.4	35	1.37795				
63/64	.984375	25.0031			36	1.41732				
					37	1.45669				
					38	1.49606				
					39	1.53543				
					40	1.57480				

CHASSIS
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CHASSIS

ROPS

Removal

FIGS. 1 and 2: Disconnect wire harness of blinker and wire harness of taillight on both sides.

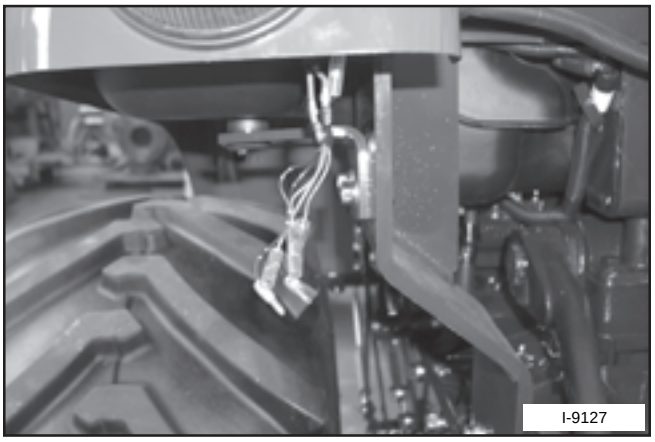

FIG. 1

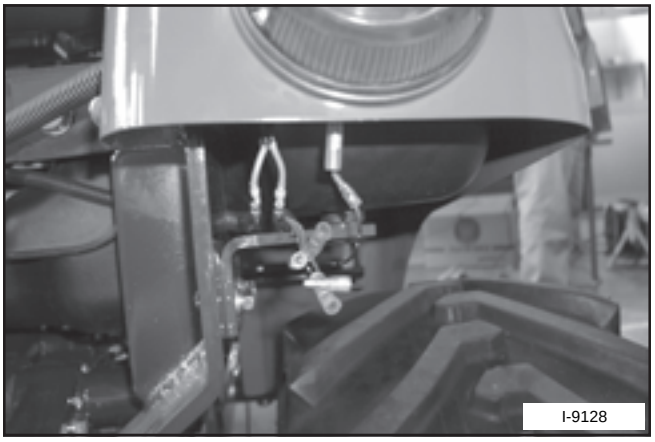

FIG. 2

FIGS. 3 and 4: Remove the nuts (1) and lockwashers securing the ROPS frame to the fender. Remove ROPS assembly.

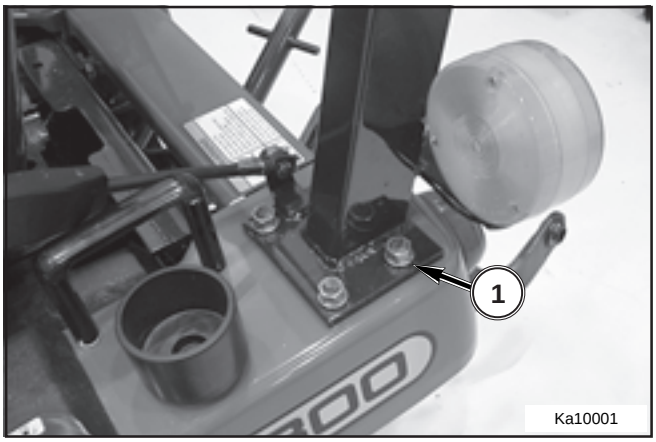

FIG. 3

FIG. 4

Assembly

FIG. 5: Assemble in reverse order.

Tighten ROPS securing hardware to 90-110 ft lbs (12.5-15kgf).

Check to ensure that the seat belts are securely attached to the brackets (1).

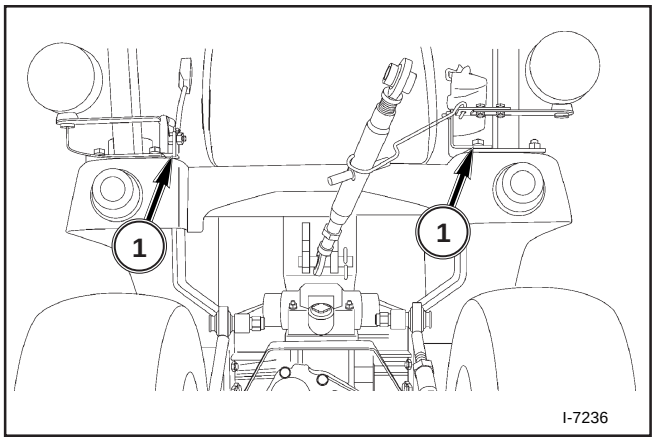

FIG. 5

PLATFORM AND SHEET METAL

Removal

FIGS. 6 and 7: Open the engine hood.

Remove the screws retaining the steering column cowling. Remove the knob from the throttle lever. Removing the cowling from both sides.

FIG. 6

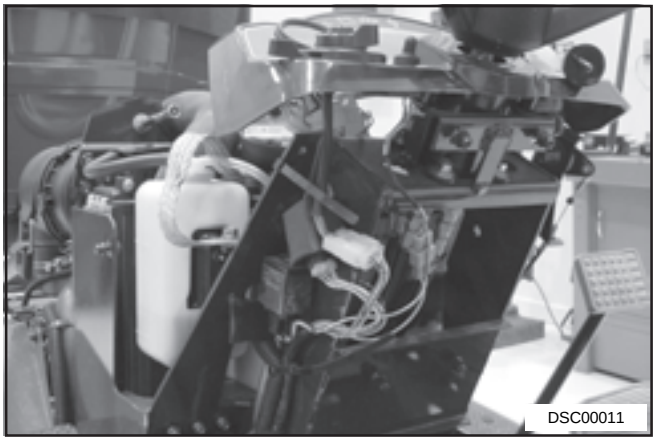

FIG. 7

FIG. 8: Remove the side screens from both sides of the tractor.

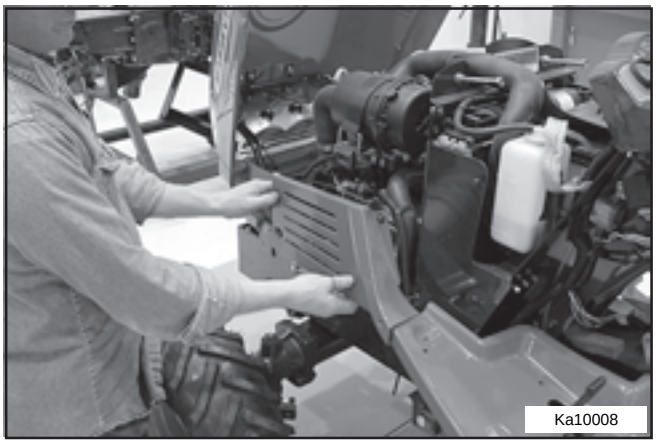

FIG. 8

FIG. 9: Remove the bolts securing the HST pedal.

FIG. 9

FIGS. 10 and 11: Remove the roll pin (1) securing the cutting height knob and remove the knob.

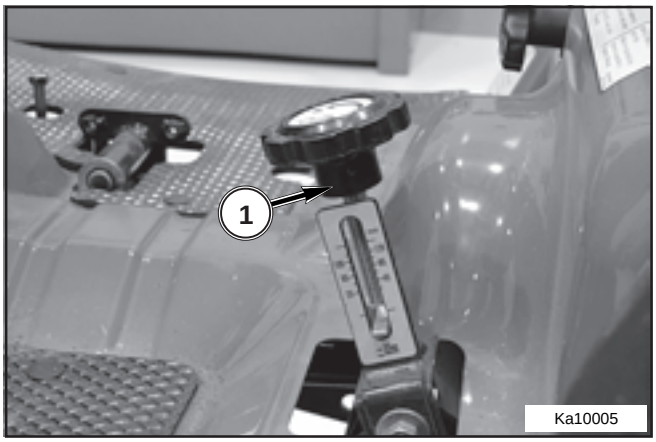

FIG. 10

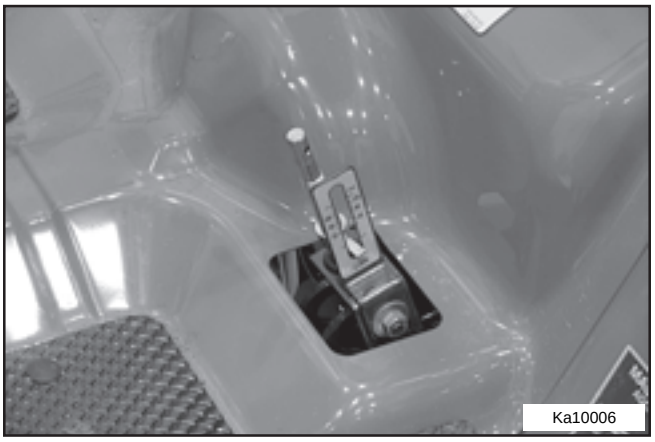

FIG. 11

FIG. 12: Remove the screw retaining the slow return knob.

FIG. 12

FIG. 13: Remove the screws retaining the relays on the steering column.

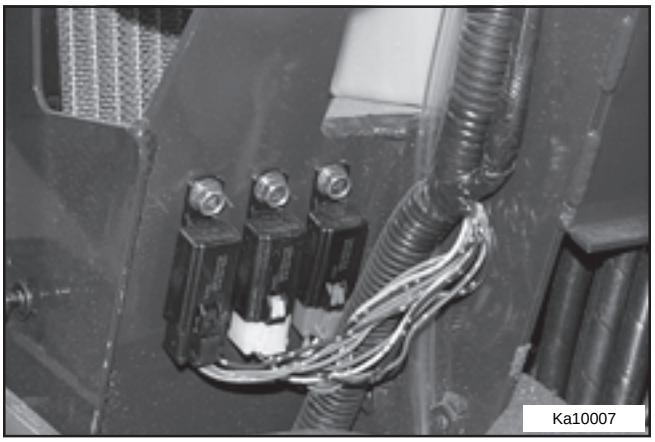

FIG. 13

FIG. 14: Disconnect harness from seat switch. Remove the seat by removing the pivot pins securing the seat to the seat suspension

FIG. 14

FIGS. 15 and 16: Remove the floor mat and remove the bolts retaining platform to the frame. Remove the platform carefully.

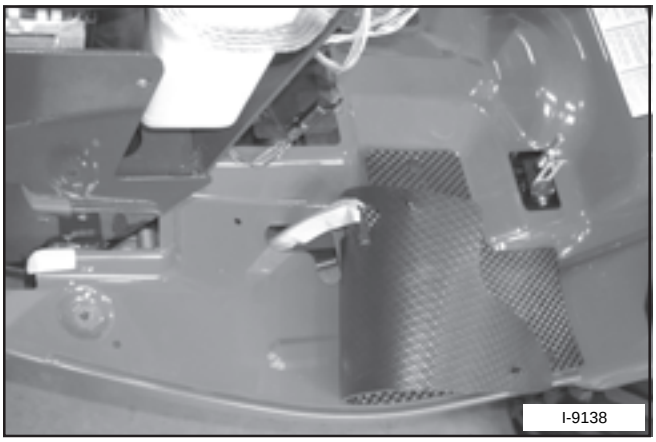

FIG. 15

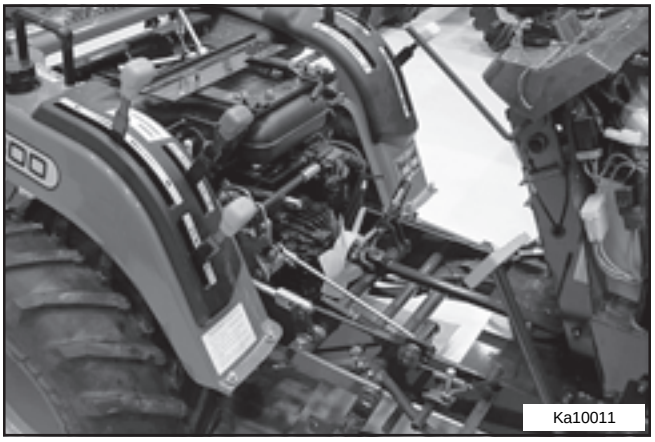

FIG. 16

FIG. 17: Remove the knobs from the levers located on both fenders.

FIG. 17

FIGS. 18 and 19: Unplug the wire harness going to the rear lights. Unclamp the wire harness retainer and fuel line from the rear cover. Remove the rear cover (1) from between the fenders.

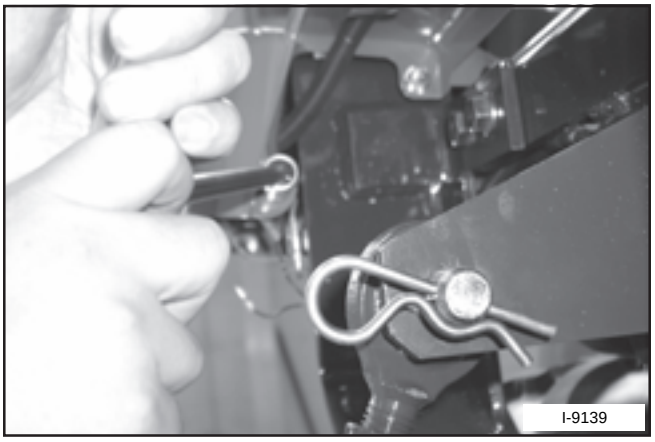

FIG. 18

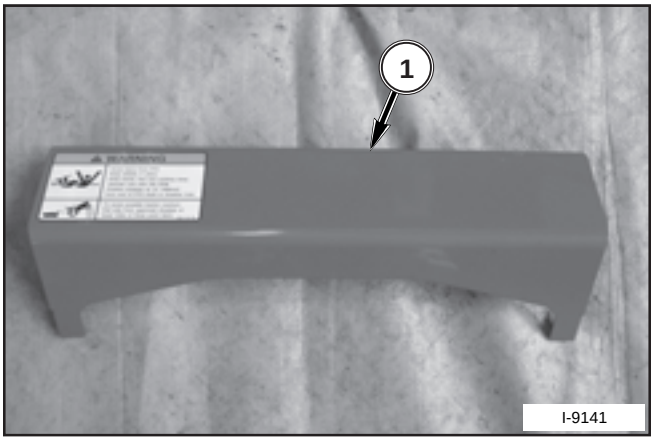

FIG. 19

FIG. 20: Remove the fenders.

Reassembly

Reinstall in reverse order of removal.

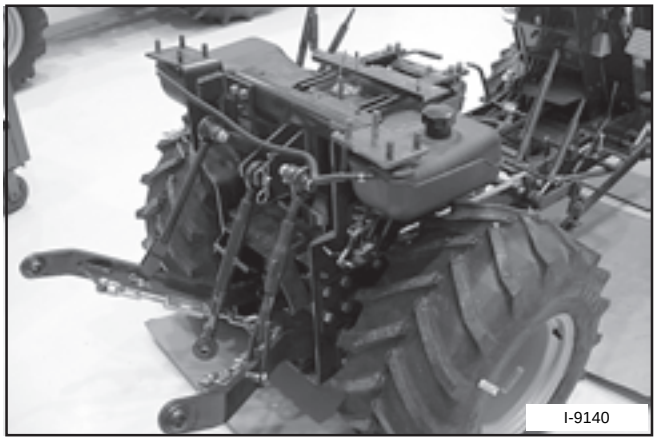

FIG. 20

FUEL TANK

Removal

FIG. 21: Remove the steering wheel cowling, ROPS, platform, seat and fenders. Remove the top link (1). Disconnect the lift arms from the rocker arm (2).

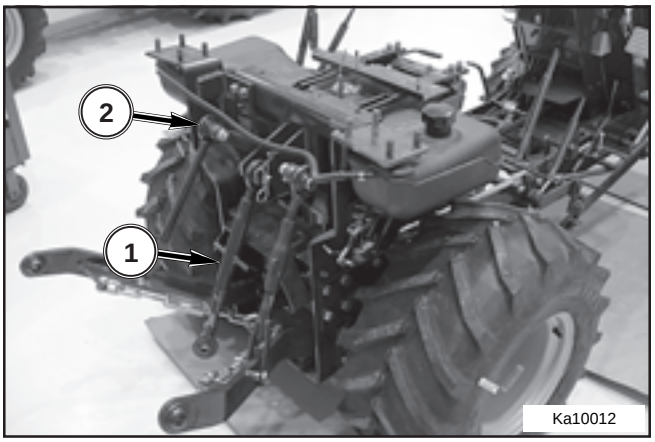

FIG. 21

FIG. 22: Remove the seat support assembly.

FIG. 22

FIG. 23: Drain the fuel from the fuel tank at the fuel sediment bowl. Disconnect and plug the supply and return lines from the fuel tank.

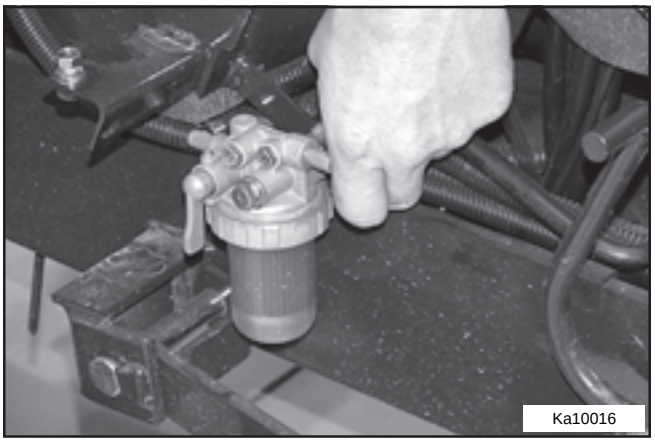

FIG. 23

FIG. 24: Loosen fuel tank support brackets from both sides of the fuel tank.

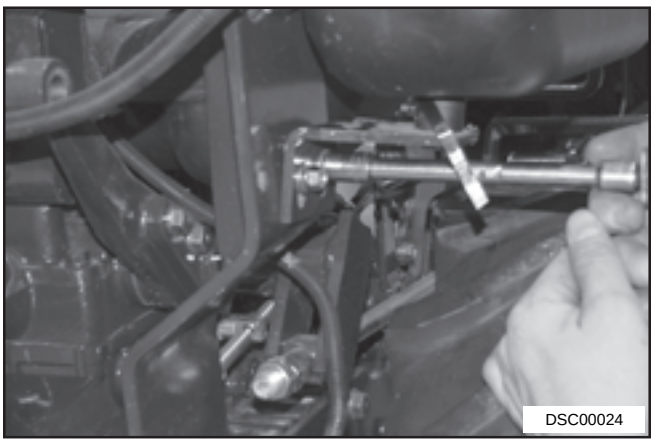

FIG. 24

FIG. 25: Remove the 3 point support frame as an assembly.

FIG. 25

FIG. 26: Disconnect the wire harness at the fuel sending unit (1). Loosen the hardware supporting the front of the fuel tank.

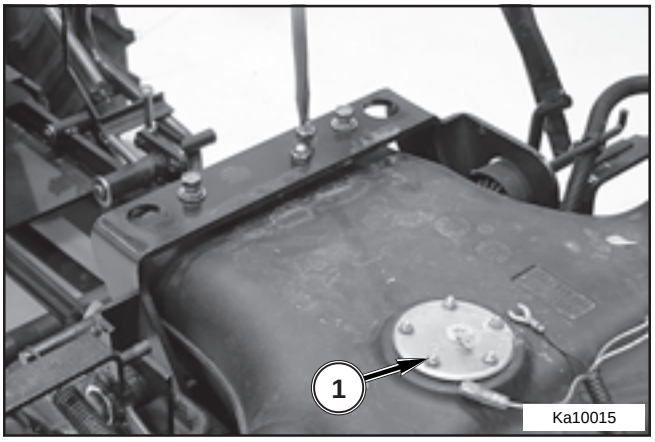

FIG. 26

FIGS. 27 and 28: Remove the fuel tank.

Reassembly

Install the fuel tank in reverse order of disassembly. Be sure seat belt is properly installed and the ROPS hardware properly tightened.

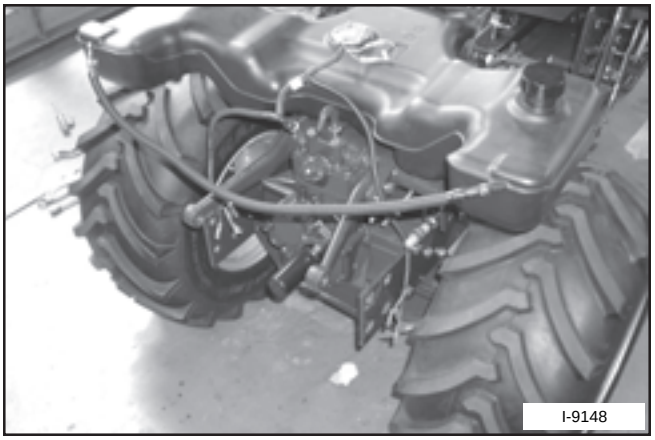

FIG. 27

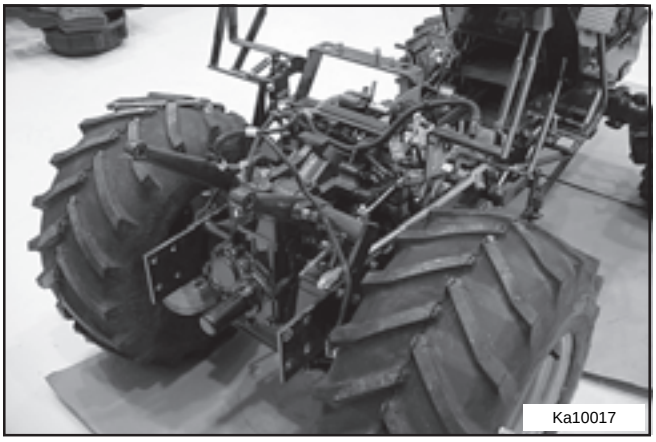

FIG. 28

FRONT AXLE

Removal

FIG. 29: Remove the fill plug from the top of the front axle. Remove the drain plug (1) from both sides of the front axle and drain the oil.

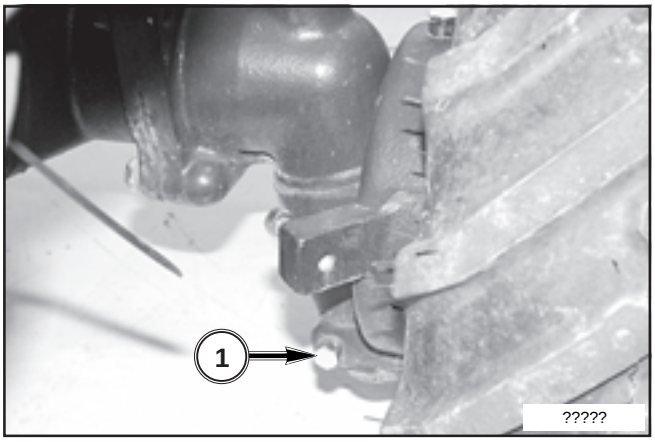

FIG. 29

FIGS. 30 thru 32: Remove the bolt (1) securing the front axle drive shaft shield to the front axle. Slide the front axle shield rearwards to expose the u-joint at the front of the drive shaft. Remove the bolt (2) securing the u-joint to the front axle input shaft and slide the u-joint rearwards. Remove the front axle drive shaft.

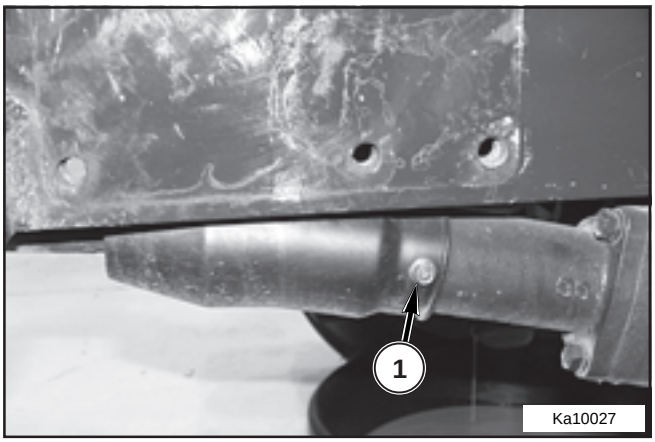

FIG. 30

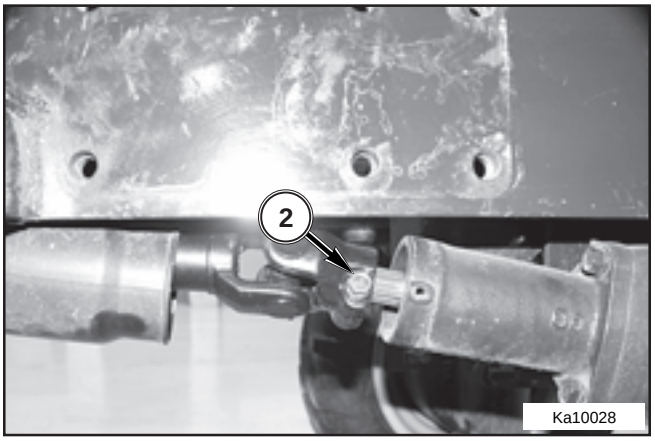

FIG. 31

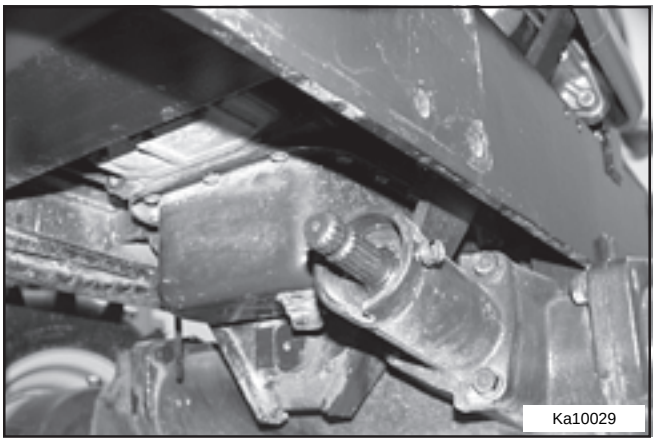

FIG. 32

FIG. 33: Remove the cotter pin, castle nut and washer from the front of the axle pivot pin.

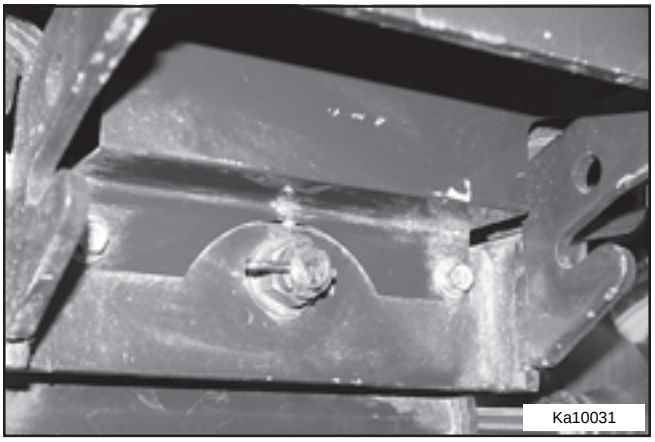

FIG. 33

FIG. 34: Raise up the front of the tractor up a 2-3 inches (5-8 cm) and support the tractor with a suitable jack stand.

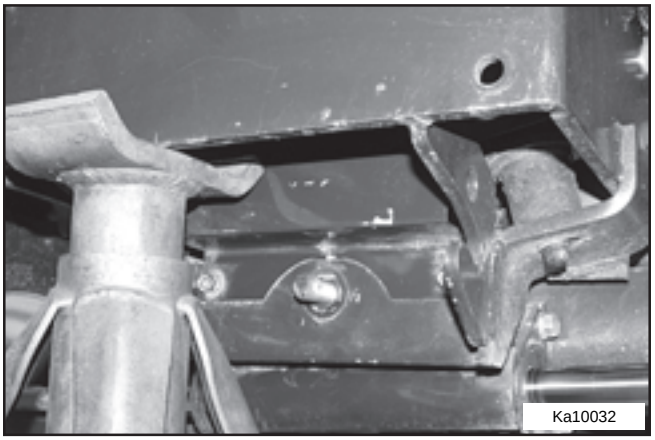

FIG. 34

FIG. 35: Drive the pivot pin (1) rearwards until the axle is free from the tractor.

NOTE: Take precautions to avoid damaging the threads on the pivot pin. Avoid stretching the steering cylinder hoses.

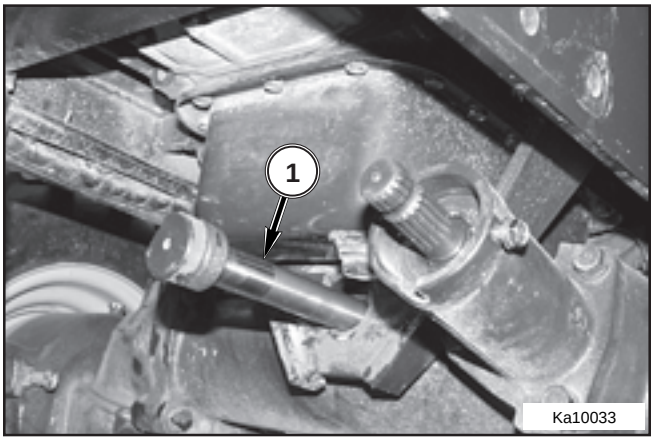

FIG. 35

FIG. 36: Disconnect the two hoses connected to the steering cylinder. Mark the hoses prior to removal to aid in assembly. Support the front axle, remove the front wheels and slide the front axle out from under the tractor.

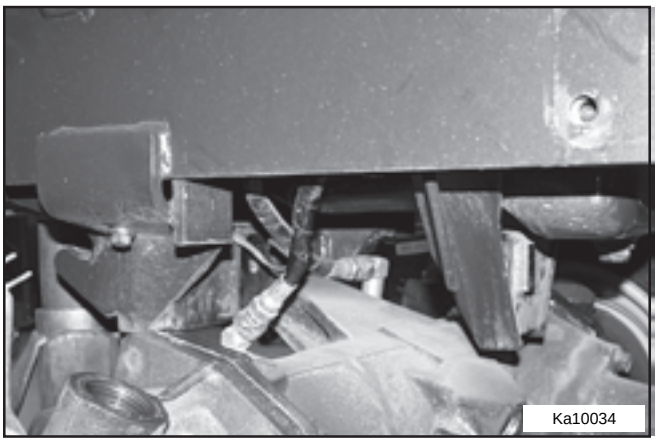

FIG. 36