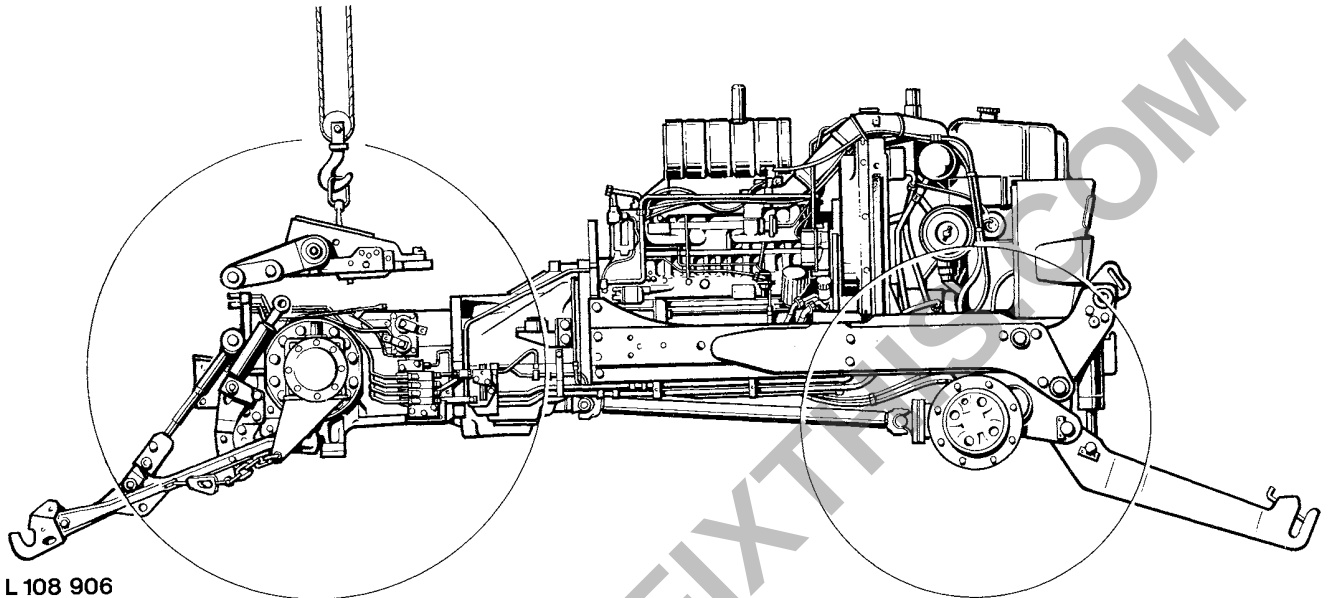


REMOVING ROCKSHAFT



L108906-LA71025AE-260385

REMOVING SOUND-GARD BODY OR ROLL-GARD

Refer to "Removing SOUND-GARD Body or ROLL-GARD."

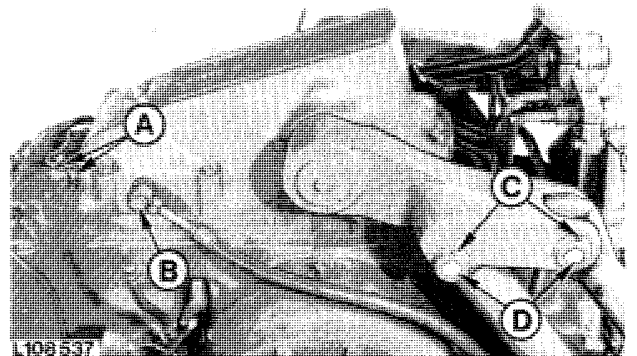
Disconnect battery ground straps.



L108550-LA91025CE-121285

DISCONNECTING LEFT-HAND ROCKSHAFT LIFT CYLINDER

Disconnect start safety switch cable (A).
Remove hollow bolt (B) and pressure hose.
Drive out spring pins (C) and then pull out pins (D).



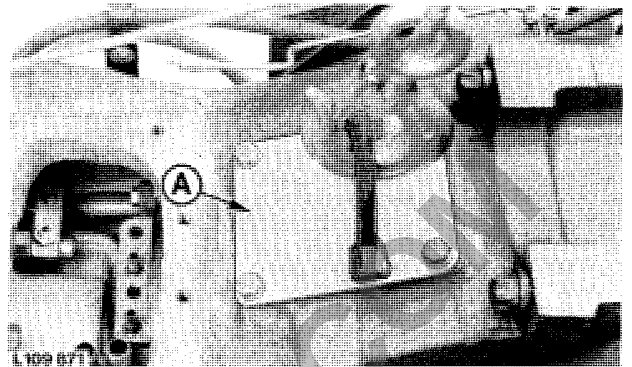
L108537-LA71025AE-120385

ATTACHING LIFTING GEAR

Secure lifting gear (A) (self-manufacture) to clutch housing.

Attach clutch housing to a suitable hoist.

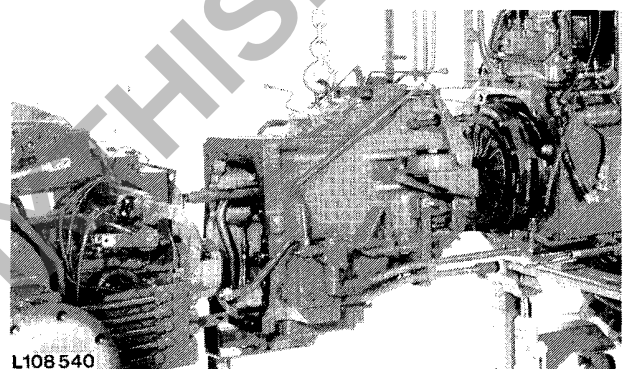
Separate between engine and clutch housing (refer to "Separating between Engine and Clutch Housing").



L109871-LA71025AE-120385

INSTALLING CLUTCH HOUSING

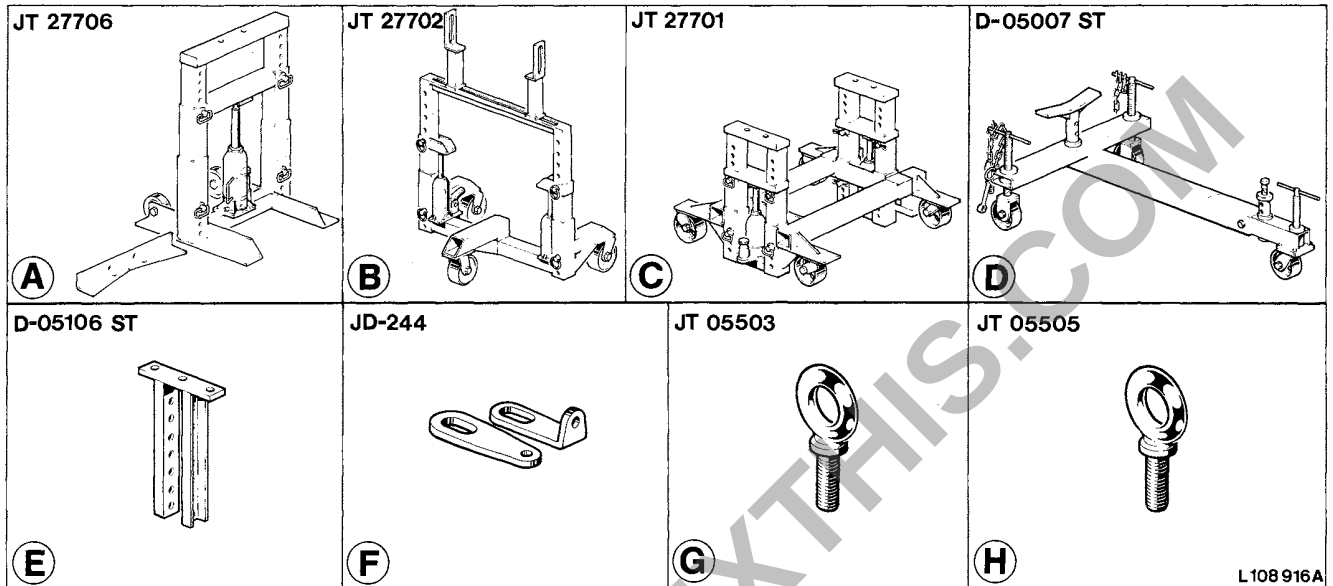
Install clutch housing, reversing removal procedure.



L108540-LA71025AE-120385

Group 25 TRACTOR SEPARATION

SPECIAL TOOLS



L108 916A

A—Lifting and supporting tractor (plus a commercially available 12 ton jack)
B—Lifting and supporting tractor (plus two commercially available 5 ton jacks)
C—Removing and installing transmission case (plus two commercially available 8 ton jacks)

D—Removing and installing final drives and front drive axle
E—Removing and installing final drives and front drive axle (plus one retaining bracket T25671)

F—Removing and installing engine and, using two straight lifting eyes JD244-1, removing and installing front PTO
G—Removing and installing rockshaft
H—Removing and installing SOUND-GARD Body or ROLL-GARD (2 used)

NOTE: Modify both supports of tractor splitting stand JT27702 (B) as shown in tools for self-manufacture.

L108916A-LA91025AE-021285

Specifications

FRONT AND REAR WHEELS

– Tires, tread widths, tire pressures
and ballast weights see Operator's Manual

DIMENSIONS AND WEIGHTS see Operator's Manual

CAPACITIES

Fuel tank 134.0 liters (35.4 U.S. gal.)
– Auxiliary tank 52.0 liters (13.7 U.S. gal.)
Cooling system
– with ROLL-GARD 17.0 liters (4.5 U.S. gal.)
– with SOUND-GARD Body 19 liters (5 U.S. gal.)
Crankcase with filter 11.5 liters (3.0 U.S. gal.)
Transmission/hydraulic system (including
oil reservoir and oil cooler)
– Initial filling 55.0 liters (14.5 U.S. gal.)
– Oil change 47.0 liters (12.4 U.S. gal.)
Front wheel drive
– Front axle housing 7.0 liters (1.85 U.S. gal.)
– Wheel hub housing, each 0.75 liters (0.2 U.S. gal.)

TECHDA-LA91005DE-051185

STANDARD TORQUES FOR HARDWARE

Recommended torques in Nm and ft-lb
for hose and pipeline connections

A	B		C	
	Nm	ft-lb	Nm	ft-lb
3/8-24 UNF	7,5	5,5	8	6
7/16-20 UNF	10	7	12	9
1/2-20 UNF	12	9	15	11
9/16-18 UNF	15	11	25	18
3/4-16 UNF	25	20	45	35
7/8-14 UNF	40	30	60	45
1-1/16-12 UNC	60	45	100	75
1-3/16-12 UNC	70	50	120	90
1-5/16-12 UNC	80	60	140	105
1-5/8-12 UNC	110	80	190	140
1-7/8-12 UNC	150	110	220	160

A-Thread size

B-With O-rings

C-With cone

L 110 192

L110192-LA71005AE-260385

PREDELIVERY INSPECTION

The John Deere delivery receipt, when properly filled out and signed by the dealer and customer, verifies that the predelivery and delivery services were satisfactorily performed. When delivering this tractor, give the customer his copy of the delivery receipt and the operator's manual. Explain their purpose to him.

To promote complete customer satisfaction, a pre-delivery inspection including repair of possible shipping damage and giving the finishing touches to the tractor is of prime importance to the dealer.

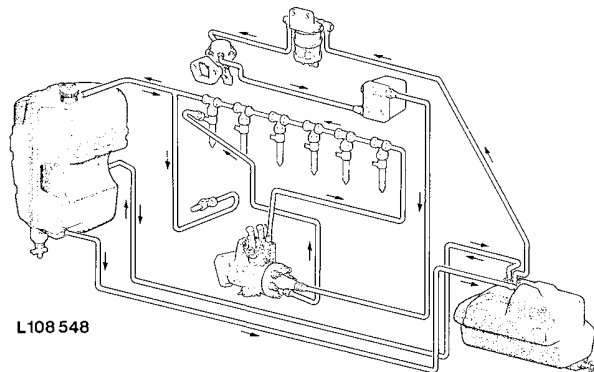
After the first 100 operating hours an inspection should be performed by the dealer to make sure that the tractor is in proper operating condition.

The predelivery and after-sales inspection check lists in the operator's manual will be completed by the dealer when the inspections are being performed. He will then forward them to the sales branch service department.

INSPEK-LA71010DE-091184

CHECKING FUEL LINES FOR LEAKS

Refer to Engine Component Technical Manual (CTM-4) in the event of malfunctions.



L108548-LA91010AE-040386

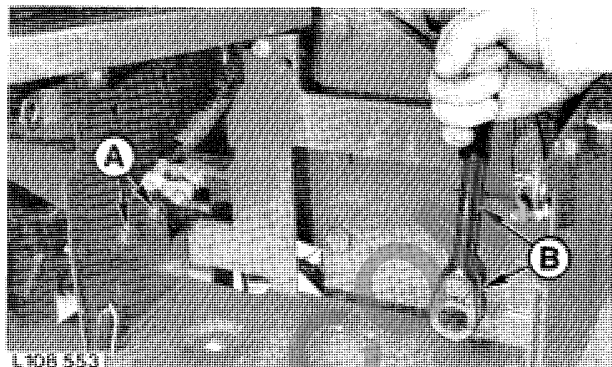
EXAMINING ENGINE FOR LEAKS

Refer to Engine Component Technical Manual (CTM-4) in the event of malfunctions.

INSPEK-LA91010EE-040386

REMOVING RIGHT-HAND BATTERY BOX

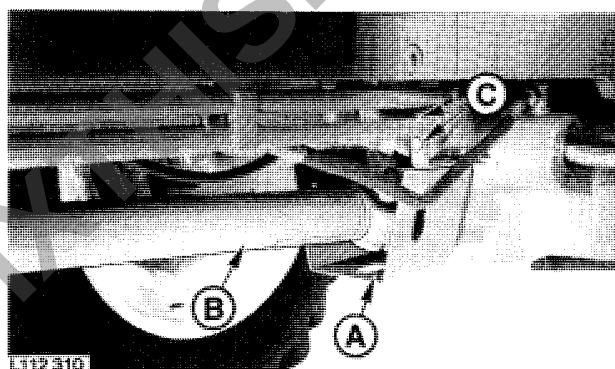
Remove cap screws (A) and (B).



L108553-LA71025AE-040285

REMOVING UNIVERSAL JOINTED DRIVE SHAFT ANTI-WRAP GUARD

A-Anti-wrap guard
B-Universal jointed drive shaft
C-Cap screws

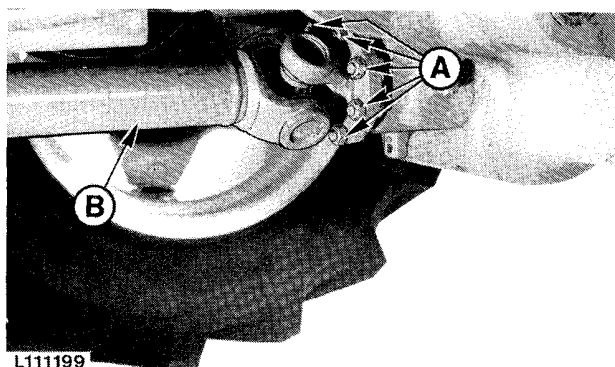


L112310-LA91025AE-021285

REMOVING UNIVERSAL JOINTED DRIVE SHAFT

Remove attaching nuts (A) from flange of universal jointed drive shaft (B).

Pull universal jointed drive shaft from rear clutch shaft.



L111199-LA91025AE-021285

Specifications

ENGINE

Number of cylinders	6
Cylinder liner bore	106.5 mm (4.19 in.)
Stroke	110 mm (4.33 in.)
Displacement	5883 cm ³ (359 cu.in.)
Compression ratio	17.4 : 1
Max. torque at 1400 rpm	392 Nm (289 ft-lb)
Firing order	1-5-3-6-2-4
Valve clearance (engine hot or cold)	
– Intake valve	0.35 mm (0.014 in.)
– Exhaust valve	0.45 mm (0.018 in.)
Slow idle speed	880 to 920 rpm
Fast idle speed	2510 to 2610 rpm
Rated engine speed	2400 rpm
Working speed range	1400 to 2400 rpm
Engine speed for PTO operation	2400 rpm
Flywheel horsepower at engine rated speed of 2400 rpm	
– According to DIN 70 020	82 kW (112 hp)
PTO* horsepower at engine rated speed of 2400 rpm	
– According to SAE J 816 b	71 kW (95 hp)
Lubrication system	Full internal force feed system with full flow filter

* With the engine run in (above 100 hours of operation) and at operating temperature (engine and transmission), measured by means of a dynamometer
Permissible variation $\pm 5\%$

TECHDA-LA91005AE-051185

ADJUSTING AXIAL FREE PLAY

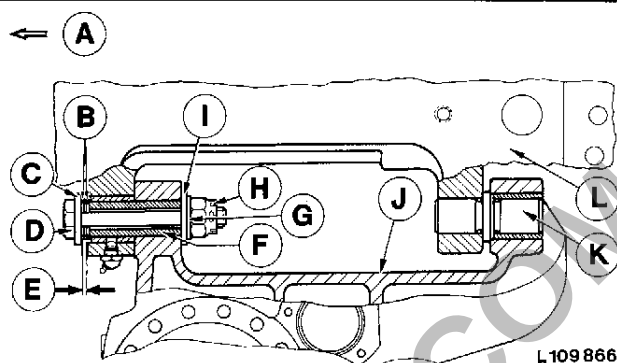
- | | |
|---------------------|--------------------------|
| A-Tractor front end | G-Washer |
| B-Shims | H-Slotted nut |
| C-Washer | I-Washer |
| D-Cap screw | J-Front wheel drive axle |
| E-Axial free play | K-Bearing pin |
| F-Front pivot tube | L-Front axle carrier |

Insert cap screw, washer and a number of shims from front through front pivot tube. Install washers and slotted nut and tighten with 300 Nm (220 ft-lb).

Check whether 0 to 0.5 mm (0 to 0.20 in.) axial free play is obtained. Adjust correct play by adding or removing shims.

NOTE: If split pin cannot be inserted into slotted nut at specified torque, turn nut further to next slot and insert split pin.

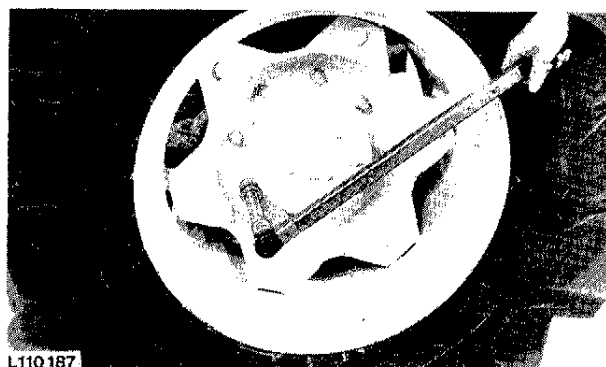
Connect pressure lines to steering cylinder, using new seal rings.



L109866-LA91025AE-021285

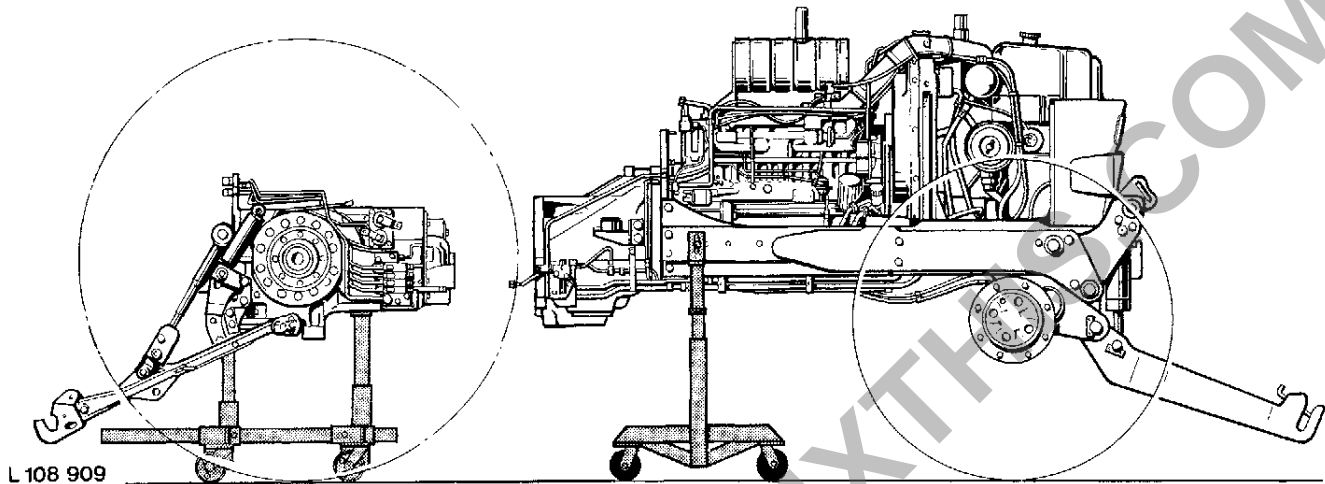
INSTALLING FRONT WHEELS

Tighten wheel nuts with 300 Nm (220 ft-lb).



L110187-LA71025AE-280385

REMOVING TRANSMISSION

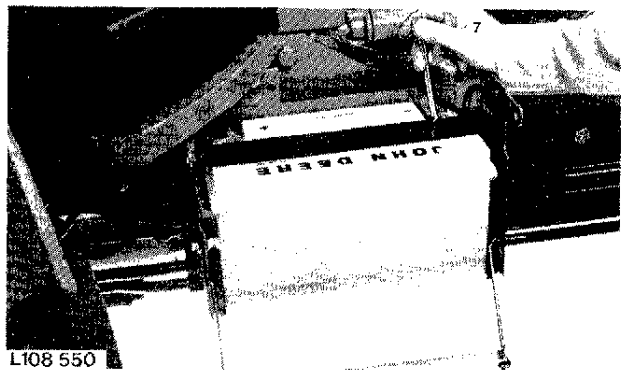


L108909-LA71025AE-160365

REMOVING SOUND-GARD BODY OR ROLL-GARD

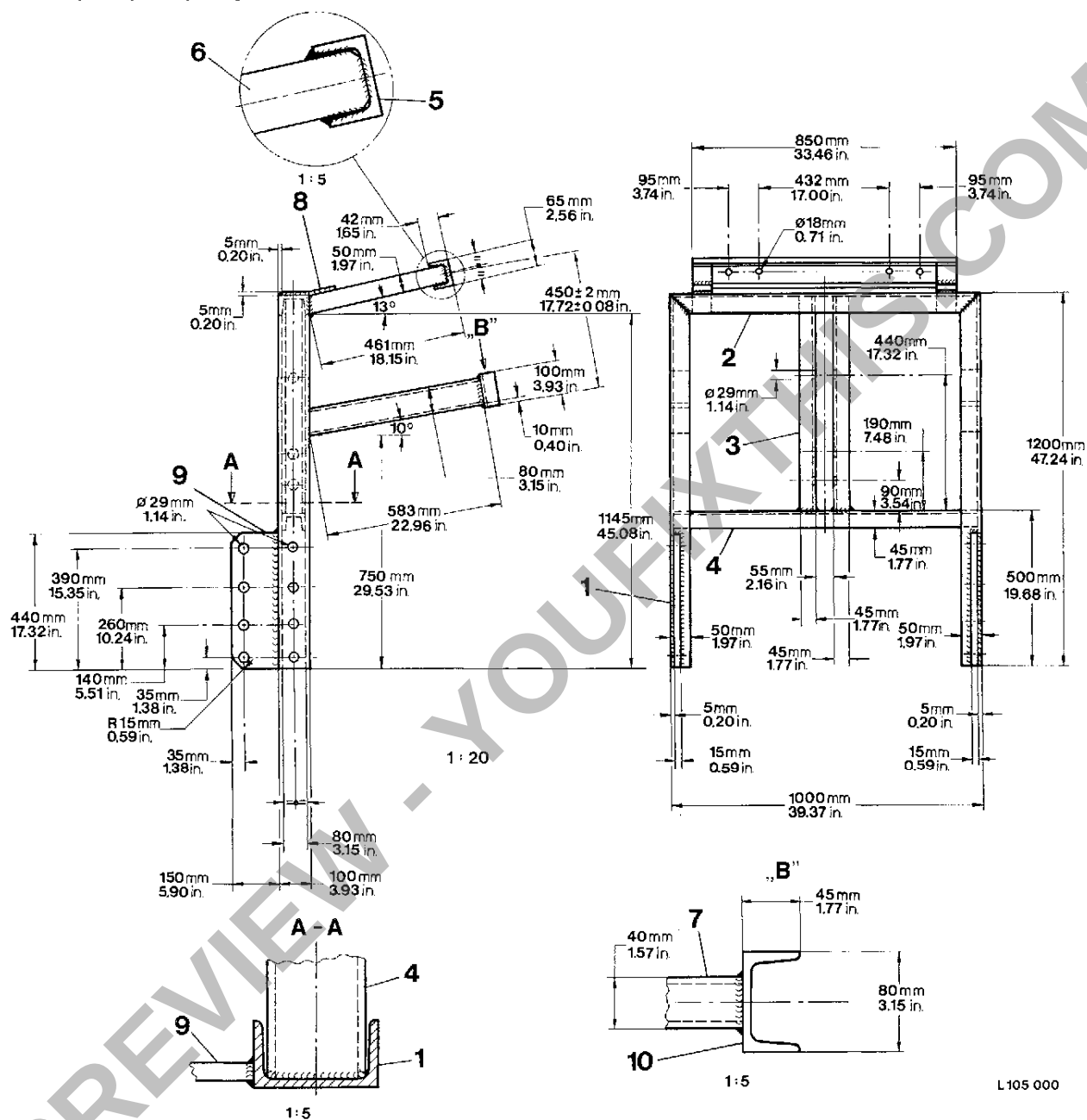
Refer to "Removing SOUND-GARD Body or ROLL-GARD".

Disconnect battery ground straps.



L108550-LA91025CE-051185

LIFTING DEVICE, REMOVAL OF SOUND-GARD BODY OR ROLL-GARD



1-U-profile steel (2 used)
U-100 x 1200 mm
(3.94 x 47.24 in.)
2-U-profile steel (1 used)
U-100 x 1000 mm
(3.94 x 39.37 in.)
3-U-profile steel (1 used)
U-80 x 694 mm
(3.15 x 27.32 in.)

4-U-profile steel (1 used)
U-80 x 988 mm
(3.15 x 38.90 in.)
5-U-profile steel (1 used)
U-65 x 850 mm
(2.56 x 33.46 in.)
6-Square steel (2 used)
50 x 50 x 461 mm
(1.97 x 1.97 x 18.15 in.)

7-Square tubular steel (2 used)
80 x 40 x 5 x 583 mm
(3.15 x 1.58 x 0.20 x 22.95 in.)
8-Flat steel (2 used) 50 x 5 x 190 mm
(1.97 x 0.20 x 7.48 in.)
9-Flat steel (2 each) 150 x 15 x 440 mm
(5.90 x 0.59 x 17.32 in.)
10-U-profile steel (2 used)
U-80 x 100 mm
(3.15 x 3.94 in.)

L105000-LA91025AE-121285

Specifications

Recommended torques in Nm and ft-lb for UNC and UNF cap screws

A	10.9 C		12.9 D	
	Nm	ft-lb	Nm	ft-lb
1/4	15	10	20	15
5/16	30	20	40	30
3/8	50	35	70	50
7/16	80	55	110	80
1/2	120	85	170	120
9/16	180	130	240	175
5/8	230	170	320	240
3/4	400	300	580	425
7/8	600	445	930	685
1	910	670	1400	1030
1-1/8	1240	910	1980	1460
1-1/4	1700	1250	2800	2060

L 110 193

A-Head marking
(identifying strength)
B-Thread O.D. (in.)

C-Tempered steel high strength
bolts and cap screws
D-Tempered steel extra high
strength bolts and cap screws

NOTE: A variation of $\pm 10\%$ is permissible for all
torques indicated in this chart.

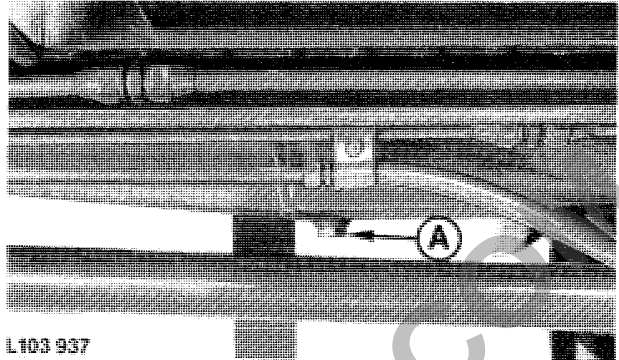
Torque figures indicated above and in the specification sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

L110193-LA71005AE-260385

CHANGING ENGINE OIL

Drain oil while engine is shut off, but still warm.

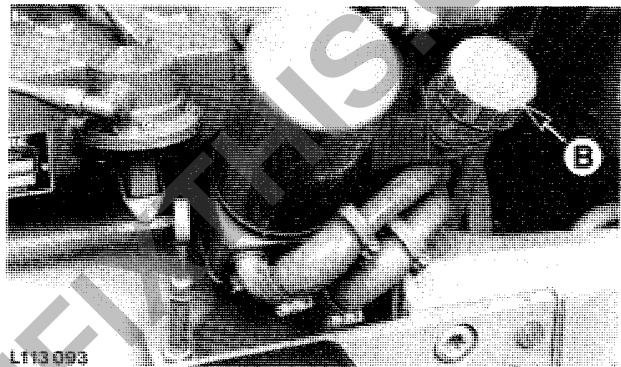
A-Drain plug



Fill with fresh oil of the correct viscosity (see Group 15).

Oil quantity with filter change:
11.5 liters (3.0 U.S. gal.)

B-Filler cap



L103937,L113093-LA91025AE-021285

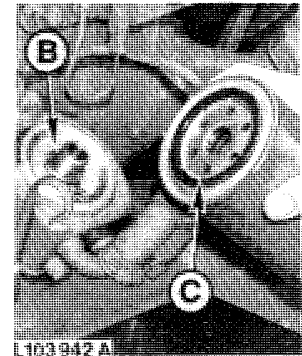
CHANGING ENGINE OIL FILTER

Unscrew oil filter (A) and clean filter mounting surface (B).

Apply a thin film of oil on seal ring (C). Screw in new filter until seal ring just touches mounting surface, then turn an additional 1/2 to 3/4 turns. Do not over-tighten.

Start engine and check drain plug and filter seat for leaks.

Shut off engine and check oil level.



L103941A,L103942A-LA71010AE-121184

Specifications

ENGINE CLUTCH

- Type Single dry disk clutch with torsion damper, foot-operated

COOLING SYSTEM

- Type Pressurized system with centrifugal pump
- Temperature regulation Two thermostats

FUEL SYSTEM

- Type Direct injection
- Fuel injection pump timing to engine TDC
- Fuel injection pump type Distributor type with two pistons
Stanadyne no. DB2 4378
- Air cleaner Dry-type air cleaner with secondary (safety) element

ELECTRICAL SYSTEM

- Batteries 2 x 12 volt, 88 Ah
- Alternator with internal regulator 14 volt, 55 amps.
- Starting motor 12 volt, 3 kW (4 hp)
- Battery terminal grounded negative

SYNCHRONIZED TRANSMISSION

- Type Synchronized transmission
- Gear selections 8 forward and 4 reverse
- Gear shifting Two forward groups and one reverse group;
Synchronized forward and reverse shifting within groups

HI-LO SHIFT UNIT

- Type Hydraulic gear reduction unit which can be shifted under load with "wet" multiple disk clutch and brake packs.
- Travel speed decreases in each gear by approx. 20 %
- Shifting to reduced (Lo) speed hydraulic
- Shifting to normal (Hi) speed preloaded cup springs

TECHDA-LA71005DE-180385



3150 TRACTOR TECHNICAL MANUAL TM-4410

SECTION CONTENTS IN GROUPS – REPAIR

10 – GENERAL

- 05 – Specifications
- 10 – Pre-delivery, delivery and after-sales inspections
- 15 – Lubrication and service
- 20 – Tune-up
- 25 – Tractor separation

20 – ENGINE

- 05 – Radiator

30 – FUEL AND AIR INTAKE SYSTEM

- 05 – Fuel tank, auxiliary tank and water trap
- 10 – Cold weather starting aids
- 15 – Speed control linkage
- 20 – Air filter

40 – ELECTRICAL SYSTEM

- 05 – Wiring harnesses
- 10 – Controls and instruments
- 15 – Lighting system
- 20 – Starting motor
- 25 – Alternator

50 – POWER TRAIN

- 05 – Clutch operating linkage
- 10 – Engine clutch
- 15 – Hi-Lo shift unit
- 20 – Transmission shift linkage
- 25 – Synchronized transmission and transmission oil pump
- 30 – Differential

- 35 – Final drives
- 40 – PTO
- 45 – Front PTO
- 50 – Front wheel drive u.j. drive shaft and disk clutch

60 – STEERING SYSTEM AND BRAKES

- 05 – Hydrostatic steering
- 10 – Hydraulic brakes
- 15 – Handbrake

70 – HYDRAULIC SYSTEM

- 05 – Valves
- 10 – Hydraulic pumps
- 15 – Rockshaft
- 20 – Front hitch
- 25 – Selective control valves (poppet valve type)
- 30 – ISO breakaway couplers
- 35 – Remote cylinder

80 – MISCELLANEOUS

- 05 – Front and rear wheels

90 – OPERATOR'S STATION

- 05 – Air conditioning system
- 10 – Cab ventilation and heating
- 15 – Operator's seat
- 20 – SOUND-GARD body
- 25 – FOUR-POST ROLL GARD

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INHALT-LA901AE-020186

SECTION CONTENTS IN GROUPS – OPERATION AND TESTS

220 – ENGINE

- 05 – Radiator
- 10 – Tests

230 – FUEL AND AIR INTAKE SYSTEM

- 05 – Fuel tank, auxiliary tank and water trap
- 10 – Cold weather starting aids
- 15 – Speed control linkage
- 20 – Air filter

240 – ELECTRICAL SYSTEM

- 05 – Operation, diagnosing malfunctions, wiring diagrams
- 10 – Testing circuits and components
- 15 – Lighting system
- 20 – Starting motor
- 25 – Alternator

250 – POWER TRAIN

- 05 – Clutch operating linkage
- 10 – Engine clutch
- 15 – Hi-Lo shift unit
- 20 – Transmission shift linkage
- 25 – Synchronized transmission and transmission oil pump
- 30 – Differential
- 35 – Final drives
- 40 – Independent PTO
- 45 – Front PTO
- 50 – Front wheel drive u.j. drive shaft and disk clutch

260 – STEERING SYSTEM AND BRAKES

- 05 – Hydrostatic steering
- 10 – Hydraulic brakes
- 15 – Handbrake

270 – HYDRAULIC SYSTEM

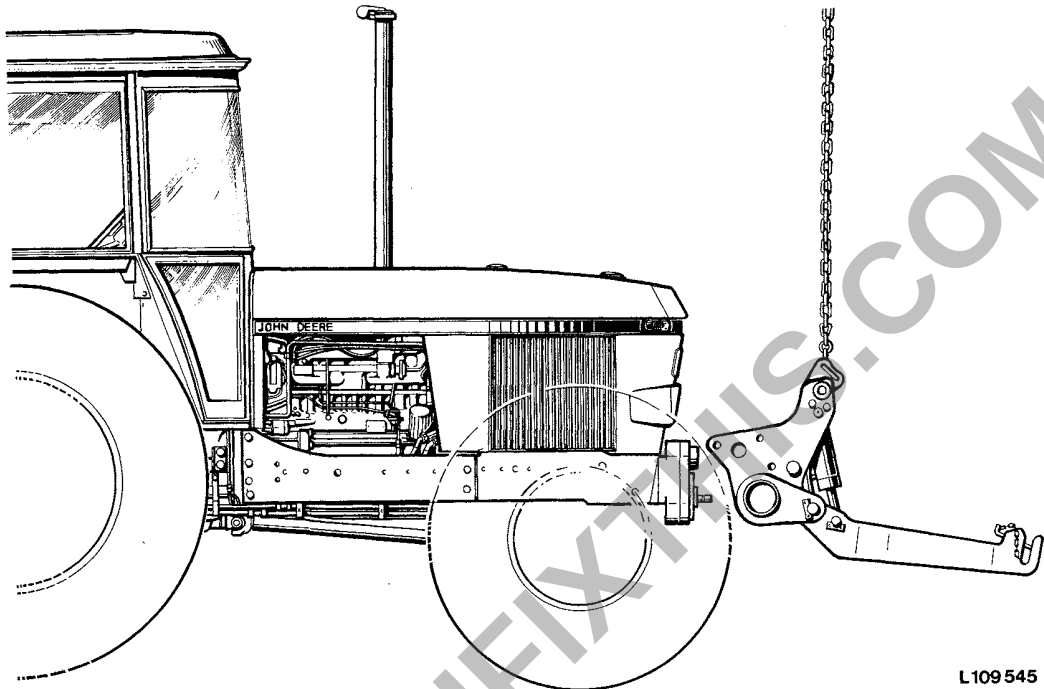
- 05 – Operation and tests
- 10 – Hydraulic pumps
- 15 – Rockshaft
- 20 – Front hitch
- 25 – Selective control valves (poppet valve type)
- 30 – ISO breakaway couplers
- 35 – Remote cylinder

290 – OPERATOR'S STATION

- 05 – Air conditioning system
- 10 – Cab ventilation and heating

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REMOVING FRONT HITCH

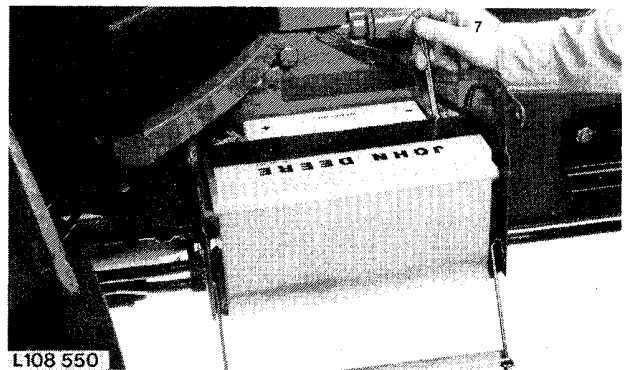


L109545

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DISCONNECTING BATTERY GROUND STRAPS

Remove batteries.

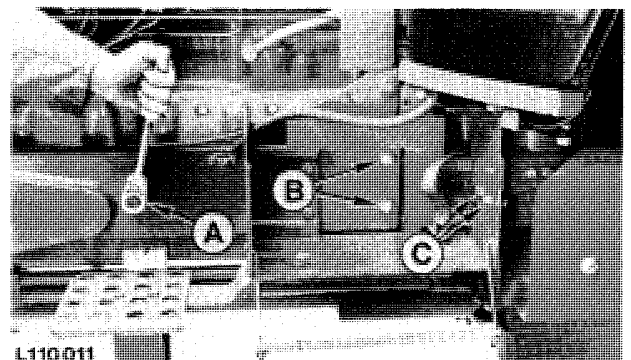


L108550

L108550-LA71025AE-020285

REMOVING LEFT-HAND BATTERY BOX

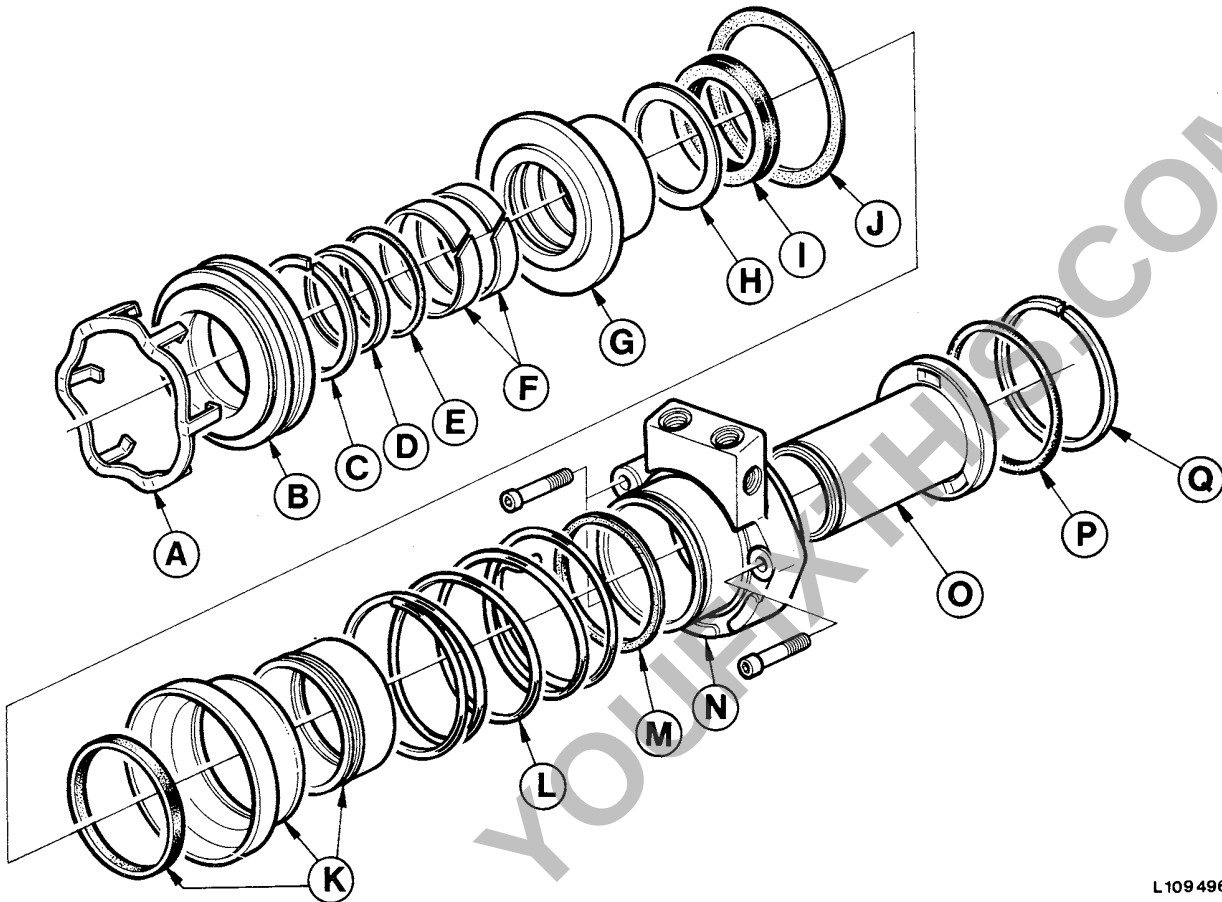
Remove cap screw (A) from step.
Remove cap screws (B and C).



L110011

L110011-LA71025AE-040285

SLAVE CYLINDER, EXPLODED VIEW



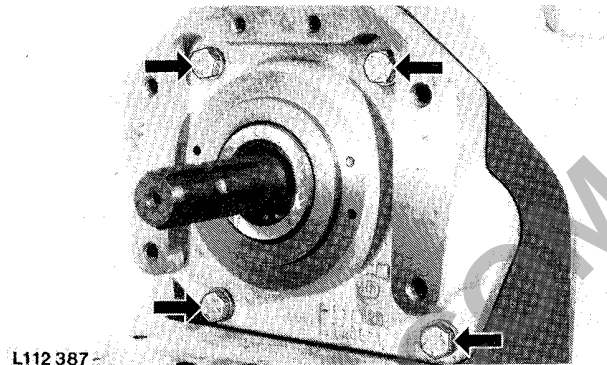
L109496

L109496-LA75005AE-200385

REMOVING BEARING QUILL WITH PTO SHAFT

Drain transmission oil.

Remove bearing quill, spring washer and gear.



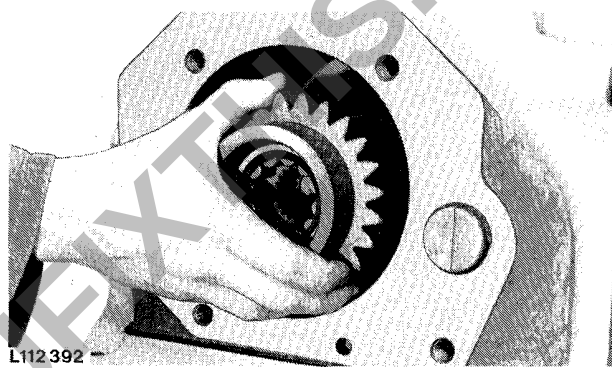
L112 387

L112387-LA95040AE-251085

REMOVING PTO SHAFT WITH GEAR

Remove countershaft and double gear.

NOTE: Separate tractor between clutch housing and transmission case (see section 10, group 25) to remove connecting sleeve (E; see page 40-3) and oil seal in transmission case.



L112 392

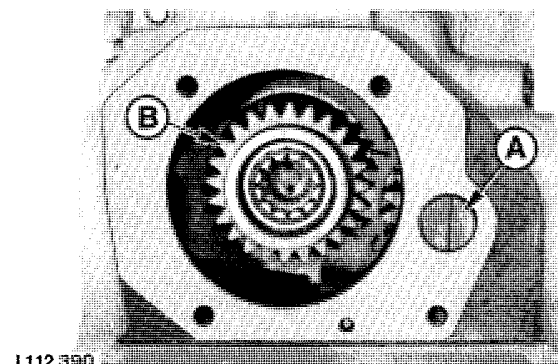
L112392-LA95040AE-252085

INSTALLING DOUBLE GEAR AND COUNTERSHAFT

Install countershaft (A) so that shoulder at end of shaft is vertical.

Install PTO shaft with gear (B).

Install gear and spring washer.



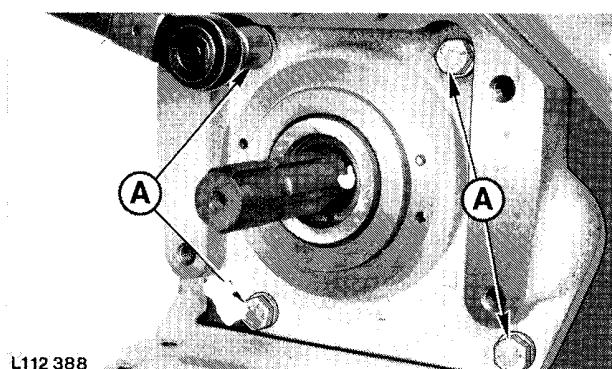
L112 390

L112390-LA95040AE-251085

INSTALLING BEARING QUILL WITH PTO SHAFT

Replace gasket, oil seal and O-ring.

Tighten cap screws (A) with 115 Nm (85 ft-lb).



L112 388

L112388-LA95040AE-251085

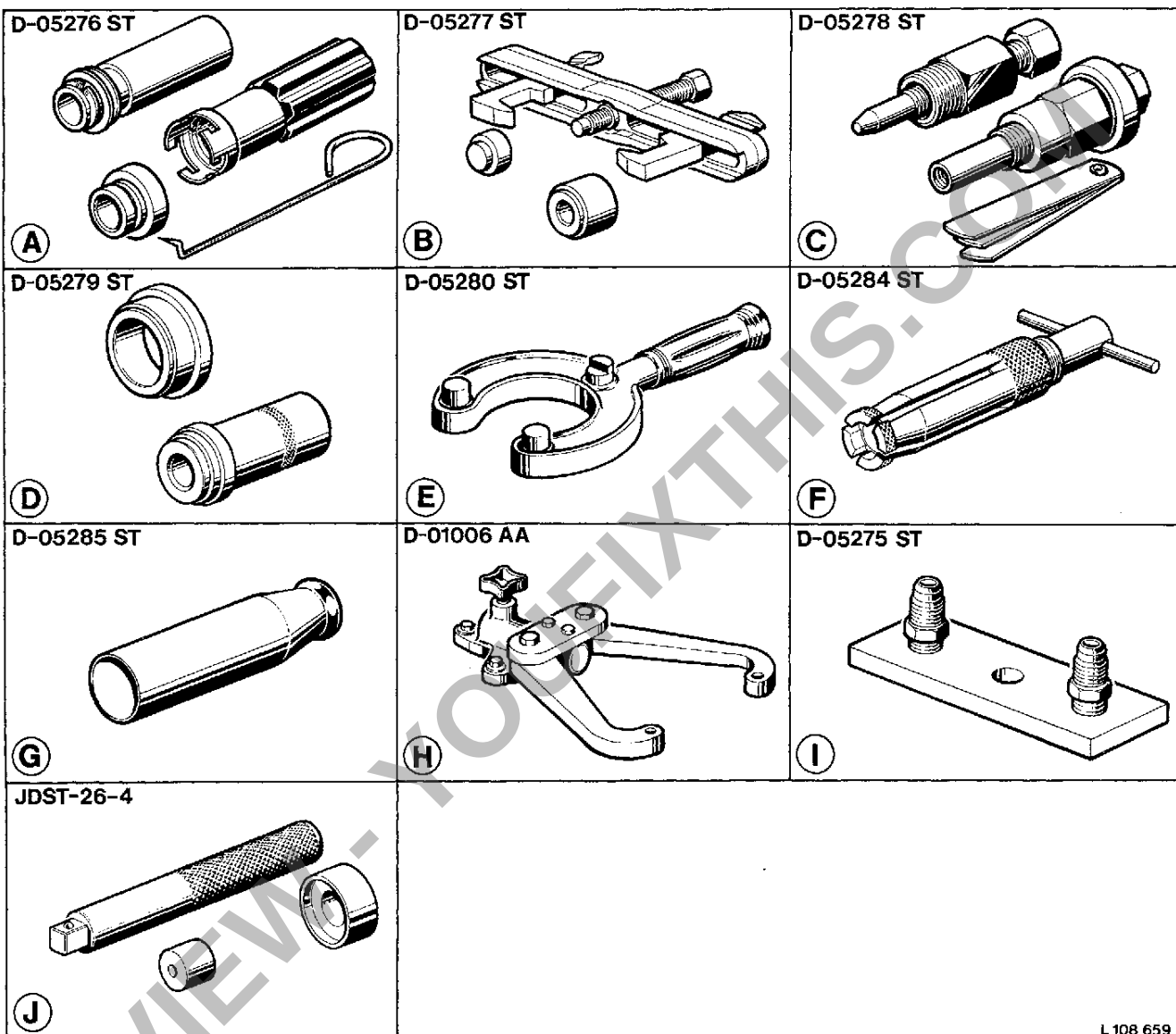
CONTENTS OF THIS SECTION IN GROUPS

35 – REMOTE CYLINDER

Specifications	70-35-1
Torques for hardware	70-35-1
Removing cover	70-35-2
Removing piston	70-35-2
Removing piston rod guide	70-35-2
Overhauling piston rod guide	70-35-2
Assembling stop rod	70-35-3
Installing seal	70-35-3
Installing piston rod guide	70-35-3
Installing piston	70-35-3
Installing cover	70-35-4
Bleeding remote cylinder	70-35-4

HYDRSYST-LA97003AE-221085

SPECIAL TOOLS



L 108 659

A—Removal and installation of compressor main shaft seals
B—Removal and installation of compressor pulley
C—Removal and installation of compressor clutch
D—Installing drive belt pulley and compressor bearing
E—Removal and installation of compressor lock nut

F—Removal and installation of compressor ceramic seal seat
G—Installing compressor main shaft seal
H—Clamping compressor
I—Testing compressor
J—Installing front and rear bearing covers of compressor

L108659-LA79005AE-150385

DIAGNOSING MALFUNCTIONS

BATTERIES

Low Output

Terminals loose or corroded; cables defective

Low battery electrolyte level

Low specific gravity of battery electrolyte

Defective regulator

Defective alternator

Batteries Use Too Much Water

Defective regulator

Battery case cracked

Batteries are not Charged

Terminals loose or corroded

Fan belt slack or damaged

Sulfated or failed batteries

ALTERNATOR

Does not Charge

Fan belt slipping

Open circuit or excessive resistance in charging circuit

Worn or defective brushes

Regulator operating improperly

Open circuit in rotor field windings

Excessive Charging System Voltage

Alternator connections loose

Regulator operating improperly

Low or Irregular Charging System Current

Fan belt slipping

Open circuit or excessive resistance in charging circuit

Brushes insufficiently supported; worn or defective brushes

Defective regulator

Shorted or defective rectifier diodes

Rotor windings shorted or grounded

Stator windings open, shorted or grounded

Noisy Alternator

Defective or excessively worn fan belt

Fan belt or pulley not aligned

Pulley loose

Worn bearings

Shorted rectifier diodes

ALTERNATOR INDICATOR LIGHT

Diagnosing malfunctions, see "Alternator".

FUEL GAUGE

Always Shows "Empty"

Open circuit

Wire between sending unit and fuel gauge grounded

Float leaking

Sending unit and/or fuel gauge defective

SCHALTPL-LA724005CE-020186

FUNCTION OF ALTERNATOR

The BOSCH 14-volt alternator is a 12-pole, self-induced synchronous generator. The current coil is located in the stator, and the exciting coil in the rotor. The exciting current is supplied by the rectifier (terminal D+) through the regulator, two carbon brushes and slip rings to the exciting coil in the rotor.

The alternator is driven by the fan belt from the crankshaft. The rotor is supported by two permanently lubricated bearings.

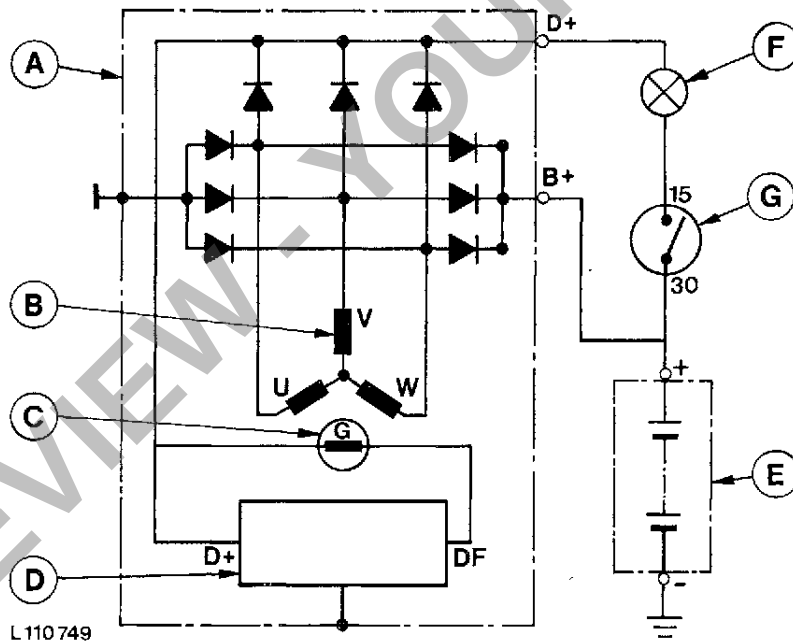
The alternator generates alternating current which is then transformed into direct current by the rectifier diodes.

The alternating windings are Y-connected. The coil ends U, V and W (see illustration) are connected to the rectifier diodes. The current flows through the diode and terminal B+ directly to the positive pole of the battery.

Alternating current is generated in each stator coil (B) of the alternator. During one revolution of the rotor (C), the voltage in the stator coil rises from 0 to the positive maximum, drops to 0, rises to the negative maximum and again drops to 0. Then the process is repeated.

As the stator coils are Y-connected, a three-phase or alternating current is generated. The individual phases are shifted 120°.

A sealed electronic regulator is used to regulate alternator voltage. This regulator, which cannot be adjusted, limits the alternator voltage to approx. 14 volts.



A-Alternator
B-Current coil (stator)

C-Exciting coil (rotor)
D-Regulator

E-Battery
F-Alternator indicator light
G-Starting motor switch

L110749-LA724025AE-020186

Section 260

STEERING SYSTEM AND BRAKES – OPERATION AND TESTS

CONTENTS OF THIS SECTION

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10-HYDRAULIC BRAKES

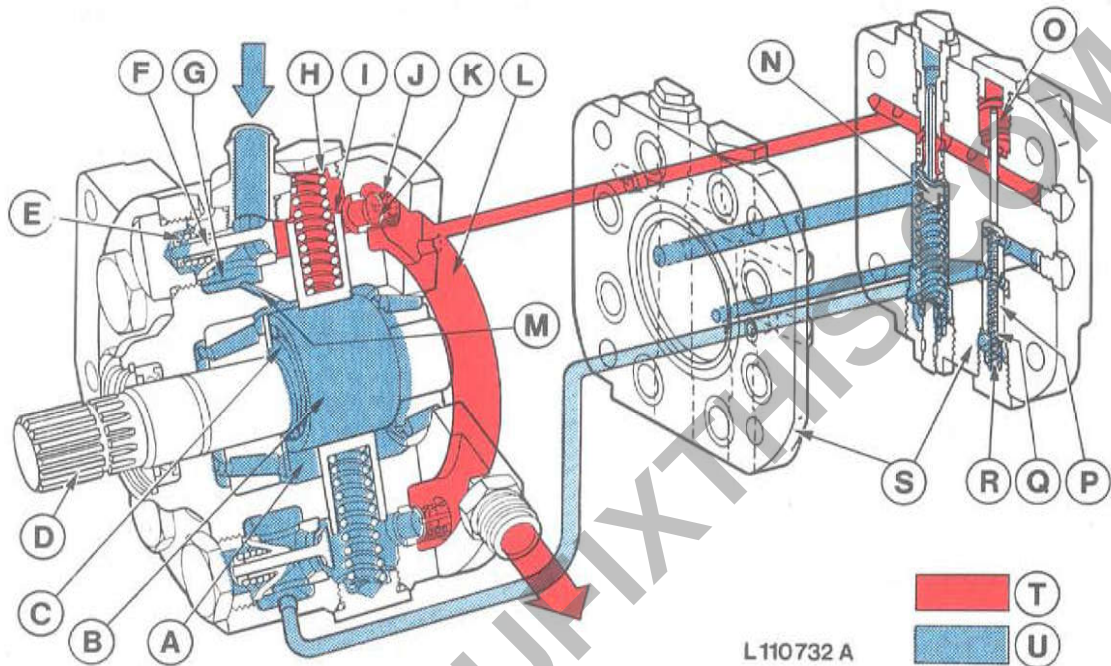
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FUNCTION OF 40 cm³ (2.4 cu.in.) HYDRAULIC PUMP - OPERATING POSITION



A-Pump crankcase
B-Race
C-Cam
D-Pump shaft
E-Inlet valve spring (8 used)
F-Inlet valve (8 used)
G-Inlet gallery
H-Piston spring (8 used)
I-Piston (8 used)

J-Discharge valve spring (8 used)
K-Discharge valve (8 used)
L-Pressure outlet gallery
M-Drain hole
N-Stroke control valve
O-Upper chamber of crankcase outlet valve
P-Crankcase outlet valve
Q-Spring

R-Lower chamber of crankcase outlet valve
S-Pump cover
T-High-pressure oil
U-Oil supply to hydraulic pump (lube oil)

When one or more hydraulic functions are put into operation, the pressure in inlet gallery (L) drops, and thus also the pressure acting on the two valves in cover (S). As a result of pressure drop on both sides of crankcase outlet valve, the appropriate spring can open the valve at a pressure below 9600 kPa (96 bar; 1400 psi) so that oil flows from the crankcase to inlet gallery (G), causing flow control valve (N) to close and shutting off the flow of oil to crankcase (A). The pump now supplies pressure oil.

If the quantity of oil in the crankcase drops, the pistons (I) move toward race (B) under pressure from piston springs (H).

Cam turns, moving pistons outward. As the piston lowers a slight vacuum is created, charge pressure opens inlet valves. Oil fills the bore and valves close again. As cam continues to rotate, piston moves outward. As the piston reaches top of its travel, increased pressure opens discharge valves (K) and high-pressure oil flows into inlet gallery and is then distributed to the various hydraulic functions.

The stroke control valve can also partially fill crankcase with oil if less than full pump flow is required. This allows the pump to vary flow while holding system pressure constant.

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