

# 3640 Tractor



## Technical Manual



John Deere Werke Mannheim  
John Deere Ibérica S.A. Getafe  
TM-4419

Printed in Germany (English)



# 3640 TRACTOR TECHNICAL MANUAL TM-4419

## 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
- 20 – Hydraulic trailer brake

### 70 – Hydraulic System

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

### 80 – Miscellaneous

- 05 – Front and rear wheels
- 10 – AXLA trailer hitch
- 15 – Trailer hitch (height adjustable)

### 90 – SG2 Cab

- 05 – Air conditioning system
- 10 – Cab ventilation and heating
- 15 – Operator's seat
- 20 – SG2 cab

© by Deere & Co., European Office,  
D-6800 Mannheim

INHALT-LA701AE-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
- 20 – Hydraulic trailer brake

### 270 – HYDRAULIC SYSTEM

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

### 290 – SG2 CAB

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

**3640 TRACTOR  
TECHNICAL MANUAL  
TM-4419 (FEB-86)**

**SECTION CONTENTS IN GROUPS**

**10 – GENERAL**

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

**20 – ENGINE – REPAIR**

- 05 – Radiator

**30 – FUEL AND AIR INTAKE SYSTEM – REPAIR**

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

**40 – ELECTRICAL SYSTEM – REPAIR**

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

**50 – POWER TRAIN – REPAIR**

- 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 – REPAIR**

- 05 – Hydrostatic steering
- 10 – Hydraulic brakes
- 15 – Handbrake
- 20 – Hydraulic trailer brake

**70 – HYDRAULIC SYSTEM – REPAIR**

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

© by Deere & Co., European Office. D-6800  
Mannheim

INHALT-LA701AE-101285

## SECTION CONTENTS IN GROUPS

### 80 – MISCELLANEOUS

- 05 – Front and rear wheels
- 10 – AXLA trailer hitch
- 15 – Trailer hitch (height adjustable)

### 90 – SG2 CAB – REPAIR

- 05 – Air conditioning system
- 10 – Cab ventilation and heating
- 15 – Operator's seat
- 20 – SG2 cab

INHALT-LA702AE-310585

## SPECIFICATIONS

### SERIAL NUMBER PLATES

The following illustrations show the serial number plates for tractor major components. The letters and figures on these plates are required for warranty claims and when ordering replacement parts.

TECHDA-LA71005AE-180385

### PRODUCT IDENTIFICATION NUMBER

The product identification number plate is located on right-hand side of front axle carrier. The chassis number is stamped in front axle carrier next to the number plate.

*NOTE: When ordering tractor parts (excluding engine parts), quote all letters and figures of serial number stamped on this plate.*



L107396-LA71005AE-180385

### ENGINE SERIAL NUMBER

The engine serial number plate is located on right-hand side of engine block.

*NOTE: When ordering engine parts, quote all figures on this plate.*



L107397-LA71005AE-180385

### TRANSMISSION SERIAL NUMBER

The transmission serial number plate is located on right-hand crossmember of cab and on right-side of transmission case.

*NOTE: In addition to serial number of transmission and transmission type, this serial number plate also specifies differential and front wheel drive gear ratios.*



L110311-LA71005AE-040485

### FRONT WHEEL DRIVE AXLE SERIAL NUMBER

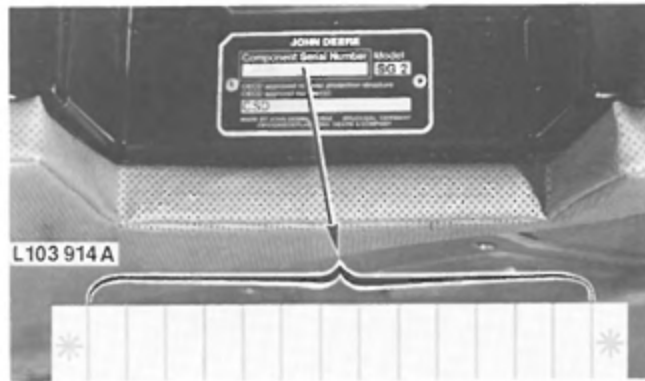
The front wheel drive axle serial number plate is located on rear of right-hand axle half.



L103913A-LA71005AE-180385

### OPERATORS CAB SERIAL NUMBER

With operator's cab door open, cab serial number plate is visible in roof recess as you enter the cab.



L103914A-LA71005AE-180385

### MODEL SERIAL NUMBERS

Fuel injection pump, fuel injection nozzles, alternator, starting motor, hydrostatic steering valve, air conditioning system compressor (when equipped) and hydraulic pump have serial numbers to facilitate identification of different makes of a given unit.

TECHDA-LA71005BE-180385

## Specifications

### ENGINE

Number of cylinders .....	6
Cylinder liner bore .....	106.5 mm (4.19 in.)
Stroke .....	110 mm (4.33 in.)
Displacement .....	5883 cm <sup>3</sup> (359 cu.in.)
Compression ratio .....	17.4 : 1
Max. torque at 1400 rpm .....	390 Nm (285 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 .....	700 to 800 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 .....	2175 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 DIN 70020; 50 MOE .....	74 kW (100 hp)
– According to SAE J 816 b; 80 MOE .....	71 kW (95 hp)
PTO* horsepower at engine speed of 2175 rpm	
– According to DIN 70020 .....	72 kW (98 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-LA71005CE-180385



## 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

*Specifications*

**DIFFERENTIAL AND FINAL DRIVES**

- Type of differential ..... spiral bevel gears
- Type of final drive ..... planetary reduction drive

**DIFFERENTIAL LOCK**

- Operation ..... hand or foot operated
- Disengaged ..... automatically as soon as traction has equalized

**PTO**

- Type ..... independent of transmission, can be engaged and disengaged under load
- PTO speeds at engine speed of 2175 rpm ..... 540/1000 rpm, shiftable
- PTO clutch ..... hydraulically operated "wet" disk clutch
- PTO brake ..... hydraulically operated "wet" disk brake

**FRONT PTO**

- Type ..... independent of transmission, can be engaged and disengaged under load
- Control ..... electrical/hydraulic solenoid switch
- PTO speed at an engine speed of 2175 rpm ..... 1000 rpm
- PTO clutch ..... hydraulically operated "wet" disk clutch
- PTO brake ..... hydraulically operated "wet" disk brake

**PTO SPEEDS**

at engine speed	540 rpm shaft	1000 rpm shaft
- 800 rpm .....	198 rpm	368 rpm
- 2175 rpm .....	540 rpm	1000 rpm
- 2400 rpm .....	595 rpm	1104 rpm
- 2500 rpm .....	620 rpm	1149 rpm
- 2610 rpm .....	648 rpm	1200 rpm

TECHDA-LA71005EE-180385

**FRONT WHEEL DRIVE**

- Type ..... engaged hydraulically under load with "wet" disk clutch
- Control ..... electrical/hydraulic solenoid switch
- Drive engagement ..... preloaded cup springs
- Drive disengagement ..... hydraulic

**HYDROSTATIC STEERING**

- Type ..... without mechanical linkage between steering valve and front wheels

**FOOT BRAKES**

- Rear brake ..... self-adjusting, hydraulically operated "wet" disk brakes
- Propeller shaft brake ..... self-adjusting, hydraulically operated disk brake

**HANDBRAKE**

- Type ..... mechanically operated band-type locking brake acting on the differential

**HYDRAULIC SYSTEM**

- Type ..... closed, constant pressure system
- System pressure when pump pistons idle ..... 19000 kPa (190 bar; 2760 psi)
- Operating pressure ..... 17000 kPa (170 bar; 2470 psi)
- Hydraulic pump ..... 8-piston pump with variable displacement

**ROCKSHAFT**

- Type ..... with quick coupling (hook-type) draft links
- Regulation ..... load control, load-and-depth control, float position
- Control ..... via draft links

- FRONT HITCH ..... controlled by selective control valve

- GROUND TRAVEL SPEEDS ..... see Operator's Manual

## 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 .....	19.0 liters (5.0 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-LA71005GE-180385

## 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

L 110 192

A-Thread size

B-With O-rings

C-With cone

L110192-LA71005AE-260385

Specifications

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

A	10.9 C		12.9 D	
	B		B	
	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

Specifications

Recommended torques in Nm and ft-lb for metric cap screws

A	8.8 C		10.9 D		12.9 E	
	Nm	ft-lb	Nm	ft-lb	Nm	ft-lb
M5	7	5	9	6,5	10	8,5
M 6	10	8,5	15	10	20	15
M 8	30	20	40	30	40	30
M 10	50	35	80	60	90	70
M 12	100	75	140	100	160	120
M 14	160	120	210	155	260	190
M 16	240	175	350	260	400	300
M 20	480	355	650	480	780	575
M 24	820	605	1150	850	1350	995
M 30	1640	1210	2250	1660	2700	1990
M 36	2850	2110	4000	2950	4700	3465

L 110 194

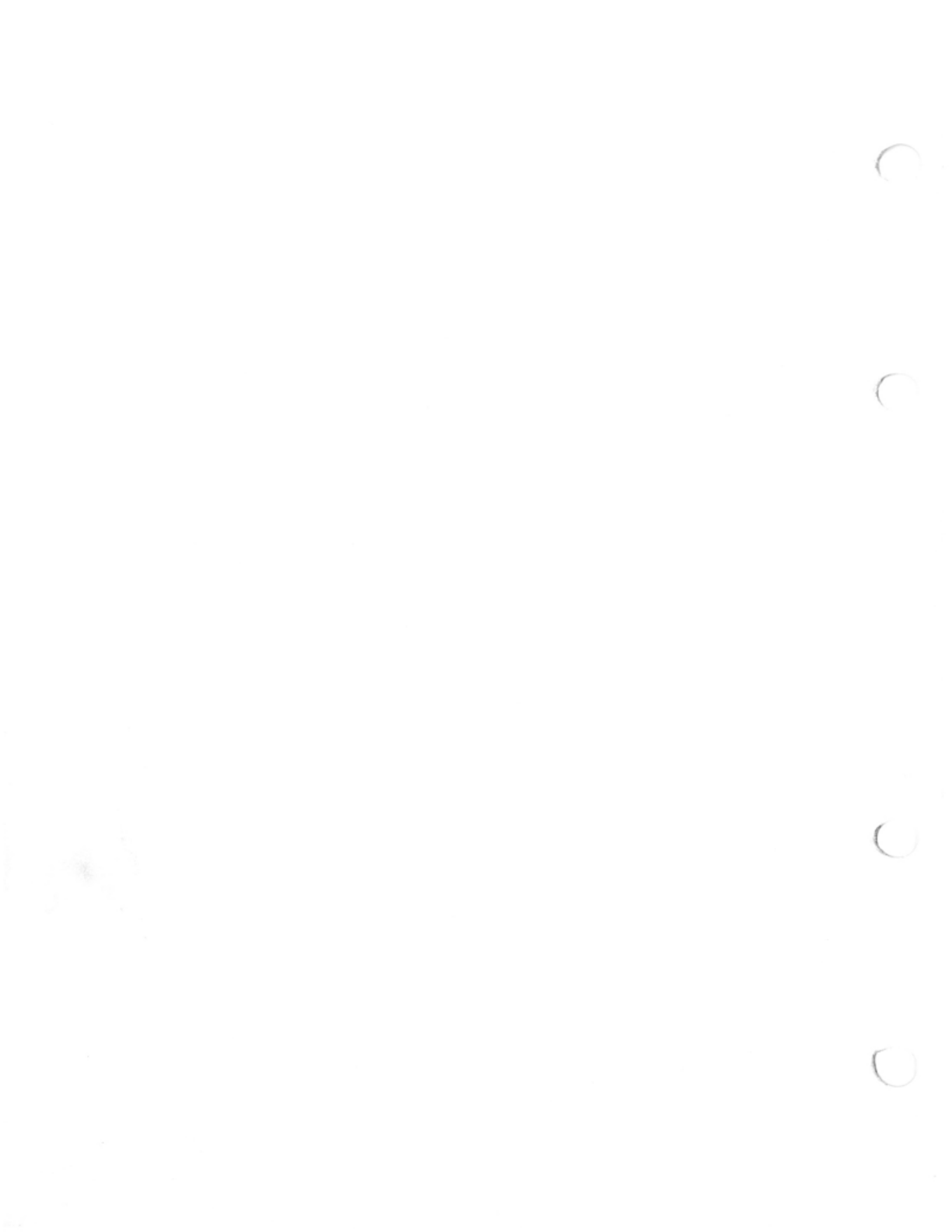
A-Head marking  
(identifying strength)  
B-Thread O.D. (mm)

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.

L110194-LA71005AE-190385



Click on the image link below for the full version of the service manual

