CX50, CX60, CX70, CX80, CX90 and CX100 Tractors

Service Manual Don 7-71427

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... continued

NOTE: *Information contained in this Manual may cover features that are not available in all markets worldwide.*

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NOTE **
Please include section 8008 (7-71980) in this manual.

LOCTITE PRODUCT CHART

Product	Color	Similar Products	Gap (In Inches)	Strength (Steel/Steel)	Working Temperature Range-Farenheit	Fixture/Full Cure (Steel/Steel) Time	Primer	Description
#3	Dark Brown					24 hr	N/A	Form a Gasket (works with oil, fuel or grease) Pliable
80	Yellow					Fast	N/A	Weatherstrip Adhesive
123	Clear					N/A	N/A	Parts Cleaner Fluid
220	Blue	290	0.003	57/143 in lbs	-65 to +250	6 min/24 hrs	747	Wicking Threadlocker
221	Purple	222	0.005	75/44 in lbs	-65 to +300	2 min/24 hrs	747	Low Strength Threadlocker
222	Purple		0.005	53/30 in lbs	-65 to +300	20 min/24 hrs	764	Low Strength Threadlocker (Small Screws)
225	Brown	222	0.010	45/25 in lbs	-65 to +300	7 min/24 hrs	747	Low Strength Threadlocker
242	Blue		0.005	80/50 in lbs	-65 to +300	10 min/24 hrs	764	Medium Strength Threadlocker
262	Red	271	0.005	160/190 in lbs	-65 to +300	5 min/24 hrs	747	High Strength Threadlocker
270	Green	271	0.007	160/320 in lbs	-65 to +300	3 min/24 hrs	747	High Strength Threadlocker
271	Red	262	0.007	160/320 in lbs	-65 to +300	10 min/24 hrs	764	High Strength Threadlocker
272	Red	620	0.007	180/220 in lbs	-65 to +450	30 min/24 hrs	764	High Temperature, High Strength
275	Green	277	0.010	210/300 in lbs	-65 to +300	3 min/24 hrs	747	High Strength Threadlocker
277	Red		0.010	225/300 in lbs	-65 to +300	60 min/24 hrs	764	High Strength Threadlocker
290	Green		0.003	85/350 in lbs	-65 to +300	6 min/24 hrs	764	Wicking Threadlocker
*404	Clear	495	0.006	3200 psi	-65 to +180	30 sec/24 hrs	NA	Instant Adhesive
*406	Clear		0.004	3200 psi	-65 to +180	15 sec/24 hrs	N/A	Surface Insensitive Adhesive
*409	Clear	454	0.008	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gel Instant Adhesive
*414	Clear		0.006	2500 psi	-65 to +180	30 sec/24 hr	N/A	Instant Adhesive
*415	Clear	454	0.010	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gap Filling Instant Adhesive (Metals)
*416	Clear	454	0.010	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gap Filling Instant Adhesive (Plastics)
*420	Clear		0.002	2500 psi	-65 to +180	15 sec/24 hrs	N/A	Wicking Instant Adhesive
*422	Clear	454	0.020	2800 psi	-65 to +180	60 sec/24 hrs	N/A	Gap Filling Instant Adhesive
*430	Clear		0.005	2500 psi	-65 to +180	20 sec/24 hrs	N/A	Metal Bonding Adhesive
*445	White/Black		0.250	2000 psi	-65 to +180	5 min/24 hrs	N/A	Fast Setting 2 Part Epoxy
*454	Clear		0.010	3200 psi	-65 to +180	15 sec/24 hrs	N/A	Surface Insensitive Gen Instant Adhesive
*495	Clear		0.004	2500 psi	-65 to +180	20 sec/24 hrs	N/A	General Purpose Instant Adhesive
*496	Clear		0.005	2500 psi	-65 to +180	20 sec/24 hrs	N/A	Metal Bonding Adhesive
504	Brt Orange	515	0.030	750 psi	-65 to +300	90 min/24 hrs	None	Rigid Gasket Eliminator
509	Light Blue		0.020	750 psi	-65 to +320	6 hr/72 hrs	764	Flange Sealant
510	Red		0.020	1000 psi	-65 to +400	30 min/24 hrs	764	High Temperature, GAsket Eliminator
515	Purple		0.010	750 psi	-65 to +300	1 hr/24 hrs	764	Gasket Eliminator 515

Rac 8-98902

* Products 404-496 (except for #445) are all instant adhesives (super glues) they differ mostly in viscosity

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LOCTITE PRODUCT CHART

Product	Color	Similar Products	Gap (In Inches)	Strength (Steel/Steel)	Working Temperature Range-Farenheit	Fixture/Full Cure (Steel/Steel) Time	Primer	Description
518	Red	515	0.030	500psi	-65 to +300	1hr/24 hrs	764	Gasket Eliminator 518 for Aluminum
542	Brown	569	N/A	132/92 in lbs	-65 to +300	2 hr/24 hrs	747	Hydraulic Sealant
545	Purple		N/A	25/20 in lbs	-65 to +300	4 hr/24 hrs	747	Low Strength Pneumatic/Hydraulic Sealant
549	Orange	504	0.020	2500 psi	-65 to +300	2 hr/24 hrs	747	Instant Seal Plastic Gasket
554	Red	277	0.015	240/240 in lbs	-65 to +300	2 to 4 hrs/24 hrs	764	Refrigerant Sealant
567	White	592	N/A	500 psi	-65 to +400	4 hrs/24 hrs	764	Pipe Sealant for Stainless Steel
568	Orange	277	0.015	2500 psi	-65 to +300	12 hrs/24 hrs	764	Plastic Gasket
569	Brown	545	0.010	40/25 in lbs	-65 to +300	1 hr/24 hrs	764	Hydraulic Sealant
570	Brown	592	N/A	25/40 in lbs	-65 to +300	6 hrs/72 hrs	764	Steam Sealant
571	Brown	592	0.015	40/20 in lbs	-65 to +300	2 to 4 hrs/24 hrs	764	Pipe Sealant
572	White	578.575	N/A	80/27 in lbs	-65 to +300	24 hrs/72 hrs	None	Gasketing
592	White		0.020	500 psi	-65 to +400	4 hrs/72 hrs	736	Pipe Sealant with Teflon
593	Black		0.250	400 psi	-95 to +400	30 min/24 hrs	N/A	RTV Silicone
601	Green	609	0.005	3000 psi	-65 to +300	10 min/24 hrs	764	Current PIN #609
609	Green		0.005	3000 psi	-65 to +300	10 min/24 hrs	764	General Purpose Retaining Compound
620	Green	640	0.015	3000 psi	-65 to +450	30 min/24 hrs	747	High Temperature Retaining Compound
635	Green	680	0.010	4000 psi	-65 to +300	1 hr/24 hrs	747	High Strength Retaining Compound
638	Green	680	0.015	4100 psi	-65 to +300	10 min/24 hrs	747	High Strength Retaining Compound
640	Green	620	0.007	3000 psi	-65 to +400	1 hr/24 hrs	747	High Temperature Retaining Compound
660	Silver		0.020	3000 psi	-65 to +300	20 min/24 hrs	764	Quick Metal
675	Green	609	0.005	3000 psi	-65 to +300	20 min/24 hrs	747	General Purpose Retaining Compound
680	Green	635	0.015	4000 psi	-65 to +300	10 min/24 hrs	747	High Strength Retaining Compound
706	Clear	755	N/A	N/A	N/A	N/A	N/A	Cleaning Solvent
707	Amber		N/A	N/A	N/A	N/A	N/A	Activaltor for Structural Adhesives
736	Amber		N/A	N/A	N/A	N/A	N/A	Primer NF
738	Amber		N/A	N/A	N/A	N/A	N/A	Depend Activator
747	Yellow	N/A	N/A	N/A	N/A	N/A	N/A	Primer T
751	Clear		N/A	N/A	N/A	N/A	N/A	Activator for Structural Adhesives
755	Clear		N/A	N/A	N/A	N/A	N/A	Cleaning Solvent
764	Green		N/A	N/A	N/A	N/A	N/A	Primer N
767	Silver		N/A	N/A	-65 to +1600	N/A	N/A	Anti-Seize Lubricant

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Section

1

GENERAL

How it Works

CASE UNITED KINGDOM LIMITED

Don 7-70810

November 1997

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GENERAL OVERVIEW

The CX Series tractors are built in the Case factory at Doncaster, England. These machines are marketed in Europe, North America and in all other export markets served by the company. The tractors are available with two types of safety cabs, the delux cab or the low profile cab.

The range begins with the CX 50 which delivers 50 h.p. (37 Kw) and extends to the CX100 delivering 100 h.p. (74 KW).

Engines

The engines used in these tractors are Case 900 and 1000 Series which are produced in England. The CX50 and CX60 tractors use the three cylinder 900 Series and the CX70, CX80, CX90 and CX100 use the four cylinder 1000 Series engines.

The engines in the CX60 and CX80 are turbocharged, the engines in the CX90 and CX100 have Wastegate turbochargers.

MODELS	CX50	CX60	CX70	CX80	CX90	CX100
No. of Cyl	3	3	4	4	4	4
Max Power PS/KW	50/37	60/44	70/52	80/59	90/66	100/74
Intake Aspiration	Naturally Aspirated	Turbo	Naturally Aspirated	Turbo	Wastegate Turbo	Wastegate Turbo
Rated Speed	2250	2250	2200	2200	2200	2200
Max Torque Nm/ rpm	177/1200	222/1400	271/1400	325/1400	355/1400	402/1400
Torque Rise %	13	19	21	27	24	25
Optimum Fuel Consumption g/kw/h	214	216	214	217	216	210
Fuel Tank Capacity Ltr	155	155	155	155	155	155

Transmission

The fully synchromesh transmission used in these tractors has sixteen forward and eight reverse gears with a forward and reverse synchromesh shuttle and a two speed powershift. In addition the transmission is available as 30 or 40 Kph maximum speed and two or four wheel drive.

A dry single plate diaphragm clutch is used on all models.

PTO

The rear PTO drive is independent from the transmission drive and incorporates a hydraulically operated multiplate wet clutch. This clutch has the facility to feather the engagement of drive for smooth power take up.

The PTO options are single or double output shafts at 540/1000 rpm 6/21 splines or a shiftable single shaft 540/750 or 540/1000 rpm with 6 spline only.

Hydraulics

An engine driven steering pump supplies the steering, the transmission control circuits and the transmission pressure lubrication circuits. A large capacity pump supplies the hitch and auxiliary remote valves.

Up to three remote valves are available plus a power beyond facility.

The new top link sensing electronic hitch (EHC), features many of the features found on the Maxxum MX Series and Magnum tractors to give improved hitch performance.

Brakes

The tractors incorporate inboard wet disc brakes which are hydraulically operated and self adjusting.

A trailer brake valve is standard on some models and available as an option on all other models in the range.

Safety Cabs

The low profile cab provides a low height whilst retaining the comfort and similar specification to the delux version. Special features may include opening front windscreen and a roof window.

The delux cab which is available on all CX models is by design a luxury cab with many built in features. These include low noise down to 73dba on some models, free flow heating and ventilation, air conditioning (optional) and digital instrumentation.

LUBRICANTS AND CAPACITIES

Engine

Oil Type ..... Case No.1 Engine Oil

Oil Capacity
- CX50, CX60 -
  - Without Filter Change ..... 6.75 Litres (1.78 US GAL)
  - With Filter Change ..... 7.5 Litres (1.98 US GAL)
- CX70, CX80, CX90, CX100 -
  - Without Filter Change ..... 7.4 Litres (1.95 US GAL)
  - With Filter Change (With Turbo Charger) ..... 8.5 Litres (2.25 US GAL)
  - With Filter Change (Without Turbo Charger) ..... 8.2 Litres (2.16 US GAL)

NOTE: The oil level dipstick is ONLY a guide, when you fill the engine crankcase with oil. Always measure the amount of oil you install.

Cooling System

Coolant Mix ..... Solution of 55% Water and 45% Ethylene Glycol

Coolant Capacity
- CX50, CX60 ..... 11.4 Litres (3.01 US GAL)
- CX70, CX80, CX90, CX100 ..... 13.7 Litres (3.62 US GAL)

Fuel Tank

Fuel Type ..... No.2 Diesel Fuel
Fuel Tank Capacity ..... 155 Litres (41 US GAL)

Transmission/Hydraulic System

Oil Type ..... Case HY-TRAN PLUS ®
Refill Capacity
- 2WD ..... approximately 34.5 Litres (9.11 US GAL)
- MFD ..... approximately 37.0 Litres (9.77 US GAL)

MFD Axle

Oil Type ..... Case SAE 85W - 140 EP Gear Oil to API GL-5 or MIL-L-2105D Specification (MS 1316)
Axle Differential Capacity ..... 5.0 Litres (1.32 US GAL)
Axle Planetary Capacity (EACH) ..... 0.6 Litres (0.16 US GAL)

Front PTO

Oil Type ..... Case HY-TRAN PLUS ®
Capacity ..... 0.65 Litres (0.17 US GAL)

LUBRICATION/MAINTENANCE CHART

SERVICE HOURS	SERVICE POINTS	SERVICE REQUIRED				
		GREASE	DRAIN	CHECK	CLEAN	CHANGE
10	Fuel Level			X		
	Engine Oil Level			X		
	Transmission/Hydraulic Oil Level			X		
	Front PTO Oil Level			X		
	Coolant Recovery Reservoir Level			X		
	Pneumatic Trailer Brake Reservoir		X			
	General Tractor Inspection - (See Note 1)			X		
50	Air Pressure in Tires			X		
	Fuel Water Trap - Fuel Filter		X			
	2WD Axle Grease Points - (See Note 8)	X				
	MFD Axle Grease Points - (See Note 8)	X				
	Engine Air Filter Dust Valve - (See Note 6)			X		
	Clutch Reservoir Level			X		
	Radiator and Coolers				X	
	Cab Air Recirculation Filter				X	
100	Rear Three Point Linkage - (See Note 1)	X				
	Front Three Point Linkage- (See Note 1)	X				
	Cab Air Intake Filter				X	
250	Front PTO Oil - (See Notes 6 and 7)					X
	Auto Hitch Locking Latches - (See Notes 2 and 6)	X				
	MFD Axle - Differential and Planetary Oil			X		
	Compressor Belt			X		
	Fan and Alternator Belt			X		
	Battery(s)			X		
	Trailer Hitches, Bolt Torques - (See Notes 2 and 6)			X		
	Drawbar Bolt Torques - (See Note 6)			X		
	Engine Oil					X
	Engine Oil Filter					X

LUBRICATION/MAINTENANCE CHART

SERVICE HOURS	SERVICE POINTS	SERVICE REQUIRED				
		GREASE	DRAIN	CHECK	CLEAN	CHANGE
500	Transmission/Hydraulic Oil Filter					X
	Engine Fuel Filter					X
	Auto Hitch Lift Rod Adjustment (See Notes 2 and 6)			X		
1000	Two Wheel Drive Front Wheel Bearing	X				
	MFD Drive Coupling	X				
	Engine Air Intake System			X		
	Engine Primary Air Filter (See Notes 2 and 4)					X
	Engine Secondary Air Filter					X
	Transmission/Hydraulic Oil					X
	In-Line Fuel Filter					
	MFD Planetary Oil (See Note 5)					X
	MFD Differential Oil (See Note 5)					X
	Cab Intake Air Filter (See Note 3)					X
	Cooling System Anti-Freeze (yearly before winter)			X		
	Door Locks and Hinges	X				
	Fuel Injectors				X	
	Valve Clearances			X		
2000	Coolant					X

NOTE 1: *Check for leaks, rubbing hoses, loose bolts and trash build up. Repair all leaks, hoses and tighten loose bolts before field operation.*

NOTE 2: *Check for wear and function.*

NOTE 3: *In dusty conditions the cab filter will require more frequent cleaning.*

NOTE 4: *Also clean the filter element whenever the service monitor illuminates.*

NOTE 5: *Change at first 250 hours.*

NOTE 6: *If equipped.*

NOTE 7: *After 250 PTO operating hours.*

NOTE 8: *In severe operating conditions grease daily.*

Section

1001

SAFETY, GENERAL INFORMATION AND TORQUE SPECIFICATIONS

CASE UNITED KINGDOM LIMITED

Don 8-86531

March 1996

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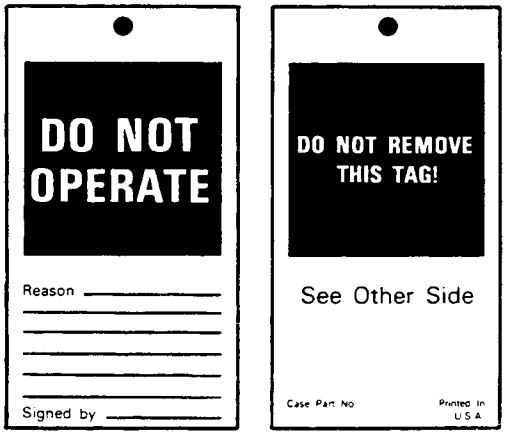
SAFETY

This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death.

To prevent injury always follow the Warning, Caution and Danger notes in this section and throughout the manual.

Put the warning tag shown below on the key for the key switch when servicing or repairing the machine. One warning tag is supplied with each machine. Additional tags Part Number 331-4614 are available from your service parts supplier.



WARNING: Read the operators manual to familiarize yourself with the correct control functions.

WARNING: Operate the machine and equipment controls from the seat position only. Any other method could result in serious injury.

WARNING: This is one a man machine, no riders allowed.

WARNING: Before starting engine, study Operator's Manual safety messages. Read all safety signs on machine. Clear the area of other persons. Learn and practice safe use of controls before operating.
It is your responsibility to understand and follow manufacturers instructions on machine operation, service, and to observe pertinent laws and regulations. Operator's and Service Manuals may be obtained from you J.I.Case dealer.

WARNING: If you wear clothing that is too loose or do not use the correct safety equipment for your job, you can be injured. Always wear clothing that will not catch on objects. Extra safety equipment that can be required includes hard hat, safety shoes, ear protection, eye or face protection, heavy gloves and reflector clothing.

WARNING: When working in the area of the fan belt with the engine running, avoid loose clothing if possible, and use extreme caution.

WARNING: When doing checks and tests on the equipment hydraulics, follow the procedures as they are written. DO NOT change the procedure.

WARNING: When putting the hydraulic cylinders on this machine through the necessary cycles to check operation or to remove air from a circuit, make sure all people are out of the way.

WARNING: Use insulated gloves or mittens when working with hot parts.

CAUTION: Lower all attachments to the ground or use stands to safely support the attachments before you do any maintenance or service.

CAUTION: Pin sized and smaller streams of hydraulic oil under pressure can penetrate the skin and result in serious infection. If hydraulic oil under pressure does penetrate the skin, seek medical treatment immediately. Maintain all hoses and tubes in good condition. Make sure all connections are tight. Make a replacement of any tube or hose that is damaged or thought to be damaged. DO NOT use your hand to check for leaks, use a piece of cardboard or wood.

CAUTION: When removing hardened pins such as a pivot pin, or a hardened shaft, use a soft head (brass or bronze) hammer or use a driver made from brass or bronze and a steel head hammer.

CAUTION: When using a hammer to remove and install pivot pins or separate parts using compressed air or using a grinder, wear eye protection that completely encloses the eyes (approved goggles or other approved eye protectors).

CAUTION: Use suitable floor (service) jacks or chain hoist to raise wheels or tracks off the floor. Always block machine in place with suitable safety stands.

CAUTION: When servicing or repairing the machine. Keep the shop floor and operator's compartment and steps free of oil, water, grease, tools, etc. Use oil absorbing material and or shop cloths as required. Use safe practices at all times.

CAUTION: Some components of this machine are very heavy. Use suitable lifting equipment or additional help as instructed in this Service Manual.

DANGER: Engine exhaust fumes can cause death. If it is necessary to start the engine in a closed place, remove the exhaust fumes from the area with an exhaust pipe extension. Open the doors and get outside air into the area.

DANGER: When the battery electrolyte is frozen, the battery can explode if (1), you try to charge the battery, or (2), you try to jump start and run the engine. To prevent that battery electrolyte from freezing, try to keep the battery at full charge. If you do not follow these instructions, you or others in the area can be injured.

DANGER: Batteries contain acid and explosive gas. Explosions can result from sparks, flames or wrong cable connections. To connect the jumper cables correctly to the battery of this machine see the Operator's Manual. Failure to follow these instructions can cause serious injury or death.

GENERAL INFORMATION

Cleaning

Clean all metal parts except bearings, in mineral spirits or by steam cleaning. Do not use caustic soda for steam cleaning. After cleaning dry and put oil on all parts. Clean oil passages with compressed air. Clean bearings in kerosene, dry the bearings completely and put oil on the bearings.

Inspection

Check all parts when the parts are disassembled. Replace all parts that have wear or damage. Small scoring or grooves can be removed with a hone or crocus cloth. Complete visual inspection for indications of wear, pitting and the replacement of parts necessary will prevent early failures.

Bearings

Check bearings for easy action. If bearings have a loose fit or rough action replace the bearing. Wash bearings with a good solvent or kerosene and permit to air dry. DO NOT DRY BEARINGS WITH COMPRESSED AIR.

Needle Bearings

Before you press needle bearings in a bore always remove any metal protrusions in the bore or edge of the bore. Before you press bearings into position put petroleum jelly on the inside and outside diameter of the bearings.

Gears

Check all gears for wear and damage. Replace gears that have wear or damage.

Oil Seals, O-Rings And Gaskets

Always install new oil seals, o-rings and gaskets. Put petroleum jelly on seals and o-rings.

Shafts

Check all shafts that have wear or damage. Check the bearing and oil seal surfaces of the shafts for damage.

Service Parts

Always install genuine Case service parts, when ordering refer to the Parts Catalog for the correct part number of the genuine Case replacement items. Failures due to the use of other than genuine Case replacement parts are not covered by warranty.

Lubrication

Only use the oils and lubricants specified in the Operators or Service Manual. Failures due to the use of non specified oils and lubricants are not covered by warranty.

STANDARD TORQUE DATA FOR NUTS AND BOLTS

NOTE: *A "click type" torque wrench is recommended for the bolt torques listed below.*

Chart 1 (Plain Nuts/Bolts)

BOLT SIZE (mm)	TYPE 8.8				TYPE 10.9			
	MIN		MAX		MIN		MAX	
	lb ft	Nm	lb ft	Nm	lb ft	Nm	lb ft	Nm
M4	3.0	4.0	3.4	4.5	4.3	5.8	4.8	6.5
M5	4.8	6.5	5.5	7.5	7.0	9.5	7.8	10.5
M6	8.2	11.0	9.2	12.5	11.8	16.0	13.3	18.0
M8	20.0	27.0	22.5	31.0	28.7	39.0	32.3	44.0
M10	40.0	54.0	45.0	61.0	56.0	77.0	64.0	87.0
M12	69.0	94.0	78.0	106.0	100.0	134.0	110.0	151.0
M14	110.0	150.0	125.0	170.0	160.0	215.0	180.0	240.0
M16	175.0	235.0	190.0	260.0	245.0	335.0	275.0	375.0
M20	345.0	470.0	390.0	530.0	480.0	650.0	540.0	730.0
M22	475.0	640.0	530.0	720.0	655.0	890.0	735.0	1000.0
M24	600.0	810.0	675.0	915.0	830.0	1125.0	930.0	1265.0
M30	1190.0	1615.0	1340.0	1815.0	1645.0	2235.0	1855.0	2515.0
M36	2080.0	2825.0	2340.0	3175.0	2875.0	3900.0	3235.0	4390.0

Chart 2 (Phosphate Coated Nuts/Bolts)

BOLT SIZE (mm)	TYPE 8.8				TYPE 10.9			
	MIN		MAX		MIN		MAX	
	lb ft	Nm	lb ft	Nm	lb ft	Nm	lb ft	Nm
M4	2.3	3.0	2.6	3.4	3.2	4.4	3.6	4.9
M5	3.6	4.9	4.1	5.6	5.2	7.1	5.9	8.0
M6	6.2	8.3	6.9	9.4	8.9	12.0	10.0	13.5
M8	15.0	20.3	16.9	23.3	21.5	29.2	24.2	32.8
M10	30.0	41.0	34.0	46.0	42.0	58.0	48.0	65.0
M12	52.0	71.0	59.0	80.0	75.0	101.0	83.0	113.0
M14	83.0	113.0	94.0	126.0	120.0	161.0	135.0	180.0
M16	131.0	176.0	143.0	195.0	185.0	251.0	205.0	280.0
M20	259.0	353.0	293.0	400.0	360.0	490.0	405.0	550.0
M22	355.0	480.0	400.0	540.0	490.0	665.0	550.0	750.0
M24	450.0	608.0	506.0	686.0	625.0	845.0	700.0	950.0
M30	893.0	1211.0	1005.0	1361.0	1235.0	1675.0	1390.0	1885.0
M36	1560.0	2119.0	1755.0	2381.0	2156.0	2925.0	2425.0	3295.0

Chart 3 (Zinc or Cadmium Plated Nuts/Bolts)

BOLT SIZE (mm)	TYPE 8.8				TYPE 10.9			
	MIN		MAX		MIN		MAX	
	lb ft	Nm	lb ft	Nm	lb ft	Nm	lb ft	Nm
M4	2.6	3.5	2.9	3.9	3.7	5.0	4.1	5.6
M5	4.1	5.6	4.6	6.3	5.9	8.0	6.6	9.0
M6	7.0	9.5	7.8	10.6	10.0	13.6	11.3	15.3
M8	17.0	23.1	19.1	25.9	24.4	33.1	27.4	37.2
M10	34.0	46.0	38.3	52.0	48.0	65.0	54.0	74.0
M12	59.0	80.0	66.0	90.0	85.0	114.0	94.0	128.0
M14	94.0	128.0	106.0	145.0	136.0	183.0	153.0	205.0
M16	149.0	200.0	161.0	220.0	208.0	285.0	235.0	320.0
M20	293.0	400.0	330.0	450.0	408.0	555.0	460.0	620.0
M22	400.0	545.0	450.0	615.0	555.0	755.0	625.0	850.0
M24	510.0	690.0	575.0	780.0	705.0	955.0	790.0	1075.0
M30	1010.0	1375.0	1140.0	1545.0	1400.0	1900.0	1580.0	2140.0
M36	1770.0	2400.0	1990.0	2700.0	2445.0	3315.0	2750.0	3730.0

Sección
1001

SEGURIDAD, INFORMACION GENERAL Y ESPECIFICACIONES DE APRIETES

CASE UNITED KINGDOM LIMITED

Don 8-86531S

Enero 1998

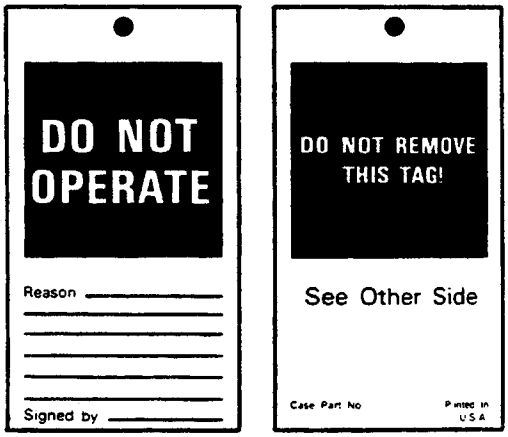
INDICE DE MATERIAS

SEGURIDAD

Este símbolo indica ¡ATENCIÓN !, ¡MANTENGASE ALERTA !. SU SEGURIDAD PERSONAL ESTA COMPROMETIDA. El mensaje que sigue al símbolo contiene información importante acerca de su seguridad. Lea el mensaje cuidadosamente. Asegúrese de que comprende completamente las causas que pueden provocar una posible lesión o la muerte.

Para evitar lesiones, siga siempre las notas de Aviso, Precaución o Peligro que se adjuntan en esta sección y a lo largo de todo el manual

Colocar la tarjeta de aviso que se muestra más abajo, en la llave de contacto cuando esté dando servicio o reparando la máquina. Con cada máquina se suministra una tarjeta de aviso Para conseguir tarjetas adicionales, solicitarlas a su Servicio de Recambios con el Número 331-4614



AVISO : Lea el Manual del Operador para familiarizarse con la función correcta de todos los mandos.

AVISO : Manejar la máquina y los equipos de control, únicamente desde la posición del asiento del conductor. Cualquier otro medio empleado puede resultar en lesiones graves.

AVISO : Esta máquina es para un sólo ocupante, no se permiten pasajeros

AVISO : Antes de poner el motor en marcha, aprenda los mensajes de seguridad del Manual del Operador. Lea todas las señales de seguridad de la máquina. Despeje el área de otras personas presentes. Aprenda y practique el uso seguro de los mandos antes de proceder. Es de su responsabilidad comprender y seguir las instrucciones del fabricante acerca del funcionamiento y servicio de la máquina, así como la observación de todas las leyes y regulaciones legales. El Manual de Servicio y el del Operador los puede obtener en su Concesionario J.I.Case.

AVISO : Si viste ropas demasiado holgadas o no usa el equipo correcto de seguridad para su trabajo, puede resultar lesionado. Vista siempre ropas que no se puedan enganchar en los objetos. El equipo de seguridad extra pueden requerir la inclusión de un casco, zapatos, orejeras, gafas o mascarilla de protección, guantes reforzados y ropa reflectante .

AVISO : Cuando trabaje cerca de la correa del ventilador con el motor en marcha, evite la ropa holgada en lo que sea posible y extreme las precauciones.

AVISO : Cuando proceda a verificaciones y pruebas de los equipamientos hidráulicos, siga los procedimientos que para ellos se han descrito. NO CAMBIE el procedimiento.

AVISO : Cuando al montar cilindros hidráulicos en esta máquina, realice los ciclos necesarios para verificar o purgar el aire del circuito, asegúrese de que todo el personal está suficientemente alejado del área de influencia.

AVISO : Utilizar guantes aislantes o mitenas cuando manipule pieza calientes.

PRECAUCION : Bajar todos los accesorios hasta el suelo o use soportes para sujetarlos con seguridad antes de darles servicio o mantenimiento.

PRECAUCION : Pequeñas perforaciones y chorros diminutos de aceite hidráulico bajo presión pueden penetrar la piel y resultar en infecciones peligrosas. Si el aceite hidráulico bajo presión penetrara en la piel, solicitar tratamiento médico inmediatamente. Mantenga todos los tubos y mangueras en buenas condiciones. Asegúrese de que todas las conexiones están apretadas. Proceda al cambio de cualquier tubo o manguera dañada o deteriorada. NO USE las manos para comprobar una fuga. Utilice una pieza de cartón o un trozo de madera.

PRECAUCION : Cuando desmonte bulones pasadores dificultosos, tales como un bulón pasador pivotante, o un eje endurecido, utilice un martillo de cabeza blanda (cobre o bronce) o ayúdese con un extractor construido con bronce o cobre y un martillo de acero.

PRECAUCION : Cuando utilice un martillo para instalar o desmontar un bulón pivote, o separar componentes con la ayuda de aire comprimido, o muelas, utilice protectores para los ojos (gafas protectoras o cualquier otro protector aprobado para los ojos).

PRECAUCION : Utilice gatos hidráulicos adecuados o cadenas de elevación para izar del suelo las ruedas o las orugas. Bloquear y soportar siempre la máquina mediante apoyos adecuados.

PRECAUCION : Cuando repare o de servicio a la máquina. Mantenga el suelo del taller, compartimentos del operador y escaleras, limpias de aceite, agua, grasa, utilajes, etc. Usar productos absorbentes y/ o trapos de taller según se requiera. Haga uso de practicas seguras al mismo tiempo.

PRECAUCION : Algunos componentes de esta máquina son muy pesados. Use el equipo de elevación adecuado o ayuda adicional como se indica en este Manual de Servicio.

PELIGRO : Las emisiones de escape del motor pueden causar la muerte. Si es necesario poner el motor en marcha dentro de un edificio cerrado, extraiga las emisiones del escape del local con una extensión adecuada del tubo de escape. Abra las puertas y deje penetrar el aire fresco del exterior.

PELIGRO : Cuando se hiela el electrolito de la batería, esta puede explotar si : (1) trata de cargar la batería en ese momento, ó (2) trata de puentearla para poner el motor en marcha. Para evitar que el electrolito se hiele, procure mantener la batería a plena carga. Si no sigue estas instrucciones, usted mismo o cualquier otra persona de alrededor puede resultar lesionada.

PELIGRO : Las baterías contienen ácido y gas explosivo. Una explosión puede ser provocada por chispas, llamas o conexiones equivocadas de los cables. Para conectar un puente correctamente a la batería de esta máquina, ver el Manual del Operador. Seguir estas instrucciones erróneamente puede causar lesiones o la muerte.

INFORMACION GENERAL

Limpieza

Limpiar todas las piezas metálicas, excepto los cojinetes, con esencia mineral o con lanza de vapor No utilizar sosa cáustica con lanza de vapor Después de la limpieza, secar y untar con aceite todas las piezas Limpiar todos los pasajes con aire a presión Limpiar los rodamientos con petróleo secarlos completamente y aceitarlos.

Inspección

Verificar todas las piezas cuando hayan sido desguazadas. Sustituir todas las piezas que presenten desgaste o daños. Pequeños señales y rayas pueden ser eliminadas con piedra o con tela esmeril. Completar la inspección óptica acerca de indicaciones de desgastes, corrosiones y la sustitución de aquellas piezas necesarias que eviten averías prematuras.

Rodamientos

Verificar si los rodamientos giran con facilidad. Si el rodamiento tiene juego o gira áspero, sustituirlo Limpiarlo con un buen disolvente o con petróleo y dejarlo secar al aire NO SECAR UN RODAMIENTO CON AIRE COMPRIMIDO

Rodamientos de agujas

Antes de instalar un rodamiento de agujas en su alojamiento, debe eliminarse siempre cualquier protuberancia, ya sea en las paredes del alojamiento como en los bordes del mismo. Antes de instalarlo en su posición definitiva, aplicar vaselina a los diámetros interior y exterior del rodamiento.

Engranajes

Verificar todos los rodamientos acerca de desgastes o defectos. Sustituir los engranajes que presenten desgastes o desperfectos

Retenes, juntas tóricas y juntas

Montar siempre los retenes, tóricas y juntas nuevas. Aplicar vaselina en los retenes y en las tóricas

Ejes

Verificar todos los ejes acerca de desgastes y o defectos. Verificar las superficies donde trabajan los rodamientos y los engrases acerca de defectos.

Servicio de Recambios

Instalar siempre recambios genuinos Case. Cuando haga el pedido referirse siempre al número de pieza que consta en el Catálogo de Recambios para la sustitución correcta Las averías producidas debido al uso de material no genuino de Case utilizado en las reparaciones, no están cubiertas por la garantía.

Lubricación

Use únicamente los aceites y lubricantes especificados en el Manual del Operador o en el Manual de Servicio. Las averías debidas al uso de aceites y lubricantes no especificados no están cubiertas por la garantía

DATOS ESTÁNDAR PARA EL APRIETE DE TUERCAS Y TORNILLOS

NOTA: *Se recomienda una llave dinamométrica del «tipo click» para el apriete de los tornillos y tuercas que se relacionan en las tablas siguientes.*

Tabla 1 (Tuercas/Tornillos normales)

TAM. TORNILLO (mm)	TIPO 8.8				TIPO 10.9			
	MIN		MAX		MIN		MAX	
	lb ft	Nm	lb ft	Nm	lb ft	Nm	lb ft	Nm
M4	3.0	4 0	3.4	4 5	4.3	5.8	4.8	6.5
M5	4.8	6.5	5.5	7.5	7.0	9.5	7.8	10 5
M6	8.2	11.0	9.2	12.5	11.8	16.0	13.3	18 0
M8	20.0	27.0	22.5	31.0	28.7	39.0	32.3	44.0
M10	40.0	54 0	45.0	61.0	56.0	77.0	64.0	87.0
M12	69.0	94.0	78.0	106.0	100.0	134.0	110.0	151.0
M14	110.0	150.0	125.0	170 0	160.0	215.0	180.0	240.0
M16	175.0	235.0	190.0	260.0	245.0	335.0	275.0	375.0
M20	345.0	470.0	390.0	530 0	480.0	650 0	540.0	730.0
M22	475.0	640.0	530.0	720 0	655.0	890 0	735.0	1000.0
M24	600.0	810.0	675.0	915.0	830.0	1125.0	930.0	1265.0
M30	1190.0	1615.0	1340.0	1815.0	1645.0	2235.0	1855.0	2515.0
M36	2080.0	2825.0	2340.0	3175 0	2875.0	3900.0	3235.0	4390.0

Tabla 2 (Tuercas/Tornillos fosfatados)

TAM. TORNILLO (mm)	TIPO 8.8				TIPO 10.9			
	MIN		MAX		MIN		MAX	
	lb ft	Nm	lb ft	Nm	lb ft	Nm	lb ft	Nm
M4	2.3	3.0	2.6	3.4	3.2	4.4	3.6	4.9
M5	3.6	4.9	4.1	5.6	5.2	7.1	5.9	8 0
M6	6.2	8.3	6.9	9.4	8.9	12.0	10.0	13.5
M8	15.0	20.3	16.9	23.3	21.5	29.2	24.2	32 8
M10	30.0	41.0	34.0	46.0	42.0	58 0	48.0	65.0
M12	52.0	71.0	59.0	80.0	75.0	101.0	83.0	113.0
M14	83.0	113.0	94.0	126.0	120.0	161.0	135.0	180.0
M16	131.0	176.0	143.0	195.0	185.0	251.0	205.0	280 0
M20	259.0	353 0	293.0	400.0	360.0	490.0	405.0	550 0
M22	355.0	480.0	400.0	540.0	490.0	665.0	550.0	750.0
M24	450.0	608.0	506.0	686.0	625.0	845.0	700.0	950.0
M30	893.0	1211.0	1005.0	1361.0	1235.0	1675.0	1390.0	1885.0
M36	1560.0	2119.0	1755.0	2381.0	2156.0	2925.0	2425.0	3295.0

Tabla 3 (Tuercas/Tornillos zincados o cadmiados)

TAM. TORNILLO (mm)	TIPO 8.8				TIPO 10.9			
	MIN		MAX		MIN		MAX	
	lb ft	Nm	lb ft	Nm	lb ft	Nm	lb ft	Nm
M4	2.6	3.5	2.9	3 9	3.7	5.0	4.1	5 6
M5	4.1	5 6	4.6	6 3	5.9	8 0	6.6	9 0
M6	7.0	9 5	7.8	10 6	10.0	13 6	11.3	15.3
M8	17.0	23 1	19.1	25.9	24.4	33 1	27.4	37 2
M10	34.0	46 0	38.3	52.0	48.0	65.0	54.0	74.0
M12	59.0	80.0	66.0	90.0	85.0	114 0	94.0	128 0
M14	94.0	128 0	106.0	145.0	136.0	183 0	153.0	205.0
M16	149.0	200 0	161.0	220.0	208.0	285.0	235.0	320 0
M20	293.0	400.0	330.0	450.0	408.0	555.0	460.0	620.0
M22	400.0	545 0	450.0	615.0	555.0	755 0	625.0	850.0
M24	510.0	690.0	575.0	780.0	705.0	955.0	790.0	1075 0
M30	1010.0	1375.0	1140.0	1545.0	1400.0	1900 0	1580.0	2140.0
M36	1770.0	2400 0	1990.0	2700.0	2445.0	3315.0	2750.0	3730.0

Section

1002

GENERAL SPECIFICATIONS AND TORQUES

CX50, CX60, CX70, CX80, CX90 and CX100 Tractors

CASE UNITED KINGDOM LIMITED

Don 7-71854

February 1998
(Revised December 1999)

TABLE OF CONTENTS

GENERAL SPECIFICATIONS

Capacities

TRANSMISSION/HYDRAULIC (HY-TRAN PLUS ®) OIL CAPACITY
- 2WD Tractors ..... 34.5 Litres — 9.1 US gal
- MFD Tractors ..... 37 Litres — 9.8 US gal

Fuel Tank ..... 155 Litres — 40.9 U.S. gal

Electrical Specifications

Type of System ..... 12 Volt, Negative Ground

Batteries ..... One or Two 12 Volt, Low Maintenance Hybrid Batteries Connected in Parallel
DIN Type 60527, Top Stud Terminals

BATTERY TYPE	SAE (COLD CRANKING CAPACITY)	IEC	DIN	AMPERE HOURS	RESERVE CAPACITY
644	660 Amps	440 Amps	400 Amps	95	180 mins
664	770 Amps	515 Amps	465 Amps	105	210 mins
665	810 Amps	545 Amps	490 Amps	120	220 mins

Fuel Level Sender Resistance
- Empty ..... 28 to 34 Ohms
- Full ..... 240 to 250 Ohms

Steering Specifications

TRACK ADJUSTMENT
- 2WD Toe-in ..... 0 to 5 mm — 0 to 0.20 inch
- MFD Toe-in ..... 0 to 2 mm — 0 to 0.08 inch

STEERING PUMP (ENGINE DRIVEN)
- CX50 and CX60
  - Direction of Rotation ..... Clockwise
  - Flow at 2250 engine rpm ..... 27.7 L/min — 7.3 US gal
  - Rated Working Pressure ..... 160 bar — 2320 psi
- CX70, CX80, CX90 and CX100
  - Direction of Rotation ..... Counterlockwise
  - Flow at 2200 engine rpm ..... 30.3 L/min — 8.0 US gal
  - Rated Working Pressure ..... 160 bar — 2320 psi

Transmission Specifications

CLUTCH

CX50/60/70 Tractors
- Maximum Clutch Plate Thickness ..... 10.4 mm — 0.41 inch
- Clutch Plate Diameter ..... 305 mm — 12 inch
- Number of Friction Plate Pads ..... 5 each side

CX80/90/100 Tractors
- Maximum Clutch Plate Thickness ..... 10.4 mm — 0.41 inch
- Clutch Plate Diameter ..... 310 mm — 12.20 inch
- Number of Friction Plate Pads ..... 7 each side

SPEED TRANSMISSION		
Speed Transmission Synchronizer End Play	0.05 to 0.30 mm	0.002 to 0.012 inch
RANGE TRANSMISSION		
Pinion Bearing End Play (Maximum)	0.076 mm	0.003 inch
Synchronizer Running Clearance	0.05 to 0.30 mm	0.002 to 0.012 inch
Selector Fork Running Clearance	0.05 mm	0.002 inch
REAR AXLE		
Planetary Gear/Planetary Gear Carrier Shimming	refer to Section 6012	
DIFFERENTIAL		
Differential Lock Selector Ring Clearance (Engaged Position)	0.025 to 0.90 mm	0.001 to 0.035 inch
Ring Gear to Pinion Backlash	0.152 to 0.304 mm	0.006 to 0.012 inch
Ring Gear to Differential Housing Run-out	0 to 0.102 mm	0 to 0.004 inch
Differential Bearing Rolling Pull	2.0 to 6.5 kg	4.5 to 14.5 lb
PTO CLUTCH		
Standard Clutch		
Number of Friction Plates	5	
Number of Steel Separator Plates (2 between each Friction Plate)	8	
Heavy Duty Clutch		
Number of Friction Plates	6	
Number of Steel Separator Plates	5	
MFD CLUTCH		
Friction Plate Thickness (New)	2.25 to 2.35 mm	0.089 to 0.092 inch
Friction Plate Thickness (Minimum)	2.00 mm	0.079 inch
MFD Clutch Torque	638 to 792 Nm	470 to 584 lb ft
Output Shaft Bearing Preload (without oil seals)	20 to 40 N	4.50 to 9.00 lb
MFD Drive Shaft Deflection (below the center line of the shaft) (measured at Center Support Bearing)	0.50 to 0.55 mm	0.019 to 0.021 inch
MFD PARKING BRAKE		
Front and Rear Brake Pads (New)	10.70 to 10.90 mm	0.42 to 0.43 inch
Front and Rear Brake Pads (Minimum)	10.50 mm	0.41 inch
Central Brake Pads (New)	4.00 to 4.10 mm	0.157 to 0.161 inch
Central Brake Pads (Minimum)	3.50 mm	0.138 inch
MFD AXLE		
Differential		
Separator Plate Thickness	1.5 mm	
Friction Disc Thickness	1.45 to 1.6 mm	
Thrust Plate Thickness	2.7 to 2.8 mm	
Pinion Shaft Bearing Preload	105 to 157 N	23.6 to 35.3 lbf
Pinion Shaft/Differential Bearing Total Preload	105 to 157 (+ 29.5 to 44.1) N	23.6 to 35.3 (+ 6.6 to 9.9) lbf
Bevel Gear to Pinion Backlash	0.16 to 0.22 mm	0.006 to 0.008 inch
Lubricants		
Planetary and Wheel Hub		
Type	SAE 85W-140EP (MS1316)	
Capacity, per Hub	0.6 Litres	0.63 US Quart
Differential/Axle Housing		
Type	SAE 85W-140EP (MS1316)	
Capacity	6 Litres	1.6 US gal
Grease	251 HEP or equivalent Multi-Purpose Lithium Grease	

Brake Specifications

2WD PARKING BRAKE
- Number of Friction Discs 3
- Number of Stationary Discs 3
- Friction Disc (New) ..... 2.90 mm 0.116 inch
- Stationary Disc Thickness (New) ..... 1.80 mm 0.070 inch

Type ..... Hydraulically Operated Oil Cooled Disc
Inner Brake Ring Backlash ..... 0.127 to 0.635 mm 0.005 to 0.025 inch
Brake Piston Test Pressure
- Low Pressure Test ..... 4 Steps of 3.4 bar (50 psi) up to 13.8 bar (200 psi)
- High Pressure Test ..... 27.6 bar 400 psi

Hydraulic Specifications

		CX50/60	CX70/80/90/100
Hydraulic System Type		Open	
Steering Hydraulic Pump		27.7 L/min (7.3 US gpm) at 2250 engine rpm	30.3 L/min (8.0 US gpm) at 2200 engine rpm
Transfer Pump		36 L/min (9.5 US gpm)	
Flow to Remotes	540/750 PTO	50.2 L/min (13.3 US gpm)	59.4 L/min (15.7 US gpm)
	540/1000 PTO	51.7 L/min (13.6 US gpm)	
Main Hydraulic Pump	540/750 PTO	50.2 L/min (13.3 US gpm)	59.4 L/min (15.7 US gpm)
	540/1000 PTO	51.7 L/min (13.6 US gpm)	
Pump gear (No. of teeth)	540/750 PTO	23	19
	540/1000 PTO	27	23
Pump mounting plate thickness		N/A	5.31 to 5.43 mm (0.209 to 0.213 inch)

Main Relief Valve Pressure ..... 172.5 bar 2502 psi
Remote Detent Kick-out Pressure ..... 144.7 to 172.3 bar 2100 to 2500 psi
Steering Relief Valve Pressure ..... 141 to 148 bar 2050 to 2150 psi
Regulated Pressure ..... 20 bar 290 psi
Oil Cooler By-pass Pressure ..... 10.4 bar 150.8 psi
Steering Return Flow
- CX50/60 at 2250 engine rpm ..... 27.7 L/min 7.3 US gpm
- CX70/80/90/100 at 2200 engine rpm ..... 30.3 L/min 8.0 US gpm

Oil Cooler Flow
- CX50/60 at 2250 engine rpm ..... 23.7 L/min 6.3 US gpm
- CX70/80/90/100 at 2200 engine rpm ..... 26.3 L/min 6.9 US gpm

PTO Control Spool Assembly
- Return Spring - Free Length ..... 79.63 mm 3.14 inch
- High Pressure Spring - Free Length ..... 29.65 mm 1.17 inch
- Low Pressure Spring - Free Length ..... 24.42 mm 0.96 inch

Hitch Valve
- Load Check Spring - Free Length ..... 29.7 Mm 1.17 Inch
- Secondary Raise Spring - Free Length ..... 40.4 mm 1.59 inch

Hydraulic Oil Test Temperature ..... 49˚ C 120˚ F

Air Conditioning System Specifications

Refrigerant Type	HFC - 134a Per ARI Standard 700	
System Capacity	1.93 kg	4.25 lb
Boiling Point at Atmospheric Pressure	- 26˚ C	- 15˚ F
Compressor		
Manufacturer	SANDEN	
Model	SD 7H15MD4609	
Number of Cylinders	7	
Displacement Per Revolution	155 cc	
Clutch Voltage	12V	
Clutch Coil Amperage Draw at 12 Volts	3.6 to 4.2 Amperes	
Front Clutch Plate Air Gap	0.4 to 0.8 mm	0.016 to 0.032 inch
Drive Belt Tension (New)	422 to 516 N	95 to 115 lbf
Drive Belt Tension (Used)	400 to 489 N	90 to 110 lbf
Compressor and System Lubrication (Nominal)		
Lubricant Type	Sanden SP - 20 PAG Oil	
Compressor Capacity (New)	270 to 300 ml	
Compressor Capacity (Previously Run)	50 to 100 ml	
Component Capacity (add to compressor when component has been replaced)		
Receiver Dryer	25 to 30 ml	
Condenser	45 to 50 ml	
Evaporator	35 to 40 ml	
Hose and Tubes (Total)	45 to 50 ml	
High Pressure Switch		
Location	Discharge Hose from Compressor to Condenser	
Operation	Closed by Excessive Pressure	
Cut Out Pressure	26.9 to 28.3 bar	390 to 410 PSI
Low Pressure Switch		
Location	Evaporator Outlet in the Cab Roof	
Operation	Closed by Low Pressure	
Cut Out Pressure	0.14 to 0.41 bar	2 to 6 PSI
Temperature Control Switch		
Location	Evaporator Core in the Cab Roof	
Cut Out Temperature (Maximum Cold Setting)	0.8° to 2.5° C	33.4° to 36.5° F
Cut In Temperature (Maximum Cold Setting)	5.8° to 7.5° C	42.4° to 45.5° F
Coolant		
CX50 and CX60 Tractors		
Capacity	13.4 litres	3.5 U.S. gal
CX70, Cx80, CX90 and CX100 Tractors		
Capacity	17.5 litres	4.6 U.S. gal
Fluid Type	50 percent Ethylene Glycol and Water	

SPECIAL TORQUES

Steering

Steering Wheel Retaining Nut	45 to 51 Nm	33 to 37 lb ft
Steering Hand Pump Retaining Bolts	45 to 51 Nm	33 to 37 lb ft
Steering Hand Pump End Cover Retaining Bolts	25 to 35 Nm	19 to 26 lb ft
Steering Relief Valve Plug	40 to 60 Nm	30 to 44 lb ft
Front Weight Bracket Retaining Bolts	481 to 542 Nm	355 to 400 lb ft
Front Wheel Nuts	refer to Operators Manual for correct wheel rim size	
Wheel Bearing Nut	refer to Section 5003 for tightening procedure	
2WD Front Axle		
Tie Rod Lock Nut	34 to 40 Nm	25 to 30 lb ft
Tie Rod Lock Bolt	81 to 88 Nm	60 to 65 lb ft
Tie Rod Tube Lock Nut	235 to 250 Nm	173 to 184 lb ft
Steering Arm Clamp Bolt	108 to 122 Nm	80 to 90 lb ft
Wheel Bearing Nut	refer to Section 5003	
2WD Steering Cylinder		
Cylinder Clevis (with Loctite 270)	110 to 135 Nm	80 to 100 lb ft
Cylinder Clevis Pin Retaining Bolt	27 to 31 Nm	20 to 23 lb ft
Lower Bearing Carrier Retaining Bolts	110 to 122 Nm	80 to 90 lb ft
Steering Pump (Engine Driven)		
Retaining Bolts	41 to 48 Nm	30 to 35 lb ft
Inlet Tube Retaining Screws	23 to 31 Nm	17 to 23 lb ft
Front Bolster to Engine Retaining Bolts (with Loctite 271)	258 to 284 Nm	190 to 210 lb ft
Front Bolster to Engine Retaining Nuts (with Loctite 271)	258 to 284 Nm	190 to 210 lb ft

Transmission

Flywheel Retaining Bolts	116 to 130 Nm	86 to 98 lb ft
Clutch Retaining Bolts	20 to 23 Nm	15 to 17 lb ft
Engine to Speed Transmission Mounting Bolts	122 to 129 Nm	90 to 95 lb ft
Speed to Range Transmission Retaining Bolts		
1/2 inch Bolts (With Loctite 271)	101 to 104 Nm	75 to 84 lb ft
5/8 inch Bolts (With Loctite 271)	205 to 230 Nm	150 to 170 lb ft
Main Shaft Retaining Bolts	42 to 47 Nm	31 to 34 lb ft
Selector Fork to Selector Rail Lock Bolt	89 to 100 Nm	65 to 74 lb ft
Selector Fork to Selector Rail Lock Nut	53 to 59 Nm	39 to 43 lb ft
PTO Bearing Retainer Bolts (with Loctite 271)	42 to 47 Nm	31 to 34 lb ft
Clutch Release Bearing Carrier Retaining Bolts (with Loctite 271)	42 to 47 Nm	31 to 34 lb ft
Pinion Shaft Retaining Bolts	42 to 47 Nm	31 to 34 lb ft
Planet Carrier Retaining Bolt	290 to 330 Nm	220 to 250 lb ft
Rear Axle Mounting Bolt	270 to 305 Nm	200 to 225 lb ft
Flange Axle - Wheel Nuts	278 to 298 Nm	205 to 220 lb ft
Bar Axle - Wheel to Hub Bolts	183 to 207 Nm	135 to 153 lb ft
Differential		
Ring Gear Dowel Bolts	156 to 170 Nm	115 to 125 lb ft
Ring Gear Retaining Bolts	156 to 170 Nm	115 to 125 lb ft
Bearing Carrier Retaining Bolts	156 to 170 Nm	115 to 125 lb ft
PTO Clutch Access Cover	117 to 133 Nm	86 to 98 lb ft
PTO Shaft Cover Retaining Bolts	45 to 50 Nm	33 to 37 lb ft
PTO Clutch Access Cover Retaining Bolts	117 to 133 Nm	86 to 98 lb ft
PTO Housing		
3/8 inch Retaining Bolts	45 to 50 Nm	33 to 37 lb ft
1/2 inch Retaining Bolts	136 to 152 Nm	100 to 112 lb ft

MFD Transfer Gearbox		
Mounting Bolts	117 to 133 Nm	86 to 98 lb ft
Drain Plug	80 Nm	59 lb ft
Front Cover Retaining Bolts	23 Nm	17 lb ft
Rear Cover Retaining Bolts	23 Nm	17 lb ft
Brake Pad Guide Pin Plug	150 Nm	111 lb ft
Solenoid Cover Retaining Bolts	12 Nm	9 lb ft
Solenoid Valve	27 Nm	20 lb ft
Drive Shaft Coupling Locknut	54 to 61 Nm	40 to 45 lb ft
MFD Axle		
Axle Support Housing Retaining Bolts	200 Nm	148 lb ft
Wheel Hub Drain/Filler Plug	80 Nm	59 lb ft
Axle/Differential Housing Drain Plug	70 Nm	51 lb ft
Axle Dipstick	10 Nm	7 lb ft
Wheel Hub to Planetary Gear Carrier Countersunk Screws	25 Nm	18 lb ft
Planetary Gear Carrier to Swivel Housing Retaining Bolts	78 Nm	58 lb ft
Upper and Lower King Pin Retaining Bolts	120 Nm	89 lb ft
Differential Housing to Axle Retaining Bolts	169 Nm	125 lb ft
Bevel Gear Retaining Bolts (with Loctite 270)	78 Nm	56 lb ft
Differential Bearing Cap Retaining Bolts	266 Nm	196 lb ft
Locking Plate Retaining Bolts	12 Nm	9 lb ft
Ball Joint Assembly to Steering Cylinder Piston Rod	300 Nm	221 lb ft
Ball Joint Locknut	165 Nm	122 lb ft
Steering Cylinder Retaining Bolts	120 Nm	88 lb ft
Front Wheel Nuts	300 to 350 Nm	221 to 258 lb ft
Front Weight Bracket	481 to 542 Nm	355 to 400 lb ft
Wheel Stud	70 Nm	51 lb ft

Brakes

Parking Brake Cable Bracket Bolts	45 to 50 Nm	33 to 37 lb ft
Parking Brake Support Bolts	45 to 50 Nm	33 to 37 lb ft
Parking Brake Assembly Support Nuts	156 to 176 Nm	115 to 130 lb ft
Hydraulic Trailer Brake Valve		
End Cap Socket Head Screws	10 Nm	7 lb ft
Bleed Valve	2.5 Nm	22 lb in

Hydraulics

Filter Manifold Retaining Bolts	45 to 50 Nm	33 to 37 lb ft
Hydraulic Filter Retaining Bolt	16 to 21 Nm	12 to 16 lb ft
Main Hydraulic Pump Retaining Bolts	24 to 28 Nm	18 to 21 lb ft
Main Hydraulic Pump Drive Gear Locknut	61 to 68 Nm	45 to 50 lb ft
Main Hydraulic Pump End Plate		
Retaining Bolt	27 to 31 Nm	20 to 23 lb ft
Cap Screw	24 to 27 Nm	18 to 20 lb ft
Main Relief Valve	34 to 54 Nm	25 to 40 lb ft
Fitting, PTO Spool Supply	34 to 54 Nm	25 to 40 lb ft
Elbow, Filter Manifold Inlet	34 to 54 Nm	25 to 40 lb ft
Plug, PTO Spool	34 to 54 Nm	25 to 40 lb ft
Hitch Valve Plugs and Cap Screws		refer to Section 8009
Regulator Valve		
Retaining Bolts	42 to 47 Nm	31 to 35 lb ft
Solenoid Valve to Regulator Valve	10 to 15 Nm	88 to 133 lb inch
Coil to Solenoid Retaining Nut	5 to 8 Nm	44 to 71 lb inch
Regulator Pressure Valve Locknut	34 to 54 Nm	25 to 40 lb ft
Oil Cooler By-Pass Valve Plug	34 to 54 Nm	25 to 40 lb ft
Solenoid Valve Plug (8 Speed Transmission)	34 to 54 Nm	25 to 40 lb ft
Differential Lock Solenoid		
Coil to Solenoid Retaining Nut	5 to 8 Nm	44 to 71 lb inch
Unloader Valve		
Retaining Bolts	42 to 47 Nm	31 to 35 lb ft
Regulator Valve Plug	34 to 54 Nm	25 to 40 lb ft
Remote Valve		
Retaining Bolts	16 to 20 Nm	12 to 15 lb ft
Hydraulic Housing		
3/8 inch Retaining Bolts	45 to 50 Nm	33 to 37 lb ft
1/2 inch Retaining Bolts	108 to 122 Nm	80 to 90 lb ft
Front Hitch		
Mounting Bolts	406 to 490 Nm	299 to 361 lb ft
Front Cover Bolts	257 Nm	190 lb ft
Piston Retaining Nut	776 Nm	572 lb ft

Chassis and Mounted Equipment

Cab Mounting Nuts	190 to 244 Nm	140 to 180 lb ft
Cab Mounting Bolt to Threaded Plate	47 to 61 Nm	35 to 45 lb ft

Air Conditioning System

Fittings With O-Rings		THREAD				
FITTING	**TORQUE**	**M10-1.25**	**5/8-18**	**3/4-16/18**	**7/8-14/18**	**1-14**
Steel to Steel	Nm	-	31 to 36	40 to 46	45 to 52	-
	lb ft	-	22.8 to 26.5	29.5 to 34	33.2 to 38.4	-
Brass, Copper or Aluminium to Steel	Nm	10 to 14	18 to 23	24 to 30	30 to 37	45 to 52
	lb ft	7.4 to 10.3	13.3 to 17	17.7 to 22	22 to 27.3	33.2 to 38.4

IMPORTANT: *Lubricate all threads and o-rings with mineral oil.*

IMPORTANT: *When tightening the air conditioner tubes and hoses, always use a second wrench for support.*

Section

1005

SPECIAL TOOLS

CX50, CX60, CX70, CX80, CX90 and CX100 Tractors

CASE UNITED KINGDOM LIMITED

Don 7-71865

February 1998
(Revised December 1999)

TABLE OF CONTENTS

SPECIAL TOOLS

TOOL APPLICATION	TOOL PART NUMBER

Engine

Gauge, piston height, valve depth and cylinder liner protrusion	PD.41D
Seal Installer, Crankshaft Rear Oil Seal	PD.145D
Timing Centralizer	PD.159A
Timing Cover Aligning Tool	PD.162B
Engine Turn Over Tool	PD.165B
Seal Installer, Timing Cover Seal (main tool)	PD.170
Pressure Plate (use with PD.170)	PD.170-1
Sleeve (use with PD.170)	PD.170-2
Fastener Plate (use with PD.170)	PD.170-3
Adaptor (use with PD.170)	PD.170-4
Oil Seal Replacer (use with PD.170)	PD.170-4A
Oil Seal Replacer (use with PD.170)	PD.170-5
Crankshaft Locking Pin	PD.241
Timing Pin, Lucas Fuel Injection Pump	PD.246
Torx Bit, Fuel Pump Gear (engine serial number U873789D and after)	CAS2613

Fuel

Timing Pin (Lucas Fuel Injection Pumps only)	PD.246

Electrical

Multimeter	CAS1559
Harness Repair Kit	AJI1400004
Europe only Harness Repair Kit	CAS31000
Heavy Duty Battery Tester	CAS10930
Rechargeable Battery Pack	CAS10931
Optical Engine Coolant and Battery Electrolyte Tester	CAS10932

Steering

Seal Installer, Danfoss Steering Hand Pump Seal	CAS2552

Transmission

- Alignment Tools, Engine Clutch ..... CAS1918 and CAS1919
- Tractor Splitting Stands
  - Europe
    - Tractor Splitting Kit CAS30009
  - North America
    - Tractor Splitting Stand (Front) CAS10852
    - Tractor Splitting Stand (Rear) CAS10853
    - Hydraulic Jacks CAS10855A
- Seal Expander/Protector Set, Speed Transmission Mainshaft CAS2366
- Seal Compressor, Speed Transmission Mainshaft CAS2367
- Alignment Tool, Powershift Clutch CAS1921A
- Sleeve Installer, Sprag Clutch CAS1920
- Remover/Installer for PTO Driven Shaft CAS2559
- Sealing Ring Expander/Protector, Countershaft CAS2557
- Sealing Ring Compressor, Countershaft CAS2556
- Alignment Studs (part of Kit CAS1995) CAS1995-7
- Installer for Rear Lube Retaining Ring and Needle Roller Bearing CAS2558
- Handle (use with CAS2558) CAS2555
- Bushing Driver Set CAS10388
- Cab Support Stands CAS10281
- Seal Expander/Protector, Input Shaft CAS2519-1
- Spacer Ring CAS2519-2
- Seal Compressor, Input Shaft CAS2520
- Synchronizer Gauge CAS2364
- Shift Rail Gauge CAS2365
- Snap Ring Pliers CAS2194
- MFD Clutch Torque Adaptor/Pinion Shaft Retaining Tool CAS1876

MFD Axle (up to Axle Serial Number 37835)

- Pinion Nut Wrench CAS2712
- Pinion Shaft Retaining Tool CAS1876
- Differential Adjusting Nut Wrench CAS1840C
- Pinion Shaft Setting Kit
  - Pinion Height Measuring Gauge CAS2039
  - Handle CAS1596A-4
  - Screw CAS1596A-7

MFD Axle (from Axle Serial Number 37836)

Pinion Nut Wrench CAS2712

Pinion Shaft Retaining Tool CAS1876

Differential Adjusting Nut Wrench CAS1840C

Pinion Shaft Setting Kit
- Pinion Height Measuring Gauge CAS2039
- Handle CAS1596A-4
- Screw CAS1596A-7

Wheel Hub Seal Installer CAS2705

Swivel Housing Bushing Installer CAS2707

Swivel Housing Seal Installer CAS2706

Axle Housing Bushing Installer CAS2708

Axle Housing Seal Installer CAS2711

Pinion Seal Installer CAS2704

Handle CAS1924

Brakes

Hydraulic Test Kit 1094059R92

Brake Installation Tool IH9674

Brake Piston Removal Tool IH7847A

Hydraulics

Flowmeter OEM1238

Tube (available through Case Parts) 539835R2

Cap, 9/16-18 JIC (available through Case Parts) 218-754

Male Coupler, Quick Disconnect (available through Case Parts) 1272399C2

Hydraulic Test Kit (available through Case Parts) 1094059-R92

Chassis and Mounted Equipment

Cab Lifting Frame CAS2531

Cab Lifting Brackets CAS2529

Tilt Hinges CAS2530

Support Rod CAS2532

Air Conditioner System Component Servicing
- Compressor Service Tool Kit CAS10747A
- Puller Jaw Set ..... CAS2332 (to be used with CAS10747A)
- Compressor Holding Bracket CAS2576
- Compressor Belt Tension Tool CAS2526

Section 2

ENGINE

How it Works

CONTENTS

Engines

General

The engines used in these tractors are the 3 cylinder Case 900 Series and 4 cylinder 1000 Series which are available in naturally aspirated or turbocharged. These engines are produced in England and have many features that improve performance, reliability, service life and reduce maintenance and service costs.

Many of the components used in one engine are the same as those used in other engines of the range.

Most of the servicing procedures and specifications are the same throughout the engine range.

The CX50 and CX60 tractors use the three cylinder 900 Series and the CX70, CX80, CX90 and CX100 use the four cylinder 1000 Series engines.

Fuel System

The fuel tank capacity on all models is 155 Ltr and is pumped to the injection pump by an engine driven diaphragm lift pump. The CX50 and CX60 have a Lucas DP 202 injection pump and the CX70, CX80, CX90 and CX100 have a Lucas DP 203 injection pump.

The CX100 injection pump is also controlled by turbo boost pressure.

All pumps have an electrically operated cold start devise which advances the fuel timing when the temperature is low and returns the timing to the correct setting when the temperature increases.

These pumps also have electrically operated fuel shut-off control and a self venting feature to aid venting the fuel system.

The fuel injectors have 5 hole nozzles and have a threaded gland type mounting.

Air Intake System

The engines in the CX50 and CX70 are naturally aspirated, the CX60 and CX80 engines are turbocharged, the engines in the CX90 and CX100 have Wastegate turbochargers.

Cooling System

The cooling system uses an in-line tube radiator with an aluminium core. The radiator can be repaired without specialist equipment. All the CX Series have the benefit of a Viscous fan for more efficient cooling and increased fuel economy.

The thermostart has a by-pass valve which allows all the engine coolant to circulate around the engine during warm up periods, this ensures a more even distribution of heat as the engine reaches its working temperature.

General Engine Specifications

MODELS	CX50	CX60	CX70	CX80	CX90	CX100
No. of Cyl	3	3	4	4	4	4
Cubic Capacity Litres/in^3	2.7/165	2.7/165	4.2/256	4.0/243	4.0/243	4.0/243
Bore/Stroke mm (ins)	95/127 (3.74/5.0)	95/127 (3.74/5.0)	103/127 (3.95/5.0)	100/127 (3.94/5.0)	100/127 (3.94/5.0)	100/127 (3.94/5.0)
Intake Aspiration	Naturally Aspirated	Turbo	Naturally Aspirated	Turbo	Wastegate Turbo	Wastegate Turbo
Max Power PS/KW	50/37	60/44	70/52	80/59	90/66	100/74
Rated Speed	2250	2250	2200	2200	2200	2200
High idle speed	2400	2400	2400	2400	2400	2400
Low idle speed	650-750	650-750	650-750	650-750	700-800	700-800
Max Torque Nm/ rpm	177/1200	222/1400	271/1400	325/1400	355/1400	402/1400
Torque Rise %	13	19	21	27	24	25
Optimum Fuel Consumption g/kw/h	214	216	214	217	216	210
Fuel Tank Capacity Ltr	155	155	155	155	155	155
Inj Pump - Lucas	DP202	DP202	DP203	DP203	DP203	DP203
Pump Timing °BTDC/RPM	2.5/2250	1.0/2250	0/2200	0/2200	0/2200	0/2200
Compression Ratio	17.5:1	17.5:1	17.25:1	17.25:1	17.25:1	17.25:1
Valve Clearance Inlet/Exh - cold mm(ins)	0.45/0.45 (0.008/ 0.018)	0.45/0.45 (0.008/ 0.018)	0.45/0.45 (0.008/ 0.018)	0.45/0.45 (0.008/ 0.018)	0.45/0.45 (0.008/ 0.018)	0.45/0.45 (0.008/ 0.018)