
bobcat

TECHNICAL DATA

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TECHNICAL DATA

SPECIFICATIONS (Perkins)

SPECIFICATIONS ((200 Series Perkins)

SPECIFICATIONS (Isuzu)

GENERAL SPECIFICATIONS

843 Loader
Service Manual

GENERAL SPECIFICATIONS

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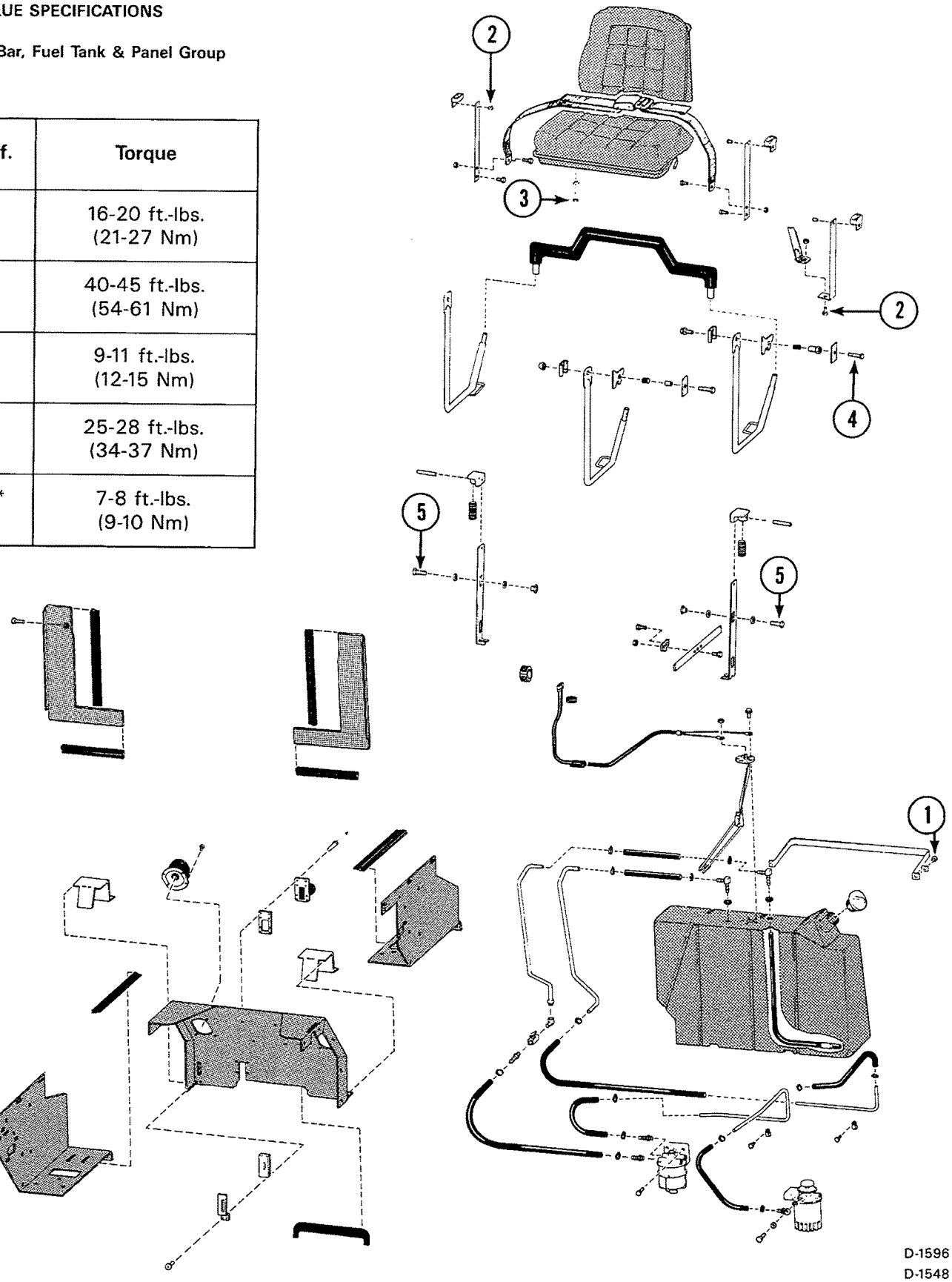
bobcat

TORQUE SPECIFICATIONS

Seat Bar, Fuel Tank & Panel Group

Ref.	Torque
1.	16-20 ft.-lbs. (21-27 Nm)
2.	40-45 ft.-lbs. (54-61 Nm)
3.	9-11 ft.-lbs. (12-15 Nm)
4.	25-28 ft.-lbs. (34-37 Nm)
5.*	7-8 ft.-lbs. (9-10 Nm)

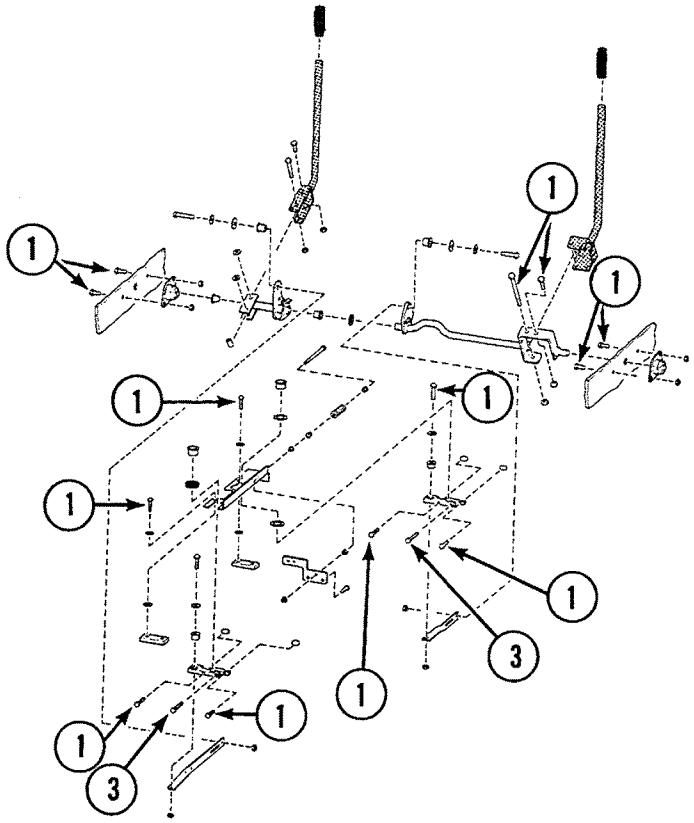


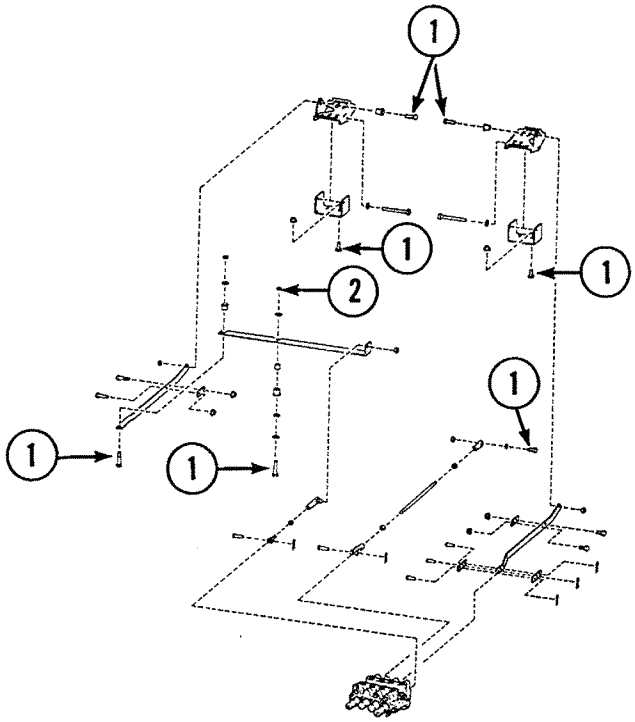
D-1596
D-1548
D-1696

* Put Lock-Tite on the Treads

Steering Levers, Linkage & Pedal Group

Ref.	Torque
1.	25-28 ft.-lbs. (34-38 Nm)
2.	11-13 ft.-lbs. (15-18 Nm)
3.	18-20 ft.-lbs. (24-27 Nm)





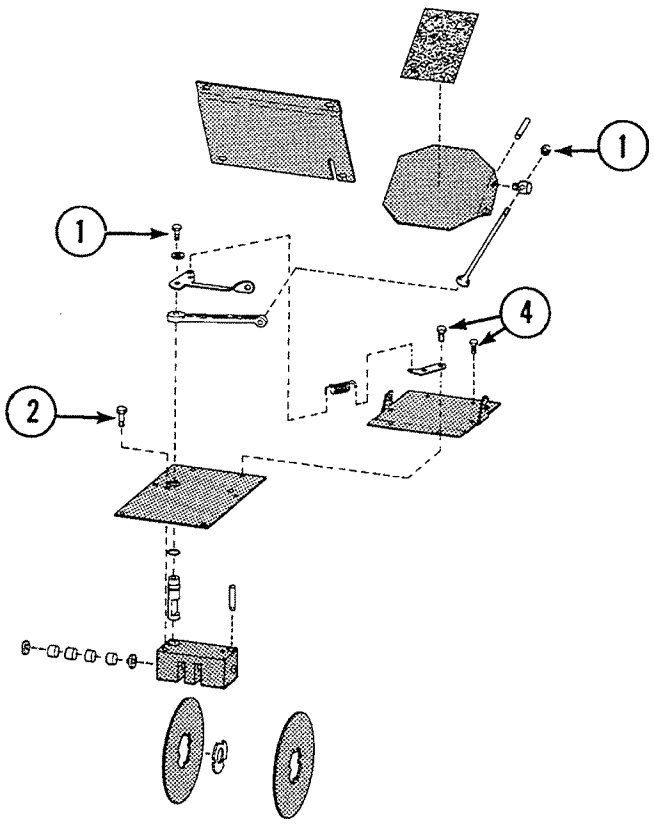
* Put Lock-Tite on the Treads

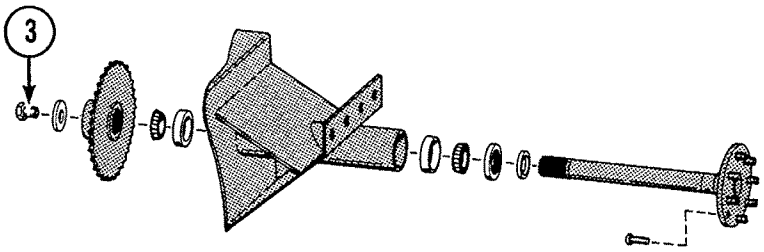
E-1525
E-1617

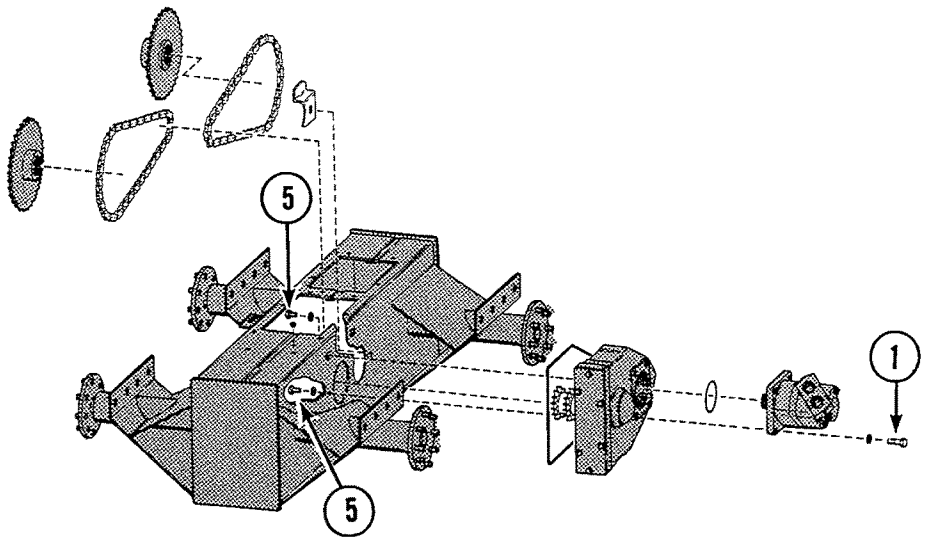
TORQUE SPECIFICATIONS (Cont'd)

Brake, Axle & Chaincase Group

Ref.	Torque
1.	65-70 ft.-lbs. (88-95 Nm)
2.*	65-70 ft.-lbs. (88-95 Nm)
3.*	475-525 ft.-lbs. (645-710 Nm)
4.	16-20 ft.-lbs. (21-27 Nm)
5.	220-234 ft.-lbs. (300-330 Nm)





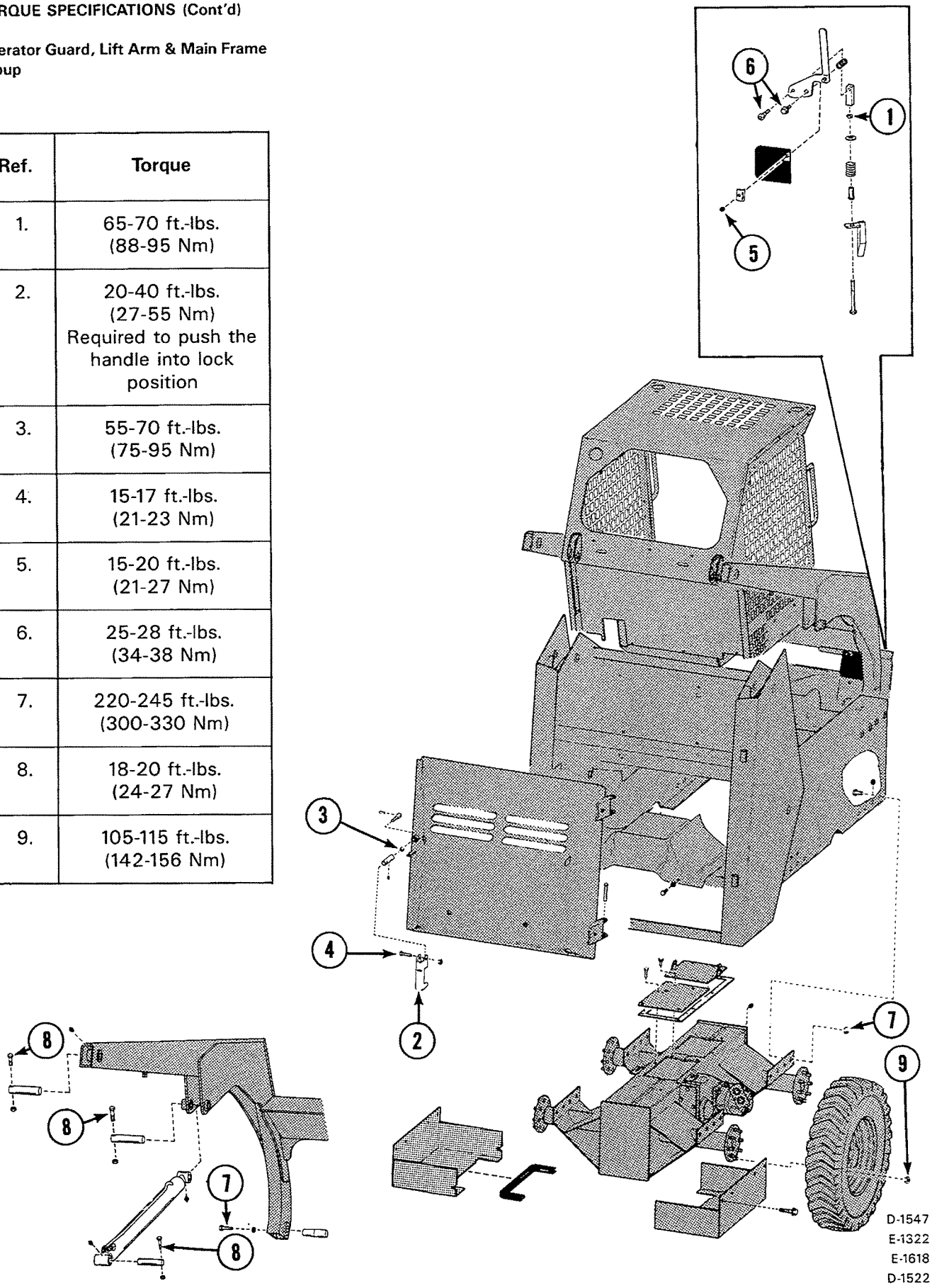


D-1553
C-2528
D-1524

* Put Lock-Tite on the Treads

Operator Guard, Lift Arm & Main Frame Group

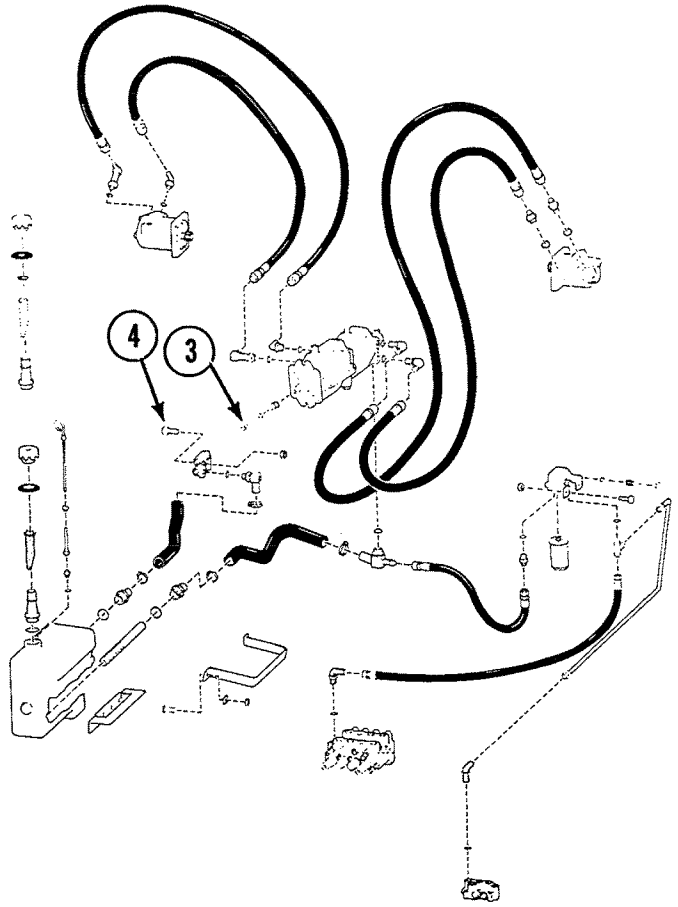
Ref.	Torque
1.	65-70 ft.-lbs. (88-95 Nm)
2.	20-40 ft.-lbs. (27-55 Nm) Required to push the handle into lock position
3.	55-70 ft.-lbs. (75-95 Nm)
4.	15-17 ft.-lbs. (21-23 Nm)
5.	15-20 ft.-lbs. (21-27 Nm)
6.	25-28 ft.-lbs. (34-38 Nm)
7.	220-245 ft.-lbs. (300-330 Nm)
8.	18-20 ft.-lbs. (24-27 Nm)
9.	105-115 ft.-lbs. (142-156 Nm)

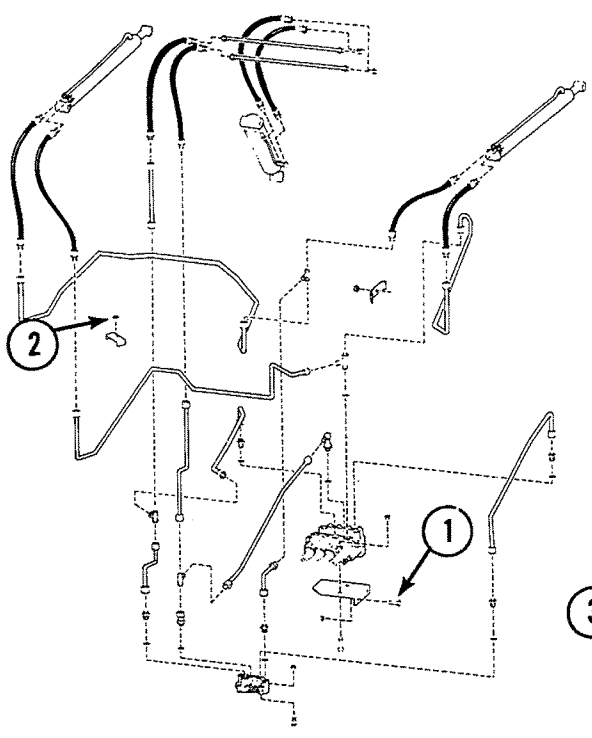


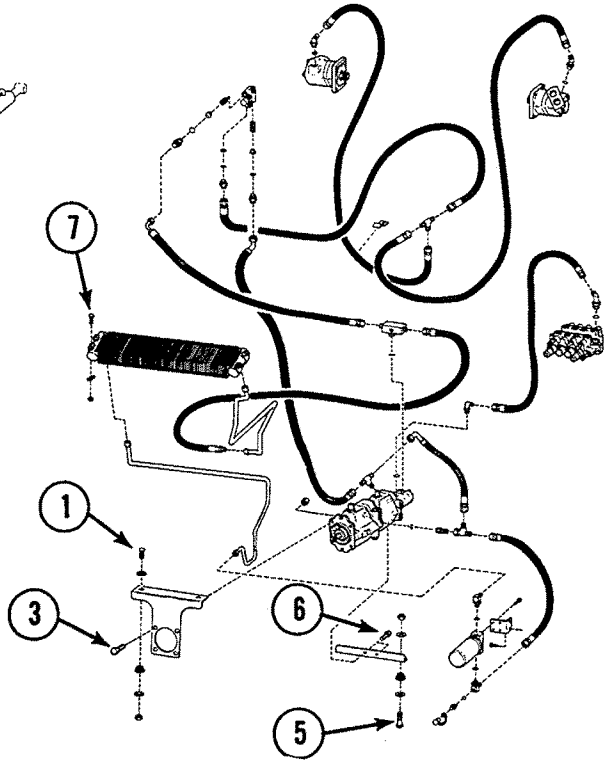
D-1547
E-1322
E-1618
D-1522

Hydraulic/Hydrostatic Group

Ref.	Torque
1.	65-70 ft.-lbs. (88-95 Nm)
2.	12-15 ft.-lbs. (16-20 Nm)
3.	25-28 ft.-lbs. (34-38 Nm)
4.	16-20 ft.-lbs. (21-27 Nm)
5.	40-50 ft.-lbs. (54-68 Nm)
6.	40-45 ft.-lbs. (54-61 Nm)
7.	15-17 ft.-lbs. (21-23 Nm)



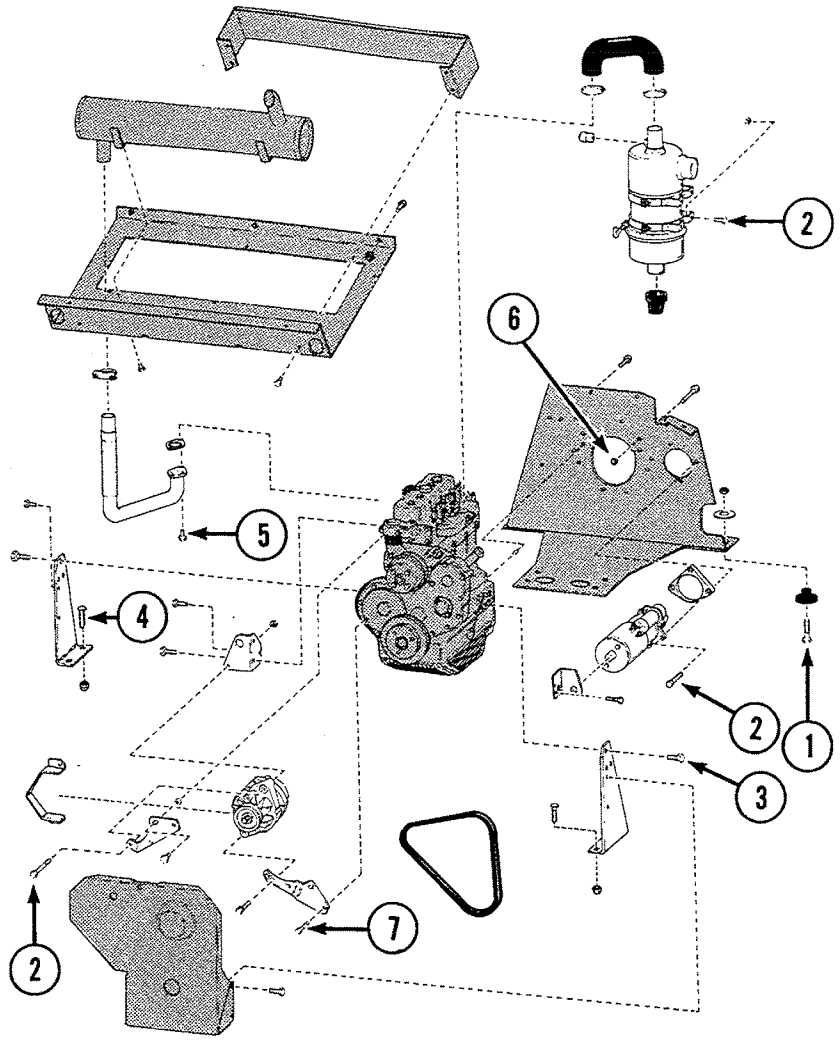




E-1726
E-1806
E-1725

Engine Group (Perkins)

Ref.	Torque
1.	125-140 ft.-lbs. (169-190 Nm)
2.	25-28 ft.-lbs. (34-38 Nm)
3.*	40-45 ft.-lbs. (51-54 Nm)
4.	75-80 ft.-lbs. (102-108 Nm)
5.	16-20 ft.-lbs. (21-27 Nm)
6.	65-70 ft.-lbs. (88-95 Nm)
7.	15-17 ft.-lbs. (21-23 Nm)

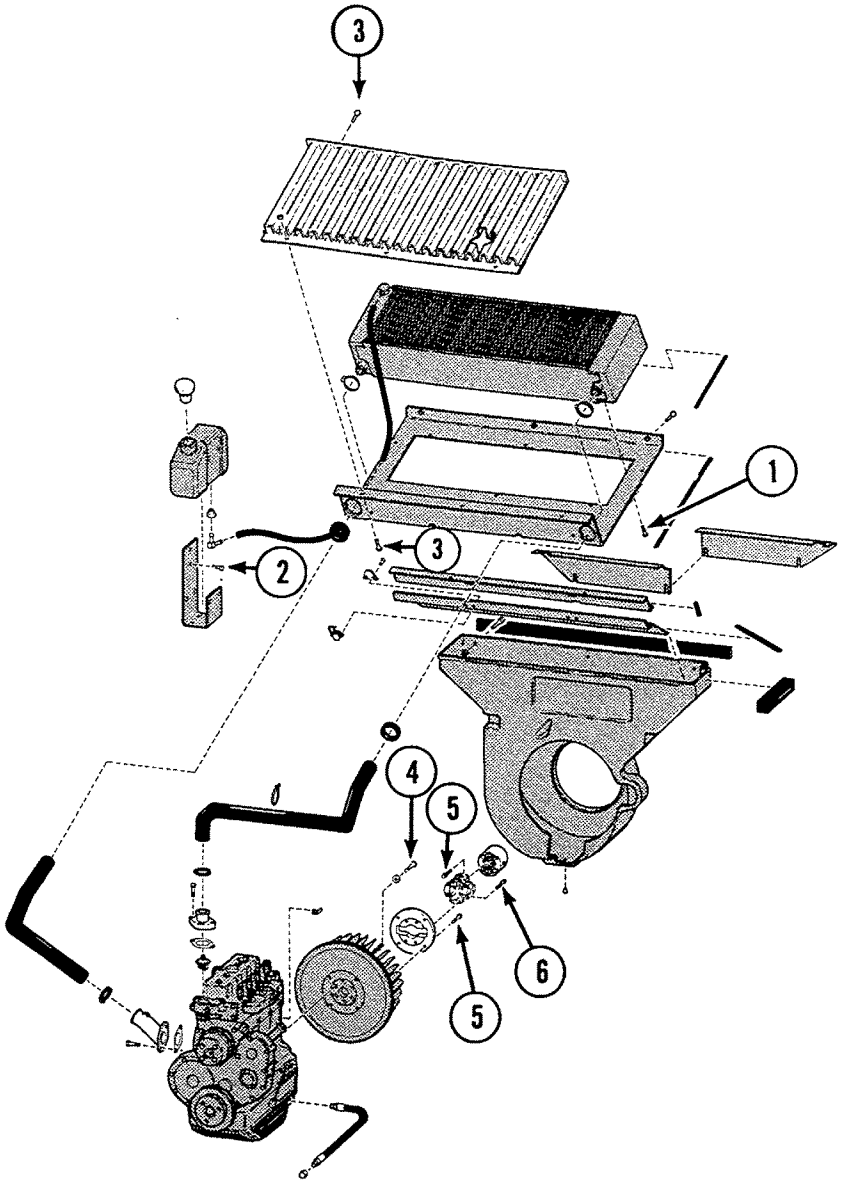


* Put Lock-Tite on the Treads

E-1252

Engine Group (Perkins)

Ref.	Torque
1.	15-17 ft.-lbs. (21-23 Nm)
2.	25-28 ft.-lbs. (34-38 Nm)
3.	16-20 ft.-lbs. (21-27 Nm)
4.	75-80 ft.-lbs. (102-108 Nm)
5.*	25-28 ft.-lbs. (34-38 Nm)
6.*	23-25 ft.-lbs. (31-34 Nm)

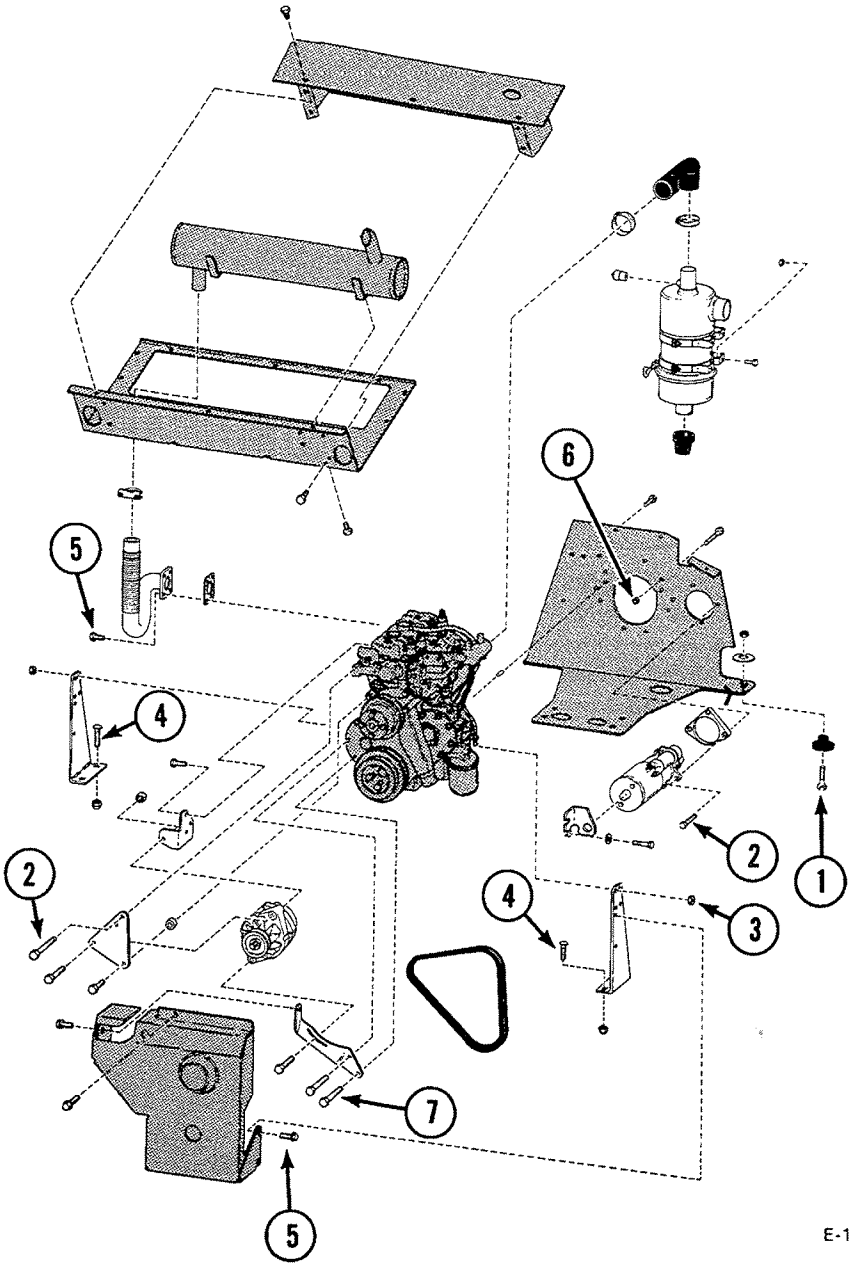


E-1339

* Put Lock-Tite on the Treads

Engine Group (200 Series Perkins)

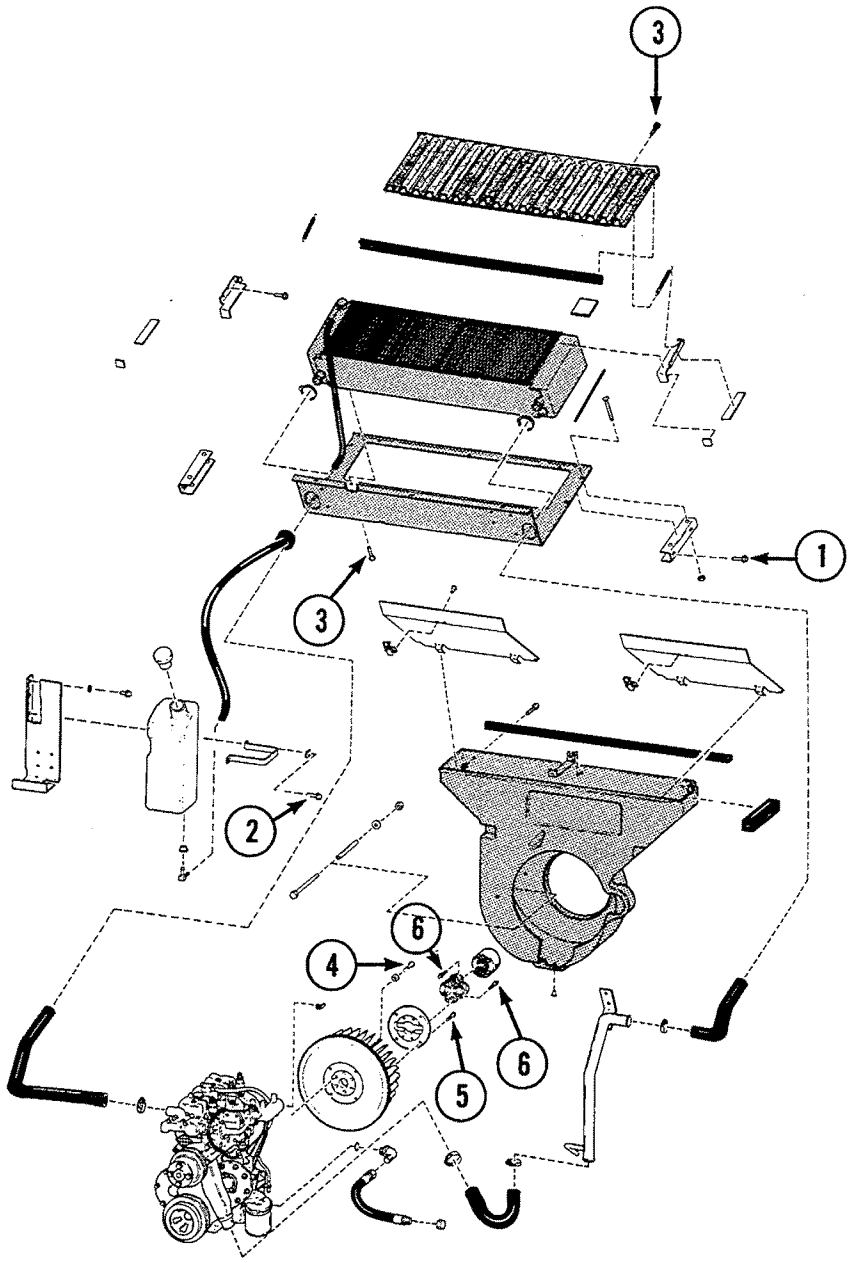
Ref.	Torque
1.	125-140 ft.-lbs. (169-190 Nm)
2.	25-28 ft.-lbs. (34-38 Nm)
3.*	40-45 ft.-lbs. (51-54 Nm)
4.	75-80 ft.-lbs. (102-108 Nm)
5.	16-20 ft.-lbs. (21-27 Nm)
6.	65-70 ft.-lbs. (88-95 Nm)
7.	15-17 ft.-lbs. (21-23 Nm)



* Put Lock-Tite on the Treads

Engine Group (200 Series Perkins)

Ref.	Torque
1.	15-17 ft.-lbs. (21-23 Nm)
2.	25-28 ft.-lbs. (34-38 Nm)
3.	16-20 ft.-lbs. (21-27 Nm)
4.	75-80 ft.-lbs. (102-108 Nm)
5.*	25-28 ft.-lbs. (34-38 Nm)
6.*	23-25 ft.-lbs. (31-34 Nm)

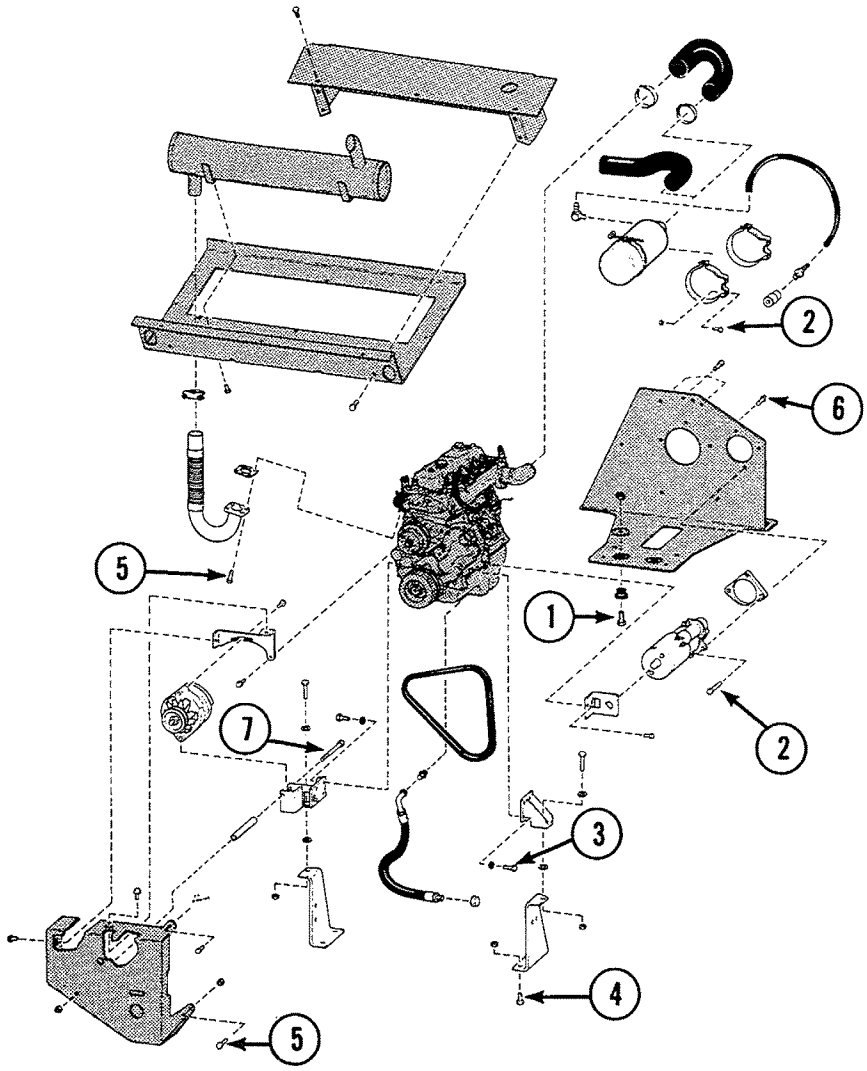


E-1627

* Put Lock-Tite on the Treads

Engine Group (Isuzu)

Ref.	Torque
1.	125-140 ft.-lbs. (169-190 Nm)
2.	25-28 ft.-lbs. (34-38 Nm)
3.*	40-45 ft.-lbs. (51-54 Nm)
4.	75-80 ft.-lbs. (102-108 Nm)
5.	16-20 ft.-lbs. (21-27 Nm)
6.	65-70 ft.-lbs. (88-95 Nm)
7.	15-17 ft.-lbs. (21-23 Nm)

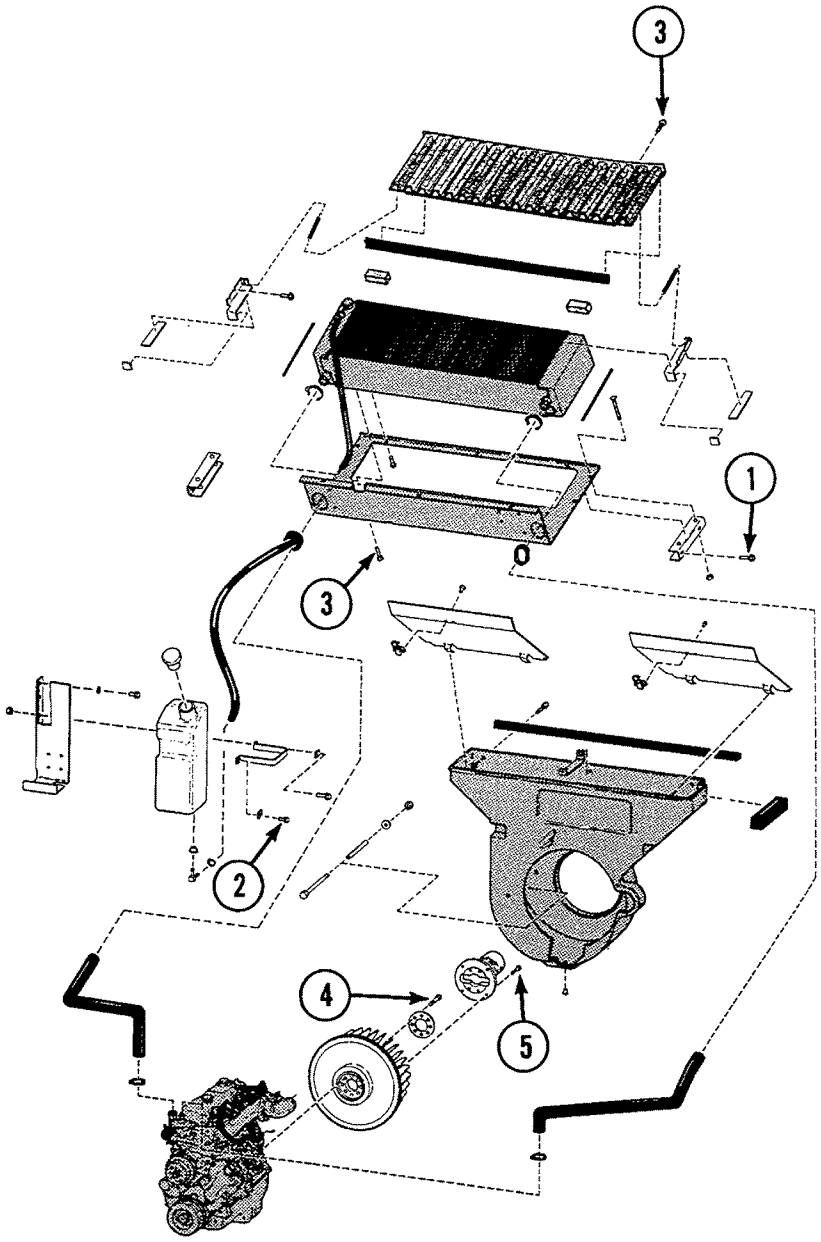


* Put Lock-Tite on the Treads

E-1686

Engine Group (Isuzu)

Ref.	Torque
1.	15-17 ft.-lbs. (21-23 Nm)
2.	25-28 ft.-lbs. (34-38 Nm)
3.	16-20 ft.-lbs. (21-27 Nm)
4.	75-80 ft.-lbs. (102-108 Nm)
5.*	25-28 ft.-lbs. (34-38 Nm)



* Put Lock-Tite on the Treads

E-1701

HYDRAULIC/HYDROSTATIC FLUID SPECIFICATIONS

Specifications

Use Melroe hydraulic/hydrostatic transmission fluid (P/N 6563328). If this fluid is not available, use 10W-30 or 10W-40 SAE Motor Oil (5W-30 for 0°F [-18°C] and Below).

DO NOT use automatic transmission fluids in the loader or permanent damage to the transmission will result.

⚠ WARNING

Avoid contact with leaking hydraulic fluid which under pressure can be forced through the skin. Never check for leaks in a hydraulic system with your bare hands. Use a piece of wood or cardboard. If your skin is penetrated by a fluid under pressure, consult a qualified medical service.

Where temperatures below zero are common, the loader must be kept in a warm building. Extra warm-up time must be used each time the loader is started during cold temperature conditions. Cold fluid will not flow easily and it makes action of the hydraulic function slower. Loss of fluid flow to the hydrostatic transmission pump (indicated by "TRANS" light "ON") will cause transmission damage in less then 60 seconds time.

IMPORTANT

Stop the engine if the "TRANS" light comes "ON" and stays "ON". The light indicates the loss of fluid flow to the hydrostatic pumps which will cause transmission damage in less than 60 seconds time.

NOTES

DECIMAL AND MILLIMETER EQUIVALENTS

FRACTIONS	DECIMALS	MM	FRACTIONS	DECIMALS	MM
1/64	0.015625	0.397	33/64	0.515625	13.097
1/32	0.03125	0.794	17/32	0.53125	13.494
3/64	0.046875	1.191	35/64	0.546875	13.891
1/16	0.0625	1.588	9/16	0.5625	14.288
5/64	0.078125	1.984	37/64	0.578125	14.684
3/32	0.09375	2.381	19/32	0.59375	15.081
7/64	0.109375	2.778	39/64	0.609375	15.478
1/8	0.1250	3.175	**5/8**	0.6250	15.875
9/64	0.140625	3.572	41/64	0.640625	16.272
5/32	0.15625	3.969	21/32	0.65625	16.669
11/64	0.171875	4.366	43/64	0.671875	17.066
3/16	0.1875	4.762	11/16	0.6875	17.462
13/64	0.203125	5.159	45/64	0.703125	17.859
7/32	0.21875	5.556	23/32	0.71875	18.256
15/64	0.234375	5.953	47/64	0.734375	18.653
1/4	0.2500	6.350	**3/4**	0.7500	19.050
17/64	0.265625	6.747	49/64	0.765625	19.447
9/32	0.28125	7.144	25/32	0.78125	19.844
19/64	0.296875	7.541	51/64	0.796875	20.241
5/16	0.3125	7.938	13/16	0.8125	20.638
21/64	0.328125	8.334	53/64	0.828125	21.034
11/32	0.34375	8.731	27/32	0.84375	21.431
23/64	0.359375	9.128	55/64	0.859375	21.828
3/8	0.3750	9.525	**7/8**	0.8750	22.225
25/64	0.390625	9.922	57/64	0.890625	22.622
13/32	0.40625	10.319	29/32	0.90625	23.019
27/64	0.421875	10.716	59/64	0.921875	23.416
7/16	0.4375	11.112	15/16	0.9375	23.812
29/64	0.453125	11.509	61/64	0.953125	24.209
15/32	0.46875	11.906	31/32	0.96875	24.606
31/64	0.484375	12.303	63/64	0.984375	25.003
1/2	0.5000	12.700	**1**	1.000	25.400

1 mm = 0.03937" **0.001" = 0.0254 mm**

U.S. TO METRIC CONVERSION

	TO CONVERT	INTO	MULTIPLY BY
LINEAR MEASUREMENT	Miles	Kilometers	1.609
	Yards	Meters	0.9144
	Feet	Meters	0.3048
	Feet	Centimeters	30.48
	Inches	Meters	0.0254
	Inches	Centimeters	2.54
	Inches	Millimeters	25.4
AREA	Square Miles	Square Kilometers	2.59
	Square Feet	Square Meters	0.0929
	Square Inches	Square Centimeters	6.452
	Acre	Hectare	0.4047
VOLUME	Cubic Yards	Cubic Meters	0.7646
	Cubic Feet	Cubic Meters	0.02832
	Cubic Inches	Cubic Centimeters	16.39
WEIGHT	Tons (Short)	Metric Tons	0.9078
	Pounds	Kilograms	0.4536
	Ounces (Avdp.)	Grams	28.3495
PRESSURE	Pounds/Sq. In.	Kilopascal	6.895
WORK	Foot-pounds	Newton-Metre	1.356
LIQUID VOLUME	Quarts	Liters	0.9463
	Gallons	Liters	3.785
LIQUID FLOW	Gallons/Minute	Liters/Minute	3.785
TEMPERATURE	Fahrenheit	Celsius	1. Subtract 32° 2. Multiply by 5/9

NOTES

STANDARD TORQUE SPECIFICATIONS FOR BOLTS

The following table shows standard torque specifications for bolts with zinc phosphate coating. Bolts purchased from Clark that have zinc phosphate coating are specified by the letter "H" following the part number.

THREAD SIZE		SAE GRADE 5	SAE GRADE 8
INCH. LBS. (Nm)	.250	80—90 (9—10)	110—120 (13—14)
	.3125	180—200 (21—23)	215—240 (24—27)
FOOT LBS. (Nm)	.375	25—28 (34—38)	35—40 (48—54)
	.4375	40—45 (54—61)	60—65 (82—88)
	.500	65—70 (88—95)	90—100 (125—135)
	.5625	90—100 (125—135)	125—140 (170—190)
	.625	125—140 (170—190)	175—190 (240—260)
	.750	220—245 (300—330)	300—330 (410—450)
	.875	330—360 (450—490)	475—525 (645—710)
	1.000	475—525 (645—710)	725—800 (985—1085)
	1.125	650—720 (880—975)	1050—1175 (1425—1600)
	1.250	900—1000 (1200—1360)	1475—1625 (2000—2200)
	1.375	1200—1350 (1630—1830)	2000—2200 (2720—2980)
	1.500	1500—1650 (2040—2240)	2600—2850 (3530—3870)
	1.625	2000—2800 (2720—2980)	3450—3800 (4680—5150)
	1.750	2500—2750 (3390—3730)	4300—4800 (5830—6500)
	1.875	3150—3500 (4270—4750)	5500—6100 (7450—8300)
	2.000	3800—4200 (5150—5700)	6500—7200 (8800—9800)

NOTES

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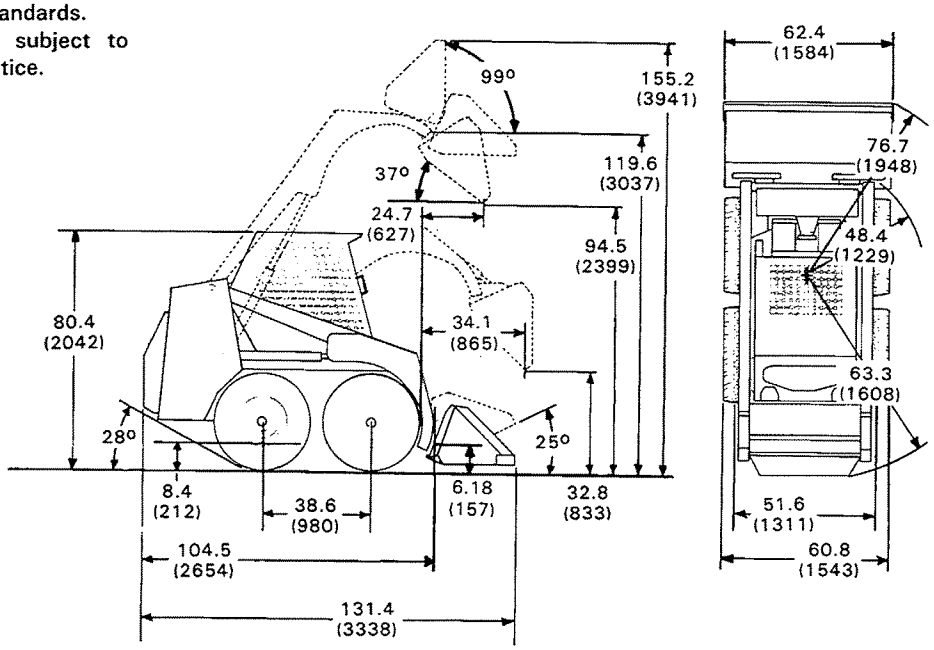
SPECIFICATIONS (Perkins)

8A LOADER SPECIFICATIONS

Where applicable, specifications conform to SAE standards. Specifications are subject to change without notice.



PI-2585

Dimensions are given for a loader equipped with standard tires and dirt bucket. Dimensions may vary with other bucket types. All dimensions are shown in inches. Respective metric dimensions are given in millimeters enclosed by parentheses.

SPECIFICATIONS

Weights	
Operating Weight	6500 lbs. (2951 kg)
Rated Operating Capacity	1700 lbs. (772 kg)
Tipping Load (SAE)	3400 lbs. (1544 kg)
Travel Speed	0.0 to 6.3 MPH (10,1 km/hr.)
Controls	
Vehicle	Direction and speed controlled by two hand-operated levers.
Loader Function	Lift, tilt functions controlled by separate foot pedals. Auxiliary function controlled by the right steering lever.
Engine	Hand lever throttle; key type starter switch
Main Drive	Hydrostatic
Brakes	Mechanical disc, foot-operated pedal.

ENGINE

Make	Perkins
Model	4.154
Fuel	Diesel
Horsepower	54 HP (40,3 kW)
Maximum Governed RPM	2600 RPM
Torque	113 ft.-lbs. (153 Nm) @ 1800 RPM
Number of Cylinders	4
Bore/Stroke	3.50 (88,9)/4.00 (101,6)
Displacement	153.9 cu. in. (2522 cm^3)
Cooling System	Liquid
Crankcase Ventilation	Open PCV System
Air Cleaner	Dry replaceable paper element, dual element
Low Idle	1150 RPM
High Idle	2725-2775 RPM

NOTES

LOADER SPECIFICATIONS (Cont'd)

LOADER HYDRAULICS

Pump	Gear type
Pump Capacity	15.4 GPM (58,3 L/min.) @ 2720 RPM
System Relief Pressure	2325-2500 PSI (16030-17238 kPa) @ Aux. Couplers
Hydraulic Fluid Filter	Replaceable cartridge 10 micron paper element & 40 micron metal filter
Hydraulic Cylinders	Doubleacting
Bore Diameter:	
Lift Cylinder (2)	2.25 (57,2)
Tilt Cylinder (2)	3.25 (82,6)
Rod Diameter:	
Lift Cylinder (2)	1.50 (38,1)
Tilt Cylinder (2)	1.50 (38,1)
Stroke:	
Lift Cylinder (2)	33.50 (850,9)
Tilt Cylinder (2)	17.95 (455,9)
Control Valve	3-spool, open center type W/float detent on lift, detent on auxiliary and self leveling on tilt.
Fluid Lines	SAE standard tubes, hoses & fittings

Hydraulic Function Time:	
Raise Lift Arms to Maximum Height	4.8 Seconds
Lower Lift Arms from Maximum Height	3.8 Seconds
Move Bucket to Dump Position	2.2 Seconds
Move Bucket to Retracted Position	2.1 Seconds

ELECTRICAL

Alternator	Belt driven, 37 amps. @ 2750 RPM open
Battery	Two (2) batteries, in parallel @ 12 volt, 370 cold crank amps. @ 0°F (-17,8°C) 106 min. reserve capacity
Starter	12 volt gear drive

DRIVE SYSTEM

Transmission	Hydrostatic infinitely variable fully reversing (2)
Final Drive	Gear reduction with #100 roller chain, operating in sealed chaincase with oil lubrication.
Total Engine to Wheel Reduction:	
Gear Reduction	3.54:1
Chain Reduction	31.11:1
Fluid Type	Clark Bobcat Fluid (P/N 6563328 [5 gal. Package]). If the fluid is not available, use 10W-30 or 10W-40 Class SE Motor Oil.

CAPACITIES

Cooling System	22 qts. (21 L)
Fuel	22 gals. (83 L)
Engine Lubrication W/Filter	9.5 qts. (9 L)
Chaincase	9 gals. (34 L)
Hydraulic/Hydrostatic Reservoir	15.5 qts. (14,7 L)

TIRES

Standard	8.25 x 15, 6 Ply Rating, Nylon W/Bar Lug
Pressure	45-50 PSI (310-345 kPa)
Flotation	12 x 16.5, 6 Ply Rating
Pressure	45-50 PSI (310-345 kPa)

NOTES

ENGINE SPECIFICATIONS

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Cylinder Head Dimensions

Cylinder Head:	
Overall Depth	3.248/3.252 (82,5/82,6)
Grinding Allowance	DO NOT GRIND
Valve Seat Angle	45°
Bore for Valve Guide	0.500/0.501 (12,7/12,73)
Bore for Combustion Chamber Insert	1.375/1.3766 34,92/34,96)
Depth of Bore for Inserts	0.424/0.4281 (10,80/10,87)
Combustion Chamber Inserts:	
Outside Diameter	1.3724/1.374 (34,86/34,9)
Clearance Fit in Bore	0.001/0.0042 (0,025/0,106)
Insert Thickness	0.4252/0.426 (10,80/10,82)
Height of Insert in Relation to Cylinder Head Face	0.0029 (0,07) Below
Valve Guide, Inlet & Exhaust:	
Outside Diameter	0.501/0.50175 (12,73/12,74)
Interference Fit in Bore	0.00025/0.00175 (0,0063/0,0444)
Overall Length	2.13 (54,10)
Guide Height Above Cylinder Head	0.638/0.662 (16,20/16,81)
Valve Guide Bore Diameter	0.3145/0.3155 (7,99/8,01)
Valves, Inlet:	
Valve Stem Diameter	0.312/0.313 (7,92/7,95)
Clearance Fit of Stem in Guide	0.0015/0.0035 (0,038/0,089)
Valve Head Diameter	1.59/1.598 (40,41/40,59)
Valve Face Angle	45°
Valve Depth into Cylinder Head	0.027/0.040 (0,69/1,02) (Production) 0.060 (1,52) (Service)
Overall Length	4.503/4.521 (114,38/114,83)
Valve Stem Seal	Synthetic Rubber Deflector
Valves, Exhaust:	
Valve Stem Diameter	0.312/0.313 (7,92/7,95)
Clearance Fit of Stem in Guide	0.0015/0.0035 (0,038/0,089)
Valve Head Diameter	1.3937/1.4016 (35,4/35,6)
Valve Face Angle	45°
Valve Depth into Cylinder Head	0.027/0.040 (0,69/1,02) (Production) 0.060 (1,52) (Service)
Overall Length	4,503/4.521 (114,38/114,83)
Valve Stem Seal	None
Valve Springs, Inner:	
Fitted Length	1.49 (37,85)
Load at Fitted Length	28 lbs. ± 1.4 lbs. (12,7 kg ± 0,635 kg)
Free Length	1.74 (44,20)
Valve Springs, Outer:	
Fitted Length	1.59 (40,39)
Load at Fitted Length	40 lbs. ± 2.0 lbs. (18,1 kg ± 0,908 kg)
Free Length	1.81 (45,97)
Rocker Arms:	
Bore Diameter	0.7188/0.7196 (18,26/18,28)
Outside Diameter of Bushing	0.7199/0.7207 (18,29/18,30)
Interference Fit of Bushing	0.0003/0.0019 (0,008/0,048)
Inside Diameter of Bushing (Fitting)	0.625/0.6528 (15,88/15,90)

NOTES

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Cylinder Head Dimensions (Cont'd)

Rocker Arm Shaft:	
Outside	0.6234/0.6244 (15,83/15,86)
Clearance Fit of Rocker Arm	0.0006/0.0024 (0,01/0,06)
Lubrication	No. 1 Bracket Through Shaft
Push Rods:	
Overall Length	8.5102/8.5412 (216,16/216,94)
Outside Diameter	0.246/0.25 (6,27/6,35)

Piston and Connecting Rod Dimensions

Piston:	
Type	Flat Top
Piston Height to Cylinder Block Face	0.000/0.004 (0,00/0,102)
Piston Pin Bore Diameter	1.2495/1.250 (31,74/31,75)
Transition Fit of Pin in Bore	0.00024 in clearance/0.00046 interference (0,006/0,012)
Ring Groove Width (Top, 2nd & 3rd)	0.096/0.097 (2,44/2,46)
Ring Groove Width (4th & 5th)	0.1895/0.1906 (4,81/4,84)
Pistons Rings:	
Compression (Top)	Chrome Plated
Compression (2nd & 3rd)	Internally Stepped
Scraper (4th)	Chrome Plated, Slotted
Scraper (5th)	Slotted
Ring Width (Top, 2nd & 3rd)	0.093/0.0938 (2,36/2,38)
Ring Clearance in Groove	0.0022/0.004 (0,056/0,102)
Ring Width (4th)	0.1868/0.1875 (4,74/4,76)
Ring Clearance in Groove	0.002/0.0038 (0,05/0,097)
Ring Width (5th)	0.1865/0.1875 (4,74/4,76)
Ring Clearance in Groove	0.002/0.004 (0,05/0,102)
Ring Gap (Top)	0.014/0.019 (0,36/0,48)
Ring Gap (2nd & 3rd)	0.011/0.016 (0,28/0,41)
Ring Gap (4th)	0.014/0.019 (0,36/0,48)
Ring Gap (5th)	0.011/0.016 (0,28/0,41)

NOTE: The ring gaps which are given are measured in a 3.501 (88,93) diameter bore. If the gaps are measured in a larger bore, you must add 0.003 (0,08) for every 0.001 (0,025) above 3.501 (88,93).

Piston Pins:	
Type	Fully Floating
Outside Diameter	1.24976/1.24996 (31,74/31,75)
Clearance in Rod End	0.00054/0.00175 (0,014/0,044)
Connecting Rods:	
Type	"H" Section
Big End Bore	2.395/2.3955 (60,83/60,85)
Small End Bore	1.375/1.376 (34,93/34,95)
Big End Width	1.361/1.363 (34,57/34,62)
Length from Center Line of Big End to Center Line of Small End	6.8115/6.8135 (173,01/173,06)
Rod End Play	0.0095/0.0131 (0,24/0,33)
Big End Bolt Size	7/16 (11,11)
Thread of Bolt	U.N.F.
Type of Nut	Self-Locking
Small End Bushing:	
Type	Steel Backed, Bronze Lined
Length of Bushing	1.047/1.055 (26,59/26,80)
Outside Diameter	1.3785/1.380 (35,01/35,05)
Interference Fit of Bushing in Rod	0.0025/0.005 (0,064/0,127)
Inside Diameter (Bushing in Position After Reaming)	1.2505/1.2515 (31,76/31,79)

NOTES

ENGINE SPECIFICATIONS (Cont'd)

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Piston and Connecting Rod Dimensions (Cont'd)

Connecting Rod Bearings:	
Type	Steel Backed, Aluminum Tin Lined
Width	1.1208/1.1280 (28,47/28,65)
Outside Diameter	2.3955 (60,85)
Inside Diameter	2.2504/2.2515 (57,16/57,19)
Bearing Running Clearance	0.0014/0.003 (0,036/0,076)

Cylinder Block and Liners Dimensions

Cylinder Block:	
Total Height of Cylinder Block	11.177/11.181 (283,9/284,0)
Bore Diameter for Cylinder Liner	3.8125/3.8135 (96,84/96,86)
Liner Flange Depth in Block	0.150/0.152 (3,81/3,86)
Cylinder Block Recess Bore	3.990/3.995 (101,35/101,47)
Main Bearing Bore	2.916/2.917 (74,07/74,09)
No. 1 Bore for Camshaft	2.0472/2.0484 (52,0/52,03)
No. 2 Bore for Camshaft	2.0374/2.0386 (51,75/51,78)
No. 3 Bore for Camshaft	2.0275/2.0287 (51,5/51,53)
No. 4 Bore for Camshaft	2.0177/2.0189 (51,25/51,28)
Tappet Bore Diameter	0.5625/0.56375 (14,29/14,32)
Crankshaft Thrust Washer Recess in Block Diameter	3.756/3.764 (95,4/95,6)

Cylinder Liners:	
Type	Dry Interference Fit
Outside Diameter	3.8145/3.8155 (96,89/96,91)
Interference Fit of Liner into Cylinder Block Bore	0.001/0.003 (0,025/0,076)
Liner Finish Bore	3.501/3.502 (88,93/88,95)
Liner Flange Thickness	0.148/0.150 (3,76/3,81)
Depth of Flange BELOW Top Face of Cylinder Block	0.000/0.004 (0,00/0,102)
Liner Flange Diameter	3.972/3.976 (100,88/100,99)
Height of Liner Collar ABOVE Flange	0.028/0.033 (0,71/0,84)
Height of Collar ABOVE Top Face of Cylinder Block	0.026/0.031 (0,66/0,79)
Clearance Fit of Liner Flange in Block Recess	0.014/0.023 (0,356/0,584)

Crankshaft and Main Bearings Dimensions

Crankshaft:	
Main Journal Diameter	2.7485/2.749 (69,81/69,82)
Main Journal Width, No. 1	1.391/1.421 (35,3/36,09)
Main Journal Width, No. 2, 4 & 5	1.4335/1.4415 (36,4/36,6)
Main Journal Width, No. 3	1.4365/1.4385 (36,49/36,54)
Main Journal Fillet Radius	9/64 - 5/32 (3,57/3,97)
Crankshaft Pin Diameter	2.2485/2.248 (57,11/57,12)
Crankshaft Pin Width	1.3725/1.3741 (34,86/34,9)
Crankshaft Pin Fillet Radius	1/8 - 9/64 (3,2/3,57)
Surface Finish, All Journals	15 micro. max. (0,4 microns max.)
Crankshaft Journals & Pins Grinding Undersizes	0.010, 0.020 & 0.030 (0,25, 0,51 & 0,76)
Oil Seal Heliz Diameter	2.211/2.212 (56,16/56,18)
Oil Seal Heliz Width	0.050/0.080 (1,27/2,03)
Oil Seal Heliz Depth	0.004/0.008 (0,101/0,203)
Crankshaft Flange Diameter	3.9985/3.9995 (101,56/101,59)
Crankshaft Flange Width	0.5 (12,7)
Crankshaft End Play	0.001/0.015 (0,025/0,38)

NOTES

ENGINE SPECIFICATIONS (Cont'd)

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Crankshaft and Main Bearings Dimensions (Cont'd)

Type	Steel Backed, Aluminum Tin Lined
Shell Width for all Journals	1.122/1.130 (28,5/28,7)
Outside Diameter	2.917 (74,09)
Inside Diameter	2.75/2.753 (69,89/69,93)
Bearing Running Clearance	0.0025/0.0045 (0,064/0,114)

Crankshaft Thrust Washer:

Type	Steel Backed, Aluminum Tin Lined
Position on the Crankshaft	Center Main Bearing
Thrust Washer Thickness (STD)	0.0896/0.0915 (2,28/2,32)
Thrust Washer Thickness (O/S)	0.0966/0.0985 (2,45/2,50)
Thrust Washer Diameter	3.744/3.756 (95,09/95,4)

Timing Case, Camshaft and Drive Dimensions

Camshaft:

Journal Length, No. 1	1.18 (29,97)
Journal Diameter, No. 1	2.0437/2.0448 (51,91/51,94)
Journal Clearance Fit, No. 1	0.0024/0.0047 (0,06/0,119)
Journal Length, No. 2	1.0 (25,4)
Journal Diameter, No. 2	2.0339/2.035 (51,66/51,69)
Journal Clearance Fit, No. 2	0.0024/0.0047 (0,06/0,119)
Journal Length, No. 3	1.0 (25,4)
Journal Diameter, No. 3	2.0241/2.0252 (51,41/51,44)
Journal Clearance Fit, No. 3	0.0024/0.0047 (0,06/0,119)
Journal Length, No. 4	1.0 (25,4)
Journal Diameter, No. 4	2.0142/2.0154 (51,16/51,19)
Journal Clearance Fit, No. 4	0.0024/0.0047 (0,06/0,119)
Cam Lift	0.280/0.282 (7,11/7,16)
Lift Pump Cam	0.095/0.098 (2,41/2,49)
Camshaft Flange for Gear	1.1251/1.1257 (28,58/28,59)
Camshaft Flanage Width for Thrust Washer	0.2374/0.2401 (6,03/6,09)
Lubrication for Rocker Arms	No. 1 Journal

Camshaft Thrust Plate:

Type	Oil-Impregnated
Inside Diameter of Bore	1.4 (35,6)
Thrust Plate Thickness	0.233/0.2362 (5,92/6,00)
Camshaft End Play	0.0012/0.0071 (0,625/0,18)

Camshaft Gear:

Inside Diameter of Gear	1.1251/1.126 (28,58/28,60)
Gear Fit on Camshaft Flange	0.0007 interference/0.0009 clearance (0,018/0,023)

Fuel Injection Pump Gear:

Inside Diameter of Gear for Fuel Injection Pump Flange	1.750/1.751 (44,45/44,48)

Idler Gear and Hub:

Idler Gear Bore Diameter	1.8898/1.8908 (48,00/48,02)
Idler Gear Bushing Outside Diameter	1.8915/1.8924 (48,04/48,07)
Interference Fit of Bushing	0.0007/0.0027 (0,017/0,068)
Idler Gear Bushing Bore	1.7327/1.7337 (44,01/44,04)
Outside Diameter of Hub	1.7303/1.7313 (43,95/43,98)
Clearance Fit of Bushing in Gear on the Hub	0.0014/0.0034 (0,035/0,086)
Idler Gear Width	1.1320/1.1340 (28,75/28,80)
Hub Width	1.140/1.144 (28,96/29,06)

NOTES

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Timing Case, Camshaft and Drive Dimensions (Cont'd)

Idler Gear & Hub Cont'd):	
Idler Gear End Play	0.006/0.012 (0,25/0,30)
Cylinder Block Idler Hub Bore	1.732/1.733 (43,99/44,02)
Idler Gear Hub Flange Diameter for the Block	1.731/1.732 (43,97/43,99)
Size & Clearance Fit of Flange in Cylinder Block Bore	0.000/0.002 (0,00/0,05)
Timing Case Idler Hub Bore	2.3228/2.3240 (58,99/59,03)
Diameter of Flange for Timing Case	2.3217/2.3229 (58,97/59,00)
Transition Fit of Flange in Timing Case Bore	0.0001/0.0023 (0,0025/0,058)
Crankshaft Gear:	
Inside Diameter of Gear	1.2496/1.2505 (31,74/31,76)
Crankshaft Flange for Gear Diameter	1.2494/1.250 (31,73/31,75)
Transition Fit for Gear on Shaft	0.0004 interference/0.0011 clearance (0,01/0,03)
Timing Gear Backlash:	
All Gears	0.004 (0,102) Minimum

Oil Pump Dimensions

Oil Pump Pressure	30 - 60 PSI (207 - 414 kPa)
Oil Pump:	
Type	Rotor
Number of Lobes - Inner Rotor	Four
Number of Lobes - Outer Rotor	Five
Method of Drive	Spiral Gear from the Camshaft
Bore in Cylinder Block	1.375/1.376 (34,93/34,95)
Oil Pump Body Outside Diameter	1.374/1.3746 (34,90/34,91)
Clearance Fit of Pump in Bore	0.0004/0.002 (0,01/0,05)
Oil Pump Clearance:	
Inner Rotor to Outer Rotor	0.002/0.006 (0,05/0,15)
Outer Rotor to Pump Body	0.005/0.010 (0,13/0,25)
Rotor End Play	0.001/0.005 (0,025/0,13)
Body Bore for Drive Shaft	0.625/0.626 (15,87/15,90)
Outside Diameter of Shaft	0.623/0.6235 (15,82/15,84)
Running Clearance of Shaft in Bore	0.0015/0.003 (0,04/0,08)
Oil Pump Drive Gear:	
Inside Diameter of Gear Bore	0.4965/0.4968 (12,61/12,62)
Outside Diameter of Drive Shaft	0.4983/0.4988 (12,66/12,67)
Interference Fit of Gear on Shaft	0.0013/0.0021 (0,03/0,05)
Drive Gear Backlash	0.0155/0.0019 (0,39/0,48)
Oil Pump Relief Valve:	
Type	Spring-Loaded Plunger
Pressure Setting	36/44 PSI (248/303 kPa)
Relief Valve Bore	0.5605/0.5621 (14,24/14,28)
Outside Diameter of Plunger	0.5585/0.5595 (14,18/14,21)
Clearance of Plunger in Bore	0.001/0.0036 (0,025/0,09)
Length of Plunger	0.78125 (19,84)
Outside Diameter of Spring	0.398/0.405 (10,1/10,29)
Spring, Free Length	1.5625 (39,69)
Spring, Solid Length	0.812 (20,62)

NOTES

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Cooling System and Water Pump Dimensions

Water Pump:

Type	Centrifugal
Outside Diameter of Shaft for Pulley Hub	0.7873/0.7876 (19,99/20,01)
Inside Diameter of Pulley Hub Bore	0.7849/0.7857 (19,94/19,96)
Interference Fit of Pulley Hub on the Shaft	0.0016/0.0027 (0,04/0,068)
Inside Diameter of Water Pump Pulley Assembly	1.613/1.616 (40,97/41,05)
Outside Diameter of Hub for Pulley Assembly	1.611/1.613 (40,92/40,97)
Clearance Fit of Pulley to Hub	0.000/0.005 (0,00/0,13)
Impeller Bore	0.497/0.4975 (12,62/12,64)
Outside Diameter of Shaft for Impeller	0.498/0.499 (12,65/12,67)
Interference Fit of Impeller on Shaft	0.0005/0.002 (0,013/0,051)
Impeller to Body Running Clearance	0.015/0.030 (0,38/0,76)
Water Pump Seal, Type	Synthetic Rubber-Carbon Faced
Counter Face	Rotating Ceramic

Thermostat:

Opening Temperature	175 - 181°F (79.5 - 83.5°C)
Fully Open at	208°F (97.5°C)
Travel at Fully Open	0.562 (14,27)

Fuel System Specifications

Fuel Lift Pump:

Method of Drive	Eccentric on Camshaft
Delivery Pressure	5 - 8 PSI (34 - 55 kPa)

Fuel Filter:

Element Type	Paper
Valve Type	Ball Check Valve

Fuel Injection Pump:

Manufacture	C.A.V.
Type	D.P.A.
Pump Rotation	Clockwise (from drive end)
Timing Letter, Mechanically Governed	"C"
No. 1 Cylinder Outlet	"W"

Static Timing:

Mechanically Governed	18° B.T.D.C.
	0.125 (3,18) Piston Displacement

Fuel Injectors:

Manufacture	C.A.V.
Injector Body	BKB35SD5247
Injector Nozzle	BDN4SD6346
Working Pressure	1980 PSI (13,652 kPa)
Setting Pressure	2200 PSI (15,169 kPa)
Identification Code Letter	CJ

Starting Aid:

Manufacture	C.A.V.
Type	Thermostart Type 357
Voltage	12 Volt
Maximum Current	12.9 amps. @ 11.5 volts

NOTES

De-Rating for Altitude

The following is given as a general guide, which may be used on a percentage basis, where specific figures for an engine rating which are not available.

Altitude	Maximum Fuel Delivery De-Rating Measured at 800 RPM Pump Speed
0 - 2,000 ft. (600 Meters)	No Charge
2,000 - 4,000 ft. (1200 Meters)	6%
4,000 - 6,000 ft. (1800 Meters)	12%
6,000 - 8,000 ft. (2400 Meters)	18%
8,000 - 10,000 ft. (3000 Meters)	24%
10,000 - 12,000 ft. (3600 Meters)	30%

Any necessary adjustments for the fuel injection pump must be done by Trained Service Personnel.

Engine Torque

The following figures will apply with the bolts and/or nuts having a light coat of oil before assembly.

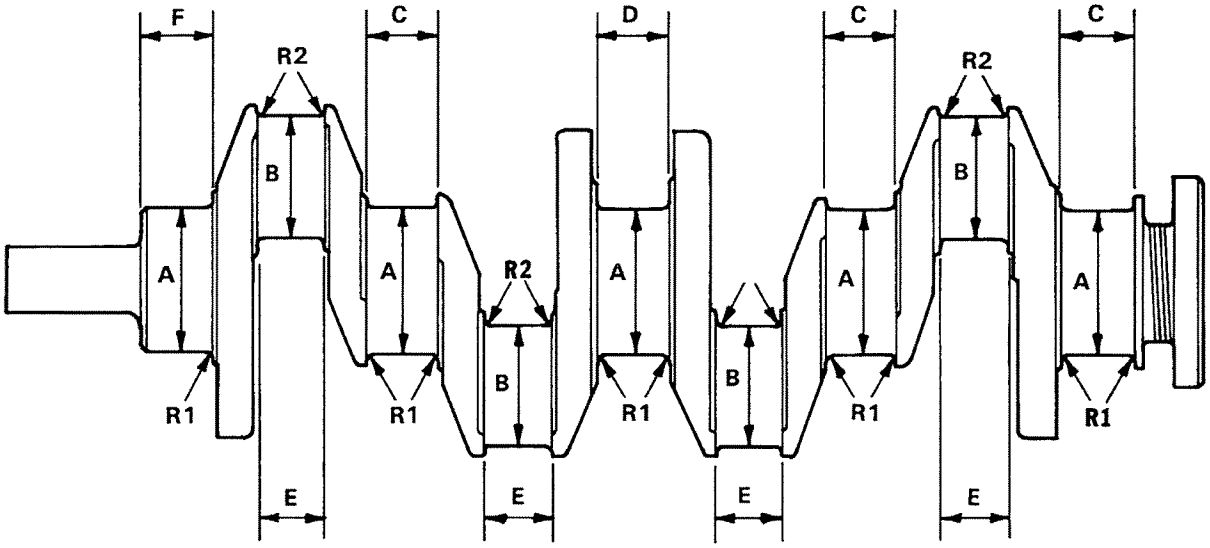
	Ft.-Lbs.	Nm	Page
Rear Main Seal Mounting Bolts	4-6	5-8	7A—37
U-Joint Mounting Bolts	25-28	34-38	7A—21
Engine Mounting Bolt & Nuts	125-140	169-190	7A—15, 7A—16
Cylinder Head Bolts (Also Rocker Arm Brackets)	85	115	7A—23
Main Bearing Bolts	85	115	7A—34
Connecting Rod Nuts*	45	61	7A—31
Flywheel Bolts	83-90	113-122	7A—21
Crankshaft Pulley Retaining Bolt	123	167	7A—38
Camshaft Gear Bolt	40-50	54-68	7A—41
Idler Gear Hub to Cylinder Block Nuts	21	28	7A—40
Fuel Injector Nuts	12	16	7A—11
Fuel Pump Drive Gear Bolt	19-21	26-28	7A—40, 7A—42
High Pressure Fuel Line Fittings	15	20	7A—6, 7A—7

* Once the Connecting Rod Nuts are removed, they must be replaced.

NOTES

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Grinding Specifications for Crankshaft



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	0.010 (0,25) Undersize	0.020 (0,51) Undersize	0.030 (0,76) Undersize
A	2.7395/2.739 (69,56/69,57)	2.7285/2.729 (69,30/69,32)	2.7185/1.719 (69,04/69,06)
B	2.2385/2.239 (56,86/56,87)	2.2285/2.229 (56,60/56,62)	2.2185/2.219 (56,35/56,36)
C	1.4459 (36,73) Maximum		
D	1.4416/1.4445 (36,62/36,69)	1.4466/1.4495 (36,74/36,82)	1.4516/1.4545 (36,87/36,94)
E	1.3806 (35,07) Maximum		
F	1.4045 (35,67) Maximum		
R1	0.146/0.157 (3,71/3,99) All Journals		
R2	0.126/0.142 (3,20/3,61) All Crankpins		

Surface finish of crankpins, journals and fillet radii 8 micro inches (0,2 microns) C.L.A.

Magnetic Crack Detection D.C. Flow — 2.5 Amps. A.C. Current — 1300 Amps.

Limits of taper and out-of-round for pins and journals:

Taper 0.00025 (0,006) Out-of-Round 0.00025 (0,006)

Maximum Run-out with the crankshaft mounted on the end main journals.

Independent Readings:

Crankshaft Pulley Diameter T.I.R.	Rear Oil Seal Diameter T.I.R.	Flywheel Flange Diameter T.I.R.
0.002 (0,05)	0.002 (0,05)	0.002 (0,05)

Journals T.I.R. — Run-out must not be opposed.

Number 1	Number 2	Number 3	Number 4	Number 5
Mounting	0.003 (0,08)	0.006 (0,15)	0.003 (0,08)	Mounting

TECHNICAL DATA (200 Series Perkins)

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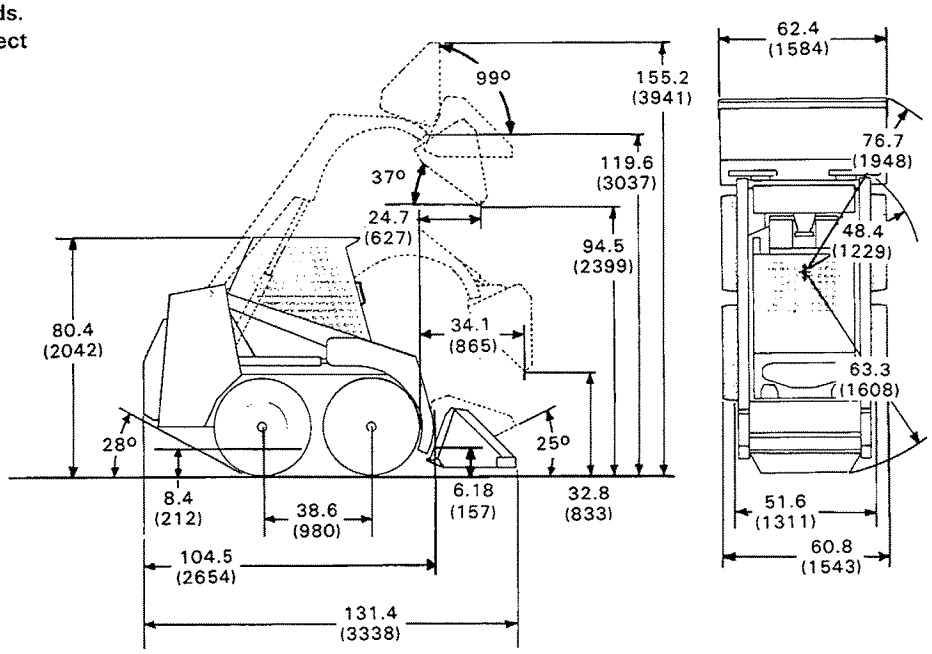
8B LOADER SPECIFICATIONS

Where applicable, specifications conform to SAE standards. Specifications are subject change without notice.



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Dimensions are given for a loader equipped with standard tires and dirt bucket. Dimensions may vary with other bucket types. All dimensions are shown in inches. Respective metric dimensions are given in millimeters enclosed by parentheses.

SPECIFICATIONS

Weights
- Operating Weight ..... 6500 lbs. (2951 kg)
- Rated Operating Capacity ..... 1700 lbs. (772 kg)
- Tipping Load (SAE Rating) ..... 3420 lbs. (1551 kg)

Travel Speed ..... Infinately Variable 6.3 MPH (10,1 km/hr.)

Controls
- Vehicle ..... Direction and speed controlled by two hand-operated levers.
- Loader Function ..... Lift, tilt functions controlled by separate foot pedals. Front auxiliary function controlled by the right steering lever. Rear auxiliary function controlled by left steering lever.
- Engine ..... Hand lever throttle; key type starter switch & shutdown
- Main Drive ..... Hydrostatic
- Brakes ..... Mechanical disc, foot-cperated pedal.

ENGINE

- Make ..... Perkins (200 Series)
- Model 4.154
- Fuel ..... Diesel
- Horsepower ..... 54 HP (40,3 kW)
- Maximum Governed RPM ..... 2600 RPM
- Torque ..... 113 ft.-lbs. (153 Nm) @ 1800 RPM
- Number of Cylinders 4
- Bore/Stroke ..... 3.50 (88,9)/4.00 (101,6)
- Displacement ..... 153.9 cu. in. (2522 cm^3)
- Cooling System ..... Liquid
- Crankcase Ventilation ..... Open PCV System
- Air Cleaner ..... Dry replaceable paper element, dual element
- Low Idle ..... 1150 RPM
- High Idle ..... 2720 RPM

NOTES _____

LOADER SPECIFICATIONS (Cont'd)

LOADER HYDRAULICS

Pump	Gear type
Pump Capacity (S/N 15000 & Below)	16 GPM (61,3 L/min.) @ 2700 RPM
(S/N 14999 & Below)	15.5 GPM (58,7 L/min.) @ 2750 RPM
System Relief Pressure	2325-2500 PSI (16031-17238 kPa) @ Aux. Couplers
Hydraulic Fluid Filter	Replaceable #3 micron paper element in charge line Replaceable #10 micron paper element in return line
Hydraulic Cylinders	Doubleacting
Bore Diameter:	
Lift Cylinder (2)	2.25 (57,2)
Tilt Cylinder (1)	3.25 (82,6)
Rod Diameter:	
Lift Cylinder (2)	1.50 (38,1)
Tilt Cylinder (1)	1.50 (38,1)
Stroke:	
Lift Cylinder (2)	33.50 (850,9)
Tilt Cylinder (1)	17.95 (455,9)
Control Valve	4-spool, open center series type W/float detent on lift, detent on auxiliary and self leveling on tilt.
Fluid Lines	SAE standard tubes, hoses & fittings

Hydraulic Function Time:	
Raise Lift Arms to Maximum Height	4.3 Seconds
Lower Lift Arms from Maximum Height	2.9 Seconds
Move Bucket to Dump Position	2.3 Seconds
Move Bucket to Retracted Position	2.0 Seconds

ELECTRICAL

Alternator	Belt driven, 37 amps. open
Battery	Two (2) batteries, in parallel @ 12 volt, 370 cold crank amps. @ 0°F (-17,8°C) 106 min. reserve capacity
Starter	12 volt gear drive

DRIVE SYSTEM

Transmission	Two hydrostatic piston pumps driving fully reversing hydrostatic motors. Seperate gear type charge pump
Final Drive	Gear reduction with #100 HS roller chain & sprockets in sealed chaincase with oil lubrication.
Total Engine to Wheel Reduction	39.4:1
Fluid Type	Clark Bobcat Fluid (P/N 6563328 [5 gal. Package]). If the fluid is not available, use 10W-30 or 10W-40 Class SE Motor Oil.

CAPACITIES

Cooling System	22 qts. (21 L)
Fuel	22 gals. (83 L)
Engine Lubrication W/Filter	7.5 qts. (7 L)
Chaincase	36 qts. (34 L)
Hydraulic/Hydrostatic Reservoir (Steel)	15.5 qts. (14,7 L)
(Nylon)	18 qts. (17,02 L)

TIRES

Standard	8.25 x 15, 6 Ply Rating, Nylon W/Chevron Tread
Pressure	45-50 PSI (310-345 kPa)
Flotation	12 x 16.5, 6 Ply Rating
Pressure	45-50 PSI (310-345 kPa)

NOTES

ENGINE SPECIFICATIONS

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Cylinder Head Dimensions

Cylinder Head:	
Grinding Allowance	DO NOT GRIND
Valve Seat Angle (Intake)	45° (90° Included Angle)
(Exhaust)	30° (120° Included Angle)
Valve Seat Width	0.079 (2,0 mm)
Combustion Chamber Inserts:	
Height of Insert in Relation to Cylinder Head Face	0.001 (0,025) Above 0.0029 (0,073) Below
Valve Guide, Inlet & Exhaust:	
Guide Height Above Cylinder Head	0.065 (1,65)
Valve Guide Bore Diameter	0.3145/0.3155 (7,99/8,01)
Valves, Inlet:	
Maximum Worn Valve Stem Diameter	0.3102 (7,88)
Maximum Worn Clearance of Valve Stem in Guide	0.005 (0,13)
Minimum Valve Head Thickness	0.053 (1,35)
Valve Face Angle	45°
Valve Stem Seal	Synthetic Rubber Deflector
Valve Clearance (Cold)	0.012 (0,30)
Valves, Exhaust:	
Minimum Worn Valve Stem Diameter	0.3097 (7,87)
Maximum Worn Clearance of Valve Stem in Guide	0.0055 (0,14)
Minimum Valve Head Thickness	0.053 (1,35)
Valve Face Angle	30°
Valve Stem Seal	Not Used
Valve Clearance (Cold)	.012 (0,30)
Valve Springs, Inner:	
Fitted Length	1.49 (37,85)
Load at Fitted Length	28 lbs. ± 1.5 lbs. (12,7 kg ± 0,68 kg)
Free Length	1.74 (44,20)
Valve Springs, Outer:	
Fitted Length	1.59 (40,39)
Load at Fitted Length	40 lbs. ± 2.0 lbs. (18,2 kg ± 0,91 kg)
Free Length	1.181 (10,0)
Rocker Arms:	
Clearance Fit of Rocker Arm Bushing on Shaft	0.0006/0.0024 (0,015/0,06)
Maximum Worn Clearance	0.003 (0,08)
Inside Diameter of Bushing (Fitting)	0.625/0.6528 (15,88/15,90)
Rocker Arm Shaft:	
Outside Diameter of Shaft	0.6234/0.6244 (15,83/15,86)

Pistons and Connecting Rod Dimensions

Pistons:	
Type	Flat Topped, Controlled Expansion, Offset Piston Pin
Piston Diameter (Measured at 90° to piston pin and 0.7 (18) above bottom of piston)	3.499/3.500 (88,87/88,90)
Maximum Ring Clearance in Groove (New Ring Fitted)	0.008 (0,20)

NOTES

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Piston and Connecting Rod Dimensions (Cont'd)

Pistons Rings:
- Compression (Top) ..... Chrome Inlay
- Compression (2nd) ..... Internally stepped chrome faced
- Scraper (3rd) ..... Coil Spring Loaded, Oil Control
- Maximum Clearance in Groove 0.012 (0,30)
- *Ring Gap (New Rings) ..... 0.014 - 0.022 (0,356 - 0,559)
- (Maximum) 0.060 (1,52)

* The ring gap is measured in a clean un-worn part of the cylinder bore.

Piston Pins:
- Type ..... Fully Floating
- Clearance Fit in Small End Bushing 0.0006/0.0016 (0,015/0,04)
- Maximum Worn Clearance 0.002 (0,05)

Connecting Rods:
- Type ..... "H" Section
- Maximum Side Play at Big End 0.016 (0,41)
- Small End Bushing ..... Steel Backed, Bronze Lined

Connecting Rod Bearings:
- Type ..... Steel Backed, Aluminum Tin Lined
- Rod Bearing Running Clearance 0.0014/0.003 (0,035/0,08)
- Maximum Clearance 0.004 (0,102)

Cylinder Block and Liner Dimensions

Cylinder Block:
- Bore Diameter of Cylinder Liner 3.8125/3.8135 (96,84/96,86)
- Main Bearing Bore 2.916/2.917 (74,97/74,09)
- No. 1 Bore for Camshaft 2.0472/2.0484 (52,0/52,03)
- No. 2 Bore for Camshaft 2.0374/2.0386 (51,75/51,78)
- No. 3 Bore for Camshaft 2.0275/2.0287 (51,5/51,53)
- No. 4 Bore for Camshaft 2.0177/2.0189 (51,25/51,28)
- Cylinder Block Surface Distortion
  - Limit — Longitudinal 0.010 (0,25)
  - — Transverse 0.004 (0,102)

Cylinder Liners:
- Type ..... Dry Interence Fit
- Cylinder Liner Finished Bore 3.501/3.502 (88,93/88,95)
- Maximum Worn Bore Diameter 3.509 (89,13)
- Depth of Flange BELOW Top Face of Cylinder Block . 0.000/0.004 (0,00/0,102)
- Height of Collar ABOVE Top Face of Cylinder Block . . 0.026/0.031 (0,66/0,79)

Crankshaft and Main Bearings Dimensions

Crankshaft:
- Main Journal Diameter 2.7485/2.7491 (69,81/69,83)
- Minimum Journal Diameter 2.7466 (69,76)
- Crankshaft Rod Journal Diameter 2.2485/2.2491 (57,11/57,13)
- Minimum Rod Journal Diameter 2.2466 (57,06)
- Main Journal & Rod Journal Diameter Out-of-Round Premitted . 0.0005 (0,013)
- Crankshaft End Play 0.003/0.015 (0,080/0,038)
- Maximum End Play 0.016 (0,41)

Main Bearing:
- Type ..... Steel Backed, Aluminum Tin Lined
- Main Bearing Running Clearance 0.0025/0.0045 (0,06/0,11)
- Maximum Clearance 0.005 (0,13)

NOTES

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Crankshaft and Main Bearings Dimensions (Cont'd)

Crankshaft Thrust Washer:	
Type	Steel Backed, Aluminum Tin
Position in Cylinder Block	Center Main Bearing
Thrust Washer Oversize	0.007 (0,18)

Timing Case, Camshaft and Drive Dimensions

Camshaft:	
Journal Diameter, No. 1	2.0437/2.0448 (51,91/51,94)
Minimum Journal Diameter, No. 1	2.0434 (51,90)
Journal Diameter, No.2	2.0339/2.035 (51,66/51,69)
Minimum Journal Diameter, No. 2	2.0336 (51,65)
Journal Diameter, No. 3	2.0241/2.0252 (51,41/51,44)
Minimum Journal Diameter, No. 3	2.0237 (51,40)
Journal Diameter, No. 4	2.0142/2.0154 (51,16/51,19)
Minimum Journal Diameter, No. 4	2.0139 (51,15)
Maximum Journal Running Clearance	0.006 (0,15)
Maximum Camshaft Runout	0.003 (0,08)
Minimum Cam Height	1.6727 (42,49)
Camshaft End Play	0.0012/0.0071 (0,03/0,18)
Maximum End Play	0.010 (0,25)
Idler Gear and Hub:	
Clearance Fit of Gear Bushing on Hub	0.0014/0.0034 (0,04/0,09)
Idler Gear End Play	0.008/0.012 (0,020/0,30)
Maximum End Play	0.015 (0,38)
Timing Gears:	
All Gears Backlash	0.004 (0,102) minimum

Oil Pump Dimensions

Oil Pump Pressure	30-60 PSI (207-414 kPa)
Oil Pump:	
Type	Rotor
Number of Lobes-Inner Rotor	Four
Number of Lobes-Outer Rotor	Five
Method of Drive	Spiral Gear on Camshaft
Clearance of Inner to Outer Rotor	0.012 (0,30)
Clearance of Outer Rotor to Pump Housing	0.012 (0,30)
Rotor End Play	0.006 (0,15)
Oil Pump Relief Valve:	
Type	Spring-Loaded Plunger
Spring, Free Length	1.6 (40,1)

Cooling System and Water Pump Dimensions

Water Pump:	
Type	Centrifugal
Water Pump Seal, Type	Synthetic Rubber-Carbon Faced
Counter Face	Rotating Ceramic
Thermostat:	
Type	Wax By-Pass Blanking
Opening Temperature	166°/173°F (74.5°/78.5°C)
Fully Open Temperature	194°F (90°C)
Minimum Travel at Full Open	0.3 (7,6)

NOTES

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Fuel System Specifications

Fuel Filter
- Type . . . . . Spin on canister element. Printing pump in filter housing.

Fuel Injection Pump
- Manufacturer . . . . . Diesel Kiki
- Type . . . . . VE
- Rotation . . . . . Clockwise (from drive end)
- Plunger Diameter 0.394 (10)
- Cam Lift 0.09 (2,3)
- Static Timing . . . . . 0.039 (1,0) cam lift at TDC

Fuel Injectors
- Type . . . . . Pintle
- Operating Pressure . . . . . 1990 PSI (13721 kPa)

Starting Aid-Glow Plugs
- Type . . . . . Sheathed
- Voltage and Current . . . . . 10.5 volt - 6.5 amps.

De-Rating for Altitude

The following is given as a general guide, which may be used on a percentage basis, where specific figures for an engine rating are not available.

Altitude	Maximum Fuel Delivery De-Rating Measured at 800 RPM Pump Speed
0 - 2,000 ft. (600 Meters)	No Charge
2,000 - 4,000 ft. (1200 Meters)	6%
4,000 - 6,000 ft. (1800 Meters)	12%
6,000 - 8,000 ft. (2400 Meters)	18%
8,000 - 10,000 ft. (3000 Meters)	24%
10,000 - 12,000 ft. (3600 Meters)	30%

Any necessary adjustments for the fuel injection pump must be done by Trained Service Personnel.

Engine Torques

The following figures will apply with the bolts and/or nuts having a light coat of oil before assembly.

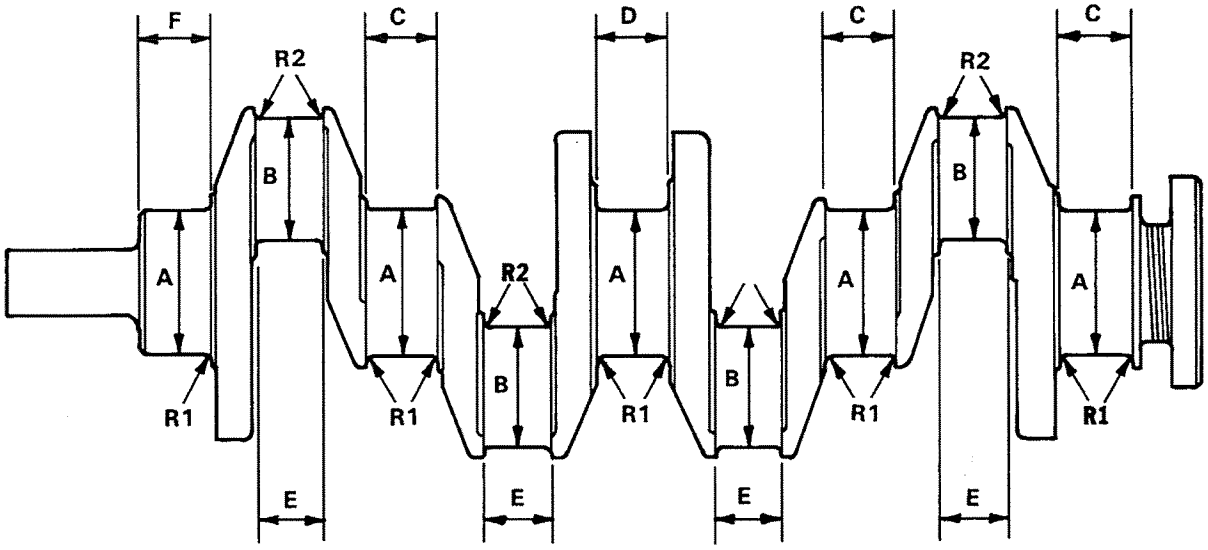
	Ft.-Lbs.	Nm	Page
Engine Mounting Bolts & Nuts	125-140	169-190	7B–16
U-Joint Mounting Bolts	25-28	34-38	7B–22
Cylinder Head Bolts (Also Rocker Arm Brackets)	85	115	7B–24
Main Bearing Bolts	85	115	7B–35
Connecting Rod Nuts*	60	82	7B–32
Flywheel Bolts	83-90	113-122	7B–22
Crankshaft Pulley Retaining Bolt	180	244	7B–39
Camshaft Gear Bolt	40-50	54-68	7B–43, 7B–42
Idler Gear Hub to Cylinder Block Nuts	21	28	7B–42
Fuel Injection Pump Drive Gear Nut	50	58	7B–8, 7B–42, 7B–44
Fuel Injector Nuts	12	16	7B–11
High Pressure Tubeline Fittings	15	20	7B–5
Glow Plugs	11	15	7B–13

* Once the Connecting Rod Nuts are removed, they must be replaced.

NOTES

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Grinding Specifications for Crankshaft



PI-2598

	0.010 (0,25) Undersize	0.020 (0,51) Undersize	0.030 (0,76) Undersize
A	2.7385/2.739 (69,56/69,57)	2.7285/2.729 (69,30/69,32)	2.7185/1.719 (69,05/69,06)
B	2.2385/2.239 (56,86/56,87)	2.2285/2.229 (56,60/56,62)	2.2185/2.219 (56,35/56,36)
C	1.4459 (36,73) Maximum		
D	1.4416/1.4445 (36,62/36,69)	1.4466/1.4495 (36,74/36,82)	1.4516/1.4545 (36,87/36,94)
E	1.3806 (35,07) Maximum		
F	1.4045 (35,67) Maximum		
R1	0.146/0.157 (3,71/3,99) All Journals		
R2	0.126/0.142 (3,20/3,61) All Crankpins		

Surface finish of crankpins, journals and fillet radii 8 micro inches (0,2 microns) C.L.A.

Magnetic Crack Detection D.C. Flow — 2.5 Amps. A.C. Current — 1300 Amps.

Limits of taper and out-of-round for pins and journals:

Taper 0.00025 (0,006) Out-of-Round 0.00025 (0,006)

Maximum Run-out with the crankshaft mounted on the end main journals.

Independent Readings:

Crankshaft Pulley Diameter T.I.R.	Rear Oil Seal Diameter T.I.R.	Flywheel Flange Diameter T.I.R.
0.002 (0,05)	0.002 (0,05)	0.002 (0,05)

Journals T.I.R. — Run-out must not be opposed.

Number 1	Number 2	Number 3	Number 4	Number 5
Mounting	0.003 (0,08)	0.006 (0,15)	0.003 (0,08)	Mounting


BE PARTS
& SERVICE
SMART

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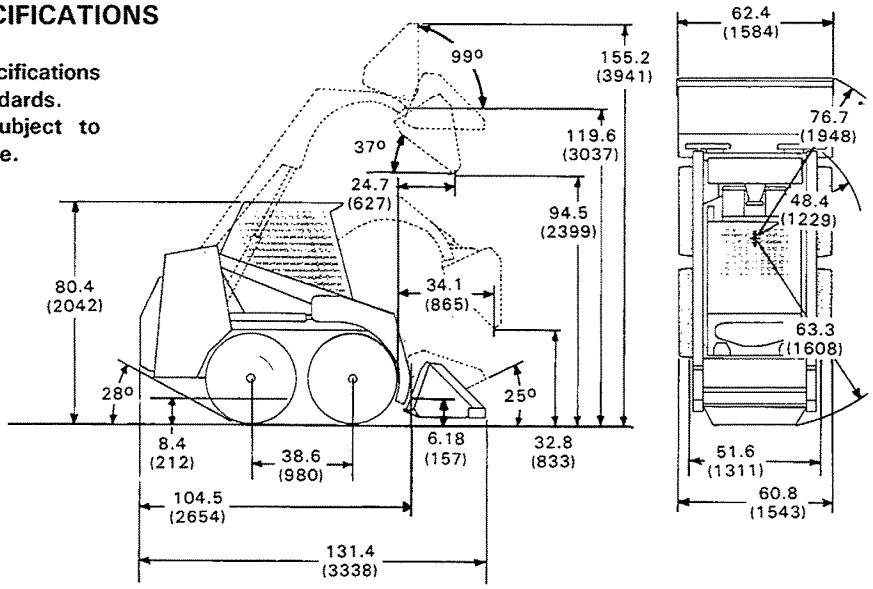
8C LOADER SPECIFICATIONS

Where applicable, specifications conform to SAE standards. Specifications are subject to change without notice.



PI-2585

Dimensions are given for a loader equipped with standard tires and dirt bucket. Dimensions may vary with other bucket types. All dimensions are shown in inches. Respective metric dimensions are given in millimeters enclosed by parentheses.

This loader was designed without counterweights or ballasts. Changes of structure or weight distribution of the loader can cause changes in control and steering response and can cause failure of the loader parts.

OPERATION AND PERFORMANCE

Weights
- Operating Weight ..... 6480 lbs. (2939 kg)
- Rated Operating Capacity ..... 1700 lbs. (772 kg)
- Bucket Capacity (SAE) (60" Dirt) ..... 12.5 cu.-ft. (0,35 m^3)
- Travel Speed ..... Infinitely variable 0-6.3 MPH (10 km/hr.)

Controls
- Vehicle ..... Direction & speed controlled by two hand levers.
- Loader Function ..... Lift & tilt function controlled by separate foot pedals. Auxiliary function controlled by the right steering lever.
- Engine ..... Hand lever throttle & key type starter switch.
- Main Drive ..... Hydrostatic
- Parking Brake ..... Mechanical disc, foot operated.

ENGINE

- Make ..... Isuzu
- Model 4JB1-PK01
- Fuel ..... Diesel
- Horsepower ..... 54 HP (40.3 kW) @ 2600 RPM
- Torque ..... 120 ft.-lbs. (163 Nm) Maximum @ 1600 RPM
- Maximum Governed RPM ..... 2600 RPM
- Number of Cylinders ..... Four
- Bore/Stroke ..... 3.66 (93)/4.016 (102)
- Displacement ..... 169 CID (2,8 L)
- Cooling System ..... Liquid
- Lubrication ..... Pressure System W/Filter
- Crankcase Ventilation ..... Open
- Air Cleaner ..... Dry replaceable cartridge (W/Safety Element)
- Low Idle ..... 1150 RPM
- High Idle ..... 2725-2750 RPM

NOTES

LOADER HYDRAULICS

Hydraulic Pump (Rear)
- Type . . . . . Engine driven, gear type
- Capacity . . . . 16.2 GPM (61,3 L/min.) @ 2700 RPM @ 1050 PSI (7239 kPa)

Charge Pump (Front)
- Type . . . . . Engine driven, gear type
- Capacity . . . . 10.8 GPM (40,9 L/min.) @ 2700 RPM @ 1050 PSI (7239 kPa)

System Relief Valve Setting . . . . . 2250-2400 PSI (15513-16548 kPa)

Hydraulic Fluid Filters . . . . . Replaceable 3 element paper filter and replaceable 10 micron paper filter

Hydraulic Cylinders . . . . . Doubleacting
- Bore Diameter
  - Lift Cylinder (2) 2.25 (57,2)
  - Tilt Cylinder (1) 3.25 (82,6)
- Rod Diameter
  - Lift Cylinder (2) 1.50 (38,1)
  - Tilt Cylinder (1) 1.50 (38,1)
- Stroke
  - Lift Cylinder (2) 33.50 (850,9)
  - Tilt Cylinder (1) 17.95 (455,9)

Control Valve . . . . . 4-spool, open center, series-type W/float detent on lift, detent on auxiliary and self-leveling on tilt

Bucket Positioning Valve . . . . . Provides self leveling of bucket when lift arms are raised

Hydraulic Function Time:
- Raise Lift Arms to Maximum Height . . . . . 4.0 Seconds
- Lower Lift Arms from Maximum Height . . . . . 3.0 Seconds
- Move Bucket to Dump Position . . . . . 2.2 Seconds
- Move Bucket to Retracted Position . . . . . 1.9 Seconds

ELECTRICAL

Alternator . . . . . Belt driven, 55 amps. @ 2600 RPM (Open)

Battery . . . . . 12 volt, 700 cold crank amps. @ 0°F (-18°C) 170 min. reserve capacity

Starter . . . . . 12 volt, gear drive

DRIVE SYSTEM

Transmission . . . . . Hydrostatic, infinitely variable, fully reversing (2) Traction relief — 3500 PSI (24132 kPa) in forward only

Final Drive . . . . . Gear reduction and #100 roller chains operating in sealed chaincase W/oil lubrication

Fluid Type . . . . . Bobcat Fluid (P/N 6563328) (5 gal. package). If the fluid is not available use 10W-30 or 10W-40 Class SF Motor Oil

CAPACITIES

Cooling System . . . . . 22 qts. (21 L)

Fuel . . . . . 22 gals. (83 L)

Engine Lubrication W/Filter . . . . . 7.5 qts. (7 L)

Chaincase . . . . . 36 qts. (34 L)

Hydraulic/Hydrostatic Reservoir . . . . . 15.5 qts. (14,7 L)

Hydraulic/Hydrostatic System (incl. reservoir) . . . . . 33 qts. (31 L)

TIRES

Standard . . . . . 8.25 x 15, 6 ply rating
- Pressure . . . . . 45-50 PSI (310-345 kPa)

Flotation . . . . . 12 x 16.5, 6 ply rating
- Pressure . . . . . 45-50 PSI (310-345 kPa)

NOTES_____

ENGINE SPECIFICATIONS

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Cylinder Head

Distortion	Std. 0.002 (0,05)
	Limit 0.008 (0,20)
Re-Grind	Limit 0.012 (0,30)
Valve Seat Angle	45 degrees

Valve, Valve Guide & Seat Insert

Valve Seat Width	
Intake	Std. 0.067 (1,7)
	Limit 0.087 (2,2)
Exhaust	Std. 0.029 (2,0)
	Limit 0.079 (2,0)
Valve Head Depth	
Intake	Std. 0.029 (0,73)
	Limit 0.05 (1,28)
Exhaust	Std. 0.028 (0,70)
	Limit 0.047 (1,2)
Valve Seat Angle	45 degrees
Valve Head Thickness	Std. 0.07 (1,8)
	Limit 0.059 (1,5)
Valve Stem Diameter	
Intake	Std. 0.3128-0.3134 (7,946-7,961)
	Limit 0.310 (7,88)
Exhaust	Std. 0.3119-0,3124 (7,921-7,936)
	Limit 0.310 (7,88)
Valve & Valve Guide Clearance	
Intake	Std. 0.0015-0.0027 (0,039-0,068)
	Limit 0.008 (0,2)
Exhaust	Std. 0.0025-0.0038 (0,064-0,096)
	Limit 0.010 (0,25)
Valve Guide Height	0.51 (13)

Valve Springs

Free Length	
Inner	Std. 1.783 (45,3)
	Limit 1.748 (44,4)
Outer	Std. 1.957 (49,7)
	Limit 1.898 (48,2)
Inclination	
Inner	Limit 0.118 (3,0)
Outer	Limit 0.126 (3,2)
Tension	
Inner—Set Length	1.46 (37) Std. 13 lbs. (5,9 kg)
	Limit 11 lbs. (5,02 kg)
Outer—Set Length	1.54 (39) Std. 46 lbs. (20,9 kg)
	Limit 40 lbs. (18,1 kg)

Rocker Arm

Shaft Diameter	Std. 0.7478-0.7486 (18,98-19,0)
	Limit 0.7427 (18,85)
Rocker Arm I.D.	Std. 0.7489-0.7497 (19,01-19,03)
	Limit 0.7505 (19,05)
Clearance between Rocker Arm & Shaft	Std. 0.0003-0.0020 (0,01-0,05)
	Limit 0.0078 (0,2)
Push Rod Run-Out	Limit 0.012 (0,3)

NOTES

ENGINE SPECIFICATIONS (Cont'd)

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Tappets

Diameter	Std. 0.511-0.5114 (12,98-12,99) Limit 0.510 (12,95)
Clearance	Std. 0.0012 (0,03) Limit 0.0039 (0,10)

Piston, Pin & Rings

Piston O.D.	
Piston Grade A	3.6608-3.6616 (92,985-93,004)
Piston Grade C	3.6616-3.6624 (93,005-93,024)
Clearance in Bore	Std. 0.001-0.0018 (0,025-0,04)
Clearance Between Ring & Piston Groove	
1st. Compression	Std. 0.0035-0.0049 (0,09-0,125) Limit 0.006 (0,15)
2nd Compression	Std. 0.002-0.0033 (0,05-0,085) Limit 0.006 (0,15)
Oil	Std. 0.001-0.003 (0,03-0,07) Limit 0.006 (0,15)
Piston Ring Gap	
Compression	Std. 0.008-0.0016 (0,2-0,4) Limit 0.059 (1,5)
Oil	Std. 0.004-0.012 (0,1-0,3) Limit 0.0059 (1,5)
Piston Pin O.D.	Std. 1.220 (31) Limit 1.219 (30,97)
Interference Fit Clearance	0.00008-0.0006 (0,002-0,015)

Connecting Rod & Bearing

Connecting Rod Misalignment	Std. 0.002 (0,05 or less Limit 0.0079 (0,2)
Small End Bushing I.D.	Std. 1.2208-1.2211 (31,008-31,015)
Clearance Between Piston Pin & Small End Bushing	Std. 0.0003-0.00079 (0,008-0.20) Limit 0.0002 (0,05)
Clearance Between Crankshaft Journal & Bearing	Std. 0.001-0.0026 (0,029-0,066) Limit 0.004 (0,10)

Cylinder Liners

Cylinder Liner I.D.	Std. 3.6622-3.6638 (93,021-93,06) Limit 3.6653 (93,10)
Interference Fit in Block	0.00004-0.00075 (0,001-0,019)
Projection above Block	0.0-0.0039 (0,0-0,01)
Cylinder Liner Bore I.D.	
Piston Grade A	Min. Dia. 3.6622-3.6630 (93,021-93,04)
Piston Grade C	Min. Dia. 3.6630-3.6638 (93,041-93,060)

Camshaft

Gear Backlash	Std. 0.004-0.007 (0,10-0,17) Limit 0.012 0,3)
End Play	Std. 0.0002-0.0045 (0,05-0,114) Limit 0.0079 (0,2)
Journal Diameter	Std. 1.9663-1.9675 (49,945-49,975) Limit 1.9528 (49,60)
Camshaft Bearing I.D.	Std. 1.9685-1.9697 (50,0-50,03)

NOTES

ENGINE SPECIFICATIONS (Cont'd)

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parenthesis.

Camshaft (Cont'd)

Clearance	Std. 0.0020 (0,05) Limit 0.0047 (0,12)
Camshaft Run-Out	Limit 0.0039 (0,1)
Cam Lobe Height	Std. 1.654 (42,02) Limit 1.640 (41,65)

NOTE: Crankshaft is Tuffride coated and cannot be re-ground.

Crankshaft

End Play	Std. 0.004 (0,1) Limit 0.012 (0,31)
Connecting Rod Journal O.D.	Std. 2.0833-2.0839 (52,915-52,930) Limit 2.0829 (52,906)
Main Bearing Journal O.D.	Std. 2.7526-2.7532 (69,917-69,932) Limit 2.7524 (69,910)
Clearance Between Journal & Main Bearing	Std. 0.0014-0.0041 (0,035-0,080) Limit 0.0043 (0,11)
Crankshaft Run-Out	Std. 0.002 (0,05) or less Limit 0.003 (0,08)

Idler Gear

End Play	Std. 0.003 (0,07) Limit 0.008 (0,2)
Backlash	Std. 0.004-0.007 (0,10-0,017) Limit 0.012 (0,3)
Idler Gear Hub O.D.	Std. 1.7695-1.7707 (44,945-44,975) Limit 1.7656 (44,845)
Clearance Between Hub & Gear	Std. 0.0009-0.003 (0,025-0,085) Limit 0.0079 (0,2)
Bearing Replacement	
Projection	0.016-0.024 (0,4-0,6)
Height	0.933-0.945 (23,7-24,0)

Oil Pump

End Play Between Vane & Body	Std. 0.0008-0.0028 (0,02-0,07) Limit 0.0059 (0,15)
Clearance Between Rotor & Vane	Std. 0.0055 (0,14) or less
Clearance Between Vane & Body	Std. 0.0079-0.0105 (0,2-0,27)
Clearance Between Rotor Shaft & Body	Std. 0.0016 (0,04) Limit 0.0079 (0,2)
Oil Pump Pressure	57-71 PSI (393-490 kPa) @ 1400 RPM 21 PSI (145 kPa) @ Idle RPM

Fuel System

Pump Type	Bosch VE
Nozzles	Bosch Multi-hole (4 orifices)
Injector Pressure (Opening)	2630 PSI (18134 kPa)
Supply Pump Pressure	
Idle RPM	37 PSI (255 kPa)
High Idle RPM	71 PSI (490 kPa)
Injection Pump Timing	17° BTDC

NOTES

ENGINE SPECIFICATIONS (Cont'd)

Engine Torque

	Ft.-Lbs.	Nm	Page
Valve Cover Nuts	6-13	8-18	7C—29
Rocker Arm Bracket Bolts	36-43	49-58	7C—29
Rocker Arm Adjustment Nut	12-14	16-19	
Cylinder Head Bolts	New 57-67	77-91	7C—29
	Used 72-80	98-108	7C—29
Exhaust Manifold Bolts	10-17	14-23	7C—30
Intake Manifold Bolts	10-17	14-23	
Intake Manifold Pipe Bolts	20-35	27-47	
Thermostat Housing Bolts	10-17	14-23	7C—66
Water Jacket Tube (Outside)	10-17	14-23	
Exhaust Pipe to Exhaust Manifold	20-35	27-47	
Main Bearing Cap Bolts	116-130	157-176	7C—44, 7C—46
Oil Pan Nuts & Bolts	14-19	19-26	7C—39
Oil Filter Housing Bolts	10-17	14-23	
Water Pump Bolts	11-18	15-24	7C—63
Oil Pump Mounting Bolts	10-17	14-23	7C—60
Camshaft Gear Bolt	72-87	98-118	7C—54
Camshaft Retainer Plate Bolts	11-17	15-23	7C—54
Flywheel Bolts	*83-90	113-122	7C—26
Connecting Rod Bolts	58-65	79-88	7C—40
Crankshaft Pulley Bolt	123-152	167-206	7C—48, 7C—49
Fuel Injector Holddown Nut	23-32	31-43	7C—12
High Pressure Tubeline Fittings	14-29	19-39	7C—7, 7C—11
Injection Pump Mounting Bolts & Nuts	10-17	14-23	7C—8
Injection Pump Gear Bolt	43-51	58-69	
Timing Case Cover Bolts	11-17	15-23	7C—50
U-Joint Mounting Bolts	25-28	34-38	7C—26
Engine Rear Mounting Bracket Bolts (Large)	56-62	75-85	7C—28
Enginne Rear Mounting Bracket Bolts (Small)	31-35	43-47	7C—28
Engine Front Mounting Bracket Bolts	25-28	34-38	7C—28
Idler Gear Bolts	10-12	14-16	7C—51
Injection Pump Idler Gear Bolt	72-87	98-118	7C—53
Timing Case Bolts	11-17	15-23	7C—55
Oil Pump Bolts (Hollow)	9-12	12-16	—

*Lubricate Thread with Oil

NOTES

MELROE COMPANY

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843–1
Revision Number

12 March 1986
Date

SERVICE MANUAL REVISION

ROUTE TO ATTENTION

PARTS MANAGER ☐
SERVICE MANAGER ☑
SALES MANAGER ☐
☐

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

The attached sheets are a revision to the 843 Service Manual (P/N 6566091). The revision includes information on checking the Melroe alternator and checking the Delco starter.

Remove the following pages from the Service Manual and replace them with the revised pages as follows.

TAKE OUT	PUT IN
6–7, 6–8	6–7, 6–8 (Revised Mar. 86)
	6–8.1 (Added Mar. 86), 6–8.2 (Revised Mar. 86)
6–13, 6–14, 6–15	6–13, 6–14, 6–15 (Revised Mar. 86)

MELROE COMPANY

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843 – 2
Revision Number
14 April 1986
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

ROUTE TO ATTENTION

- PARTS MANAGER ☐
- SERVICE MANAGER ☐
- SALES MANAGER ☐
- ☐

Remove the following page from the Service Manual (P/N 6566091) and replace it with the revised page.

TAKE OUT	PUT IN
4–3, 4–4	4–3, 4–4 (Revised April 86)
Hydraulic/Hydrostatic Chart #6570242 Dated Jan. 86	Hydraulic/Hydrostatic Chart #6570242 (Revised April 86)

Printed in U.S.A.

MELROE COMPANY

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843–3
Revision Number
25 September 1986
Date

SERVICE MANUAL REVISION

ROUTE TO ATTENTION

PARTS MANAGER	☐
SERVICE MANAGER	☑
SALES MANAGER	☐
	☐

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

The attached sections 7C and 8C include information dealing with the Isuzu engine. Add the sections to the Service Manual.

The following pages are revision to the 843 Service Manual.

Take out the following pages and put in the revised or added pages:

TAKE OUT	PUT IN
8B–3, 8B–4 Technical Data Sheet	8B–3, 8B–4 (Revised Sept. 86) Technical Data Sheet (Revised Sept. 86)

MELROE COMPANY

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843—4
Revision Number
20 February 1987
Date

SERVICE MANUAL REVISION

ROUTE TO ATTENTION	
PARTS MANAGER	☐
SERVICE MANAGER	☑
SALES MANAGER	☐
	☐

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

Remove the following pages from the 843 Service Manual (P/N 6566091) and put in the revised pages.

TAKE OUT	PUT IN
1—1, 1—2	1—1, 1—2 (Revised Feb. 87)
1—5, 1—6	1—5, 1—6 (Revised Feb. 87)
2—37, 2—38	2—37 (Revised Feb. 87), 2—38
5—13, 5—14	5—13, 5—14 (Revised Feb. 87)
7C—1, 7C—2	7C—1, 7C—2 (Revised Feb. 87)
TECHNICAL DATA TAB PAGE	TECHNICAL DATA TAB PAGE (Revised Feb. 87)
8C—1, 8C—2	8C—1 (Revised Feb. 87), 8C—2
8C—5, 8C—6	8C—5 (Revised Feb. 87), 8C—6 (Revised Feb. 87)

MELROE COMPANY

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843—5
Revision Number
12 June 1987
Date

SERVICE MANUAL REVISION

ROUTE TO ATTENTION

PARTS MANAGER ☐
SERVICE MANAGER ☑
SALES MANAGER ☐
☐

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

Remove the following pages from the 843 Service Manual (P/N 6566091) and put in the revised or added pages.

TAKE OUT	PUT IN
2—35, 2—36	2—35 (Revised June 87), 2—36
HYDROSTATIC SYSTEM, Tab Page	HYDROSTATIC SYSTEM, Tab Page (Revised June 87) HYDRAULIC/HYDROSTATIC FLOW CHART (S/N 26000 & Above)
	3—16a (Added June 87), 3—16b (Added June 87)
	AT THE BEGINNING OF THE ENGINE SERVICE SECTION, Tab Page (Added June 87)
ENGINE SERVICE (7A), Tab Page	ENGINE SERVICE (7A), Tab Page (Revised June 87)
ENGINE SERVICE (7C), Tab Page 7C—5, 7C—6 7C—9, 7C—10	ENGINE SERVICE (7C), Tab Page (Revised June 87) 7C—5 (Revised June 87), 7C—6 (Revised June 87) 7C—9 (Revised June 87), 7C—10 (Revised June 87)
	AT THE BEGINNING OF TECHNICAL DATA SECTION, Tab Page (Added June 87)
TECHNICAL DATA (8A), Tab Page	TECHNICAL DATA (8A), Tab Page (Revised June 87)
TECHNICAL DATA (8B), Tab Page (Revised Feb. 87)	TECHNICAL DATA (8B), Tab Page (Revised June 87)
TECHNICAL DATA (8C), Tab Page	TECHNICAL DATA (8C), Tab Page (Revised June 87)
GENERAL SPECIFICATIONS, Tab Page	GENERAL SPECIFICATIONS, Tab Page (Revised June 87)
8—5, 8—6 8—7, 8—8 8—9, 8—10	8—5, 8—6 (Revised June 87) 8—7 (Revised June 87), 8—8 (Revised June 87) 8—9 (Revised June 87), 8—10 (Revised June 87) 8—11 (Added June 87), 8—12 (Added June 87) 8—13 (Added June 87), 8—14 (Added June 87)

MELROE COMPANY

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843–6
Revision Number

9 December 1987
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

ROUTE TO ATTENTION

PARTS MANAGER ☐
SERVICE MANAGER ☑
SALES MANAGER ☐
☐

Remove and replace pages as follows to update your 843 Service Manual.

TAKE OUT	PUT IN
7C–29, 7C–30	7C–29 (Revised Dec. 87), 7C–30
7C–59, 7C–60	7C–59 (Revised Dec. 87), 7C–60

MELROE COMPANY
A BUSINESS UNIT OF CLARK EQUIPMENT COMPANY

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843—7
Revision Number

21 July 1988
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

ROUTE TO ATTENTION

PARTS MANAGER ☐
SERVICE MANAGER ☑
SALES MANAGER ☐
☐

Remove the following pages from the 843 Service Manual (P/N 6566091) and put in the revised or added pages.

TAKE OUT	PUT IN
FOREWORD & CONTENTS PAGE	New MAINTENANCE SAFETY PAGE New FOREWORD PAGE (Revised July 88), New CONTENTS PAGE (Revised July 88)
i, ii iii, iv	i (Revised July 88), ii (Revised July 88)
SECTION ONE	
1—7, 1—8 1—9	1—7, 1—8 (Revised June 88) 1—9 (Revised July 88)
SECTION TWO	
HYDRAULIC/HYDROSTATIC SYSTEM OPERATION Chart #6570552 (Printed June 87)	HYDRAULIC/HYDROSTATIC SYSTEM OPERATION Chart #6570552 (Printed July 88) HYDRAULIC/HYDROSTATIC HIGH HORSE POWER FLOW CHART & ELECTRICAL DIAGRAM Chart #6570916 (Printed July 88)
SECTION THREE	
HYDROSTATIC SYSTEM TAB PAGE (Revised June 87)	HYDROSTATIC SYSTEM TAB PAGE (Revised July 88) 3—16c thru 3—16j (Added July 88)
SECTION FOUR	
4—1, 4—2 4—3, 4—4 (Revised Apr. 86)	4—1 (Revised July 88), 4—2 4—3, 4—4 (Revised July 88)
SECTION SIX	
WIRING DIAGRAM (P/N 6570240) 843 (S/N 20001 & Above) (Printed Dec. 85)	WIRING DIAGRAM (P/N 6570240) 843 (S/N 20001 thru 23999) (Printed July 88) WIRING DIAGRAM (P/N 6570913) 843 (S/N 24000 thru 25999) (Printed July 88) WIRING DIAGRAM (P/N 6570914) 843 (S/N 26000 thru 28134) (Printed July 88) WIRING DIAGRAM (P/N 6570915) 843 (S/N 28135 & Above) (Printed July 88)
6—9, 6—10	6—9 (Revised July 88), 6—10 (Revised July 88)

TAKE OUT	PUT IN
SECTION SEVEN	
7C—7, 7C—8	7C—7 (Revised July 88), 7C—8
7C—9 (Revised June 87), 7C—10 (Revised June 87)	7C—9 (Revised July 88), 7C—10 (Revised July 88)
7C—11, 7C—12	7C—11 (Revised July 88), 7C—12
7C—13, 7C—14	7C—13 (Revised July 88), 7C—14
7C—15, 7C—16	7C—15, 7C—16 (Revised July 88)
7C—17, 7C—18	7C—17 (Revised July 88), 7C—18
7C—21, 7C—22	7C—21, 7C—22 (Revised July 88)
7C—29 (Revised Dec. 87), 7C—30	7C—29 (Revised July 88), 7C—30
7C—39, 7C—40	7C—39 (Revised July 88), 7C—40 (Revised July 88)
7C—45, 7C—46	7C—45 (Revised July 88), 7C—46
SECTION EIGHT	
8A—9, 8A—10	8A—9 (Revised July 88), 8A—10
8B—5, 8B—6	8B—5, 8B—6 (Revised July 88)
8C—1 (Revised Feb. 87), 8C—2	8C—1 (Revised July 88), 8C—2
8C—5 (Revised Feb. 87), 8C—6 (Revised Feb. 87)	8C—5 (Revised July 88), 8C—6 (Revised July 88)
8—5, C—6 (Revised June 87)	8—5 (Revised July 88), 8—6 (Revised July 88)

MELROE COMPANY

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843—8
Revision Number

22 November 1988
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

ROUTE TO ATTENTION

PARTS MANAGER ☐
SERVICE MANAGER ☑
SALES MANAGER ☐
☐

Remove the following pages from the 843 Service Manual (P/N 6566091) and put in the revised or added pages.

TAKE OUT	PUT IN
HYDRAULIC FLOW CHART #6566716 (Printed July 1983) HYDROSTATIC FLOW CHART #6566717 (Printed July 1983)	HYDRAULIC/HYDROSTATIC FLOW CHART #6566716 (Printed November 1988)
HYDRAULIC FLOW CHART #6566747 (Printed July 1983) HYDROSTATIC FLOW CHART #6566748 (Printed July 1983)	HYDRAULIC/HYDROSTATIC FLOW CHART #6566748 (Printed November 1988)

MELROE COMPANY

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843—9
Revision Number
8 May 1989
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

ROUTE TO ATTENTION

PARTS MANAGER	☐
SERVICE MANAGER	☑
SALES MANAGER	☐
	☐

Remove the following pages, Hydraulic/Hydrostatic Flow Charts and Wiring Diagram from the 843 Service Manual (P/N 6566091) and put in the revised or added pages, Hydraulic/Hydrostatic Flow Charts and Wiring Diagram.

TAKE OUT	PUT IN
Hydraulic/Hydrostatic Flow Chart and Wiring Diagram 843 High Horse Power Hydraulics (Optional) Chart #6570916 (Printed July 1988)	Hydraulic/Hydrostatic Flow Chart and Wiring Diagram 843 High Horse Power Hydraulics (Optional) Chart #6570916 (Printed May 1989)
Hydraulic/Hydrostatic Flow Chart 843 (S/N 26000 & Above) Chart #6570552 (Printed July 1988)	Hydraulic/Hydrostatic Flow Chart 843 (S/N 26000 Thru 19925) Chart #6570552 (Printed May 1989)
	Hydraulic/Hydrostatic Flow Chart 843 (Starting With S/N 29926) Chart #6720178 (Printed May 1989)
Hydrostatic System - Tab Page (Revised July 88)	Hydrostatic System - Tab Page (Revised May 1989)
3—16a thru 3—16j (Added June 87)	3—16a thru 3—16j (Revised May 1989) 3—16k thru 3—16m (Added May 1989)
Wiring Diagram (P/N 6570915) 843 (S/N 28135 & Above) (Printed July 1988)	Wiring Diagram (6570915) 843 (S/N 28135 & Above) (Printed May 1989)

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843—10
Revision Number

18 September 1990
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

ROUTE TO ATTENTION

PARTS MANAGER ☐
SERVICE MANAGER ☑
SALES MANAGER ☐
_____ ☐

Remove and put in the following pages, Wiring Diagram Chart and Hydraulic/Hydrostatic Flow Chart as follows:

TAKE OUT	PUT IN
COVER	NEW COVER
i, ii	i (Revised Sept. 90), ii
Sheet 2 of 2 843 High Horsepower Hydraulic (Chart #6570916) Printed May 89	Sheet 2 of 2 843 High Horsepower Hydraulic (Chart #6570916) Printed Sept. 90) Hydraulic/Hydrostatic Flow Chart 843B Chart #6720555 (Printed September 90)
2—31, 2—32 2—33, 2—34 2—35, 2—36 2—37, 2—38 2—39, 2—40 2—43, 2—44	2—31 (Revised Sept. 90), 2—32 2—33 (Revised Sept. 90), 2—34 2—35 (Revised Sept. 90), 2—36 (Revised Sept. 90) 2—37 (Revised Sept. 90), 2—38 (Revised Sept. 90) 2—39 (Revised Sept. 90), 2—40 2—43 (Revised Sept. 90), 2—44
HYDROSTATIC SYSTEM TAB PAGE (Revised May 89)	HYDROSTATIC SYSTEM TAB PAGE (Revised Sept. 90)
3—1 Thru 3—34	3—1 Thru 3—53
WIRING DIAGRAM (P/N 6570915) 843 (S/N 28135 & Above) (Printed May 1989)	WIRING DIAGRAM (P/N 6570915) 843B (S/N 28135 & Above) & 843B (Printed September 1990)

MELROE COMPANY

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843—11
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17 September 1991
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

ROUTE TO ATTENTION	
PARTS MANAGER	☐
SERVICE MANAGER	☑
SALES MANAGER	☐
	☐

Remove and replace pages as follows to update your 843 Service Manual.

TAKE OUT	PUT IN
	HYDRAULIC/HYDROSTATIC FLOW CHART and WIRING DIAGRAM For Model 843H (S/N 50450 & Above) Chart #6720945 (Printed September 1991)
3—51 (Added Sept. 90), 3—52 (Added Sept. 90) 3—53 (Revised Sept. 90)	3—51 (Added Sept. 90), 3—52 (Revised Sept. 91) 3—53 (Revised Sept. 91)
4—7, 4—8	4—7, 4—8 (Revised Sept. 91)

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843—12
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24 September 1992
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

ROUTE TO ATTENTION

PARTS MANAGER	☐
SERVICE MANAGER	☑
SALES MANAGER	☐
_____	☐

Remove and replace pages as follows to update your 843 Service Manual.

TAKE OUT	PUT IN
FOREWORD (Revised July 88)	FOREWORD (Revised Sept. 92)
HYDRAULIC/HYDROSTATIC FLOW CHART For Model 843B Chart #6720555 (Printed September 1990)	HYDRAULIC/HYDROSTATIC FLOW CHART For Model 843B Chart #6720555 (Printed September 1992)
HYDRAULIC/HYDROSTATIC SYSTEM OPERATION Chart #6720555 (Printed September 1990)	HYDRAULIC/HYDROSTATIC SYSTEM OPERATION Chart #6720555 (Printed September 1992)
	HYDRAULIC/HYDROSTATIC FLOW CHART AND WIRING DIAGRAM For Model 843H (With Pilot Operated Main Relief) Chart #6722305 (Printed September 1992)
	HYDRAULIC/HYDROSTATIC SYSTEM OPERATION Chart #6722305 (Printed September 1992)
SECTION 6	WIRING DIAGRAM (P/N 6722195) BUCKET POSITION VALVE LOCKOUT (OPTIONAL) Model 753, 7753, 843, 843B & 853 (Printed April 1992

MELROE COMPANY

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843-13
Revision Number
22 February 1994
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12-85)

ROUTE TO ATTENTION	
PARTS MANAGER	☐
SERVICE MANAGER	☑
SALES MANAGER	☐

NOTICE **Insert This Sheet With The Appropriate Manual For Future Reference.**

The following pages are a revision to the 843 Service Manual P/N 6566091 (12-85).
Take out the pages shown and put in the revised pages as follows:

TAKE OUT	PUT IN
3—43 (Added Sept. 90), 3—44 (Added Sept. 90) 3—51 (Added Sept. 90), 3—52 (Added Sept. 90)	3—43 (Revised Feb. 94), 3—44 (Revised Feb. 94) 3—51 (Added Sept. 90), 3—52 (Revised Feb. 94)
4—11, 4—12	4—11 (Revised Feb. 94), 4—12
7A—15, 7A—16	7A—15 (Revised Feb. 94), 7A—16 (Revised Feb. 94)
7B—15, 7B—16 7B—29, 7B—30 7B—31, 7B—32 7B—33, 7B—34 7B—35, 7B—36	7B—15, 7B—16 (Revised Feb. 94) 7B—29 (Revised Feb. 94), 7B—30 7B—31 (Revised Feb. 94), 7B—32 7B—33 (Revised Feb. 94), 7B—34 7B—35, 7B—36 (Revised Feb. 94)
7C—3, 7C—4 7C—5 (Revised June 87), 7C—6 (Revised June 87) 7C—41, 7C—42	7C—3 (Revised Feb. 94), 7C—4 (Revised Feb. 94) 7C—5 (Revised Feb. 94), 7C—6 (Revised Feb. 94) 7C—41 (Revised Feb. 94), 7C—42
8A—1, 8A—2	8A—1 (Revised Feb. 94). 8A—2
8B—1, 8B—2	8A—1 (Revised Feb. 94), 8B—2
8C—1, 8C—2 8C—5 (Revised July 88), 8C—6 (Revised July 88)	8C—1 (Revised Feb. 94), 8C—2 8C—5 (Revised Feb. 94), (8C—6 (Revised Feb. 94)

MELROE
INGERSOLL-RAND

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843–14
Revision Number
30 April 1996
Date

SERVICE MANUAL REVISION

ROUTE TO ATTENTION

PARTS MANAGER	☐
SERVICE MANAGER	☒
SALES MANAGER	☐

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12–85)

NOTICE **Insert This Sheet With The Appropriate Manual For Future Reference.**

The following pages are a revision to the 843 Service Manual P/N 6566091 (12–85).

Take out the pages shown and put in the revised pages as follows:

TAKE OUT	PUT IN
3–29, 3–30 3–31, 3–32 3–33, 3–34 3–35, 3–36	3–29, 3–30 (Revised April 96) 3–31 (Revised April 96), 3–32 (Revised April 96) 3–33 (Revised April 96), 3–34 (Revised April 96) 3–35 (Revised April 96), 3–36
4–9, 4–10	4–9, 4–10 (Revised April 96)
6–1, 6–2	6–1 (Revised April 96), 6–2
7C–37, 7C–38	7C–37 (Revised April 86), 7C–38

MELROE
INGERSOLL-RAND

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843–15
Revision Number
17 June 1996
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12–85)

PARTS MANAGER	☐
SERVICE MANAGER	☒
SALES MANAGER	☐

Insert This Sheet With The Appropriate Manual For Future Reference.

The following pages are a revision to the 843 Service Manual P/N 6566091 (12–85).

Take out the pages shown and put in the revised and added pages as follows:

TAKE OUT	PUT IN
4–7, 4–8 (Revised Aug. 91)	4–7, 4–8 (Revised June 96)

MELROE
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843–16
Revision Number
1 August 1997
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 843

Manual No. 6566091 (12–85)

PARTS MANAGER	☐
SERVICE MANAGER	☒
SALES MANAGER	☐

Insert This Sheet With The Appropriate Manual For Future Reference.

The following pages are a revision to the 843 Service Manual P/N 6566091 (12–85).

Take out the pages shown and put in the revised and added pages as follows:

TAKE OUT	PUT IN
Maintenance Safety Page	Maintenance Safety Page dated 8–96
CONTENTS, FOREWORD & i, ii	CONTENTS, FOREWORD & i, ii (Revised Aug. 97) iii thru viii (Added Aug. 97)