

P&H[®] 5300

300-ton crawler crane

UPPER MACHINERY



POWER PLANT

ENGINE:	STANDARD
Make	Cummins
Model	NTA-855C
Type	Diesel
No. of Cylinders	6
Bore x Stroke, In.	5.50 x 6.00
cm	14.0 x 15.24
Displacement, In. ³	855
liters	14.011
Cycles	4
Air Induction	Turbo-charged, Aftercooled
Cooling	Liquid
Starter	24 Volt
Alternator	24 V. - 50 Amp.

TORQUE CONVERTER:

Make	Twin Disc
Model	4-MOP-2014-1
Type	Modulated clutch, electronically controlled. 70 gal (265 L) reservoir 2 double power take-offs

RATINGS:

Net HP @ RPM (Flywheel)	420 @ 2300
Net HP @ RPM (Converter Output Shaft)	240.6 @ 1990
Altitude Range	0-7000
In. Ft. (m)	(0-2100)
Temp. Range in F. (C.)	-20° to 110° (-28° to 43°)

Input disconnect clutch — Torque converter — Five plate wet type electro-hydraulically actuated.

Converter charging hydraulic system — Gear type pump charges converter. Oil to water heat exchanger cools fluid. Filtered with full flow pressure filters with replaceable paper elements.

Governor control — Twist grip (standard) — Twist grip and foot pedal (optional).

RIGHT TRANSMISSION: Two speed, electro-hydraulic powershift transmission, chain drive. Pressure lubricated bearings, gear and chain (driven by torque converter).

LEFT TRANSMISSION: Two speed transmission; hydraulic disc clutches non-power shift; input and output through universal drive shafts; pressure lubricated anti-friction bearings, roller chain and spur gears, (driven by engine front crankshaft). Electrical interlock to prevent shifting transmission above 650 rpm idle.

Fuel tank capacity — Two 79 gal. (299 liters) tanks - 158 gal. (598 liters total).

Lube oil capacity — Engine - 28 quarts (26.5 liters). Filter - 18 quarts (17 liters).

Coolant capacity — Engine - 5.5 gallons (20.8 liters). Radiator 9.25 gallons (35 liters) sheet metal, tube & plate fin type.

Air cleaner — Farr - dry type, 2 stage.

Lube oil filter — Remote mounted - replaceable. Full flow and by-pass.

Fuel filter — Dual spin-on - replaceable.

Starting aid — Required below 14 F. (-10 C) ether-measured shot.

Hydraulic pump — Flange mounted, constant displacement in-line piston pump 3000 psi (210 kg/cm²), 5 GPM, (19 liters per minute).

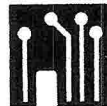
Batteries — (4) - 12 volt H.D. rates, series and parallel connected. Disconnect switch prevents start-up while servicing. 215 amp. hours @ 20 hour rate.

FRAME: All welded frame and power box constructed of heavy steel plate. Shaft mountings are line bored to insure precise alignment of all parts. Gearing (except swing) is sealed and splash lubricated. Involute splined shafts are used, turn in roller and ball bearings. Gears and roller chains are hardened, sealed in oil bath for long, trouble free operation.

MACHINERY CAB: All steel construction, access panels on both sides and roof. Removable panels for main drum brake access. No lines pass through cab. Low profile, recessed center roof. Deck covered with non-skid floor plate. Deck machinery is in compact arrangement, easy to maintain and repair.

GANTRY: Three position telescopic gantry. Power raise and lowering — 8 sheaves — 16" (40.6 cm) P.D.

OPERATORS CAB: Totally enclosed from weather. Full vision cab has safety glass throughout, sliding front window and door. Operators four-way adjustable seat is standard. Cab heater — defroster, signal horn, windshield wiper, drum turn indicator, boom angle indicator, boom hoist kick-out limit switch and flood lights available. Detachable for transporting with quick disconnects for hydraulic and electrical systems.



CONTROLS:

In front of operator are foot pedals for front and rear drum brakes, hand levers for swing control, front and rear drum controls, boom hoist control, swing brake and engine speed control. At operators left are console mounted switches for front and rear drum pawls and brake locks, master switch, engine start, starting aid and lights, included are gauges for upper hydraulic oil pressure, fuel level, engine water temperature, oil pressure, ammeter, hourmeter, drum brake pressure, converter oil charging pressure and temperature, modulated clutch control lever, trouble light receptacle and drum turn indicators. A Lode-Safe-T[®] computer is standard.

HYDRAULIC SYSTEM: Full flow hydraulic system for infinitely variable pressure to front and rear drums, boom hoist brakes and clutches. System at 1550 psi (108.5 kg/cm²) line pressure. Response is instant, positive and smooth to operators light touch. Pumped fluid is filtered, stored in accumulator under pressure, cooled in 9 gallon (34 liter) reservoir and filtered again before returning to pump.




BOOM HOIST:


Independent planetary gear type with external ratchets and automatic brakes provides for raising and lowering boom under power and locking boom. Driven from left transmission.

TWIN DRUMS: 20" (50.8 cm) P.D. x 12.375" (31.4 cm) long. Total wire rope length per drum for 1" (25 mm) rope is 536 ft. (163.4 m) storage or 442 ft. (134.7 m) working length.

	Gear Range	Low	High
HOISTING:	Line Speed	37.5 ft./min. (11.4 m/min.)	93.7 ft./min. (28.6 m/min.)
	Line Pull	29550 lb. (13404 kg)	11826.3 lb. (5364 kg)
LOWERING:	Line Speed	32.7 ft./min. (10 m/min.)	82.2 ft./min. (25 m/min.)

Specifications

 **CLUTCH SIZE:** 52" (132 cm) dia. x 4" (10.2 cm) wide, band type, external contracting.

 **BRAKE SIZE:** (2) - 30" (76.2 cm) dia. x 4" (10.2 cm) wide, band type, external contracting "full wrap" design.




DRUM ASSEMBLY: Tandem, anti-friction bearings, driven from fly-wheel end of engine through modulated clutch torque converter and two speed (right) transmission, both drums overwinding.


FRONT AND REAR:


1.25" ROPE: 28.25" (71.8 cm) P.D. x 40.5" long (102.9 cm) grooved drum. Total wire rope length of 1.25" (32 mm) dia. rope is 1628 ft. (496.2 m) storage or 1312 ft. (399.9 m) working length. Lifts in excess of 500,000 lb. require 12 part reeving with special 1.25" rope with minimum breaking strength of 87.5 tons.

1.0" ROPE: 28" (71.1 cm) P.D. x 40.5" long (102.9 cm) grooved drum. Total wire rope length of 1" (25 mm) dia. rope is 1979 ft. (603.2 m) storage or 1603 ft. (488.6 m) working length.

TORQUE CONVERTER RANGE (Based on 70% Efficiency Pts.)		REAR DRUM RANGE Low — High	FRONT DRUM RANGE Low — High
HOIST- ING: 1.25" Rope	Low Gear	Line f/min	56.6—198.5
		Speed m/min	17.3—60.5
	High Gear	Line lb.	127100—35670
		Pull kg.	57653—16180
HOIST- ING: 1.0" Rope	Low Gear	Line f/min	56.4—196.8
		Speed m/min	17.2—59.9
	High Gear	Line lb.	128413—36080
		Pull kg.	58248—16366
LOWER- ING: 1.25" Rope	Low Gear	Line f/min	30.9—107.9
		Speed m/min	9.4—32.9
	High Gear	Line f/min	68.8—240.4
		Speed m/min	20.9—73.2
LOWER- ING: 1.0" Rope	Low Gear	Line f/min	30.6—106.9
		Speed m/min	9.3—32.6
	High Gear	Line f/min	68.2—238.1
		Sped m/min	20.7—72.6

 **CLUTCH:** (Front and rear) — 46" (116.8 cm) dia. x 6" (15.2 cm) wide, band type, internal expanding.

 **BRAKE:** (Front and rear) — 52" (132 cm) dia. x 8" (20.3 cm) wide, band type, external contracting. Hydraulic set, with additional spring set hydraulically released brake lock and external ratchet for locking drum.

 **POWER CONTROLLED LOAD LOWERING:** Rapid, safe lowering through reverse planetary gearing in drum, transmission and engine. External spider brake on drum engages planetary gears. (Optional for either drum).

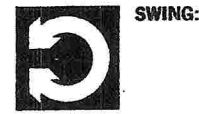


ASSEMBLY: Hydrostatic drive, fixed displacement pump mounted on converter power take-off; manual controls; quickly detachable, does not interfere with crane or machine functions. Mounted forward of front drum on revolving frame on center line of boom. Approximate 50 gal. reservoir.

DRUM: 12.75" (32.4 cm) P.D. x 16" (40.6 cm) long. Total wire rope length of 3/4" (19 mm) rope is 667 ft. (203.3 m) storage or 547 ft. (166.7 m) working length.


LINE SPEED: 87 ft./min. (26.5 m/min.).


LINE PULL: 15100 lb. (6849 kg).



SWING GEAR: 132 internal cut teeth, 88" (223.5 cm) P.D.

Gear Range	Low	High
Swing Speed	1.2 rpm	3.1 rpm


 **CLUTCH:** (2) — 27" (68.6 cm) dia. x 6" (15.2 cm) wide, electro-magnetic "Magnetorque®". Powered by engine driven alternator. Bevel and spur gear driven from front of engine.

 **BRAKE:** 18" (45.7 cm) dia. x 2.5" (6.4 cm) wide, band type, external contracting. Hydraulic release, spring set.

FASTENING TO LOWER: Roller bearing "Swing Circle"® 105.315" (267.5 cm) dia., detachable, with integral swing gear.

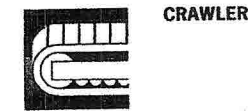
COUNTERWEIGHTS: Bustle - 127,200 lb. (57,698 kg) — Cast, 3 piece, located behind rear of upper machinery cab. Removable with gantry — pin connected. Counterweights #1 and #2 — 41,600 lb. (18,869.8 kg) each, counterweight #3 — 44,000 lb. (19,958.4 kg). Optional counterweight #4 — 41,600 lb. is required for light-duty booms over 250 ft. (76.2 m) and located behind #2 counterweight. Counterweight #3 has to be raised to position by another crane (a fourth counterweight cannot be handled by gantry.)

INDEPENDENT PROPEL MECHANISM: Driven from rear of engine through Modulated Clutch Torque Converter, Two Speed Transmission and Propel Clutch. Anti-Friction Bearings, Spur Gears and Roller Chain to Bevel Gear Reversing mechanism.

 **PROPEL CLUTCH:** Internal expanding segmented shoe type hydraulically actuated by an internal circular expander tube, 17.25" (43.8 cm) dia. x 4" (10.2 cm) wide.

LOWER MACHINERY

CARBODY: Car body of alloy steel welded construction with axle housing integral. Crawler frames shear mounted and bolted to end of extendible axles.



CRAWLER DRIVE: Power from propel mechanism in carbody is transmitted by heavy forged driveshafts. When crawlers are retracted, extended driveshafts swing away for retracting. Independent drive in each side frame consists of sliding jaw clutches engaging each end of horizontal propel shaft center section, controlling application of propelling power through sprocket and chain drive to driving tumbler. The tumbler exerts force against lugs cast into crawler shoes to propel crawler.

STEERING MECHANISM: The sliding jaw clutches are spring engaged together for propel drive, or they may be hydraulically locked to spring-set propel brakes independently.

CRAWLER BRAKES: Two — 40" (101.6 cm) dia. spring-set, hydraulically released V-type propel brakes remain set during engagement of jaw clutches.

CRAWLER SHOES: Total number — both sides 126
 cast flat shoes — standard width 48" (122 cm)
 — optional width 60" (152.4 cm)

ATTACHMENTS



STANDARD BOOM:

Two-piece 70' (21.3 m) long, open throat lattice type tubular boom consisting of a 40' (12.2 m) long tapered base section and a 30' (9.1 m) long heavy duty tapered tip section. All boom sections are pin connected, have a 94" (239 cm) square cross section and complete with suspension cable assemblies. Sections are fabricated from seamless tubular T-1 steel and reinforced with contour-cut tubular lacings for strongest welded joints. Other tip sections are optional.

HEAVY DUTY TIP: 30' (9.1 m) has 6 offset boom point sheaves 30" (76.2 cm) P.D., with roller bearings. Required for lifts up to 600,000 lbs. (272,160 kg). Boom extendible to 240' (73.2 m).

LIGHT DUTY TIP: 30' (9.1 m) long section has 3 offset boom point sheaves 30" (76.2 cm) P.D. with roller bearings. Required for long boom work from 250' to 320' (76.2 m to 97.5 m) for lifts up to 250,000 lbs. (113,400 kg). Optional.

HAMMERHEAD TIP: 20' (6.1 m) long section has 6 offset boom point sheaves 30" (76.2 cm) P.D. with roller bearings. Extra heavy duty tip of short length for minimum headroom clearance and lifts up to 500,000 lbs. (226,800 kg). Boom extendible to 250' (76.2 m). Optional.

CONTAINER TIP: 30' (9.1 m) long section has 4 boom point sheaves (2 each side) 27" (68.6 cm) P.D. with roller bearings for single or double drum operation. Double hoist lines keep container level and straight for precise placement. Boom extendible from 130' minimum to 200' (39.6 to 61 m) for lifts up to 160,000 lbs. (72,576 kg). Optional.

BOOM INSERT SECTION: 10' (3.1 m) Boom insert with suspension cable assemblies, pin connections optional
 20' (6.1 m) insert optional
 30' (9.1 m) insert optional
 50' (15.2 m) insert optional

JIB: 30' (9.1 m) long jib, open throat lattice type, two equal tapered sections, pin connected, having a 42 (106.7 cm) square cross section and with single 18.75" (47.6 cm) P.D. jib point sheave, compression strut and guy cables assemblies. Extendible to 80' (24.4 m). Extends reach to 405' (123.4 m). For lifts not exceeding 50,000 lb. (22,680 kg). Optional.

JIB INSERT SECTIONS:

10' (3.1 m) jib insert with cable assemblies optional
 20' (6.1 m) jib insert optional
 30' (9.1 m) jib insert optional

MAST: Required for all booms. Mast is 45' (13.7 m) long and is attached to boom foot during operation.

MID-POINT SUSPENSION: Required when boom length is 250 ft. (76.2 m) or longer. (Optional).

BOOM HOIST REEVING: 14 parts line, 1" (25 mm) wire rope.

BOOM BACKSTOPS: Spring loaded, shock absorber type. (Optional).

WIRE ROPE GUIDE ROLLERS: Use as required to eliminate wire rope interference. (Optional).

SHEAVE AND DRUM TO WIRE ROPE RATIOS: Pitch Diameter

	Boom Hoist	Front 1.25" Rope	Rear 1.25" Rope	Third
Sheave to Wire Rope	16 to 1	24 to 1	15 to 1	----
Drum to Wire Rope	20 to 1	22.6 to 1	22.6 to 1	17 to 1
		Front 1.0" Rope	Rear 1.0" Rope	Rear Container 1.0" Rope
Sheave to Wire Rope		27 to 1	18.75 to 1	27 to 1
Drum to Wire Rope		28 to 1	28 to 1	28 to 1

HOOK BLOCKS:

Block Capacity	Number Sheaves	Wire Rope Size	Weight	Rope to Sheave Ratio	Part No.
41,700 lb. (18,915 kg)	1	1 1/4"	2300 lb. (1043 kg)	21.4 to 1	8U7-D68 (opt.)
125,000 lb. (56,700 kg)	1	1 1/4"	2500 lb. (1134 kg)	21.4 to 1	8U7-D62 (Standard)
208,400 lb. (94,530 kg)	2	1 1/4"	3040 lb. (1379 kg)	21.4 to 1	8U7-D75 (opt.)
291,700 lb. (132,315 kg)	3	1 1/4"	3190 lb. (1447 kg)	21.4 to 1	8U7-D61 (opt.)
375,000 lb. (170,100 kg)	4	1 1/4"	4190 lb. (1900.6 kg)	21.4 to 1	8U7-D73 (opt.)
458,400 lb. (207,930 kg)	5	1 1/4"	6400 lb. (2903 kg)	21.4 to 1	8U7-D74 (opt.)
500,000 lb. (226,800 kg)	6	1 1/4"	5600 lb. (2540 kg)	21.4 to 1	8U7-D56 (opt.)
600,000 lb. (272,160 kg)	6	1 1/4"	6675 lb. (3028 kg)	21.4 to 1	8U7-D53 (opt.)
23,200 lb. (10,524 kg)	Weighted Hook		1100 lb. (499 kg)	----	8U7-D512 (Jib-Opt.)
80,100 lb. (36,333 kg)	1	1"	790 lb. (358 kg)	18.375 to 1	8U7-D30 (Jib-Opt.)
50,000 lb. (22,680 kg)	1	1"	1435 lb. (651 kg)	21.5 to 1	8U7-D58 (Standard Container)
133,500 lb. (60,556 kg)	2	1"	1745 lb. (792 kg)	21.5 to 1	8U7-D76 (Optional Container)
160,000 lb. (72,576 kg)	3	1"	2280 lb. (1034 kg)	21.5 to 1	8U7-D59 (Optional Container)

OPTIONS:

Upper: Rapid refueling system, lighting (and container steering) system with 6 KW generator or 12 KW generator, 4th counterweight, modulated clutch rotation indicator, audio-visual drum turn indicators, elevated cab (30 or 40 foot), wind velocity indicator, positive swing lock, hoist limit switch, signal horn, rotary warning light for boom point, windshield wiper and heater-defroster. Container accessories include hydraulic and radio-controlled spreaders.

GENERATOR SET: (Optional) 6 kw rated, AC, electric, independent, diesel powered, Onan Special Heavy-Duty Contractors Model 6DJJB, air-cooled. 5 kw continuous 120/240 volt, 60 Hz, 3 wire, single phase, 1.0 PF. with receptacle box containing two 240 v and two duplex 120 v outlets. Completely self-contained with battery and charge circuit, muffler, heavy-duty air filter, lube filter and dual fuel filter. Starting either remote at operator's cab or at generator. Optional mounting locations. Quick disconnects provide easy removal for transporting and use elsewhere. Totally housed with service access doors. Fuel supplied from upper tanks. Estimated weight, 1,050 lbs.

(Optional) 12 kw rated, AC, electric, independent, diesel powered, Onan Model 12DJC-5 DR. Ratings: Continuous, 10 kw-12.5 KVA @.8 PF — 30 Amp; Standby 12 kw-15 KVA .8 PF — 36 Amp. Generator 120240 v, 60 Hz, 3 phase, 4 wire, Delta wound. Engine: 4 cyl., 4 cycle, air-cooled, 1800 RPM rated speed, electric start and heat switches in operator's cab, fuel and lube filters, air filter, engine high air temperature and low lube oil warning system, weatherproof housing and thermo controlled shutters, vibration isolator mounted. Mounting: Front of upper at boom foot. Fuel supplied from upper tanks. Quick disconnects provide for easy removal for transporting or use elsewhere. Estimated weight, 1,200 lbs.

CONTAINER HANDLING ASSEMBLY (OPTIONAL): Consists of a load frame having two pickup points located at each end of the frame. The load frame is supplied with its own electric motor, pump and hydraulic reservoir to supply power to container spreaders which are suspended from load frame. An electrical cable with quick disconnects near boom point connects load frame to operator's module push button and indicator controls for control of spreader latching mechanism. The optional 12 kw AC generator set is required to power load frame motor, controls and flood lights. Hydraulically operated, electrically controlled, spreaders with necessary wire rope slings to connect to load frame are available for handling nominal 20 or 40 foot ASA/ISO containers.

WEIGHTS:

Upper machine — 114,261 lb. (51,828.8 kg).
 Mast — 5080 lb. (2304 kg)
 Gantry — 5416 lb. (2457 kg)
 Counterweights — #1 - 41,600 lb. (18,869.8 kg)
 — #2 - 41,600 lb. (18,869.8 kg)
 — #3 - 44,000 lb. (19,958.4 kg)
 — #4 - 41,600 (18,869.8 kg)

Boom:

Base — 9475 lb. (4298 kg)
 Inserts — 10 ft. — 1551 lb. (703.5 kg)
 20 ft. — 2652 lb. (1203 kg)
 30 ft. — 3272 lb. (1484.2 kg)
 50 ft. — 5183 lb. (2351 kg)
 Tip — Heavy Duty — 7600 lb. (3447.4 kg)
 Light Duty — 6187 lb. (2806.4 kg)
 Hammerhead — 7764 lb. (3521.8 kg)
 Container — 8133 lb. (3689.1 kg)

Jib:

Base — 650 lb. (294.8 kg)
 Inserts — 10 ft. — 460 lb. (208.7 kg)
 20 ft. — 700 lb. (317.5 kg)
 30 ft. — 890 lb. (403.7 kg)
 Tip — 830 lb. (376.5 kg)

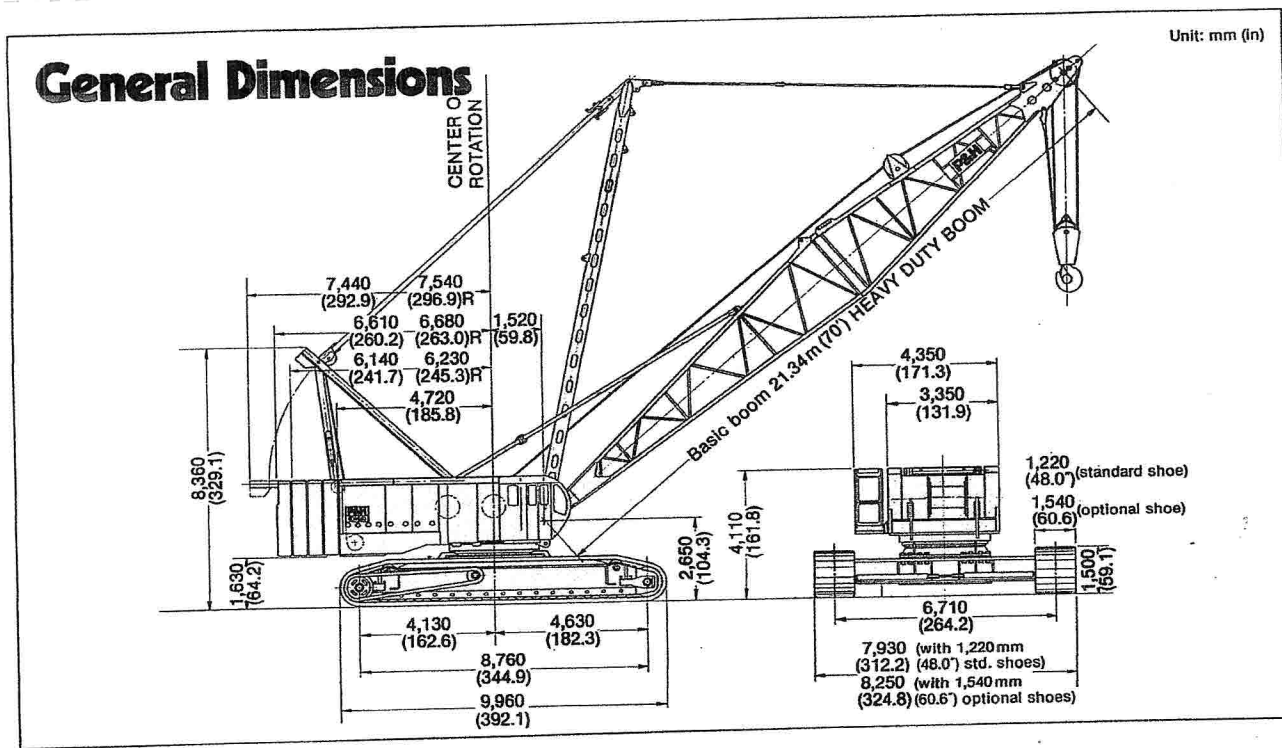
Lower machine w/std. 48" shoes — 241,380 lb. (109,490 kg)
 w/opt. 60" shoes — 247,352 lb. (112,199 kg)
 Carbody with axles — 77,600 lb. (35,199.4 kg)
 Crawler side frame (each) —
 w/48" cast flat shoes — 81,890 lb. (37,145.3 kg)
 w/60" cast flat shoes — 84,876 lb. (38,500 kg)

AVERAGE GROUND BEARING PRESSURES:

Machine w/48" cast flat shoes — 14 psi (0.98 kgm)
 w/60" cast flat shoes — 12 psi (0.84 kg/cm)

PERFORMANCE

Lo-Speed	.64 mph 1.02 Kph	(Full load converter output speed)
Hi-speed	1.43 mph 2.29 Kph	(Maximum 20% grade recommended)



NOTE: All designs, specifications and components of the equipment described above are subject to change at the manufacturer's sole discretion at any time without advance notice. Data published herein is informational in nature and shall not be construed to warrant suitability of the machine for any particular purpose as performance may vary with the conditions encountered. The only warranty applicable is our standard written warranty for this machine. Manufactured and sold in conformance with U. S. Department of Commerce Commercial Standard CS-90-58.



Address inquiries to: