



LINK-BELT SPEEDER

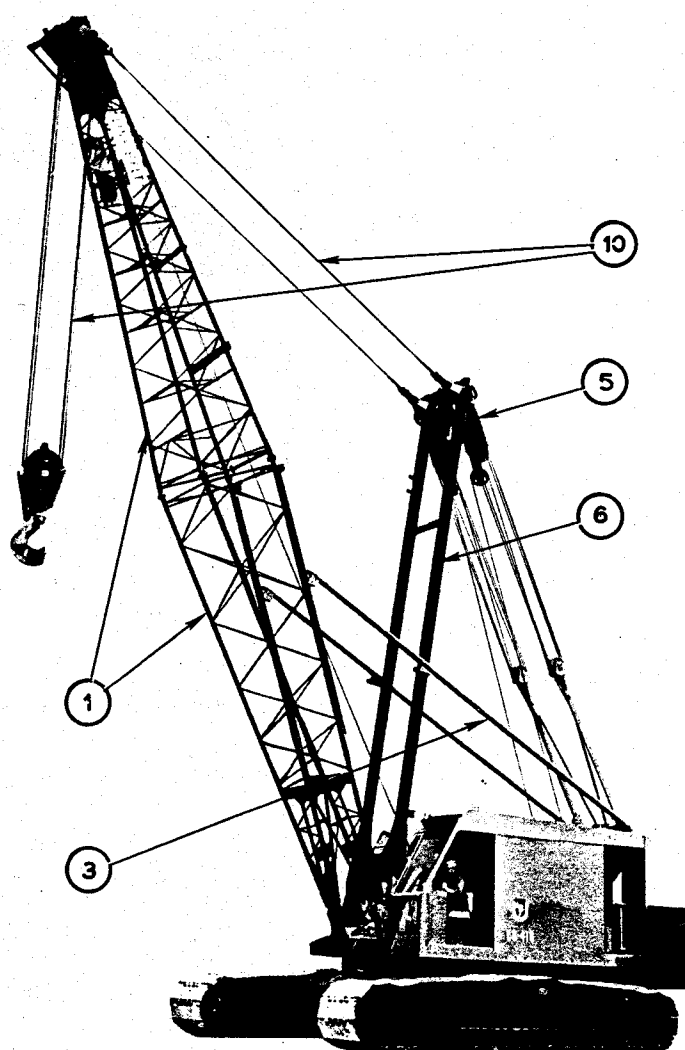
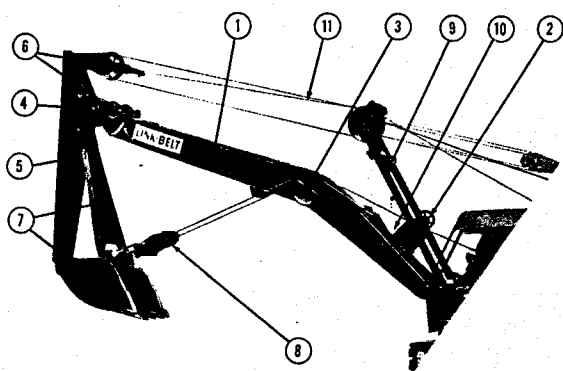
CONFIDENTIAL DETAIL SPECIFICATIONS

(Supersedes Specifications CRS13002-1-65)

LS-418

FRONT END ATTACHMENTS

These illustrations serve as an index to the attachments described in these specifications. Numerals shown indicate paragraph number.



LINK-BELT SPEEDER

DIVISION OF FMC CORPORATION

Cedar Rapids, Iowa • Woodstock, Ontario, Canada • Queretaro, Mexico • Milan, Italy





HOE ATTACHMENT

1. **BOOM**—All welded, stress relieved, box section of alloy steel channels and main plates, gooseneck design. 30' from center of boom foot pin to center of boom peak shaft. Boom oscillates on bronze bushings in the boom foot.
Boom Foot Pins—Steel, heat treated, 4" diameter.
2. **INHAUL CABLE FAIRLEAD**—All welded steel bracket, bolted to top right side of boom, forward of boom foot.
Sheaves—Cast steel, mounted on bronze bushings. Upper sheave is 14½" root diameter. Lower sheave is 17½" root diameter.
Sheave Pins—Steel. Upper pin is 2½" diameter. Lower pin is 3" diameter.
3. **INHAUL CABLE SHEAVES ON BOOM**—Two, cast steel, 24" root diameter, mounted on bronze bushings.
Shaft—Steel, 4¾" diameter, welded integral with boom.
4. **BOOM PEAK SHAFT FOR ARM**—Steel, heat treated, 5" diameter, oscillates on steel, heat treated bushings in boom. Shaft floats and is retained by end caps bolted to arm hubs.
5. **ARM**—All welded box section of steel plates, 12' from center of bucket connection to center of boom head shaft connection. Mounted on bronze bushings.
6. **ARM MACHINERY**—
Deflector Sheaves—Two, cast iron, 13" root diameter, mounted on bronze bushings.
Deflector Sheave Pins—Steel, 2-15/16" diameter.
Hoist Padlock—All welded, steel plate construction, mounted on bronze bushings.
Hoist Padlock Pin—Steel, heat treated, 3" diameter.
Hoist Padlock Sheave—Cast steel, 21½" root diameter, mounted on bronze bushing.
Hoist Padlock Sheave Pin—Steel, heat treated, 3-15/16" diameter.
Hoist Line Dead End Link—All welded, steel plate construction, mounted on hoist padlock sheave pin.
7. **BUCKET AND CONNECTIONS**—Esco 2½ cubic yard, 55" cutting width without side cutters, 60" cutting width with side cutters. Five replaceable teeth. Two lugs at rear connected to arm with a steel pin, 3" diameter. Two holes in each lug allow for bucket pitch adjustments.
Pitch Brace—All welded, box type construction of steel plates. Secured to arm with a steel pin, 3" diameter and to bucket with two steel pins, 2½" diameter.
8. **BUCKET BAIL**—Horizontal sheave type of welded plate construction with sheave completely enclosed.
Sheave—Cast steel, 24" root diameter, mounted on bronze bushing and protected from dirt by grease seals.
Sheave Pin—Steel, heat treated, 4" diameter.
9. **MAST**—15' long from center of peak shaft to center of foot pin. Main members are 6" extra heavy pipe with a steel plate, box section cross tie, pin connected to foot of boom with steel pins, 3" diameter. May be used as a short boom for dismantling.
Head Shaft—Steel, heat treated, 5" diameter.
Sheaves for Three Part Hoist—Two, cast steel, 24" root diameter, mounted on bronze bushings.
Sheaves for Six Part Boom Hoist—Four, ductile iron, heat treated, 12" root diameter, mounted on bronze bushings.
Hoist Line Deflector Roller—Steel, heat treated, 6" diameter, mounted on bronze bushings on a steel pin, 2" diameter.
10. **MAST BACKSTOP**—Cable type.
11. **CABLES**—
Mast—6 part line, ¾" diameter, Type D 165'
Hoist—3 part line, 1" diameter, Type S 175'
Inhaul—2 part line, 1½" diameter, Type S 130'
Type D—6 x 25 (6 x 19 class) filler wire, improved plow steel, preformed, independent wire rope center, right lay, lang lay.
Type S—6 x 36 (6 x 37 class), filler wire, extra high tensile strength steel, preformed, independent wire rope center, right lay, lang lay.

CRANE, CLAMSHELL AND DRAGLINE ATTACHMENTS

1. **TUBULAR "HI-LITE" BOOM** — Two piece 50' all welded box lattice design with 25' upper and lower sections, 60" wide and 54" deep, center to center of chords at the connections. Chords are of heat treated, alloy steel, 3¾" outside diameter tubing with precision machined bracing of steel round tubing, fully coped to fit the chords. Boom feet are 2¾" wide on 54½" centers with case hardened steel bushings.
Boom Foot Pins — Steel, heat treated, 4" diameter.
Head Shaft — Steel, heat treated, 4¾" diameter, fixed.
Head Machinery — Four sheaves, cast steel, 21" root diameter, mounted on roller bearing outer race assemblies.
Upper Sheave Guard — Steel plate and pipe construction.
Lower Sheave Guard — Roller type, with 2½" diameter heat treated steel rollers mounted on ball bearings in welded steel bracket.
Connections — In-line pin connections to permit easy removal or addition of sections.
2. **EXTENSIONS** — Available in 20' and 30' lengths. Same construction as main boom.
3. **BOOM BACKSTOPS** — Dual, tubular, retractable type with cast steel spring cushioned bumpers. Main members are 4" standard pipe. A visual warning device is also provided to warn operator when boom nears minimum radius.
4. **JIB BOOM** — Two piece 30' all welded box lattice design with 15' upper and lower sections, 36" wide and 30" deep, center to center of chords at the connections. Chords are of heat treated, alloy steel 2¼" outside diameter tubing with all bracing of steel round tubing. 15' extensions, of same construction, are available to make 45' to 60' jibs.
Connections — In-line pin connections to permit easy removal or addition of sections.
Jib Strut — 13' 6" high, mounted on jib base section. Two deflector sheaves for the whipline are mounted in the framework of the strut. Jib guy cable dead ends on each side of jib boom peak and passes over an equalizer sheave on jib strut. Boom guy cable dead ends on each side of boom upper section and passes over an equalizer sheave on jib strut.
Deflector Sheaves — Two, ductile iron, heat treated, mounted on roller bearing outer race assemblies. Upper sheave — 11-1/16" root diameter. Lower sheave — 15½" root diameter.



Equalizer Sheaves — Two, ductile iron, heat treated, 8" root diameter, mounted on bronze bushings.

Peak Sheave — Ductile iron, heat treated, 15½" root diameter, mounted on two roller bearing outer race assemblies.

Peak Shaft — Steel, heat treated, 2½" diameter. Jib guy cable anchors are suspended from the shaft. Cable anchor is provided at peak of jib for two part whipline.

5. **BOOM HOIST BRIDLE** — Serves as a connection between boom gantry and boom hoist lines. Extender cables are pinned to upper end of boom gantry. Two types of adapter links are available to permit the use of either 1¼" diameter or 1½" diameter extender cables. Consists of two fabricated frames, one attached to each main member of gantry, having eight ductile iron, heat treated, 12" root diameter sheaves, mounted on bronze bushings for fourteen part boom hoist.

6. **BOOM GANTRY** — Standard with lifting crane attachment. Required in conjunction with counterweight "B" for maximum lifting crane service throughout entire range of boom lengths and is required to provide more favorable angle of support for all "Hi-Lite" boom lengths exceeding 120'. In addition, mid-point suspension cables are required to support the center of all "Hi-Lite" booms 160' or longer at initial lift off ground. Dual tubular design, of all welded steel pipe and plate construction, 30' long from center of foot pin to center of head shaft. To enable gantry to be used as a short boom for dismantling, two auxiliary hoist sheaves are provided for four part hoist line reeving. See paragraph on main extender cables when boom must be carried where overhead clearance is restricted.

Auxiliary Hoist Sheaves — Cast iron, 13" root diameter, mounted on bronze bushings.

Gantry Backstop — Positive type, incorporated in boom backstops. Functions only when gantry is used as a boom.

7. **FAIRLEADER** — Full revolving type, cast steel sheave bracket rotating on tapered roller bearings in a cast steel housing, mounted on extended boom foot pins and supported by a strut attached to revolving frame.

Sheaves — Ductile iron, heat treated, 17½" root diameter, mounted on tapered roller bearings.

Guide Rollers — Steel tubing, heat treated, 3½" diameter, mounted on ball bearings.

8. **TAGLINE WINDER** — Spring wound drum type, mounted on lower section of crane boom.

Rud-o-Matic Model 1248 for booms up to 80' long with buckets up to four cubic yards.

Rud-o-Matic Model 1248 Plus for booms 80' to 100' long with buckets up to two cubic yards.

Rud-o-Matic Model 1848 Plus for booms over 80' long with buckets up to five cubic yards.

9. **MISCELLANEOUS EQUIPMENT** — Optional extra except as noted.

Spreader Bar — Standard — On all "Hi-Lite" booms over 50' long. All welded steel construction, arched to clear hoist line. Installed at lower end of basic extenders.

Boomhoist Limiting Device — Standard with all crane boom attachments. Includes a device which, when it comes in contact with the boom, trips a switch and deactivates an electrically energized solenoid valve located in the hydraulic boom hoist clutch circuit. The deactivated solenoid valve releases the boom hoist clutch and a spring automatically applies the boom hoist brake. In normal operation, the boom must be lowered before it can be hoisted again. After, solenoid valve is deactivated, an emergency by-pass switch is provided for the purpose of hoisting boom to release the safety pawl in the event load is supported by safety pawl.

Hoist Line Deflector Rollers — Required to deflect hoist line and third drum line over top of boom. Steel tubing, heat treated, 3" diameter, mounted in self-aligning, ball bearing pillow blocks. One supplied as standard with all boom lengths.

Requirements — When using front drum for crane hoist line —

For boom lengths from 100' to 200' — one additional required.

For boom lengths from 130' to 160' — two additional required.

For boom lengths from 170' to 180' — three additional required.

For boom lengths from 190' to 200' — four additional required.

Crane Boom Angle Indicator — Mounted near base of boom on left side of boom. It is in plain view of the operator without obstructing his vision.

10. CABLES —

Boom Hoist — Fourteen part line, ¾" type G 510'

	Parts of Line	Cable Size (Inches)	Type Cable	Boom Lengths				
				50'	60'	70'	80'	90'
Dragline Hoist Inhaul	1	¾"	D	130'	150'	170'	190'	210'
	1	1½"	G	75'	85'	95'	105'	115'
Clamshell Holding Closing	1	¾"	M	130'	150'	170'	190'	210'
	1	¾"	M	180'	200'	220'	240'	260'
Tagline	1	5/16 or 3/8	B	Furnished with Rud-o-Matic Tagline Winder				

CRANE HOIST CABLE REQUIREMENTS				
Cable Dia.	Parts of Hoist Line	Required Line Pull Off Drum	**Maximum Load	Max. Boom Length Based On 24½" Lag. Dia.
¾"	4	16,800#	62,300#	200'
¾"	4	22,700#	84,200#	200'
1"	4	29,600#	109,800#	200'
¾"	6	16,800#	90,700#	200'
¾"	6	22,700#	122,600#	180'
1"	6	29,600#	159,800#	130'
¾"	8	16,800#	117,400#	180'
¾"	8	22,700#	158,700#	130'
1"	8	29,600#	206,900#	100'

**Based on the allowable pull for type "N" Extra High Tensile Strength Cable with a factor of safety of 3.5.



Crane Hoist—1" diameter, Type N. (Cable lengths shown are in feet).
Note: For Maximum Capacity — use 8 Part 1" Cable.

Parts of Line	Boom Length (in feet)															
	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
1	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420
2	180	210	240	270	300	330	360	390	420	450	480	510	540	570	600	630
3	240	280	320	360	400	440	480	520	560	600	640	680	720	760	800	840
4	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
5	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140	1200	1260
6	420	490	560	630	700	770	840	910	980	1050	1120	1190	1260	1330	1400	1470
7	480	560	640	720	800	880	960	1040	1120	1200	1280	1360	1440	1520	1600	
8	540	630	720	810	900	990	1080	1170	1260	1350	1440	1530	1620			

JIB BOOM—(Cable lengths shown are in feet.)

Boom Length (in feet)	Whipline (1 part) ¾" Cable Type P			Whipline (2 part) ¾" Cable Type P		
	Jib Length (in feet)			Jib Length (in feet)		
	30	45	60	30	45	60
50	180	210	240	265	310	355
60	200	230	260	295	340	385
70	220	250	280	325	370	415
80	240	270	300	355	400	445
90	260	290	320	385	430	475
100	280	310	340	415	460	505
110	300	330	360	445	490	535
120	320	350	380	475	520	565
130	340	370	400	505	550	595
140	360	390	420	535	580	625
150	380	410	440	565	610	655
160	400	430	460	595	640	685
170	420	450	480	625	670	715
180	440	470	500	655	700	745
190	460	490	520	685	730	775
200	480	510	540	715	760	805

Jib Guy — Extender cables are provided as guys from the jib strut to the jib peak shaft. Basic extender cable for the 30' jib is 66' 4" long. Each 15' jib extension is supplied with two extender cables 14' 4" long. All jib guy extender cables are ¾" diameter, type N.

Boom Guy — Extender cables are provided as guys from the jib strut to the pin connecting lugs on the boom upper section. Three extender cables are provided, one 50' long and two each 5' 6" long. Use of this total length of 61' fixes jib at 30° angle to boom. Removal of one 5' 6" section fixes jib at 15° angle to boom. Removal of both 5' 6" sections fixes jib in line with boom. All boom guy extender cables are ¾" diameter type N.

Main Extender Cables—1¼" diameter, type N with swaged socket ends, connect the boom gantry to the boom head shaft links. Basic extender cables are 26' 4" long. Extender cables for the boom extensions are of the same length as the extensions.

Boom Carrying Equipment Where Overhead Clearance Is Restricted—By substituting two pairs of extender cables with the same total over-all length as one standard pair and attaching a link at each end of the additional pair, over-all main extender cable length may be shortened by lowering boom to ground and lowering boom gantry to a point where the link at one end of one extender cable may be pinned to the link at the other end. When boom is again raised to horizontal, machine will carry 50' through 120' maximum "Hi-Lite" boom with boom gantry restricted to between 14' and 16' over-all height. Loads must not be handled with extender cables shortened.

For 50' Basic Boom—One pair 1¼" diameter by 16' 4" and one pair 1¼" diameter by 10' extender cables are substituted for one pair 1¼" diameter by 26' 4" and connecting links added.

For Any Boom With Both 20' and 30' Extensions—Two pairs 1¼" diameter by 10' extender cables are substituted for one pair 1¼" diameter by 20' and connecting links added.

For Any Boom With 30' Extensions Only—One pair 1¼" diameter by 10' and one pair 1¼" diameter by 20' extender cables are substituted for one pair 1¼" diameter by 30' and connecting links added.

Mid-point Suspension Cables With Boom Gantry—¾" diameter, 94' 2" long, with zinc socket ends, type N.

Cable Types—

Type B—8 x 25 (8 x 19 class), filler wire, improved plow steel, preformed, fiber center, right lay, regular lay.

Type D—6 x 25 (6 x 19 class), filler wire, improved plow steel, preformed, independent wire rope center, right lay, lang lay.

Type G—6 x 30, flattened strand, improved plow steel, preformed, independent wire rope center, right lay, lang lay.

Type M—6 x 25 (6 x 19 class), filler wire, extra high tensile strength steel, preformed, independent wire rope center, right lay, lang lay.

Type N—6 x 25 (6 x 19 class), filler wire, extra high tensile strength steel, preformed, independent wire rope center, right lay, regular lay.

Type P—18 x 7, non-rotating, extra high tensile strength steel, fiber center.

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