

**MODEL** ABS-78A  
**BOOK No.** 406  
**SERIAL No.**

## **MACHINE SERIAL NUMBER**

The machine serial number is on the serial number capacity plate, or on the Crane Rating Manual located inside the operator's cab. The serial number should always be furnished when ordering parts for the machine or when corresponding with the distributor or factory concerning the machine. Providing the serial number is the only way of ensuring the correct parts and/or information can be furnished.

In the event the serial number is not readable, a number is stamped on the upper revolving frame which can be used to identify the machine. On cable crane this number is located on the right hand boom foot mounting lug. On hydraulic cranes and excavators the number is stamped just below the boom hoist cylinder mounting lugs.



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**BOOK No.** 406  
**SERIAL No.** \_\_\_\_\_

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# SERVICE MANUAL

## QUICK REFERENCE SYSTEM

OPERATING INSTRUCTIONS	(A) LS 78 (B) HC 77-78 (C) UC 77-78	1
PROTECTIVE MAINTENANCE AND LUBRICATION	(A) LS 78 (B) LS 78 PL (C) HC 78	(D) UC 77-78 (E) HC 77 2
LOWER FRAME AND CRAWLERS, TRUCK CARRIER	(A) LS 78 (B) LS 78 PL (C) HC 78	(D) UC 77-78 (E) HC 77 3
UPPER REVOLVING FRAME		4
VERTICAL SHAFT ASSEMBLIES		5
HORIZONTAL SHAFT ASSEMBLIES		6
DRUM BRAKES		7
CLUTCH ASSEMBLIES		8
ENGINE, CLUTCH, AND DRIVE CHAIN		9
SPEED-o-MATIC CONTROL SYSTEM		10
TRENCH HOE ATTACHMENT		11
SHOVEL ATTACHMENT		12
CRANE BOOM ATTACHMENT	(A) ANGLE BOOM (B) TUBULAR BOOM	13
SPECIFICATIONS AND GENERAL INFORMATION		14

# SERVICE MANUAL

## P R E F A C E

The productive life of any machine depends largely on the care and consideration given it. This especially holds true of such equipment as cranes and excavators.

Link-Belt Speeder machines embody the best of engineering knowledge, years of experience, and construction in accordance with the high standards of the Company. The present machine age and universal use of the automobile has taught most people to appreciate that systematic, periodical inspection and maintenance will be repaid with a longer period of satisfactory service.

This instruction book was compiled to explain the adjustments necessary for proper operation of the machine. A study of this book will acquaint operator or serviceman with the construction of this equipment and enable him to readily diagnose and remedy most troubles which may arise. It is advisable to correct minor troubles before they develop into costly major shut-downs.

Right hand and left hand parts, as referred to in this book, are determined by facing boom from rear of machine. Operator's position is located on left hand side of machine.

We do not attempt to outline what part or parts of the cab it might be necessary to remove to perform your particular job as this will vary depending upon what equipment or tools are available.

Any questions pertaining to the care and upkeep of this equipment which have not been covered in this book should be directed to your nearest Link-Belt Speeder distributor, or Link-Belt Speeder Company.

Link-Belt Speeder Company reserves the right to make alterations or modifications in this equipment at any time, which in their opinion may improve the performance or efficiency of the machine. The manufacturer shall not be obliged to make such alterations or modifications to machines already in service.

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## Operator's Manual Section 2A - Protective Maintenance And Lubrication

### Upper, Lower And Attachment Time Table

Read the following instructions before attempting to operate a new machine.

- (a) Operate at half throttle during the first 16 hours (two shifts) of operation. A "Break In" period under moderate loads will assist in providing long and trouble-free operation.
- (b) Inspect and adjust all clutches and brakes periodically during the "break-in" period. Poor lining contact or misadjustment will cause excessive heat which is detrimental to both linings and drums.
- (c) Lubricate all bearings and bushings frequently. Lubrication intervals for all bearings and bushings may be found in the lubrication chart.
- (d) Lubricate open gears at frequent intervals. A special Molybdenum sulphide base grease has been applied at the factory, which because of its special qualities protects the tooth surfaces during the "break-in" period. This grease should not be removed, but allowed to be absorbed by the normal gear lubricant being used.
- (e) Follow the engine manufacturer's recommendations for proper engine care. Disengage the master clutch and shut off the engine while working on the machine. Replace all guards before starting the machine.

### General Lubrication Information

The machine should be regularly and systematically lubricated in accordance with the lubrication charts shown later in this Section of the manual. A copy of this chart is mounted on the upper cab in each machine. The time interval shown on the lubrication chart is intended as a guide only. Under unusual working conditions, such as working in dry, dusty conditions, in water or mud, around a corrosive atmosphere, more frequent lubrication will be necessary. In these cases, the oiler must use his own good sense and work out his own lubrication schedule.

The following procedures are important for proper lubrication of the machine.

### **CAUTION**

Shut Down Engine Before Fueling Or Lubricating Machine. To Avoid A Fire Hazard, Do Not Smoke Or Handle Fuel Around An Open Flame. To Avoid Machine Damage And To Prevent Serious Injury, Do Not Lubricate Gears Or Any Assembly While It Is In Motion.

- (a) Wipe the grease gun nozzle, and the grease fitting before lubricating. This will help keep dirt and grit from entering the bushing or bearing.
- (b) Keep all grease and oil cans and containers clean. Always replace the lid on containers when through to prevent entry of foreign materials. Wipe off oil can covers before using.
- (c) Drain oil cases when hot to drain off accumulated sludge.
- (d) Watch for signs of incorrect lubrication such as failure of clean grease to expel the old grease.
- (e) Bleed off hydraulic pressure before opening or removing a line or fitting.
- (f) Replace all guards before starting machine.
- (g) Use a clean funnel equipped with a strainer for pouring lubricants. Clean an area around fill or check plugs before removing to prevent entry of foreign material.
- (h) Disengage master clutch before working on or lubricating the machine. Shut off engine.

Note: See specific instructions later in this Section for lubrication check and change procedures on all gear compartments.



## Operator's Manual Section 2A - Continued - Protective Maintenance And Lubrication

Upon Delivery

Operation	Remarks
General	<ol style="list-style-type: none"><li>(1) Check for any shortages or damages that may have occurred during transit. If any, notify the transportation company involved, immediately.</li><li>(2) Clean dust, dirt, cinders, and other foreign material from all clutches, gears, and other moving parts. Check all oil compartments for the proper weight and level of lubricant. If necessary, change to meet local conditions. Lubricate the upper, lower and attachment completely.</li><li>(3) Check and adjust all clutches, as explained in Section 3B.</li><li>(4) Check and adjust all drum brakes, as explained in Section 3B.</li><li>(5) Check and adjust steer brakes as explained in Section 3A.</li></ol>
Engine	<ol style="list-style-type: none"><li>(1) Check fuel, oil and water levels.</li><li>(2) Start engine and check oil pressure, water temperature, S-o-M pressure, etc.</li></ol>
Master Clutch	<ol style="list-style-type: none"><li>(1) Before engaging master clutch, inspect the entire machine for any items which may interfere with moving parts.</li></ol>
Controls	<ol style="list-style-type: none"><li>(1) Become familiar with all controls. Read Section 1 "Operating Instructions", before attempting to operate the machine.</li></ol>
Attachment	<ol style="list-style-type: none"><li>(1) Assemble the desired length of boom on the machine as explained in Section 13.</li><li>(2) Inspect all wire rope and rope connections. See Section 14 for wire rope inspection procedures.</li><li>(3) Check all ropes for proper spooling on the drum.</li></ol>
Engine Speed	<ol style="list-style-type: none"><li>(1) Check engine for proper speed. See reverse shaft speed, Section 14.</li></ol>
Attachment	<ol style="list-style-type: none"><li>(1) Check all bolts, nuts, rod ends, cotter pins, etc., making sure they are spread and/or secured.</li><li>(2) Inspect all rope and connections. Make sure rope is spooling properly.</li><li>(3) Check and adjust the boom hoist limiting device, if necessary. See Section 13.</li></ol>

Before Starting Operations

Operation	Remarks
Engine	<ol style="list-style-type: none"><li>(1) Check oil and water levels, and other items as recommended by the manufacturer.</li></ol>
Clutches & Brakes	<ol style="list-style-type: none"><li>(1) Examine all clutches and brakes. Make sure they are in proper adjustment as explained later in this manual.</li><li>(2) Examine the linings to make sure they are not oil soaked, or worn to the point that rivets are contacting the drum. See Section 3B.</li></ol>
Speed-o-Matic System	<ol style="list-style-type: none"><li>(1) Check for correct operating pressures (refer to Section 10 for more information).</li><li>(2) Check for external leaks. If any, repair before operating.</li></ol>
Attachment	<ol style="list-style-type: none"><li>(1) Inspect all wire rope and wire rope connections. See Section 14 for wire rope inspection procedures.</li><li>(2) Check all ropes for proper spooling on the drum.</li></ol>

# Operator's Manual Section 2A - Continued - Protective Maintenance And Lubrication

Daily Or Every 10 Hours

Operation	Remarks
Engine	(1) Provide 10 hour inspection and lubrication as outlined by the manufacturer.
P.T.O. - Twin Disc	(1) Lubricate the throwout bearing. Apply a small amount of lubricant, before starting, through the fitting on the tapered part of the housing.
Boom Chords and Lattice Live Mast Gantry	(1) Inspect all parts of the attachment, paying particular attention to the boom chords and lattice. If damaged, the boom may collapse. If a lattice or diagonal bracing member is damaged, replace it. If bent, straighten it. Refer to General Bulletin #174 for repair information. If a main chord is damaged or bent, even a little bit, don't use it. Don't try to repair it. These members are so vital that it is not practical to attempt repair. Replace the entire boom section. (2) If the live mast or gantry are damaged, repair before using.
Battery	(1) Check electrolyte level. Fill with distilled water if necessary. (2) Keep battery clean at all times. Corroded posts or accumulation of grit, electrolyte, etc., on top of battery can cause it to become discharged. (3) Don't smoke or use open flame near a battery. Battery gas is explosive.
Lubricate the Following: Center Pin Bushing Traction Shaft Bushings Sprockets Idlers Track Rollers	(1) These bushings should be lubricated at regular intervals regardless of the amount of travel. (2) After lubricating, walk the machine several feet to spread lubricant around the bushings. (3) When traveling constantly, lubricate every 4 hours or oftener.
Open Gears	(1) Maintain a film of clean grease on open gear teeth at all times. (2) Stop the engine and disengage the master clutch before applying the lubricant.
Track Drive Chains	(1) Lubricate as often as possible with a mixture of engine oil and kerosene to flush out dirt and grit, and to lubricate pins and bushings.
Wire Rope	(1) Inspect as outlined in Section 14.
Radiator	(1) Check coolant level. Check for anti-freeze in winter.
Control Stand Linkage	(1) Use engine oil on all pins and sliding surfaces.
Attachment	(1) Lubricate all 10 hour fittings as specified on the lubrication chart later in this section.
Traction Shaft Splines	(1) Keep traction shaft splines oiled and clean to provide smooth jaw clutch operation.
Side Frame Bolts	(1) Keep tight. See the torque chart in Section 14.
Chain Case	(1) Visually check the flow of oil in the chain case to assure proper chain lubrication. (2) Check the oil level in the chain case. (3) Check for leaks. Repair before operating.
78H Sump Tank S-o-M Sump Tank	(1) Check the oil level. Add oil if necessary. See Section 10.

2  
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## Operator's Manual Section 2A - Continued - Protective Maintenance And Lubrication

Weekly Or Every 50 Hours

First perform all operations listed under "Every 10 Hours".

Operation	Remarks
Engine	(1) Provide 50 hours inspection and lubrication as outlined by the manufacturer.
Lubricate the Following: Conical Rollers Clutch Arms and Heel Blocks Control Linkage Drum Brake Controls S-o-M Valve Caps	(1) Consult the lubrication chart later in this section for the proper lubricant to use in each location. (2) Check valve caps for rust and corrosion - clean and lubricate as necessary.
Power Take-Off	(1) Lubricate the clutch pilot bearing through the fitting in the end of the clutch shaft. (2) Lubricate the shaft bearings through the fitting on the housing hub. (3) Lubricate the cross shaft through the two fittings, one at each end of the shaft.
Side Housing Bearings (All Horizontal Shafts)	(1) Pump in 8 or 10 shots of grease at each lubrication as three bearings are being lubed through one fitting. Wipe up excess grease which otherwise would collect on the clutch linings.
Reduction Shaft Bearings	(1) Lubricate sufficiently to fill the bearings.
Reduction Shaft Coupling	(1) Lubricate to prevent coupling seizing on shaft. Stop machine with fitting pointing toward upper engine for ease of lubrication.
Vertical Shaft Bearings	(1) Lubricate sufficiently to fill bearings with grease.
Two Speed Planetary	(1) Check, and fill if necessary, with the lubricant specified later in this section. (2) Check for leakage. Repair before operating.
S-o-M Filter 78H Sump Filter	(1) Change after the first 50 hours of operation and every 250 hours thereafter. See Section 10.
Clutches	(1) Greasy, aged, or worn clutch linings should be replaced. Check linings for proper contact and adjust, if required. Check linings for foreign particles which may score the drum.
Brakes	(1) Greasy, aged, or worn brake linings should be replaced. (2) Check lining for proper contact and adjust, if required. (3) Check linings for foreign particles which may score the drum.
General - Upper And Attachment	(1) Lubricate all remaining 50 hour points as listed on the lubrication chart.
Wire Rope	(1) Inspect all wire rope and rope connections. See Section 14.
Turntable Roller Path	(1) Keep path free of excess grease. Use "Tacky" grease as necessary during break in only.
Ring Gear	(1) Maintain a film of grease, as specified in the lubrication specifications, on the gear teeth at all times.
Upper Trans. Case Lower Bevel Gear Case Ind. Swing Bevel Gear Case	(1) Check lubricant level, and add lubricant if necessary. Use only lubricant meeting the specifications listed later in this section. (2) Check for leakage. If any, repair before operating.



# Operator's Manual Section 2A - Continued - Protective Maintenance And Lubrication

Monthly Or Every 250 Hours

First perform all operations listed under "Every 50 Hours".

Operation	Remarks
Engine	(1) Provide 250 hour maintenance and lubrication as outlined by the manufacturer.
S-o-M Filter 78H Sump Filter	(1) Change the S-o-M filter element. Clean the housing in a suitable solvent. See Section 10.
Master Clutch	(1) Check and adjust as necessary.
Boom Hoist Brake	(1) Visually check band connecting lugs, actuating linkage, and related pins, and the mounting bracket pin hole for any signs of wear or cracking. (2) Visually check band for any indications of bending, interference, or unusual lining wear which would indicate excessive wear of the above parts. (3) Check condition of band adjusting nut and bolt. Make sure the self locking nut will hold against rotation during operation.
Track Drive Chain Track Shoes	(1) Inspect for wear, and adjust if necessary.
Swing Brake Steer Brakes Jaw Clutches	(1) Check, and adjust if required. (2) If brake bands are worn, replace or reline the bands.
Side Frame Reservoir	(1) Check oil level (pipeliners only).

2  
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Every 500 Hours

First perform all operations listed under "Every 250 Hours".

Operation	Remarks
Boom Hoist Brake	(1) Remove the band and all related parts for a detailed, visual inspection. If any parts show signs of undue wear, cracks, or other distress, replace them. Reassemble and adjust the brake mechanism.

Every 1000 Hours Or Seasonal

First perform all operations listed under "Every 500 Hours".

Operation	Remarks	1000 Hours	Seasonal
Upper Trans. Case Ind. Swing Bevel Gear Case Lower Bevel Gear Case	Drain, flush, and refill with the lubricant specified in this section.		*
Bevel Gears	Check bevel gears for proper backlash.	*	*
Two Speed Planetary	Drain and refill with specified lubricant.	*	*
Chain Case	Drain and refill with specified lubricant.	*	*
S-o-M System	Drain, clean and refill with proper weight of S-o-M oil. Make seasonal weight changes as required.		*

## Operator's Manual Section 2A - Continued - Protective Maintenance And Lubrication

Every 1000 Hours - Continued

Operation	Remarks	1000 Hours	Seasonal
Engine Drive Chain	Check for correct alignment, adjustment and normal wear.	*	
Cotta Transmission	Drain, clean and refill. Make seasonal weight changes as necessary.		*
Turntable Gear	Inspect turntable gear and swing pinion for normal wear.	*	
Conical Rollers	Inspect rollers and path for wear. Adjust if necessary.	*	
Jaw Clutches	Inspect for wear, damage and proper engagement.	*	
Sheaves	Inspect for wear and damage.	*	
Engine	See Manufacturer.	*	*
78H Sump Tank	Drain clean. Refill with proper weight S-o-M oil. Clean strainer.	*	

### Machine Storage Suggestions

Listed below are a number of important points that should be followed when putting a machine into storage. Machines stored outside must be thoroughly protected or serious deterioration will result.

- (1) Lower boom to ground, and slack off on boom suspension, or remove boom entirely. Tie down all ropes and pendants to prevent whipping in the wind, etc.
- (2) Machines should be stored under cover to reduce the possibility of rust and deterioration.
- (3) If stored outside, certain procedures must be followed to protect machine as much as possible from the elements.
  - (a) Clean the unit thoroughly, removing all dirt and other foreign material.
  - (b) Lubricate entire machine as outlined in this section.
  - (c) Touch up any spots where paint has been knocked off to prevent rust and deterioration.
  - (d) Cover all unpainted machines surfaces, except friction surfaces such as clutch and drum brake surfaces with a coating of

heavy grease to prevent rusting. Cover all clutch and brake friction surfaces with a cover of waterproof paper or plastic to protect these surfaces from rust.

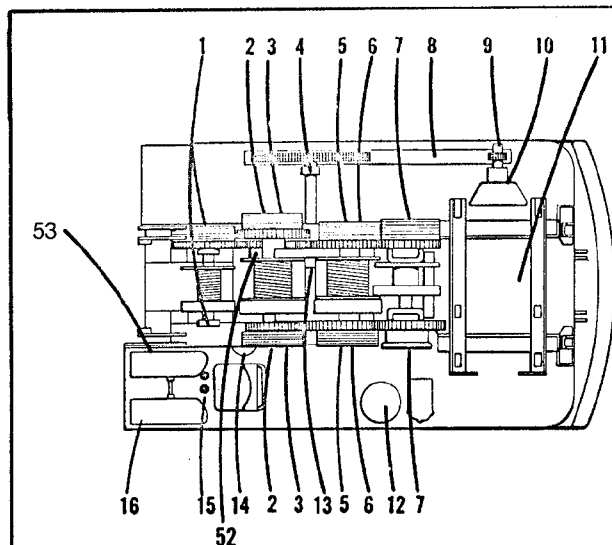
- (e) Set the track shoes on planks.
- (f) Cover the track drive chains with heavy oil to prevent rust.
- (f) Cover the track adjustment bolts with heavy oil to prevent rust.
- (h) Cover the intake and exhaust openings on the upper engine, to prevent moisture entering.
- (i) If anti-freeze is not to be used, completely drain the cooling system. Leave all drain open.
- (j) Remove the batteries and store them where they will not freeze. Periodically charge them during the winter.
- (k) Cover open spaces around boom hoist bail or drums with waterproof plastic or paper to keep rain from coming in on machinery parts. (Cover entire upper with tarp, if available).
- (l) Leave all control levers in neutral position. Leave foot brake pedals

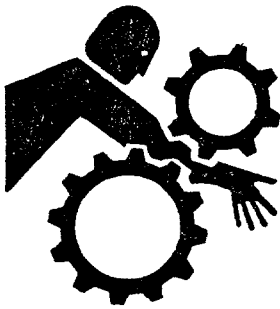
- in released position.
- (m) Refer to engine and clutch manual for information on storing power unit.

- (n) Lock all doors on machine. If in area where vandalism is possible, cover all window glass with plywood or metal covers.

Note: Store machine so it doesn't provide a plaything for children. Such a unit can be an "attractive nuisance" for children to play on. If they fall off it or get entangled, serious injury may result.

## Operator's Manual Section 2A - Continued - Protective Maintenance And Lubrication





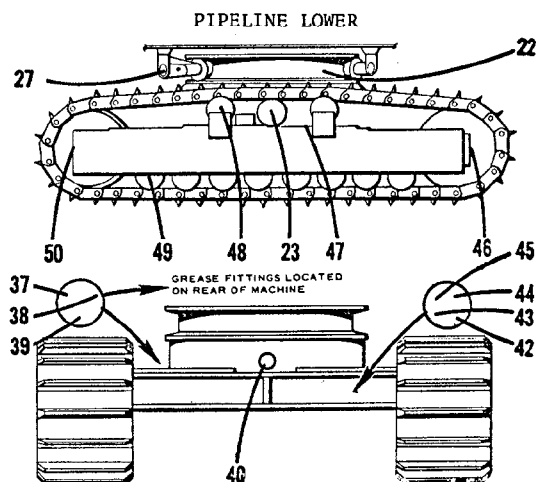
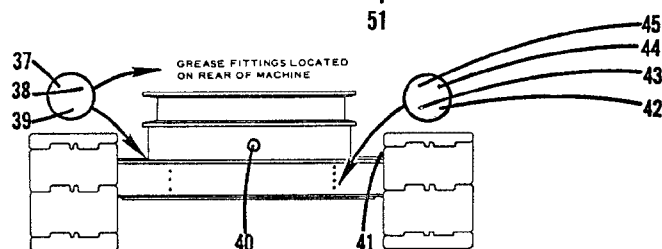
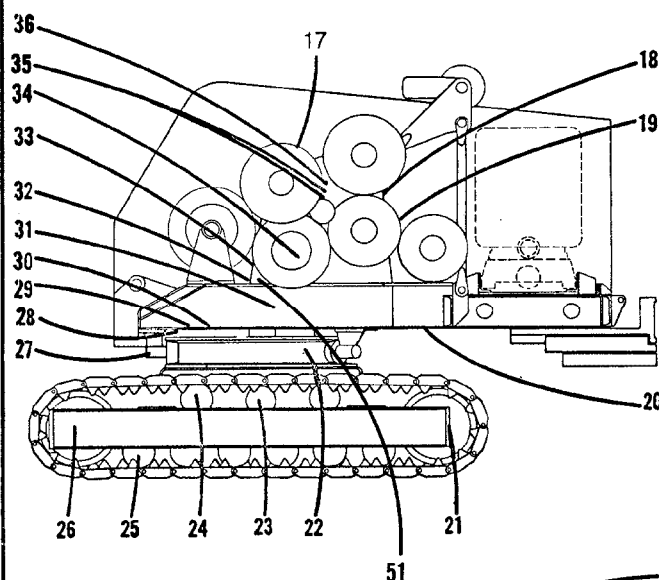
**⚠ WARNING**

**Moving machinery.**  
Do not service, maintain or lubricate unless master clutch is disengaged and rotating machinery has stopped or severe personal injury may result.

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Note; Disengage master clutch before working on machine. Replace all guards or panels before starting machine.



### Capacity Chart

Location	Capacity	Above 32°	Below 32°
Upper Trans. Case (1 Speed)	9.5 Gal. (35.9L)	J	E
Upper Trans. Case (2 Speed)	19.75 Gal. (74.7L)	J	E
Lower Bevel Gears (Pl. & Stand. Lower)	7 Gal. (26.5L)	M	M
Lower Bevel Gears (L.W. And Long Lower)	7.5 Gal. (28.4L)	M	M
Chain Case	3 Gal. (11.4L)	C	C
Reverse Bevel Gear Case	1.5 Gal. (5.7L)	J	E
Ind. Swing Gear Case	1.5 Gal. (5.7L)	J	E
P.L. Side Frame	18 Gal. (68.1L)	M	M
Two Speed Planetary	1.5 Qu. (1.4L)	K	L