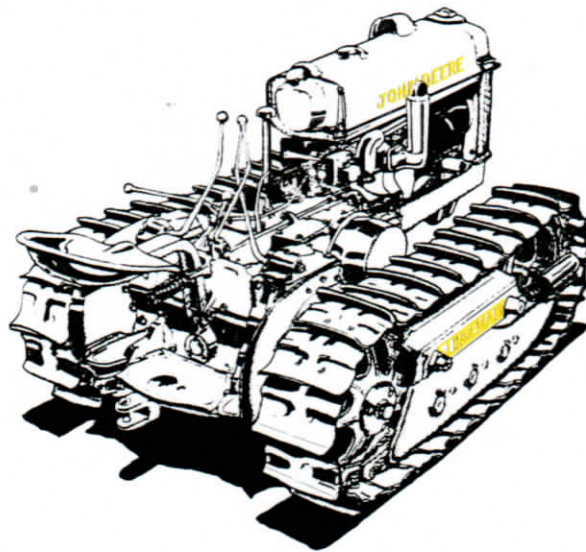


LINDEMAN - JOHN DEERE "BO" CRAWLER



• INTERSTATE TRACTOR AND EQUIPMENT CO.
MCMINNVILLE, OREGON

BRIEF SPECIFICATIONS OF
THE
LINDEMAN-JOHN DEERE "80" CRAWLER

OVERALL LENGTH	86 INCHES
CENTER TO CENTER WIDTH OF TRACK, MINIMUM	42 INCHES
HEIGHT, TOP OF RADIATOR CAP FROM HARD FLOOR	50 $\frac{1}{2}$ INCHES
MAXIMUM CLEARANCE	9 INCHES
CENTER OF SPROCKET TO CENTER OF FRONT IDLER	48 INCHES
WIDTH STANDARD TRACK PLATES	10 INCHES
WEIGHT, APPROXIMATELY	4420 POUNDS

APPROXIMATE SPEEDS IN MILES PER HOUR AT 1150 R.P.M. -

FIRST	1 $\frac{1}{2}$
SECOND	2 $\frac{1}{2}$
THIRD	3 1/6
FOURTH	5

TEMPORARY GREASING & OILING INSTRUCTIONS

FOR "80" CRAWLER TRACTOR

MOTOR :

USE GOOD GRADE SAE 30 OR 40 OIL,

TRANSMISSION:

USE SAE 140 OIL AND KEEP LEVEL WITH PLUG ON REAR OF CASE.

FINAL DRIVES:

USE SAE 140 OIL AND KEEP LEVEL WITH FILLER HOLE.

STEERING CLUTCH CASES:

USE SAE 10 MOTOR OIL AND KEEP LEVEL WITH FILLER HOLE.

TRACK ROLLERS & FRONT IDLER:

USE A VISCOUS GREASE SIMILAR TO ALEMITE VISCOUS, H IN SUMMER AND REGULAR IN WINTER, USING ABOUT $\frac{1}{4}$ GUNFULL IN EACH ROLLER OR IDLER FOR EVERY TEN HOURS OF USE. IF ROLLER AND FRONT IDLERS SHOW THIS TO BE IN EXCESS, THIS AMOUNT MAY BE CUT DOWN.

SPECIAL OPERATING HINTS

TIGHTEN STEERING BANDS JUST TIGHT ENOUGH SO THAT THE TRACTOR WILL STEER BEFORE THE LEVER STRIKES THE STOP.

MAKE CARBURATOR, MOTOR, AND CLUTCH ADJUSTMENTS AS PER THE JOHN DEERE BULLETIN.

WATCH REAR SPROCKETS CLOSELY FOR ANY TENDENCY TO MOVE ON REAR AXEL FIRST FEW DAYS OF OPERATION. SEE SPECIAL INSTRUCTIONS FOR FURTHER INFORMATION.

CONSTRUCTION DETAILS OF THE "B0" CRAWLER TRACTOR

TRACKS:

THE TRACK LINKS PROPER OF THESE TRACTORS ARE OF AN SAE 1040 CARBON STEEL, HEAT TREATED IN OUR OWN PLANT FOR MAXIMUM HARDNESS ON THE FACE OF THE RAILS AND MAXIMUM TOUGHNESS THROUGHOUT THE BALANCE OF THE LINK.

THE PINS AND BUSHINGS ARE OF AN SAE 1020-90 CARBONIZING STEEL DEEPLY CARBONIZED AND HARDENED TO A HIGHER BRINELL POINT THAN WE BELIEVE IS USED IN ANY OTHER MAKE OF TRACTOR, FOR WE HAVE FOUND IN OUR WESTERN SOIL CONDITIONS THE MAXIMUM TRACK WEAR OCCURS ON THE PINS AND BUSHINGS RATHER THAN ON THE RAILS AND TRUCK ROLLERS AS WAS THE CASE IN FORMER DAYS.

THE TRACK PLATES ARE OUTSTANDING BECAUSE THROUGH HOT PRESSING THESE IN SPECIAL DIES AND QUENCHING THE EDGE OF THE GROUSER ONLY, ALLOWING THE BALANCE OF THE PLATE TO COOL IN THE NORMAL AIR, WE RECEIVED A MAXIMUM AMOUNT OF STRENGTH AND WEARING QUALITY WITH A MINIMUM AMOUNT OF WEIGHT, AND THEREBY OF COURSE REPLACEMENT COST.

THE BOLTS HOLDING THE GROUSERS TO THE LINKS ARE APPROXIMATELY .005" DRIVING FIT ON BOTH THE PLATE AND LINK, WHICH POSITIVELY ELIMINATES ANY POSSIBILITY OF THEIR EVER BECOMING LOOSE. THE PARTICULAR SHAPE OF THESE GROUSERS AND PLATES ALSO COUNT, FOR THE FACT THAT IN DRIVING OVER ROADWAYS AND OTHER SOILS WHERE MINIMUM TEARING UP IS WANTED, THESE PLATES DUE TO THEIR ROUNDED SIDES, WILL NOT DIG UP ON THE TURNS AS IS THE CASE WITH OTHER TYPES; NOR IN GOING STRAIGHT AHEAD DO THEY HAVE THE TENDENCY TO DIG UP THE SOIL AS THE GROUSER LEAVES IT, AS IS THE CASE IN MOST OTHER TYPES.

TRACK FRAMES:

WE BELIEVE WE HAVE THE MOST UNIQUE AND SENSIBLE TRACK FRAME CONSTRUCTION EVER USED ON A CRAWLER TRACTOR. STARTING WITH THE ROLLERS, THE FLANGES (WHICH ARE MADE OF THE SAME MATERIAL AND IN THE SAME MANNER AS ALL CRAWLER TRACTORS TO OUR KNOWLEDGE) ARE PRESSED AND SHRUNK ONTO A CAST IRON HUB WHOSE INSIDE DIAMETER IS CHILLED TO A MAXIMUM HARDNESS AND SMOOTHNESS INTO WHICH IS FIT CHILLED AND HARDENED BEARING SLEEVES WHOSE OUTSIDE ENDS ARE MACHINED ON A 5 DEGREE TAPER WITH A TOLERANCE OF NOT TO EXCEED .001" PLUS OR MINUS, OVER WHICH THE SIDE PLATES, HAVING TAPER-REAMED HOLES, ARE FIT. TO DISMANTLE THIS TRACK FRAME IT IS NOT NECESSARY TO DISCONNECT THE TRACK; BUT BY SIMPLY LOOSENING THE FOUR LONG BOLTS HOLDING THE SIDE PLATES TOGETHER, THE OUTSIDE SET SCREW IN THE FRONT IDLER HUB, AND THE TWO OUTSIDE CLAMPS TO THE 2 $\frac{1}{2}$ " SQUARE CROSS BARS, THE WHOLE OUTSIDE TRACK FRAME PLATE MAY BE DETACHED. ALL TRUCK ROLLERS, AS WELL AS THE FRONT IDLER CAN BE THERE UPON REMOVED FOR INSPECTION OR REPAIR.

TRACK FRAME TO TRACTOR MOUNT:

THIS CONSTRUCTION IS ALSO UNIQUE IN VIEW OF THE FACT THAT IT IS THE ONLY SPRINGLESS TYPE OF TRACTOR NOW ON THE MARKET. HOWEVER, FOR AGRICULTURAL WORK OVER A PERIOD OF FIVE YEARS IN THE FIELD WE HAVE FOUND THIS TO BE VERY SUPERIOR, BOTH IN TRACTOR OPERATION AND MAINTENANCE, TO THE SO-CALLED SPRING-TYPE OF TRACTOR. IT HAS BEEN FOUND THAT THE TRACKS CAN BE DRIVEN AT A MUCH FASTER SPEED OVER LOOSE AND UNEVEN GROUND BY THE REASON OF THIS CONSTRUCTION THAN THE OTHER TYPES OF TRACTOR FOR THE SAME REASON THAT A TWO-RUNNER SLED CAN BE PULLED OVER ROUGH GROUND WITH LESS BUCKING THAN A FOUR-WHEELED WAGON THAT HAS A TENDENCY TO FOLLOW THE CONTOUR OF THE GROUND.

IN ADDITION TO THIS, ALL FOUR POINTS OF CONTACT BETWEEN THE TRACK FRAME ASSEMBLIES AND THE TRACTOR PROPER ARE MOUNTED ON RUBBER BUSHINGS, ELIMINATING PRACTICALLY ALL TRACK AND ROAD VIBRATION FROM THE TRACTOR ITSELF. THIS CONSTRUCTION ALSO GIVES US A TRACTOR THAT UNDER ALL PULLING CONDITIONS WILL BE FOUND TO STAY FLAT ON THE GROUND, USING FULL BENEFIT OF ITS TRACK'S GROUND-CONTACT AREA RATHER THAN RARING UP ON THE REAR SPROCKET AND REAR TRUCK ROLLER AS IS THE CASE OF MOST OTHER CRAWLER TRACTORS OF ANY TYPE OR SIZE.

CONSTRUCTION DETAILS OF THE "80" CRAWLER TRACTOR CONTINUED -

GREASING SYSTEM:

THE GREASING SYSTEM IS THE SIMPLEST OF ALL TRACTORS, ONE GUN CARRIED WITH THE TRACTOR SERVING FOR THE GREASING OF THE TRUCK ROLLERS, FRONT IDLERS, FINAL DRIVE CASE, STEERING CLUTCH CASES, AND TRANSMISSION CASE.

STEERING CLUTCHES:

THIS IS ANOTHER OUTSTANDING IMPROVEMENT IN CRAWLER TRACTORS, DUE TO THE FACT THAT THROUGH THE USE OF THIS AUTOMATIC STEERING CLUTCH WE HAVE ACQUIRED THE ADVANTAGES OF ALL OTHER TYPES OF STEERING WITHOUT HAVING ANY OF THE DISADVANTAGES THAT ARE APPARENT IN EVERY OTHER TYPE OF STEERING KNOWN TO US.

FIRST, THE ENTIRE STEERING OPERATION IS HANDLED BY MEANS OF ONE RIGHT HAND AND ONE LEFT HAND LEVER. THIS FEATURE IS AVAILABLE IN ONE OTHER MAKE OF TRACTOR, BUT IN THAT TRACTOR A SHARP TURN CANNOT BE MADE, WHILE OUR TRACTOR PIVOTS POSITIVELY ON ONE DEAD TRACK WHEN THE OPERATOR SO DESIRES. WHILE THERE ARE OTHER MAKES OF TRACTORS THAT WILL PIVOT ON A DEAD TRACK; NEVERTHELESS, IT IS NECESSARY IN HIS CASE TO HAVE THE OPERATOR ALSO MANIPULATE FOOT BRAKES IN CONJUNCTION WITH THE STEERING LEVER.

SECOND, THIS CLUTCH IS THE ONLY STEERING CLUTCH KNOWN TO US THAT OPERATES IN A BATH OF OIL, AND WITHOUT USE OF COMPOSITION LINING. THERE ARE 53 THIN, HIGH-CARBON AND NICKEL STEEL PLATES OPERATING IN EACH CLUTCH, 26 OF THEM DRIVING PLATES AND 27 OF THEM DRIVEN PLATES. THESE PLATES CAN NEVER BE BURNED OUT AND FROM PRESENT INDICATIONS OF CLUTCHES THAT HAVE OPERATED FOR THE PAST FIVE YEARS, SHOULD LAST THE ENTIRE LIFE OF THE TRACTOR. WE HAVE CHECKED CLUTCHES OF THIS TYPE OPERATED OVER THE LAST FIVE YEARS AND HAVE FOUND LESS THAN .001" IN PLATE WEAR, WHICH SHOULD INDICATE A TREMENDOUSLY LONG-LIVED CLUTCH.

ADJUSTIBILITY:

THIS TRACTOR IS FURNISHED IN A STANDARD MAXIMUM WIDTH CENTER TO CENTER OF THE TRACKS OF 46 INCHES AND A MINIMUM OF 43 INCHES. HOWEVER, FOR \$5.00 ADDITIONAL A 60 INCH MAXIMUM CENTER TO CENTER OF TRACKS CAN BE FURNISHED BY SIMPLY USING TWO LONGER TRACK FRAME CROSS BARS AND REVERSING THE SPROCKETS ON THE REAR AXEL. TO SECURE A 70 INCH CENTER TO CENTER OF TRACKS, BOTH ADDITIONALLY LONGER CROSS BARS AND LONGER REAR AXELS CAN BE FURNISHED AT A \$15.00 ADDITIONAL LIST. AT THIS TIME WE HAVE NO WIDER OR NARROWER TRACK PLATES, BUT IF THE NECESSITY ARISES FOR WIDER PLATES OR NARROWER PLATES, THESE WILL BE FURNISHED WITHIN A REASONABLE TIME.

FIELD POWER:

AS FAR AS FIELD POWER IS CONCERNED, IT IS PROBABLY REASONABLE TO ASSUME THAT THIS TRACTOR WILL HANDLE NICELY THE SAME SIZE TOOLS THAT ARE ORDINARILY SOLD BEHIND A MODEL "A" IN EITHER THE STEEL-WHEELED OR RUBBER-TIRED UNIT; AND FROM ALL INDICATIONS WE CAN EXPECT THAT THE DRAWBAR WILL DEVELOP BETWEEN 16 AND 17 HORSEPOWER.

CARE AND OPERATION OF THE
LINDEMAN-JOHN DEERE "BO" CRAWLER TRACTOR .

LUBRICATION:

SEE BOTH THE JOHN DEERE INSTRUCTION BOOK AND LINDEMAN CHART ATTACHED THERETO. FOR ALL CARE AND ADJUSTMENT OF MOTOR, COOLING SYSTEM, FUEL SYSTEM, MASTER CLUTCH, IGNITION AND TRANSMISSION, SEE JOHN DEERE INSTRUCTION BOOKS.

STEERING SYSTEM:

THIS TRACTOR IS EQUIPPED WITH A NEW BUT SIMPLE STEERING CLUTCH OPERATED BY A LEVER ONLY. IN STEERING TO THE LEFT, FOR EXAMPLE, THE LEFT HAND LEVER IS OPERATED AGAINST THE BRAKE BAND IN CLUTCH CASE, RETARDING THE MOTION OF A DRUM WHICH IN TURN ACTUATES THREE CAMS, RELEASING SPRING PRESSURE ON CLUTCH PLATES, THEREBY RELEASING CLUTCH. FURTHER PRESSURE ON THE BAND THEN ACTS AS A BRAKE ON THE LEFT TRACK DRIVE. UPON RELEASE OF THE LEVER THE WHOLE CLUTCH MECHANISM AGAIN RE-ENGAGES.

THIS IS A SO-CALLED METAL-AGAINST-METAL CLUTCH, THE PLATES HAVING NO LINING, THE WHOLE ASSEMBLY RUNNING IN A BATH OF OIL. BEFORE THE TRACTOR IS WARMED IN COLD WEATHER, IT IS WELL TO FIRST START THE TRACTOR FORWARD IN LOW GEAR AT FULL MOTOR AND QUICKLY PULL BOTH STEERING LEVERS BACK AND HOLD BOTH TRACKS FOR A FEW MINUTES UNTIL FRICTION OF STEERING CLUTCH PLATES WARMS UP THE OIL IN THE CLUTCH CASE. IF THIS IS NOT DONE, THE TRACTOR WILL RESIST TURNING WITHOUT EXCESSIVE PULLING ON LEVERS. CARE SHOULD BE EXERCISED THAT LEVERS ARE NOT PULLED TOO HARD, AS THEY HAVE SUFFICIENT LEVERAGE ON BAND MECHANISM THAT DAMAGE WILL RESULT. BEST RESULTS ARE OBTAINED IF BANDS ARE KEPT AS LOOSE AS POSSIBLE, OR JUST TIGHT ENOUGH THAT TRACTOR WILL STEER WITHOUT LEVER STRIKING REAR STOP.

FOR LOCKING TRACKS IN BELT WORK, ON HILLS, OR WHEN LOADED FOR TRANSPORTATION IT MAY BE NECESSARY TO TAKE BAND UP A FEW TURNS OF THE SCREW SO TRIP CAM WILL HOLD BAND TIGHT ENOUGH. BANDS MAY BE REMOVED FROM CASE BY REMOVING PIN CONNECTING BAND FROM REAR OR SLIDING BLOCK, AFTER OF COURSE REMOVING COVER AND ADJUSTING SCREW.

REAR SPROCKETS:

SPROCKETS ARE ADJUSTABLE ON REAR AXELS TO ALLOW FOR DIFFERENT WIDTHS OF TREADS, BUT SHOULD ALWAYS BE SET EXACTLY IN CENTER OF TRACK FRAME AND ROLLERS. WHEN NEW TRACTOR IS FIRST USED THE SPROCKETS SHOULD BE CHECKED EVERY FEW HOURS TO BE SURE THAT NO SHIFT OUT OF LINE HAS OCCURRED, AS THIS WILL CAUSE WEAR TO BOTH TRACK AND SPROCKET. THE SPECIAL BOX WRENCH FURNISHED WITH THE TRACTOR WILL FIT THE CLAMP BOLT NUTS WHICH SHOULD BE TIGHT ENOUGH TO HOLD THE FULL WEIGHT OF ANY AVERAGE MAN STANDING ON END OF WRENCH. AFTER SPROCKETS ONCE "SET" THEY WILL CAUSE NO TROUBLE.

FRONT IDLERS:

THE FRONT IDLERS ARE ADJUSTABLE TO TAKE CARE OF BOTH TRACK TENSION AND ALIGNMENT. TRACKS SHOULD BE CARRIED AS LOOSELY AS POSSIBLE WITHOUT STRIKING CAST SHIELD OVER TRACK FRAME.

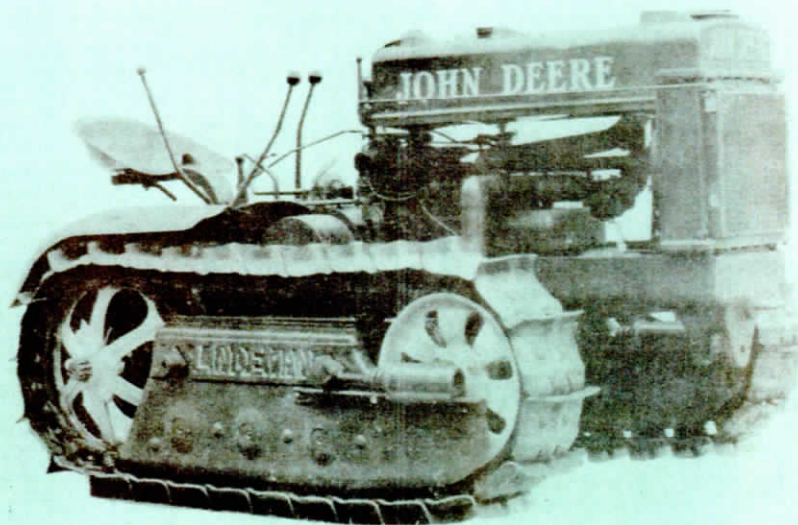
SEAT:

THE SEAT CAN BE SET FOR EITHER LOW REAR OPERATION OR FOR HIGH FORWARD OPERATION; SPRING TENSION SHOULD BE ADJUSTED TO OPERATOR'S WEIGHT. WHEN IN HIGH POSITION CAST BLOCK SHOULD BE USED TO RAISE SEAT TO DESIRED HEIGHT.

INTERSTATE TRACTOR & EQUIPMENT CO.,
MCMINNVILLE, OREGON

SPECIFICATIONS

Lindeman-John Deere "BO" Crawler Tractor



Draw Bar Horse Power.....	16.16*
Belt Horse Power.....	18.53
Draw Bar Pull*	
First.....	4852 lbs.
Second.....	3000 lbs.
Third.....	2498 lbs.
Fourth.....	1487 lbs.
** Speed in M. P. H. at Engine Speed of 1150 R. P. M.	
First.....	1.20
Second.....	1.95
Third.....	2.67
Fourth.....	4.00
Reverse.....	1.95
Belt Pulley	
Diameter 10 $\frac{5}{8}$ inches; face 6 inches; R. P. M. 1150	
Belt Speed	3200 F. P. M.
Engine	
Two cylinders—cast-in-block	
Valves-in-head	
Engine Speed—1150 R. P. M.	
Bore—4 $\frac{1}{2}$ inches; Stroke—5 $\frac{1}{2}$ inches	
Crankshaft—special quality steel, drop forged.	
2 $\frac{1}{2}$ inch crank pins	
Bearings—2 main, bronze backed, babbitt-lined,	
removable. 2 $\frac{1}{4}$ inches diameter x 2 $\frac{1}{2}$ inches	
wide	
Connecting Rods—Special quality steel drop forged	
Bearings—Babbitt. Centrifugally spun in rod.	
2 $\frac{1}{2}$ inches in diameter x 2 inches wide.	
Bronze bushings for piston pins	
Governor—John Deere design. Enclosed fly-ball	
type with 1 ball thrust and 2 self-adjusting	
ball bearings	
Carburetor—Natural-draft type with load and idle	
adjustment	
Ignition—High tension magneto with enclosed	
automatic impulse starter	
Air-Cleaner—Oil-wash type.	
Lubrication—Full force-feed pressure system with	
oil filter.	
Cooling—Thermo-siphon with gear and shaft-driven	
fan. (No belts or water pump.)	
Fuel Tank Capacity	13 $\frac{1}{2}$ gal.

Gasoline Tank Capacity.....	1 gal.
Water Capacity.....	6 gal.
Clutch—Two 8-inch dry discs, locking in and out.	
Transmission—Selective type. Spur gears forged, cut	
and heat treated. Shafts operating on 3 roller,	
4 tapered roller, 5 ball bearings.	

Track	
†Width of standard track shoe.....	10 inches
Diameter of track shoe bolts.....	$\frac{5}{8}$ inches
Diameter of track pins.....	$\frac{7}{8}$ inches
Diameter of track pin bushings.....	1 $\frac{3}{8}$ inches
†12" or 14" Track shoe can be furnished	

Over-All	
Length.....	86 inches
Height, top of radiator cap from floor.....	50 $\frac{1}{2}$ inches
Weight.....	4420 lbs.

Ground Clearance	9 inches
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Length of Tracks on Ground	
(Center drive sprocket to center front idler).....	48 inches

Area Ground Contact	
(With ten-inch track shoes).....	960 sq. in.

Gauge—(center to center of tread)	
Standard 43" adjustable to 46" with 60" cross bar;	
46" to 60" use 72" cross bar furnished at extra cost	
†60" to 70" use 82" cross bar furnished at extra cost	

†Use of over 60" center to center of tread not recommended except for light work.

Steering	
Number of friction surfaces in each steering clutch.....	10
Area individual friction surface.....	48 sq. in.
Total friction surface each clutch.....	574 sq. in.

Draw Bar Range	
Height to C/L of hook-up clevis.....	12 $\frac{1}{4}$ "
Lateral movement (measured at pin).....	20 $\frac{3}{4}$ "

Power Take Off	
R. P. M.....	554
Height.....	15 $\frac{3}{8}$ "
Size, 6-spline.....	1 $\frac{1}{8}$ "

*Draw bar horse power and draw bar pounds pull calculated.

** Higher and Lower Gear Ratios Can be Furnished.

Lindeman Manufacturing, Inc.

YAKIMA, WASHINGTON