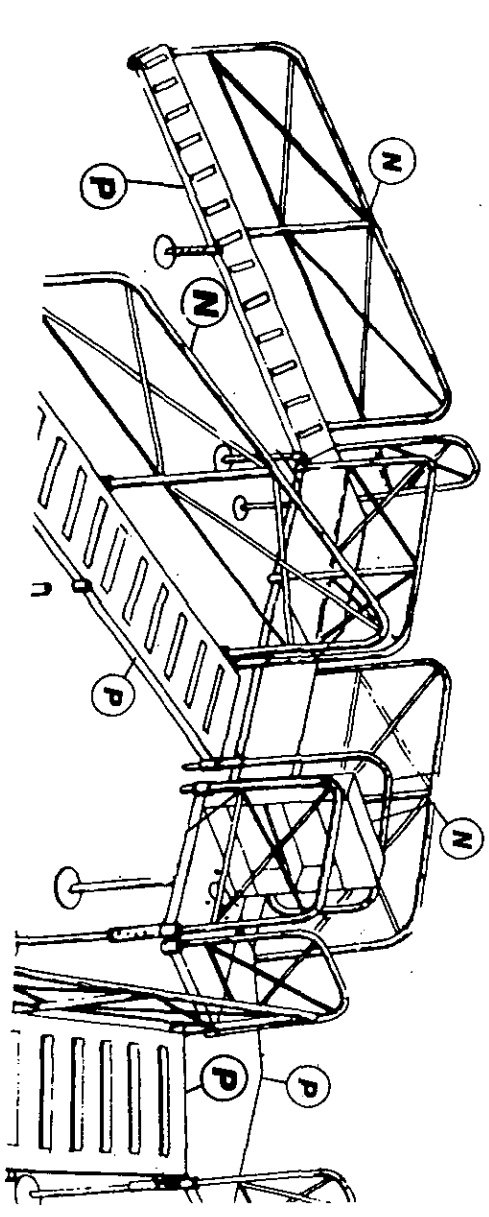
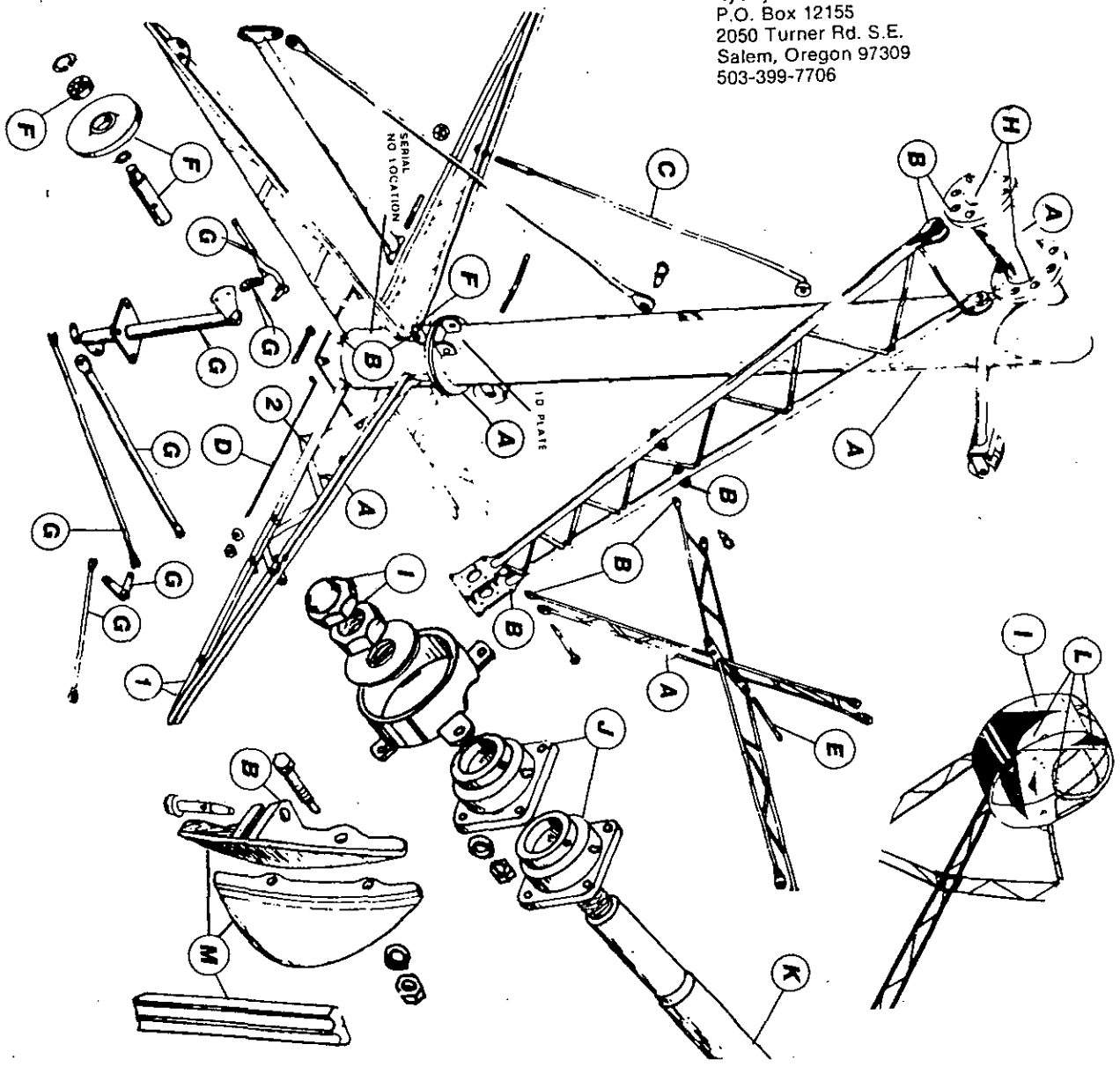
ROCK-O-PLANE

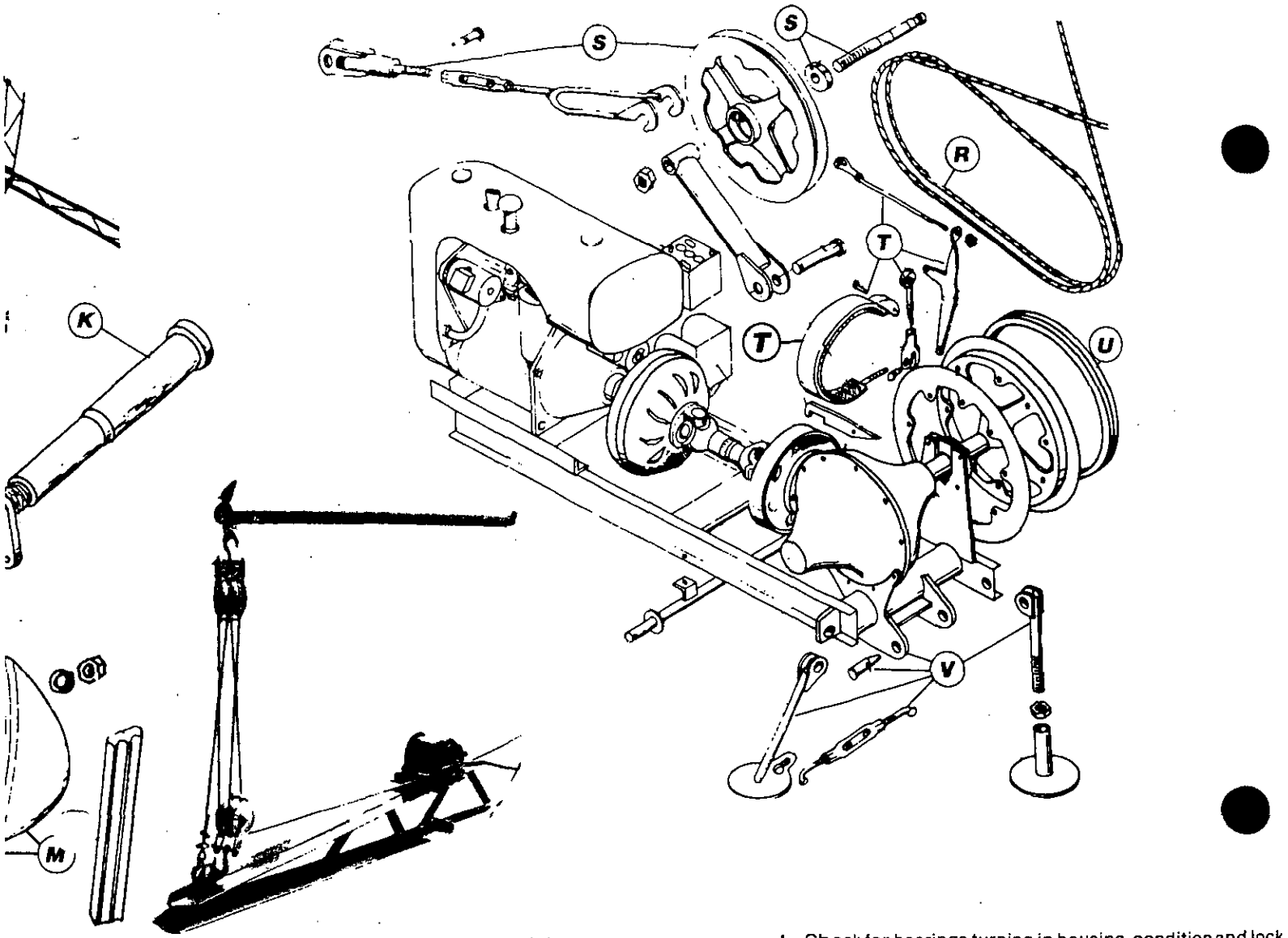
INSPECTION CHECK LIST

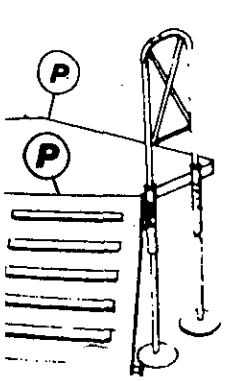
SALES & SERVICE
Toll Free outside Oregon
(800) 547-9156
Eyerly Inc.
P.O. Box 12155
2050 Turner Rd. S.E.
Salem, Oregon 97309
503-399-7706

SALES & SERVICE
Toll Free outside Oregon
(800) 547-9156
Eyerly Inc.
P.O. Box 12155
2050 Turner Rd. S.E.









A. Inspect for weld cracks, structural damage.
B. Inspect main hub, sweep attaching ears, cross brace ears, mudsill attaching holes, mudsill ears on column base and cable ears for enlargement of pin holes—repair as needed. (1" holes to maximum 1-1/8", 3/4" holes to maximum 7/8"). 1/16" and 1/8" oversize pins available. Replace damaged pin only with original factory replacement pin. Inspect for proper safeties, not nails. Do not use hairpins for safeties in mudsill pins as pin rotates and pushes keeper out.
C. Check sway brace rods for straightness, condition of threads and head. Replace if necessary.
D. Inspect tie rods for damaged ends and threads. Replace if necessary, rods are to be evenly tightened.
E. Check condition of cross brace pins for enlargement, wear, missing retainers, etc.
F. Inspect condition of column idler tube, shaft and sheave—check for bearing play. Repair as needed.
G. Inspect control stand and linkage, ratchet condition, and lug on control handle, wear in bushings, linkage attaching holes enlarged, worn pins and bolts, bent linkage.
H. Check main hub for worn or defective bearing. Hub has ball bearings on both ends. Any play indicates worn or defective bearing—should be removed and inspected yearly. Recommended replacement as maximum five (5) operating seasons.
I. Inspect cars for broken or worn tubes, broken screen, bent automatic return bar, lost or broken springs, enlarged attaching holes, worn bolts, safety key wearing end of bar which safeties door, and worn or damaged door safety key. Inspect car hub for proper spindle position. Spindle should not be flush with inner hub face. Inspect brake drum and brake band for condition. **Note:** Inner nut is special—always install with taper toward spindle, lock nut must be tight.
J. Check for bearings turning in housing, condition and lock collars for tightness.
K. Check spindle for condition.
L. Inspect condition of door latch and hinges. Remove play and align as necessary.
M. Inspect condition of cable ears and packing.
N. Check fence for condition—repair broken members as needed.
P. Check platform for structural condition. Repair as needed. Check wood for deterioration and replace as necessary. Inspect cleats and repair or replace as needed.
R. Inspect drive cable for alignment, corrosion, broken strands, oil. If lubricated, remove with approved solvent (lubricate with pine tar).
S. Inspect condition of drive idler wheel and bearings. Check cable tension unit for proper operation.
T. Check brake and linkage for condition, effectiveness and operation. Replace brake lining and repair linkage as needed.
U. Check condition of drive wheel liner. If unevenly worn replace—can pull cable apart.
V. Check condition of motor base attaching holes, pins, turnbuckles and jack stands—repair or replace as necessary.

General Information:

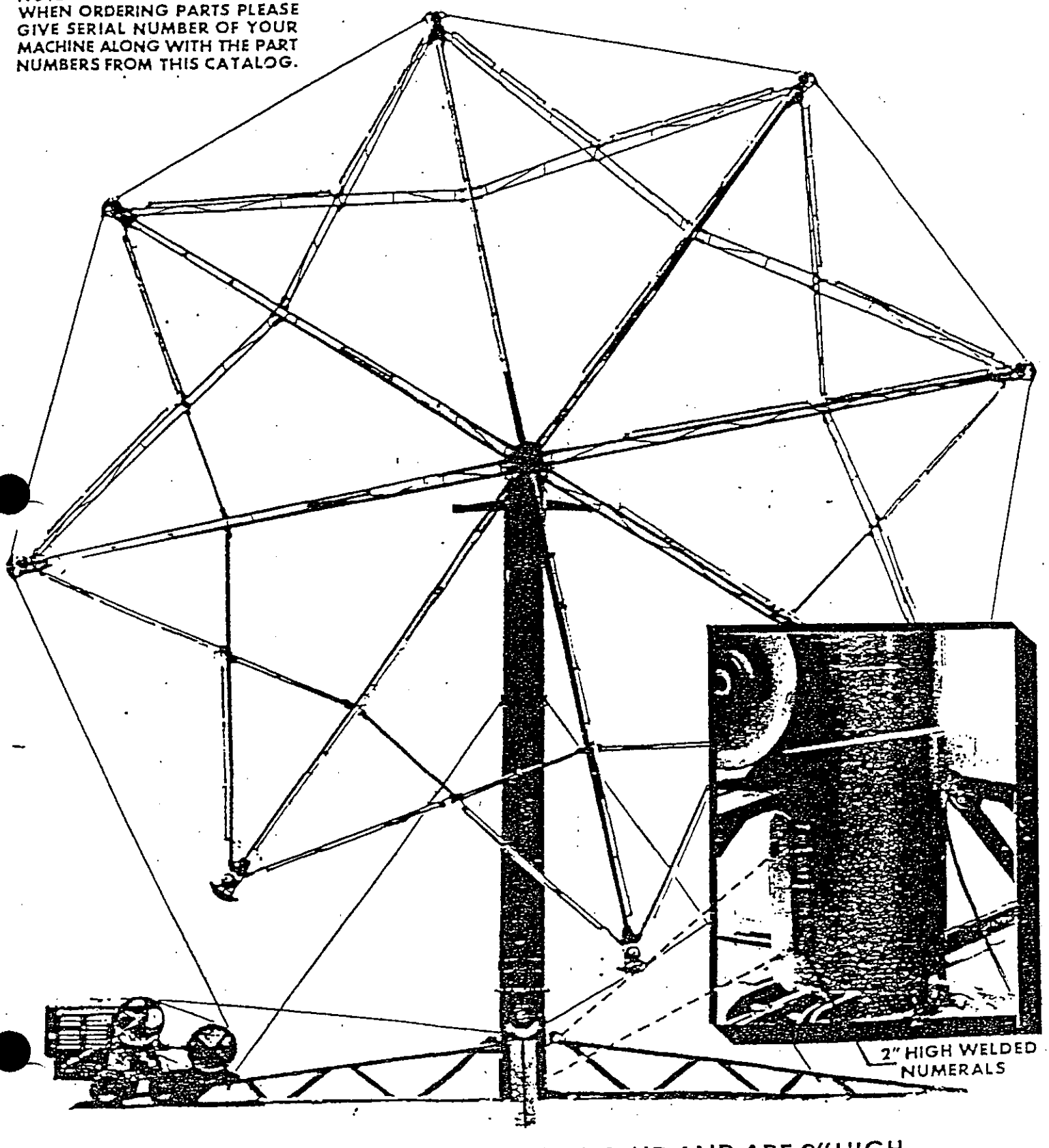
Maximum passenger weight per car 340 lbs. Maximum is 10.

Blocking:

Ride center must be floated at all times, evenly distribute weight on outer end of mudsill at area indicated by 1. Quarter blocking located at 2 should be finger tight and check often to prevent weight from transferring to quarter blocks due to settling of outer blocks. **Note:** Blocking should be 2 x 6 or better.

LOCATION OF SERIAL NUMBERS ON ROCK-O-PLANE

NOTE:
WHEN ORDERING PARTS PLEASE GIVE SERIAL NUMBER OF YOUR MACHINE ALONG WITH THE PART NUMBERS FROM THIS CATALOG.



SERIAL NUMBERS ARE FROM 6000 & UP AND ARE 2" HIGH WELDED NUMERALS ON COLUMN AS INDICATED.

ROCK-O-PLANE

INSPECTION CHECK LIST

Sales & Service
ORI IND.
PO Box 15029
Salem, OR 97309
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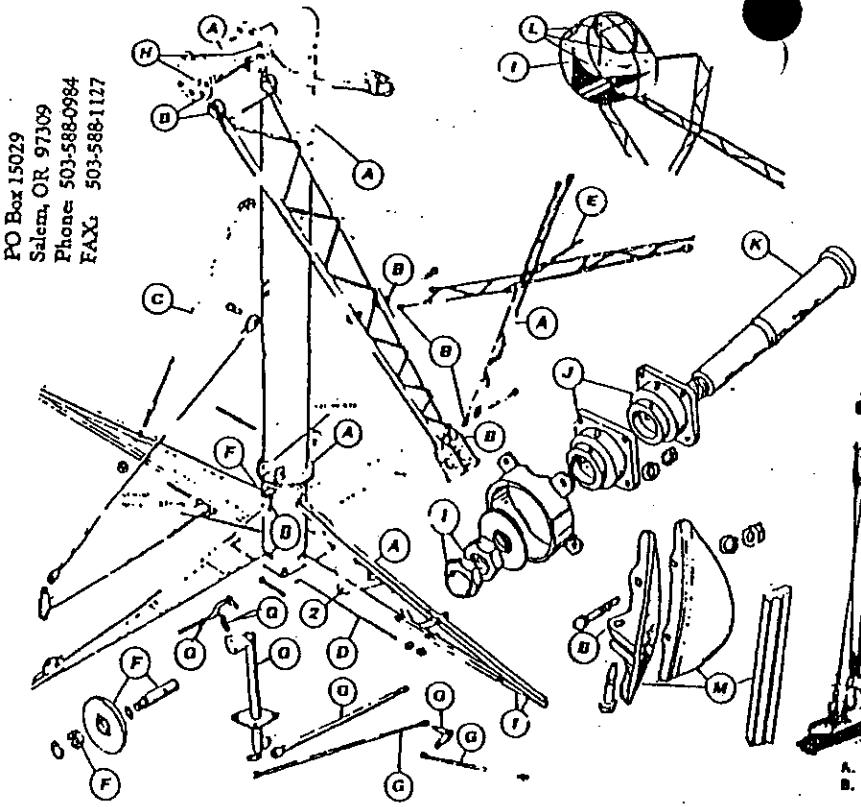
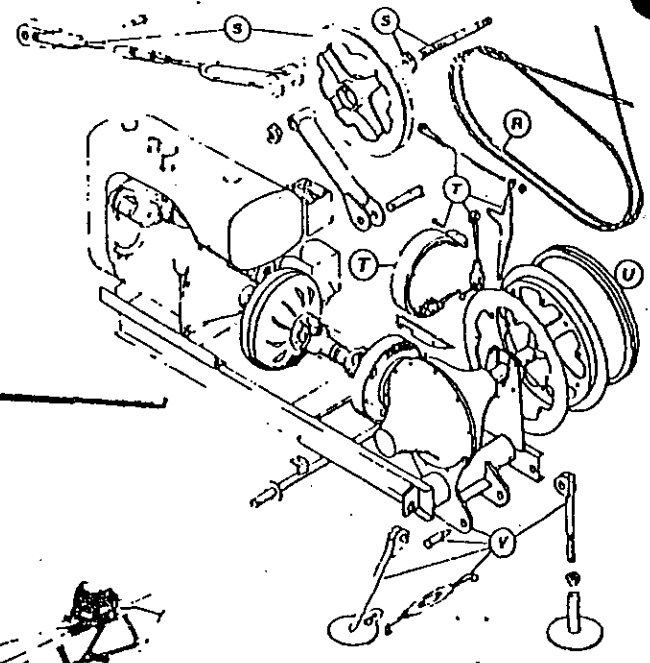
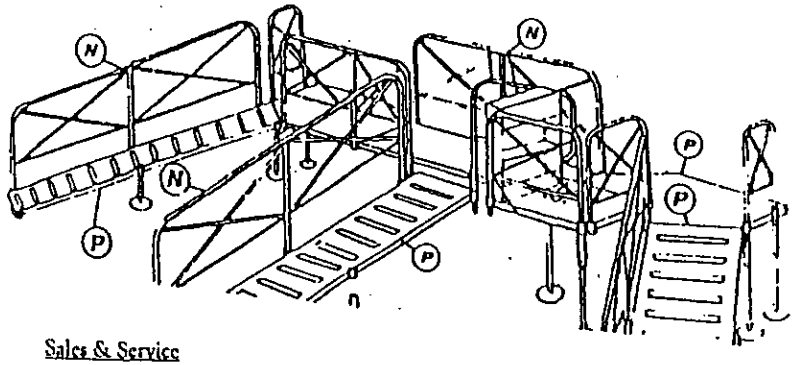
FAX: 503-588-1127







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C. Check sway brace rods for straightness, condition of threads and head Replace if necessary

D. Inspect tie rods for damaged ends and threads Replace if necessary, rods are to be evenly tightened

E. Check condition of cross brace pins for enlargement, wear, missing retainers, etc

F. Inspect condition of column idler tube, shaft and sheave—check for bearing play Repair as needed

G. Inspect control stand and linkage, ratchet condition, and lug on control handle, wear in bushings, linkage attaching holes enlarged, worn pins and bolts, bent linkage

H. Check main hub for worn or defective bearing. Hub has ball bearings on both ends Any play indicates worn or defective bearing—should be removed and inspected yearly Recommended replacement as maximum five (5) operating seasons

I. Inspect cars for broken or worn tubes, broken screen, bent automatic return bar, lost or broken springs, enlarged attaching holes, worn bolts, safety key wearing end of bar which safeties door, and worn or damaged door safety key Inspect car hub for proper spindle position. Spindle should not be flush with inner hub face Inspect brake drum and brake band for condition. Note: Inner nut is spacer always install with taper toward spindle, lock nut must be tight

J. Check for bearings turning in housing, condition and lock collars for tightness.

K. Check spindle for condition

L. Inspect condition of door latch and hinges Remove play and align as necessary.

M. Inspect condition of cable ears and packing

N. Check fence for condition—repair broken members as needed.

P. Check platform for structural condition Repair as needed Check wood for deterioration and replace as necessary Inspect cleats and repair or replace as needed

R. Inspect drive cable for alignment, corrosion, broken strands, oil If lubricated, remove with approved solvent (lubricate with pine tar)

S. Inspect condition of drive idler wheel and bearings Check cable tension unit for proper operation

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General Information:

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Ride center must be floated at all times, evenly distribute weight on outer end of mudsill at area indicated by I Quarter blocking located at 2 should be longer light and check often to prevent weight from transferring to quarter blocks due to settling of outer blocks Note: Blocking should be 2 x 6 or better

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Operation

The Rock-O-Plane has been carefully designed and built with the safety of passenger and operator in mind. It will provide thrilling entertainment for your patrons if properly maintained and operated. Passengers must not be allowed to misbehave.

Vigilance on the part of the operator can prevent accidents. The operator must watch the ride at all times and refuse rides to any person that in his opinion might be in danger or does not meet the height or weight standards.

To load cars make sure that you set the parking brake each time you load a car and release it when you move the ride.

1. Set car brake.
2. Remove belt bar door restraint key.
3. Depress spring-loaded doorknob.
4. Open door—belt bar will raise automatically. Maximum passenger weight per seat is 340 lbs.
5. Firmly close door engaging spring-loaded latch.
   NOTE: While the door is being closed, visually check the belt tension. The belt should be taught over the passenger's lap when the door is closed.
6. Insert the door restraint key in the belt bar.
7. Rotate ride, and load remaining cars as above.
   NOTE: Care should be taken to balance passenger weight when loading the ride.

You may run the Rock-O-Plane with one car loaded (Sample #1) or two or three cars or more—Sample (#1-#5-#6) (#1-#5-#6-#2) (#1-#5-#6-#2-#3) (#1-#5-#6-#2-#3-#7) (#1-#5-#6-#2-#3-#7-#8) (#1-#5-#6-#2-#3-#7-#8-#4). Once all cars are loaded, you can load all cars in a row.

When all cars have been loaded, release the ride brake and start ride by turning it slowly.

1. Check car brakes to make sure that none are locked.
2. Check all door restraint keys to be sure they are inserted right.
3. Operator must stay at the controls and maintain visual on the ride all the time the ride is running. The ride should run 1-½ to 2 minutes.

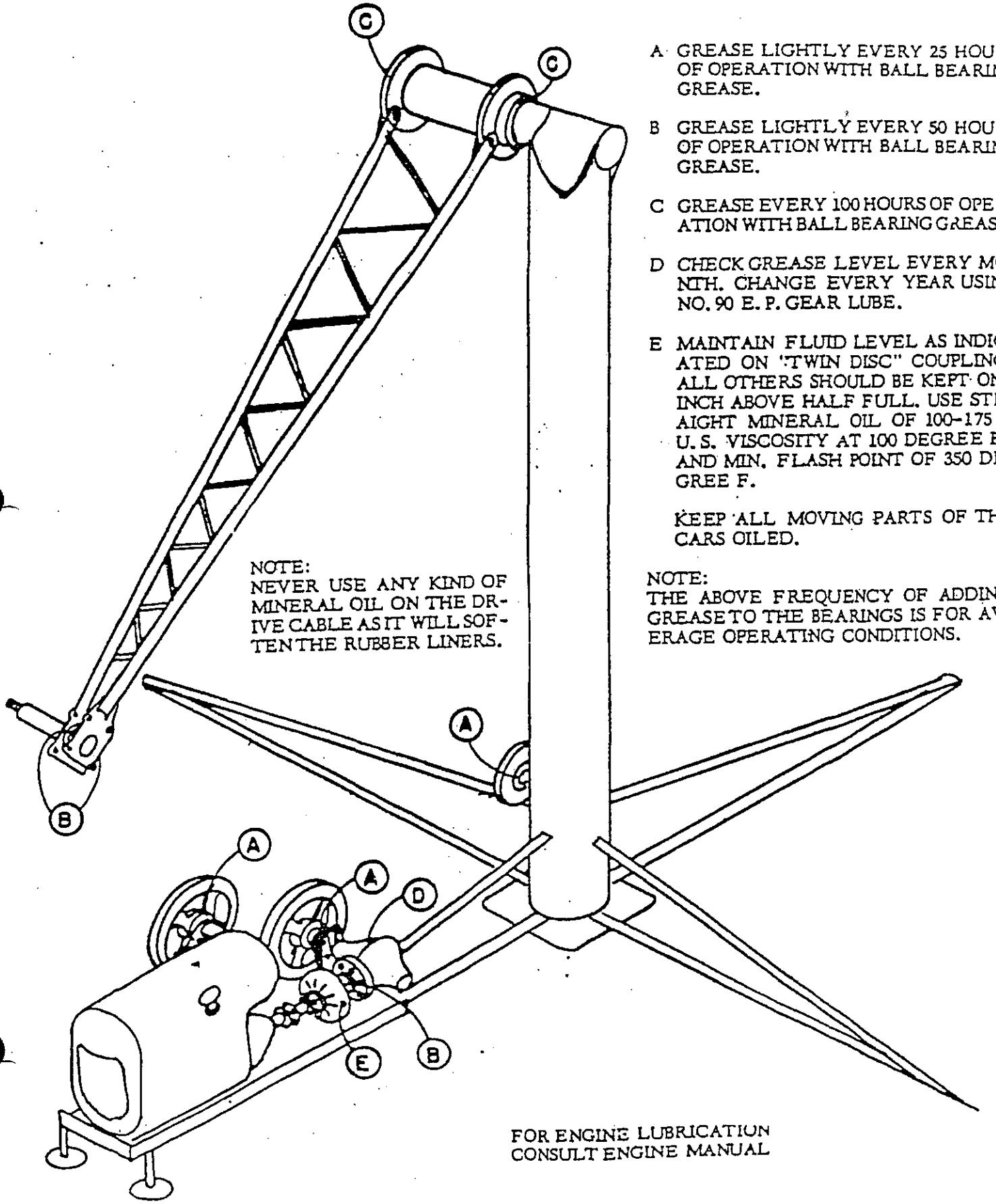
Drugs or Alcohol

It is obvious that an operator who is under the influence of drugs or alcohol is a serious hazard to his passenger and under no circumstances should be permitted to operate a ride.

One person can run the ride on a slow grind, or one operator and two loaders for maximum capacity operation.

(Rock Operation.doc)

LUBRICATION INSTRUCTIONS



A GREASE LIGHTLY EVERY 25 HOURS OF OPERATION WITH BALL BEARING GREASE.

B GREASE LIGHTLY EVERY 50 HOURS OF OPERATION WITH BALL BEARING GREASE.

C GREASE EVERY 100 HOURS OF OPERATION WITH BALL BEARING GREASE

D CHECK GREASE LEVEL EVERY MONTH. CHANGE EVERY YEAR USING NO. 90 E. P. GEAR LUBE.

E MAINTAIN FLUID LEVEL AS INDICATED ON "TWIN DISC" COUPLING. ALL OTHERS SHOULD BE KEPT ONE INCH ABOVE HALF FULL. USE STRAIGHT MINERAL OIL OF 100-175 S U. S. VISCOSITY AT 100 DEGREE F. AND MIN. FLASH POINT OF 350 DEGREE F.

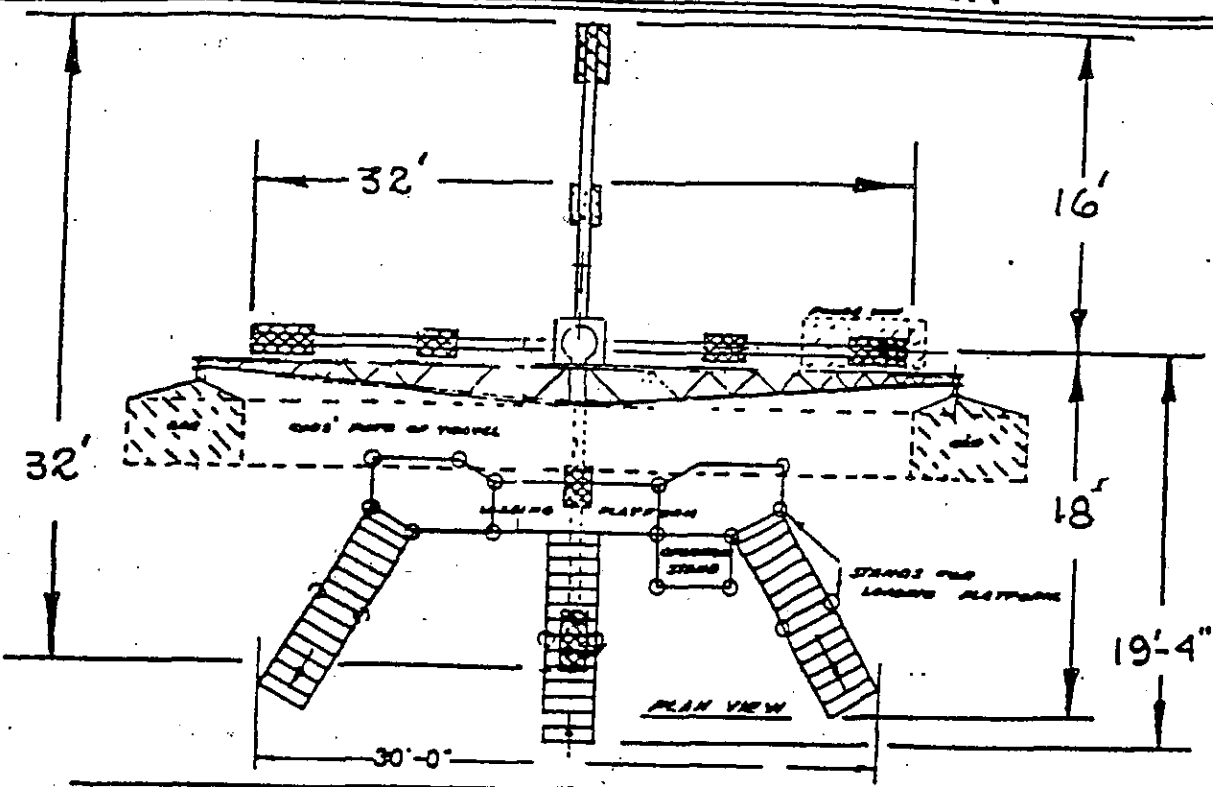
KEEP ALL MOVING PARTS OF THE CARS OILED.

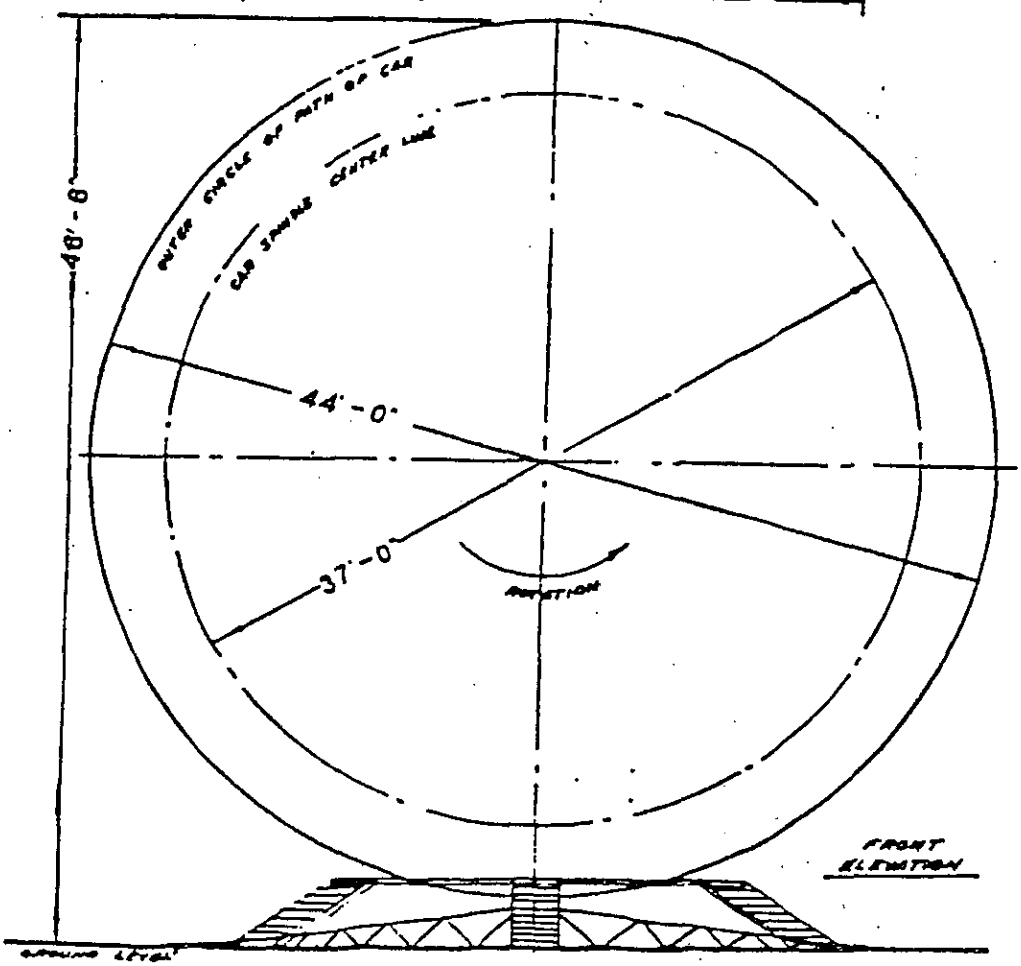
NOTE:
NEVER USE ANY KIND OF MINERAL OIL ON THE DRIVE CABLE AS IT WILL SOFTEN THE RUBBER LINERS.

NOTE:
THE ABOVE FREQUENCY OF ADDING GREASE TO THE BEARINGS IS FOR AVERAGE OPERATING CONDITIONS.

FOR ENGINE LUBRICATION
CONSULT ENGINE MANUAL

ROCK-O-PLANE GROUND PLAN

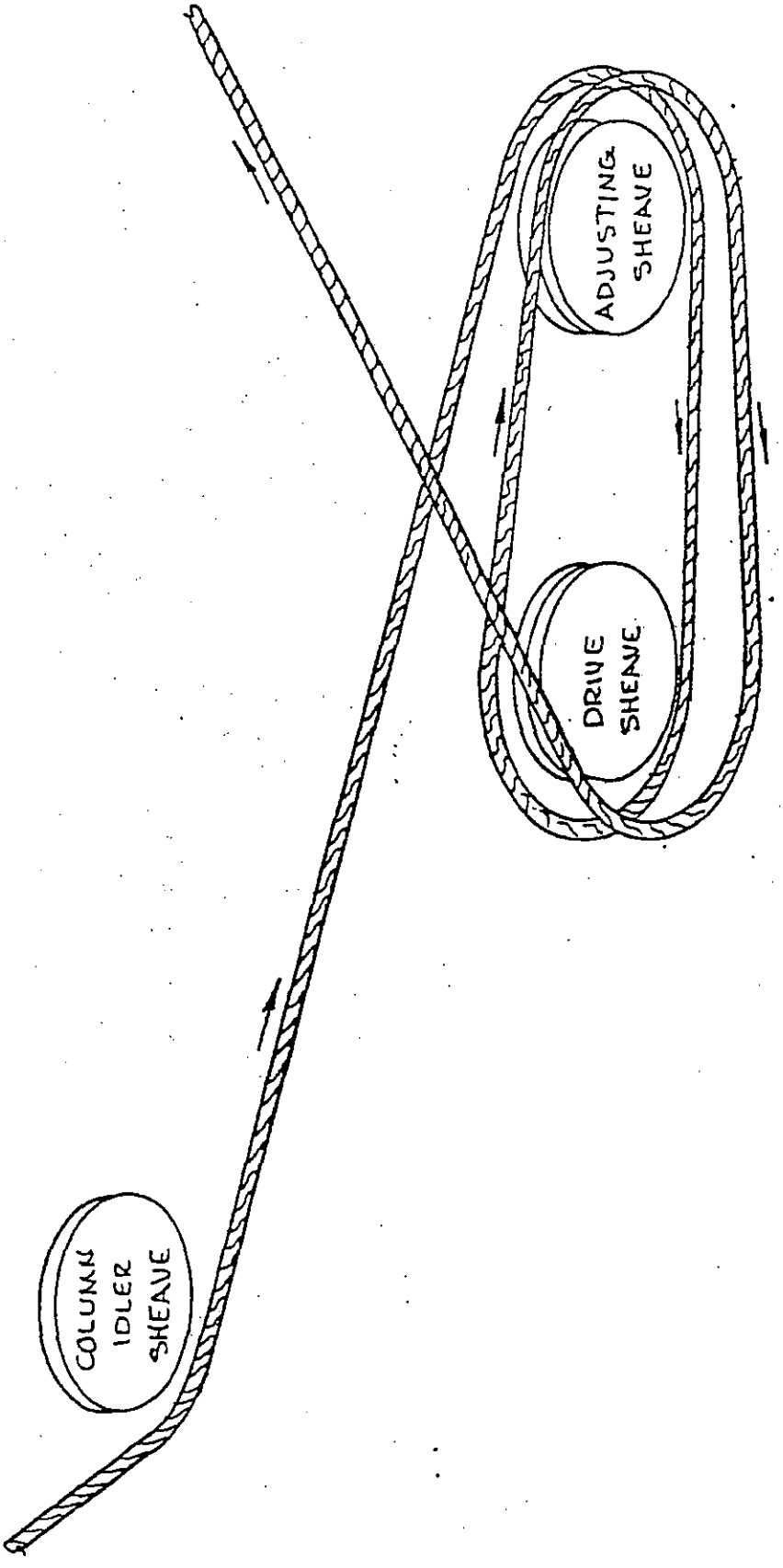




ROCK-O-PLANE SET-UP DIMENSIONS

Eyerly Aircraft Co.

SALEM, OREGON

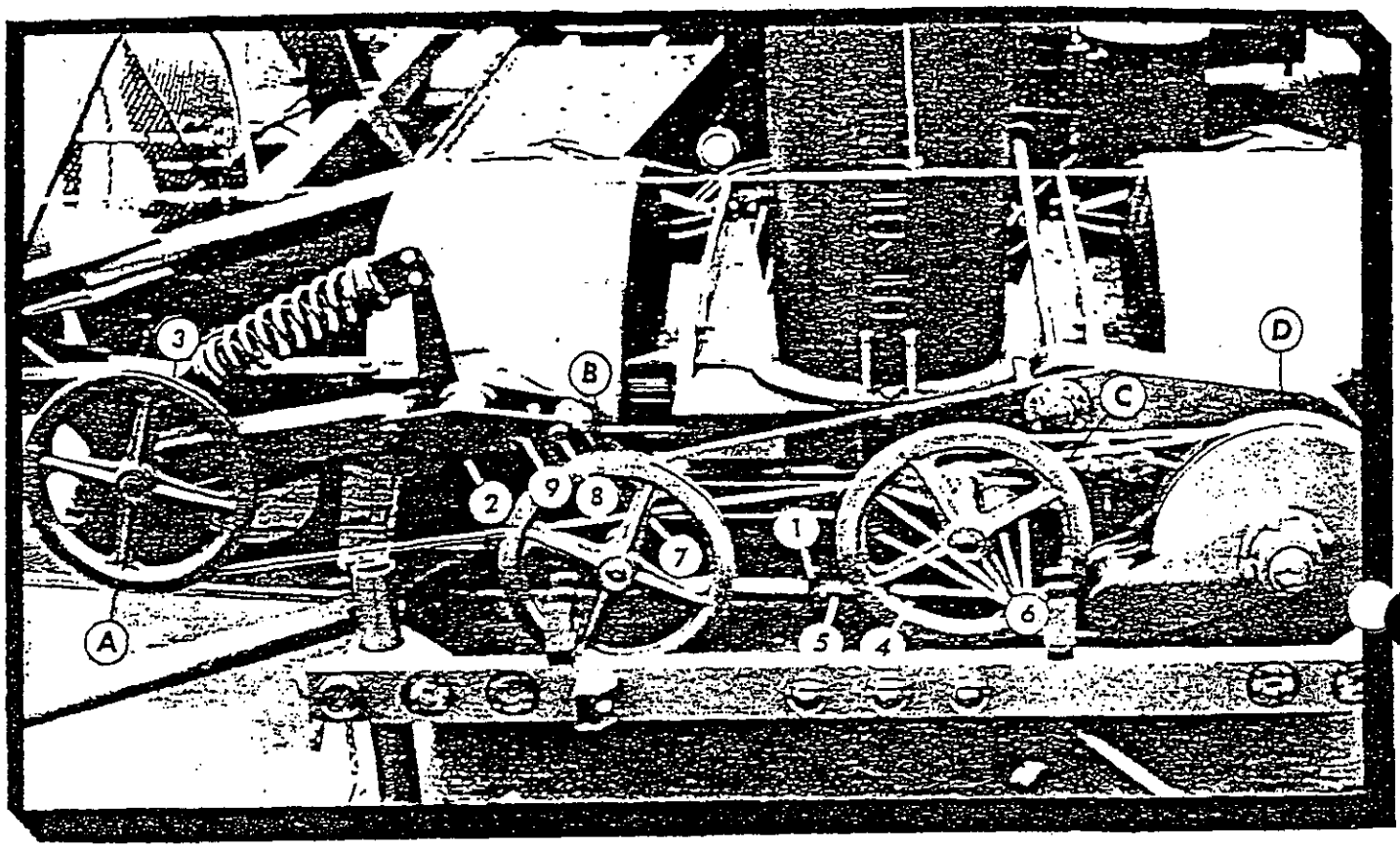


AGRAM OF DRIVE CABLE WRAP

DRAWN BY:	SCALE:	NO. REQ'D.:	MATERIAL:
MEA	NONE	—	—
DATE: 1-25-77	NEXT ASSY.:	SDS. NO.:	
		SDD. BY NO.:	

Drg. No. W-5-77

INSTRUCTIONS FOR ADJUSTING PORTABLE ROCK-O-PLANE CABLE



1. Before adjusting Cable make sure Sheaves A & B are parallel to Sheave D. Sheave C is offset 1" from top to bottom to allow the Cable to change grooves in Sheave D.

2. To adjust Cable tension always begin with adjustments in their closest position to the Drive Sheave D. The illustration shows all adjustments in this position.

3. Correct Cable tension is achieved by turning the Adjusting Screw (1) until points (2) & (3) do not make contact with Stops, without load, when running.

4. When point (2) makes contact and there is no more adjustment in the Adjusting Screw (1), turn Adjusting Screw in until it stops, then remove Bolt (4) and slide Inner Tube (5) out to the next Hole. There is one more hole to provide further adjustment. Adjust Cable as outlined in No. 3.

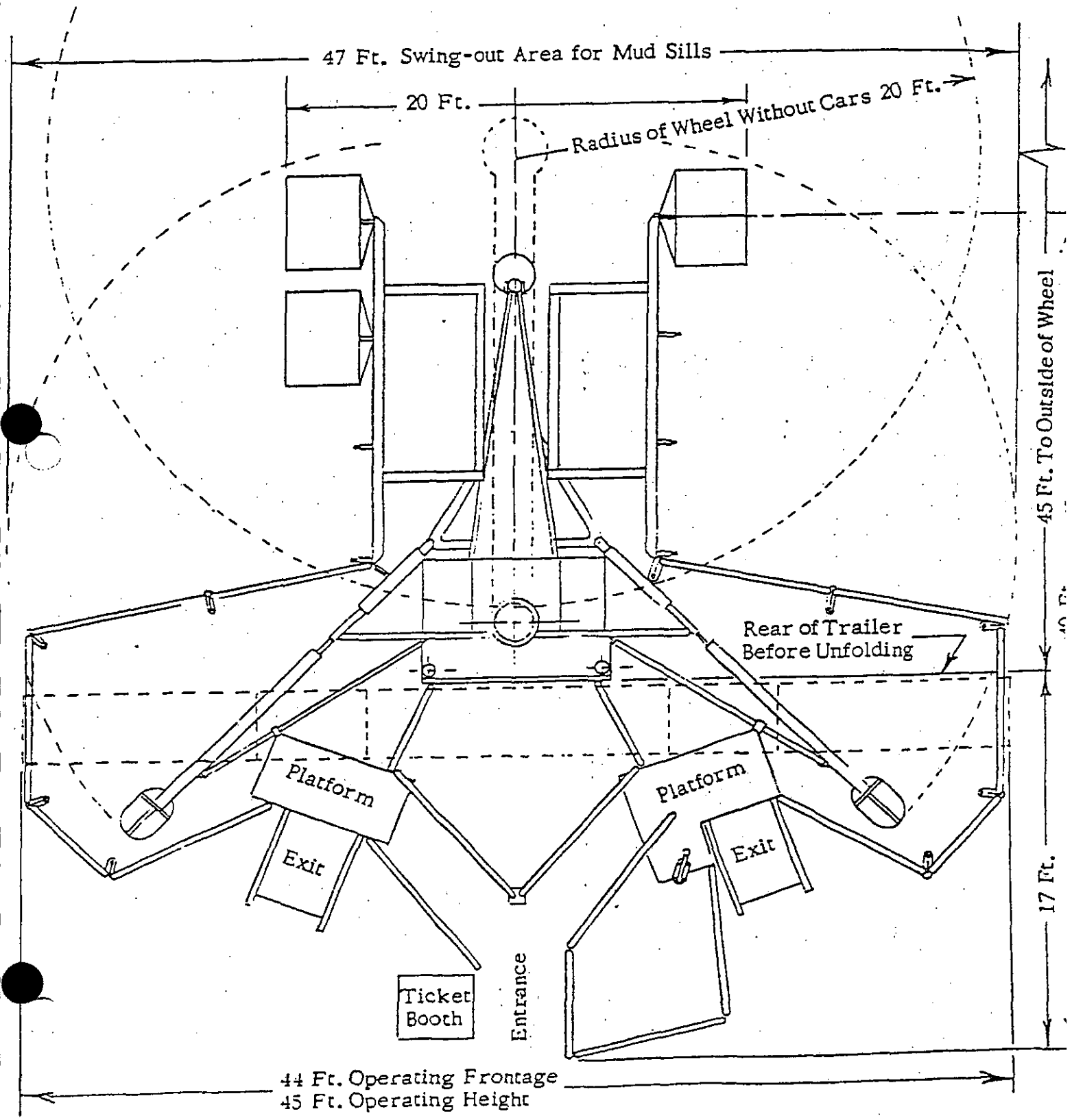
5. Should cable slack become more than Adjusting Screw Assembly can remove, place Adjusting Screw (1) and Inner Tube (5) back to their original position. Then loosen Bolts (6) and slide Shieve (C) to the left by tightening Nut (7). Secure Bolts (6) and adjust Cable as outlined in No. 3. Another set of holes are also provided in this adjustment and can be used when necessary. Above procedures provide proper Cable tensioning under normal conditions.

6. A third adjustment can be made under extreme conditions. All previous adjustments should be returned to their original positions. Remove Bolt (8) and install at (9) then follow procedures as outlined in No. 3 through No. 5.

NOTE: INSTALLATION OF A NEW CABLE REQUIRES THAT ALL SLACK ADJUSTMENTS BE RESTORED TO THEIR ORIGINAL POSITION. THE NEW CABLE SHOULD BE WIPED FREE OF OIL WITH A RAG AND IF POSSIBLE, ALLOWED A BREAK-IN PERIOD OF 1 TO 2 HOURS OF UNLOADED OPERATION. DURING THIS PERIOD GRADUALLY RE-ADJUST THE TENSION AS OUTLINED IN STEPS 3, 4 & 5 TO COMPENSATE FOR STRETCHING OF THE CABLE. SPARE CABLES SHOULD BE PRE-STRETCHED, AS OUTLINED ABOVE, BEFORE BEING PLACED IN SERVICE.

EVERLY AIRCRAFT CO. SALEM, ORE.

PORTABLE ROCK-O-PLANE SPACE REQUIREMENTS & FENCE SET-UP



LUBRICATION INSTRUCTIONS

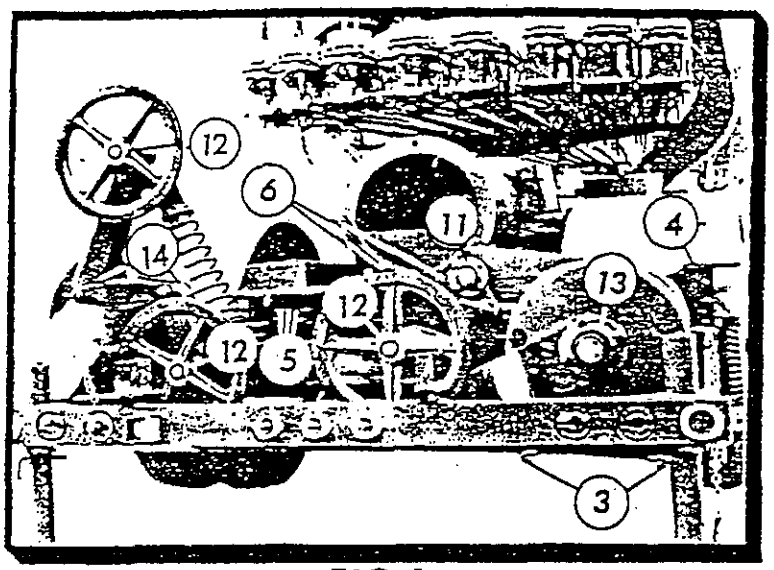


FIG.1

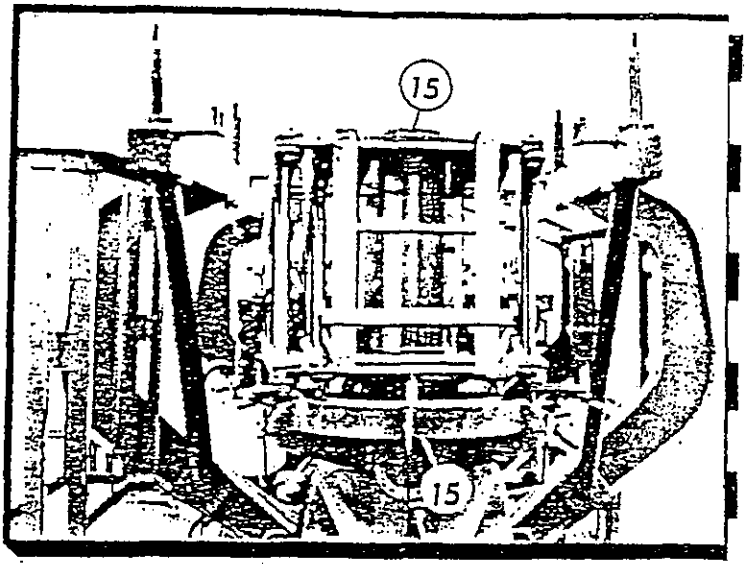


FIG.2

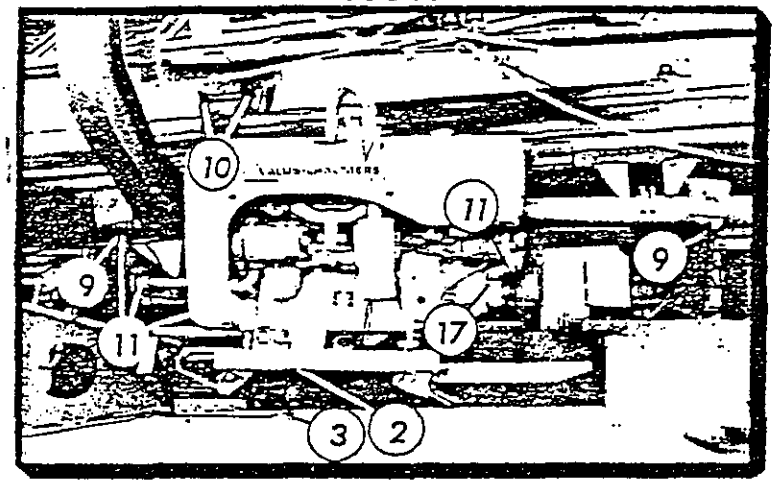


FIG.3

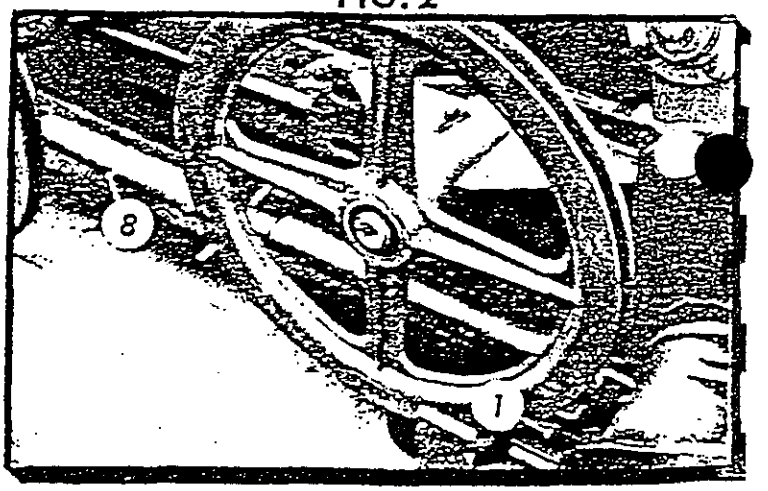


FIG.4

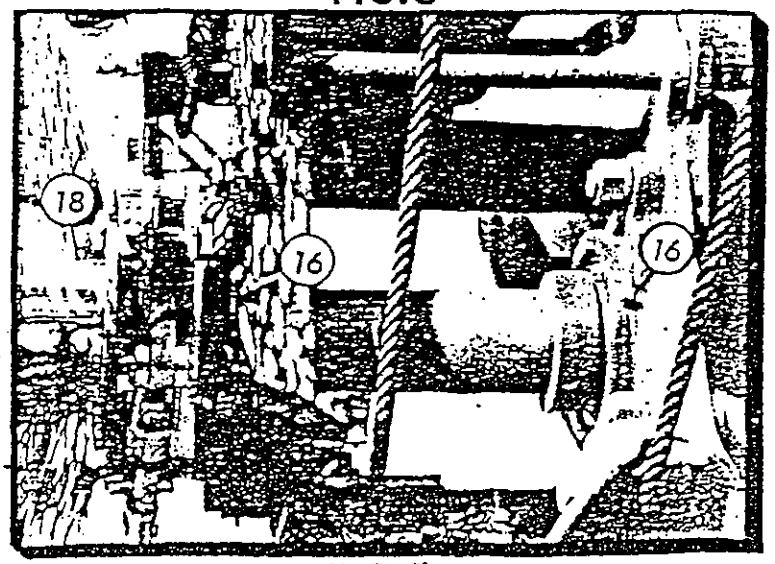


FIG.5

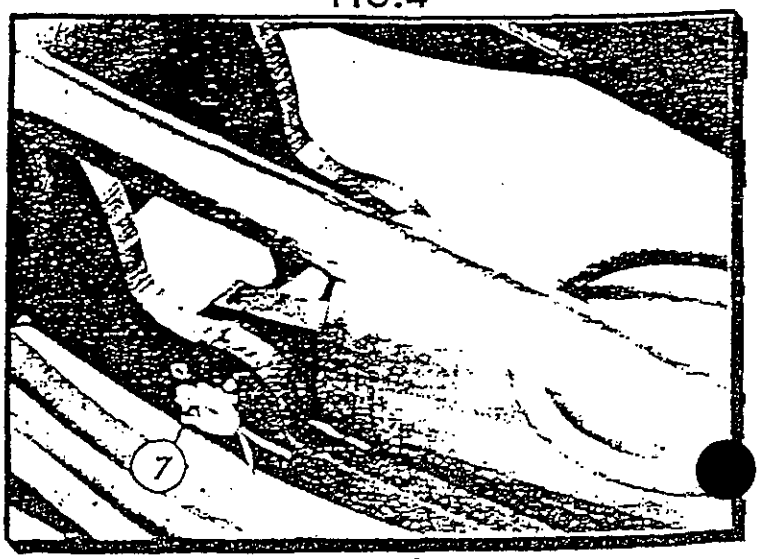


FIG.6

LUBRICATION INSTRUCTIONS

REF NO.	NAME OF PART	FIG.	TYPE OF BEARING	WHEN TO GREASE
1	CLUTCH BRAKE LEVER	4	BRONZE	A
2	CLUTCH LEVER	3	BRONZE	A
3	ROD ENDS	1 & 3	MONO BALL	C
4	OUTER HYD. CONTROL BEARINGS	1	BRONZE	C
5	INNER HYD. CONTROL BEARINGS	1	BRONZE	B
6	COLUMN HINGE PINS	1	HARD CHROME	B
7	LONG CYLINDER PIN	6	HARD CHROME	B
8	CABLE TENSION ADJUSTMENT	4	BRONZE	B
9	CAR BUNKER SUPPORTS	3	STEEL	B
10	SWEEP SUPPORT BEARING	3	BRONZE	B
11	COUNTERSHAFT BEARINGS	1 & 3	ANTI-FRICTION	D
12	IDLER SHEAVE BEARINGS	1	ANTI-FRICTION	D
13	DRIVE SHEAVE BEARINGS	1	ANTI-FRICTION	D
14	IDLER ARM BEARINGS	1	ANTI-FRICTION	D
15	WHEEL HUB BEARINGS	2	ANTI-FRICTION	B
16	CAR SPINDLE BEARINGS	5	ANTI-FRICTION	D
17	ENGINE CLUTCH SHAFT BEARING	3	ANTI-FRICTION	D
18	BRAKE CONTROL BEARING	5	STEEL	E

USE A MULTI-PURPOSE WATER RESISTANT GREASE WITH AN ACCEPTED EXTREME PRESURE ADDATIVE.

(A) DAILY OR EVERY EIGHT HOURS DURING HEAVY OPERATIONS.
(B) EVERY SET-UP
(C) APPLY LIGHT OIL EVERY SET-UP
(D) EVERY THREE MONTHS *
(E) OIL DAILY

KEEP LIGHT RINGS FREE OF ALL GREASE & FOREIGN MATERIALS.

KEEP ALL MOVING PARTS OF CAR & CONTROL STAND LUBRICATED.

* NOTE: THE ABOVE FREQUENCY OF GREASING THE BEARINGS IS FOR AVERAGE OPERATING CONDITIONS WITH SEALS INTACT.

SEE ALLIS-CHALMERS OPERATION & MAINTENANCE MANUAL FOR SERVICE OF G-138 ENGINE.

PORTABLE ROCK-O-PLANE

INSTRUCTIONS FOR MAINTAINING THE HYDRAULIC SYSTEM

1. CHECK FLUID SUPPLY LEVEL.
   A. EACH TIME THE RIDE IS SET UP.
   B. BRING UP TO CORRECT LEVEL APPROXIMATELY 3" TO 4" FROM TOP OF TANK WITH CYLINDERS RETRACTED WITH A TURBINE TYPE OIL WITH OXIDATION, CORROSION AND FOAM INHIBITORS.

2. CHECK FOR EXTERNAL LEAKS.
   A. KEEP SURVEILLANCE CHECK.

3. CHANGE HYDRAULIC FLUID.
   A. IF COLOR CHANGES (DRAIN TANK).
   B. ONCE A YEAR DRAIN SYSTEM.

4. FILTER
   A. CHANGE OR CLEAN EACH SEASON.
   B. IF PRESENCE OF WATER OR EMULSIFICATION OF OIL IS NOTED COMPLETELY DRAIN AND FLUSH SYSTEM.

5. TO MINIMIZE MOISTURE ACCUMULATION BE CERTAIN OIL RESERVOIR AND CYLINDER ARE FULL DURING PERIODS OF EXTENDED STORAGE.

6. DRAINING SYSTEM
   A. RETRACT ALL CYLINDERS.
   B. DRAIN OIL RESERVOIR.
   C. REPLACE FILTER.
   D. FILL OIL RESERVOIR WITH PROPER OIL (SEE 1-B).
   E. REMOVE THE HYDRAULIC LINE FROM THE HEAD END OF THE COLUMN LIFT CYLINDER.
   F. EXTEND THE LIFT CYLINDER AND DISCARD THE OIL RETURNING FROM THE HEAD END.
   G. RE-CONNECT THE HYDRAULIC LINE TO THE HEAD END OF THE CYLINDER.
   H. RETRACT THE LIFT CYLINDER AND CYCLE SEVERAL TIMES TO ELIMINATE AIR IN THE SYSTEM.
   I. CHECK RESERVOIR TO MAINTAIN ADEQUATE OIL.
   J. USE THE SAME PROCEDURE FOR RIGHT HAND AND LEFT HAND MUD SILL CYLINDERS AND THE FRONT LEG CYLINDER.
   K. IF THE SYSTEM IS TO BE FLUSHED OPERATE ALL CYLINDERS FOR 15 TO 20 MINUTES THEN REPEAT STEPS A TO J.

Operation

The Rock-O-Plane has been carefully designed and built with the safety of passenger and operator in mind. It will provide thrilling entertainment for your patrons if properly maintained and operated. Passengers must not be allowed to misbehave.

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To load cars make sure that you set the parking brake each time you load a car and release it when you move the ride.

1. Set car brake.
2. Remove belt bar door restraint key.
3. Depress spring-loaded doorknob.
4. Open door—belt bar will raise automatically. Maximum passenger weight per seat is 340 lbs.
5. Firmly close door engaging spring-loaded latch.
   NOTE: While the door is being closed, visually check the belt tension. The belt should be taught over the passenger's lap when the door is closed.
6. Insert the door restraint key in the belt bar.
7. Rotate ride, and load remaining cars as above.
   NOTE: Care should be taken to balance passenger weight when loading the ride.

You may run the Rock-O-Plane with one car loaded (Sample #1) or two or three cars or more—Sample (#1-#5-#6) (#1-#5-#6-#2) (#1-#5-#6-#2-#3) (#1-#5-#6-#2-#3-#7) (#1-#5-#6-#2-#3-#7-#8) (#1-#5-#6-#2-#3-#7-#8-#4). Once all cars are loaded, you can load all cars in a row.

When all cars have been loaded, release the ride brake and start ride by turning it slowly.

1. Check car brakes to make sure that none are locked.
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ORI

OREGON RIDES INC.

MEMBER

ROCK-O-PLANE CHECKLIST

(Device) Name _____ Serial # _____

Inspection Date _____ Inspected By _____

Please refer to the proper factory Parts Catalog and Operating Instruction Manual for detailed explanation of Inspection and Maintenance procedures. (Additional copies are available from us) In addition to your routine inspection and maintenance, the following items should be checked:

DESCRIPTION	WHAT TO CHECK	OK/ /BY	DATE	NOTES AND REMARKS
1. Mudsills 2. Sweeps 3. Column	Check for cracks or structural damage			Notify O.R.I. if damage or cracks are discovered.
4. Car Hubs	Looseness on spindle when lock nuts are set.			If spindle turns in car hun when lock nuts are tight, install car hub kit # W-423. Replace tapered inner nut and washer if worn or damaged.
5. Car Spindle	Visually check for wear or damage			If spindle is worn or has been welded on, replacement is ABSOLUTELY NECESSARY.
6. Car Brake	Drum wear, worn bolts, enlarged bolt holes.			Any looseness requires drum bolt or drum replacement.
7. Door Latch & Hinge	Correct alignment			Align and remove play (See operating and parts manual)
8. Mudsill Tie Rods	Bent or cracking at the head, damaged threads.			Replace if any of these conditions exist.
9. All pins & Safeties	pins should fit snug. safeties should be tight			Replace if loose or damaged with factory pins ONLY.
Cars	Broken or worn tubes, loose or cracked screen			Notify O.R.I. for repair procedures on tubing. Repair or replace screen.

P.O. BOX 13483, SALEM, OR 97309

OFFICE: (503) 760-1511 ; PARTS & SHOP: (503) 588-0984 ; FAX; (503)588-112

DESCRIPTION	WHAT TO CHECK	OK/ /BY	DATE	NOTES AND REMARKS
11. Automatic Belt Bar Assembly	Condition of all fasteners, lost or broken springs belt bar door key hole for wear. (Max. from out - side of hole to end of bar, 3/8") Worn or damaged door keys, missing door key straps, restraint belt condition.			Replace worn belts. Enlarged key holes should be weld-filled ar redrilled. Install new fastene keys and straps as required.
12. Car Brake Lever and Ratchet	Visually and mechanically check for wear & positive locking.			If brake lever fails to hold positively, replace worn components with new factory parts.
13. Car Brake Band	Check lining for wear & holding ability. Check cam & rollers for excessive wear, Worn bolts & en- larged holes.			If holding ability is not adequate check all components, replace as necessary.
14. Drive Cable	Check for broken strands and kinks.			Replace cable if any of these conditions exist. Always keep a spare cable on hand.
15. Drive Wheel Liner	Check for wear or, deterioration			Replace liner if excessive wear or deterioration exists. Always keep a spare liner on hand.
16. Cable Shoe Liners	Check for wear or deterioration.			If cable runs to one side, replace rubber liners & check for proper cable alignment.
17. Sweeps & Cross Braces	Check that pins are snug & holes are not worn over- size.			If any looseness is found, pin holes should be reamed & factory oversized pins installed.
18. Seats & Floorboards	Check for loose bolts, broken or cracked seats, general condition			If any of these conditions exist, repair or replace as necessary.
19. Electrical Components	Worn or bad cords or plugs, light & brush assemblies.			If any worn or unsafe condit exist, repair or replace with correct type & size wire or cable. Replace brushes or light rings if worn excessively.

DESCRIPTION	WHAT TO CHECK	OK/ /BY	DATE	NOTES AND REMARKS
20. Column Cable Idler	Alignment, looseness, worn parts.			Repair or replace as necessary.
21. Fluid Clutch	Looseness & leakage.			Tighten all bolts/nuts. Replace seals as required.
22. Universal Joints	Alignment & worn parts.			Repair or replace as needed.
23. Brake Drum & Band	Excessive wear, and lining condition.			Repair or replace as needed.
24. Rear end Pinion	Oil leakage and looseness.			Replace seal. Tighten pinion bearing, locknuts.
25. Control Stand	Condition of ratchet & ratchet lug.			If handle will no longer lock in place, grind lug or replace with new handle. Ratchet quadrant cannot be ground, Replace.
26. Platform & Ramps	Damage or excessive wear.			Repair or replace as necessary.

ADDITIONALLY FOR PORTABLE MODEL

27. Cross Braces & Scissor Links	Damage or excess wear, loose pins, & enlarged holes			Oversize or replace as necessary
28. Safety Cable Transport Cable Springs	Over-all safe condition. Excessive stretch.			If unsafe condition or excessive stretch exists. Replace.
29. All over - center attaching locks	Wear & proper adjustment.			Replace excessively worn parts. Adjust for positive locking.
30. Cross cables	Improper adjustment, worn parts,			Adjust or replace for proper tension.
31. Fifth wheel attachment to column	Cracks or structural damage			If these conditions exist, notify O.R.I.
32. Idler arm attaching points	Looseness or damaged parts.			Repair or replace if any free play or damage exists.

		/BY		NOTES AND REMARKS
33. Drive cable adjust assy	Interior missing parts, excessive wear, broken internal spring.			Repair or replace as necessary.
34. Drive Wheel Belts	Hardness, cracks, deterioration or missing.			Replace if any of these conditions exist.
35. Countershaft & Bearings	Alignment, loose bearings, general condition.			Repair or replace as necessary
36. Control Stand Brake Controls	Over-center locking cable, for wear or improper operation.			Repair or replace as necessary.
37. Drive Wheel Brake and Related Linkage	Excessive drum wear, lining, unsound linkages.			Repair or replace with factory parts. Replace worn bolts.

NOTE;
When ordering parts please g serial number of your machine along with part numbers from the Parts Catalog and Operating Instruction Manual.

INSTRUCTIONS FOR INSTALLING ENDLESS DRIVE CABLES

In order to get maximum service from an endless drive cable, certain precautions must be taken.

1. Lay cable in a circle, being careful that no kinking or bending takes place. Make sure that the area is clean and dry.

2. When placing over drive sheaves, the loop should be formed in a counter-clockwise manner in order to tighten the lay of the rope.

3. Check all sweeps or cable grippers to see that they are lined up and that no metal is coming into contact with the rope.

4. Apply only enough tension to turn ride with all seats empty and run slowly for 15 minutes.

5. Build up to normal speed and check for any vibration or whipping of cable. If there is any, adjust until cable runs smoothly.

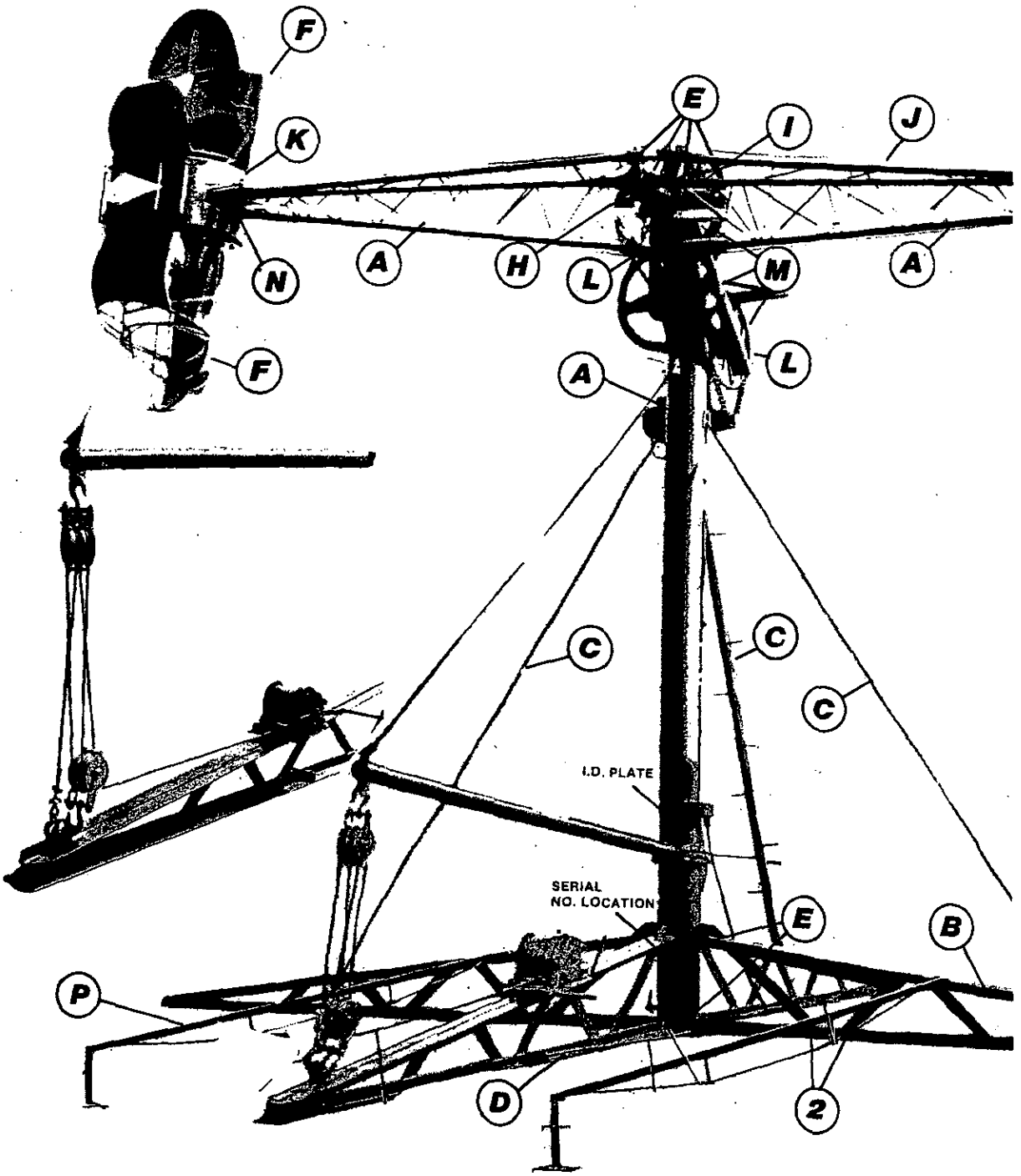
6. After ride is shut down, release tension for the night since the cooling of the ride will put excessive tension on the cable.

7. If you use pine tar for traction, use very sparingly (only a couple of tablespoons at a time) so that the rope is tacky. Do not fill in the spaces between the strands.

8. When tearing down, recoil carefully and store in a tire casing to prevent kinks.

ROLL-O-PLANE

INSPECTION CHECK LIST



SALES & SERVICE
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(800) 547-9156
Eyerly Inc.
P.O. Box 12155
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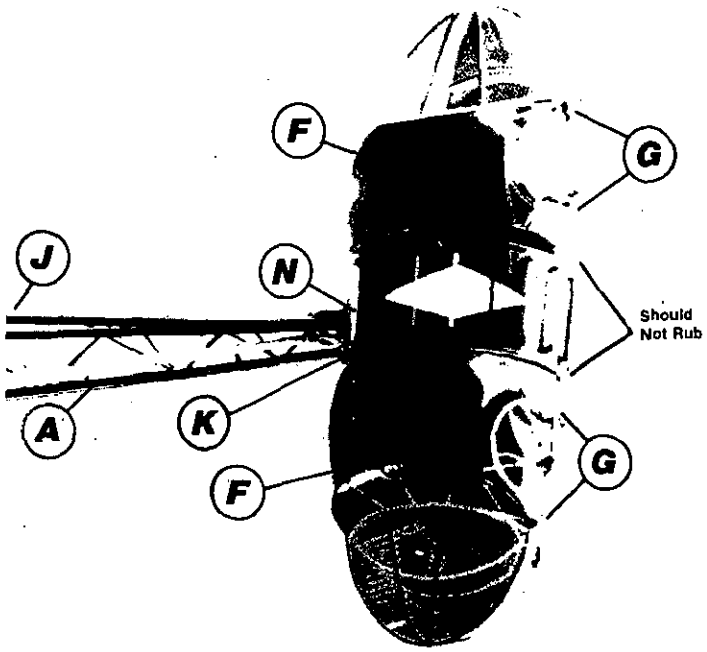
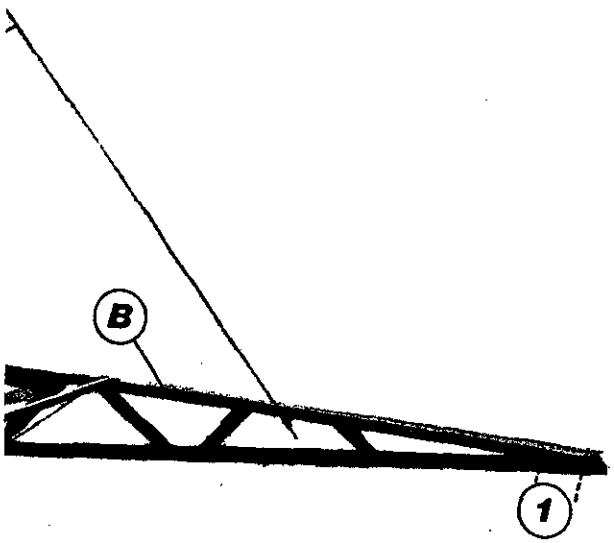




A. Inspect column and booms for cracks and structural damage.

B. Inspect mudsills for cracks, oversize pin holes, structural damage.

C. Inspect brace rods. Should be straight and evenly tightened. Rear brace—check for straightness and hole wear.

D. Inspect tie rods for condition; should be evenly tightened.

E. Inspect mudsill pin holes, sweep pin holes for enlargement. Repair to maximum ⅛ over 1". Do not use hair pins for safeties in mudsill pin as they rotate and push pin out. Replace damaged pins only with original factory replacement pins, inspect for proper safeties.

F. Inspect cars for broken or worn tubes, broken screen, bent automatic door return bar—lost or broken springs, enlarged attaching holes, safety key wearing end of bar which safeties door, and worn or damaged door safety key. Inspect car hub for proper spindle position. Spindle should not be flush with inner hub face. Check condition of key way in spindle and hub. Note: Inner nut is special and always installed with taper toward spindle. Lock nut must be tight.

G. Inspect condition of door latch and hinges. Remove play and align as necessary.

H. Inspect condition of bushing and crank arm, if loose or bushing worn, replace and repair as necessary. This is the spindle hub retainer—do not operate when loose or removed.

I. Inner bushing, outer bearing. Check for ¾" play at car represents over .040" wear in hub bushing—if pins are tight in booms.

J. Safety cables should be tight and in good shape. Check for corrosion and damage. (See bulletin RR-2)

K. Car revolving cable should be inspected for slippage in sheave and clamps, as well as condition and adjust as per instructions. Looseness here can cause crank arm to loosen.

L. Check connecting rod for reinforcement. See Bulletin RR-11-65 Revised 67. Check bolts and condition of bearing—if movement indicated, check for cause and repair.

M. Chains should be tight and condition of sprocket teeth checked for excessive wear.

N. Check bearing lock collars for tightness, for bearing turning in housing, and proper shaft location.

P. Check platform braces and wood platforms for condition. Repair as necessary.

General Information:

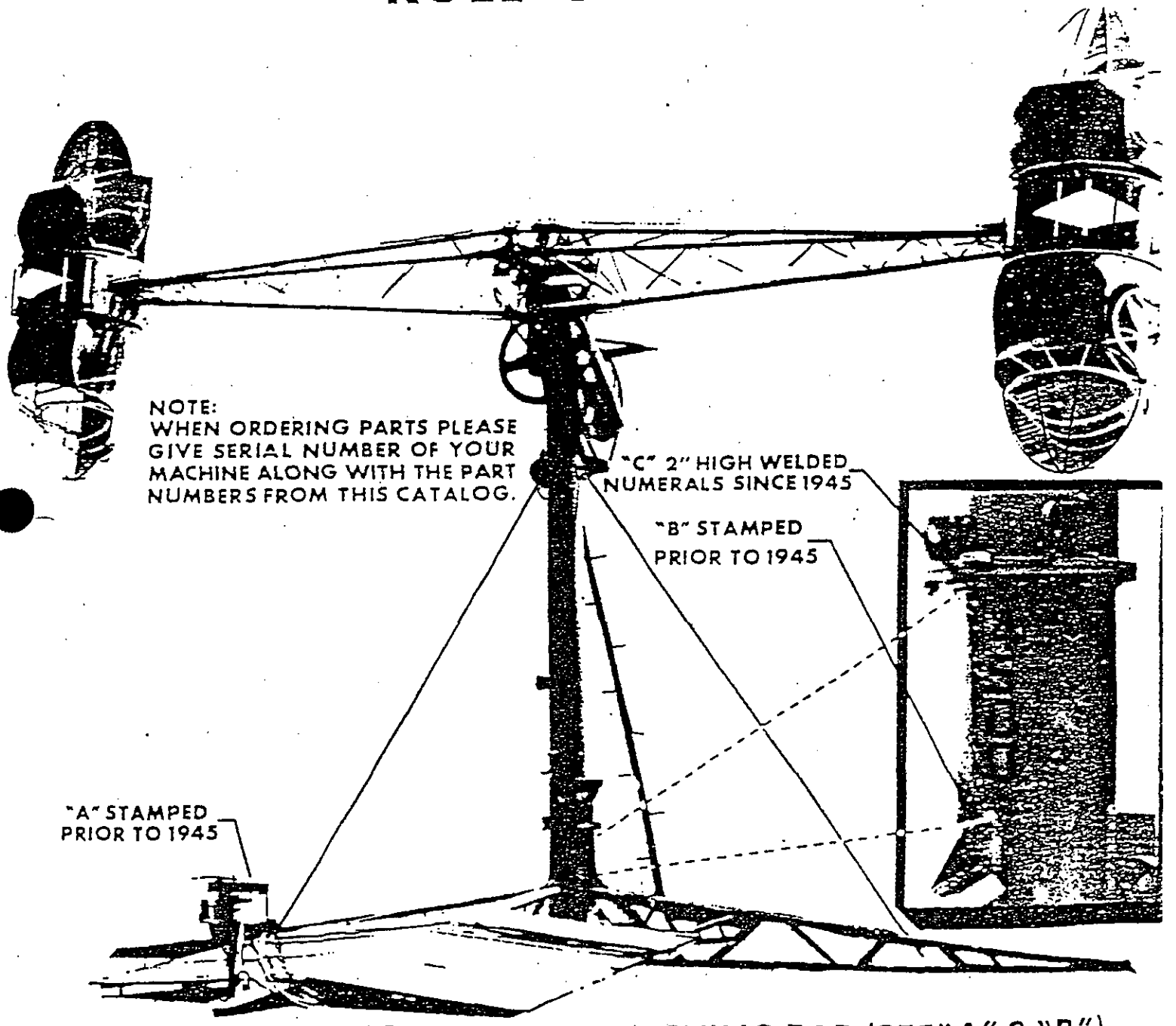
Maximum passenger weight per car 340 lbs. Maximum RPM is 12.

Blocking:

Ride center must be floated at all times, evenly distribute weight on outer end of mudsill at area indicated by 1. Quarter blocking located at 2 should be finger tight and checked often to prevent weight from transferring to quarter blocks due to settling of outer block. **Note:** Blocking should be 2 x 6 or better.

NOVEMBER 1977 PRINTED IN U.S.A.

LOCATION OF SERIAL NUMBERS ON ROLL-O-PLANE

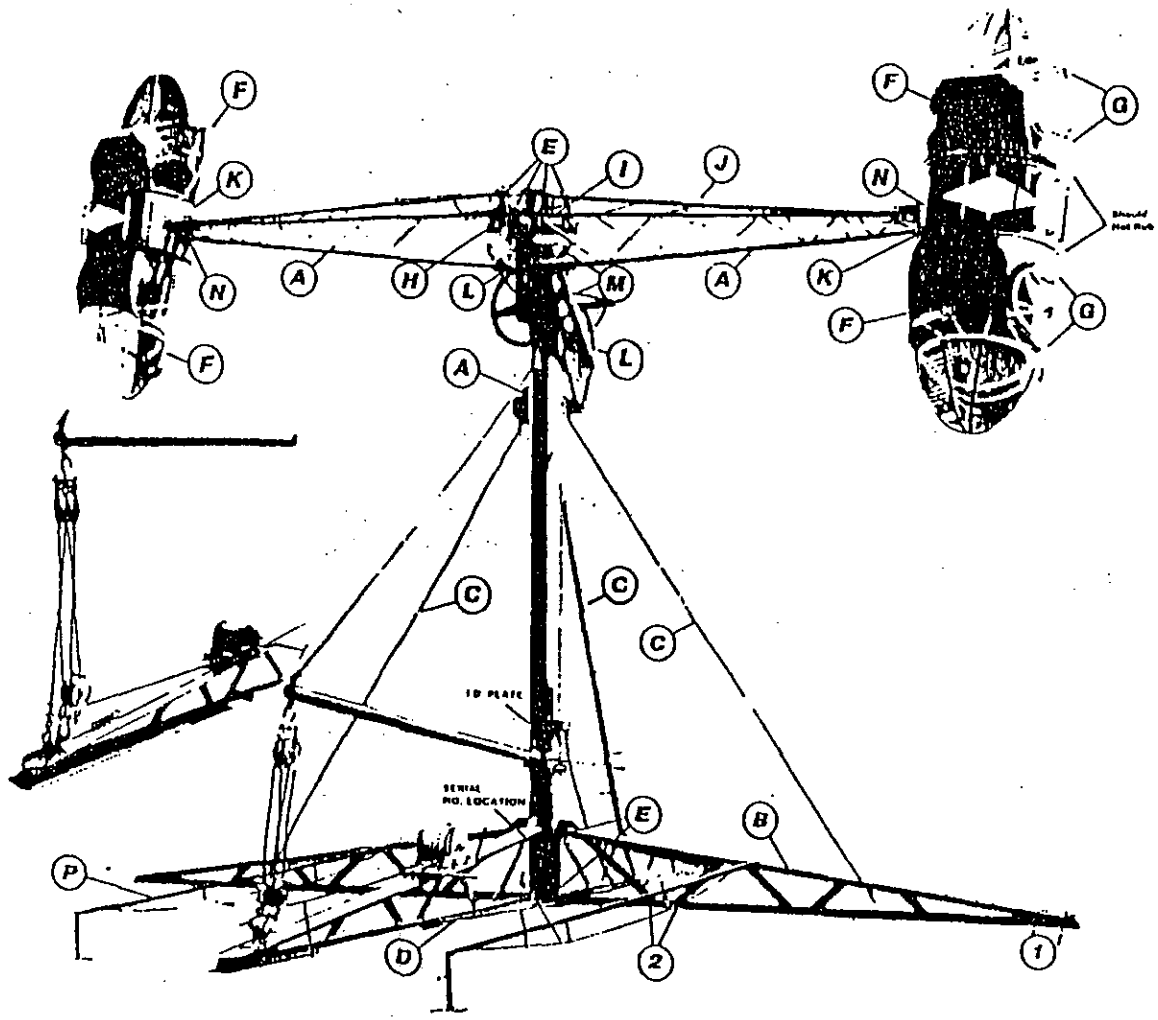


MACHINES BUILT PRIOR TO 1945 HAVE SERIAL NUMBERS 4000 TO 4114. THE SERIAL NUMBER IS STAMPED ON THE TOP SURFACE OF THE CONTROL STAND & ON THE TOP UPPER FRONT MUD SILL ATTACHING EAR (SEE "A" & "B")

MACHINES BUILT DURING AND AFTER 1945 HAVE SERIAL NUMBERS 4500-UP. THE SERIAL NUMBER IS WELDED ON THE COLUMN (SEE "C")

ROLL-O-PLANE

INSPECTION CHECK LIST



A. Inspect column and booms for cracks and structural damage.

B. Inspect mudsills for cracks, oversize pin holes, structural damage.

C. Inspect brace rods. Should be straight and evenly tightened. Rear brace—check for straightness and hole wear.

D. Inspect tie rods for condition; should be evenly tightened.

E. Inspect mudsill pin holes, sweep pin holes for enlargement. Repair to maximum ⅛ over 1". Do not use hair pins for safeties in mudsill pin as they rotate and push pin out. Replace damaged pins only with original factory replacement pins. Inspect for proper safeties.

F. Inspect cars for broken or worn tubes, broken screen, bent automatic door return bar—lost or broken springs, enlarged attaching holes, safety key wearing end of bar which safeties door, and worn or damaged door safety key. Inspect car hub for proper spindle position. Spindle should not be flush with inner hub face. Check condition of key way in spindle and hub. Note: Inner nut is special and always installed with taper toward spindle. Lock nut must be tight.

G. Inspect condition of door latch and hinges. Remove play and align as necessary.

H. *Inspect condition of bushing and crank arm.* If loose or bushing worn, replace and repair as necessary. This is the spindle hub retainer—do not operate when loose or removed.

I. Inner bushing, outer bearing. Check for ⅛" play at car represents over .040" wear in hub bushing—if pins are tight in booms.

J. Safety cables should be tight and in good shape. Check for corrosion and damage. (See bulletin RR-2)

K. Car revolving cable should be inspected for slippage in sheave and clamps, as well as condition and adjust as per instructions. Looseness here can cause crank arm to loosen.

L. Check connecting rod for reinforcement. See Bulletin RR-11-05 Revised 87. Check bolts and condition of bearing—if movement indicated, check for cause and repair.

M. Chains should be tight and condition of sprocket teeth checked for excessive wear.

N. Check bearing lock collars for tightness, for bearing turning in housing, and proper shaft location.

P. Check platform braces and wood platforms for condition. Repair as necessary.

General Information:
Maximum passenger weight per car 340 lbs. Maximum RPM is 12.

Blocking:
Axle center must be floated at all times, evenly distribute weight on outer end of mudsill at area indicated by 1. Quarter blocking located at 2 should be finger tight and checked often to prevent weight from transferring to quarter blocks due to settling of outer block. Note: Blocking should be 2 x 6 or better.

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NOVEMBER 1977 PRINTED IN U.S.A.

MAINTENANCE

MOTOR CHAIN & BOOM CHAIN ADJUSTMENTS

For the purpose of clarification, Ref.(A) Fig.3, designates Motor Chain, Ref.(B) Fig.3, Boom Chain and Ref.(D) Fig.3, Tilt Chain.

To properly adjust the Motor and Boom Chains, all pressure should be relieved from the Motor Chain. This may be accomplished by removal of the Shim Washers, Ref.(C) Fig.3, or by removing a link and separating the Chain. The four Bolts, Ref.(A) Fig.1, should then be loosened to allow movement of the Countershaft Housing Flange, Ref.(B) Fig.1 & 2. Adjuster Nut, Ref.(E) Fig.1, is then tightened until approximately 3/4" depression of Chain is obtained by slight thumb pressure midway between the Countershaft and Boom Sprockets. If adjustment slots in the Countershaft Housing Flange are at maximum adjusting point, remove the half link and readjust the Chain. If there is no half link in Chain, remove a full link and install a half link. After proper adjustment of this Chain, tighten the four Bolts, Ref.(A) Fig.1, and safety Adjuster Nut, Ref.(E) Fig.1. The Motor Chain is then adjusted by Shim Washers, Ref.(C) Fig.3, with variations of minimum and maximum adjustments compensated as described above by utilizing half links. Care should be exercised to properly align the Motor Sprocket with the Countershaft Sprocket, with horizontal alignment accomplished by shim washers and vertical alignment by slots provided on Motor Support [illegible]. Brake adjustment, described below, is usually required after Motor Chain adjustment.

TILT CHAIN ADJUSTMENT

To properly adjust the Tilt Chain, Ref.(D) Fig.3, loosen the Gear Unit Bolts, Ref.(C) Fig.1 and Ref.(E) Fig.3. Then loosen Adjusting Screw, Ref.(D) Fig.1. Next, tighten Chain by turning Adjusting Stud, Ref.(F) Fig.3, in until Chain can be depressed about 3/4", midway between the Sprockets, by a slight thumb pressure. Secure in position by tightening Adjusting Screw, Ref.(D) Fig.1, until it bears against the Gear Housing. Secure Gear Unit Bolts, Ref.(C) Fig.1. To loosen Chains, reverse above procedures. The correct alignment of Sprocket, Ref.(J) Fig.3, with Sprocket, Ref.(K) Fig.3, is dependant upon it's proper location on the Gear Unit Shaft.

CAR REVOLVING CABLE ADJUSTMENT

To adjust Car Revolving Cable, Ref.(D) Fig.4, loosen Lock Nuts, Ref.(A) Fig.4, and tighten Adjusting Nuts, Ref.(B) Fig.4, to 75 foot lbs. of torque. The Car Keyway, in the spindle, must point up on a parallel line with the Column. Tighten the Lock Nuts, Ref.(A) Fig.4. Check Cable Clamps for tightness. To replace Cable, rewind as shown in Fig.4.

REVERSING SWITCH ADJUSTMENTS

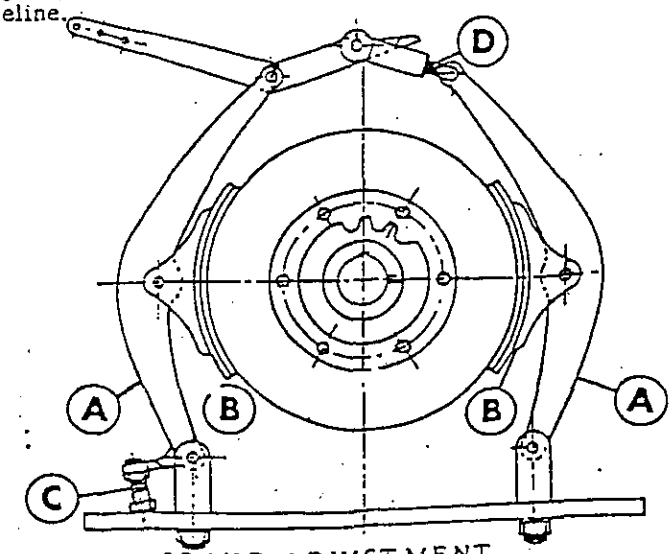
Westinghouse, Model 204113 Refer to Pages 22 & 23

Contact Fingers, Ref.(36), and Drum Contacts, Ref.(25), must engage squarely and simultaneously. This is accomplished by threading Adjuster Screw, Ref.(41), in or out. In order to engage properly in both directions, it may be necessary to slightly change the angle of bend in the Finger Base, Ref.(37). After proper adjustment has been accomplished, maintain adjustment by clinching Plate Washer, Ref.(40), against head of Adjuster Screw, Ref.(41). Keep Contacts clean and lubricate with vaseline.

REVERSING SWITCH ADJUSTMENTS

Westinghouse, Model 657D 893 G22, Refer to Pages 24 & 25

Finger Contacts, Ref.(25), and Drum Contacts, Ref.(17) & (18), must engage squarely and simultaneously. This is accomplished by threading Adjuster Bolt, Ref.(33), in or out. In order to engage properly in both directions, it may be necessary to slightly change the angle of bend in the Contact Fingers, Ref.(24). Keep Contacts clean and lubricate with vaseline.



BRAKE ADJUSTMENT

The Brake Supports, Ref.(A), are adjusted on the Motor Plate so as to center the Brake Shoes, Ref.(B), on the Drum. Adjust Brake Stop, Ref.(C), so that the left Brake Shoe, Ref.(B) will clear the Brake Drum about 1/16". Adjust the other Shoe by threading Brake Adjuster, Ref.(D), in or out for the same clearance.

OPERATION

Make certain operating area is cleared of all obstructions, such as crates on platform, overhead wires, etc. Place hand brake in lock position and make certain that motor reversing switch is in neutral position and tilt motor control switch is in 'off' position Engage line disconnect switch. Coordinate release of brake while engaging reversing switch to eliminate heavy torque starting loads on the driving components. If passenger load is unbalanced, it may be necessary to reverse direction to 'rock' the load over the top. After first time over the top the tilt motor switch may be engaged but caution must be exercised to keep rotation switch engaged during the tilt cycle. Also, the tilt motor switch should not be disengaged unless the tilt assembly is in the near down position. Direction of rotation changes should only be made when tilt assembly is in down position.

Normal operating practices include balancing of passenger loads and an operating period not to exceed two minutes. The tilt up feature does not add materially to the ride sensation but does contribute greatly to the flash and appeal of the ride. Some operators eliminate the tilt action when playing to capacity operation to lessen the operating cycle time but include this feature when 'grind' or slower operational periods indicate.

MAINTENANCE & LUBRICATION

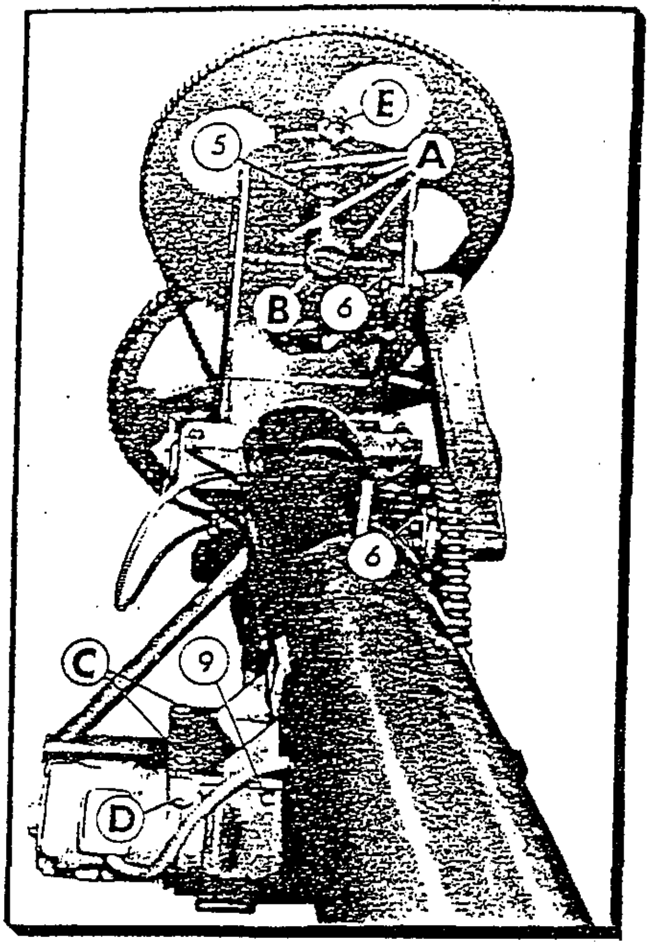


FIG. 1

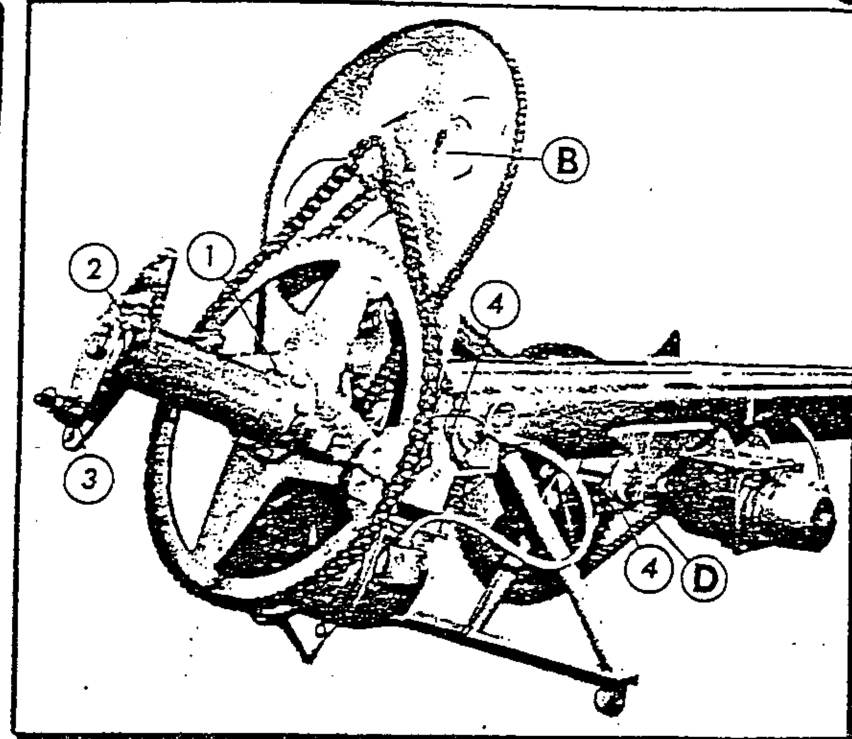


FIG. 2

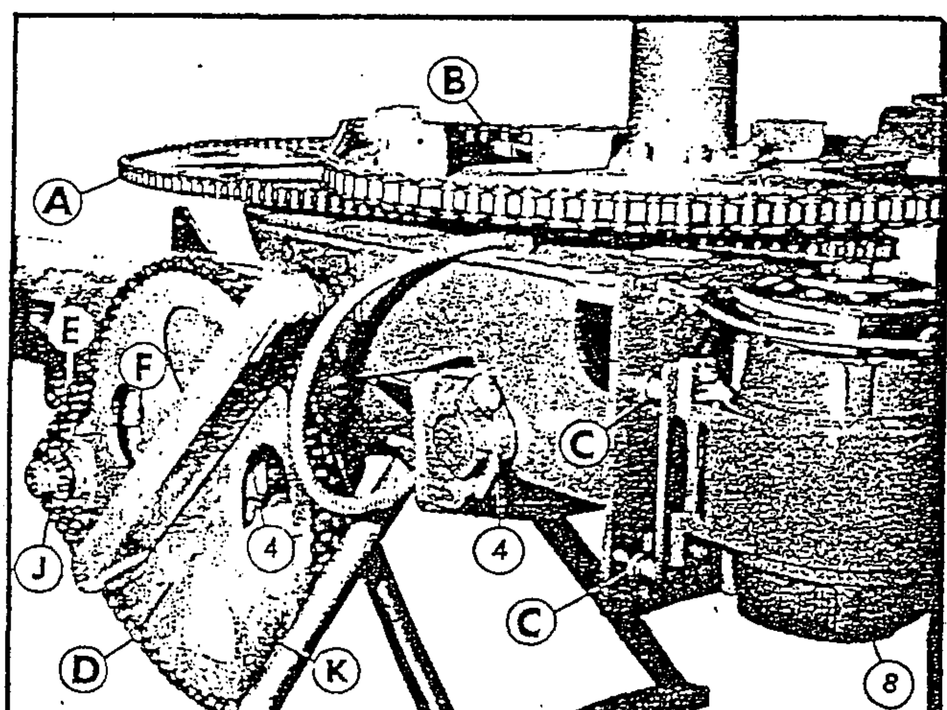


FIG. 3

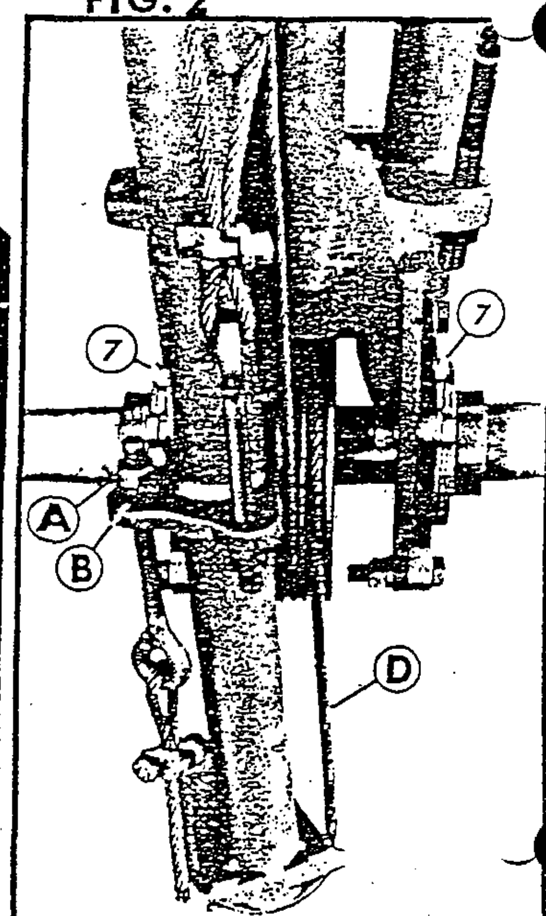


FIG. 4

LUBRICATION INSTRUCTIONS

REFER TO PAGE 6 FIGURES 1, 2, 3 & 4

REF NO.	NAME OF PART	TYPE OF BEARING	WHEN TO GREASE
1	MAIN SPINDLE BUSHING	BRONZE	A
2	RETAINER PLATE THRUST WASHER & HUB OUTER BEARING	BRONZE & ANTI-FRICTION	A
3	CRANK ARM BUSHING	BRONZE	A
4	PILLOW BLOCK BUSHINGS	BRONZE	A
5	COUNTERSHAFT BEARINGS	ANTI-FRICTION	B
6	CONNECTING ROD BEARINGS	ANTI-FRICTION	B
7	CAR SPINDLE BEARINGS	ANTI-FRICTION	C
8	MOTOR BEARINGS	ANTI-FRICTION	E
9	GEAR REDUCTION CASE	ANTI-FRICTION	D

(A) DAILY OR EVERY EIGHT HOURS DURING HEAVY OPERATION.

(B) EVERY TWO WEEKS.

(C) EVERY THREE MONTHS.

(D) CHECK EVERY MONTH. CHANGE EVERY YEAR USING TEXACO REGAL OIL F-R & O.

(E) PURGE AND REPACK ONCE YEARLY

KEEP LIGHT RINGS CLEAN AND LUBRICATE WITH VASELINE DAILY. LUBRICATE CAR REVOLVING CABLE WITH TEXCLAD #2

USE TEXACO REGAL STARFAK NO. 2 OR SIMILAR GREASE IN ALL PRESSURE GUN FITTINGS. KEEP ALL MOVING PARTS OF THE CARS OILED.

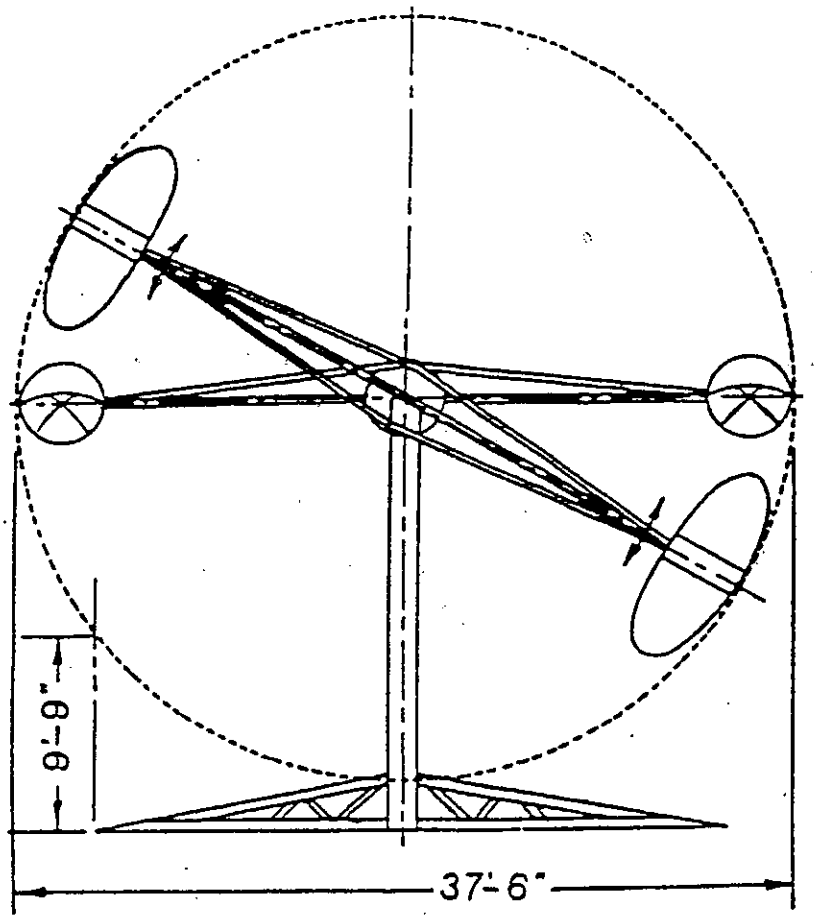
LUBRICATE CHAINS EVERY TWO WEEKS WITH TEXACO CRATER NO. 00 IN COLD WEATHER OR TEXACO CRATER NO. 1 IN HOT WEATHER. BEST RESULTS ARE OBTAINED WHEN LUBRICANT IS HEATED. DIP OR APPLY WITH A BRUSH.

CAUTION: EXCESSIVE LUBRICATION OF SEALED BEARINGS WILL RESULT IN DAMAGED SEALS.

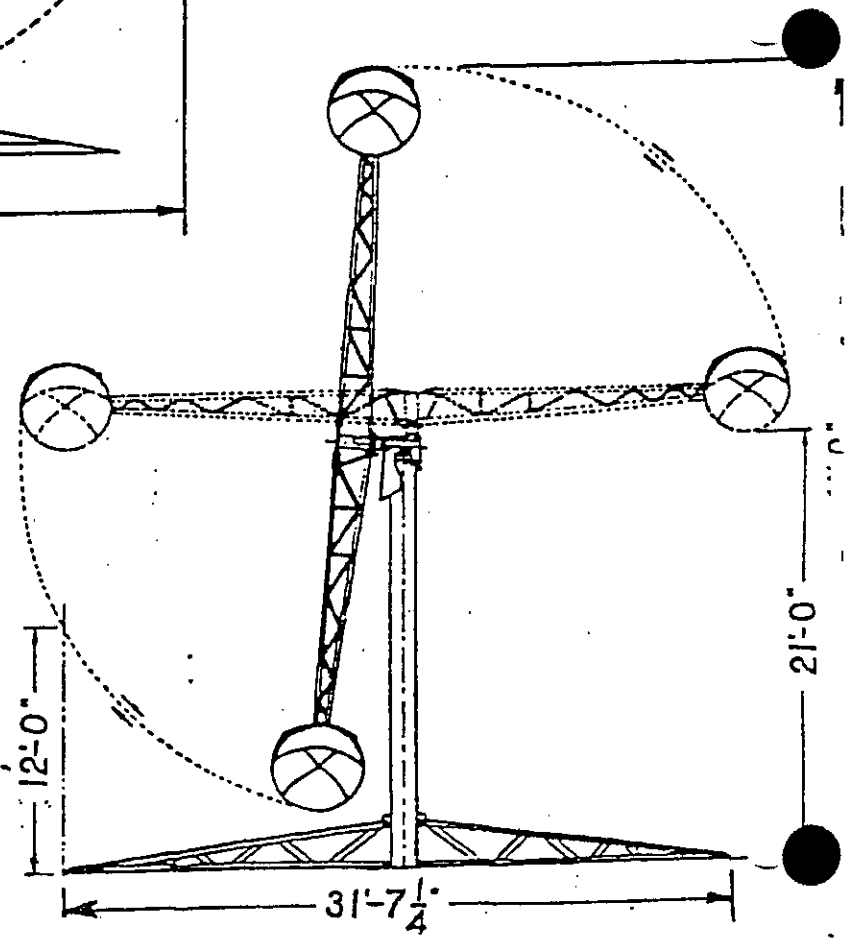
NOTE: THE ABOVE FREQUENCY OF GREASING THE BEARINGS IS FOR AVERAGE OPERATING CONDITIONS WITH SEALS INTACT.

EVERGREEN AIRCRAFT CO. SALEM, ORE.

SPACE REQUIREMENTS



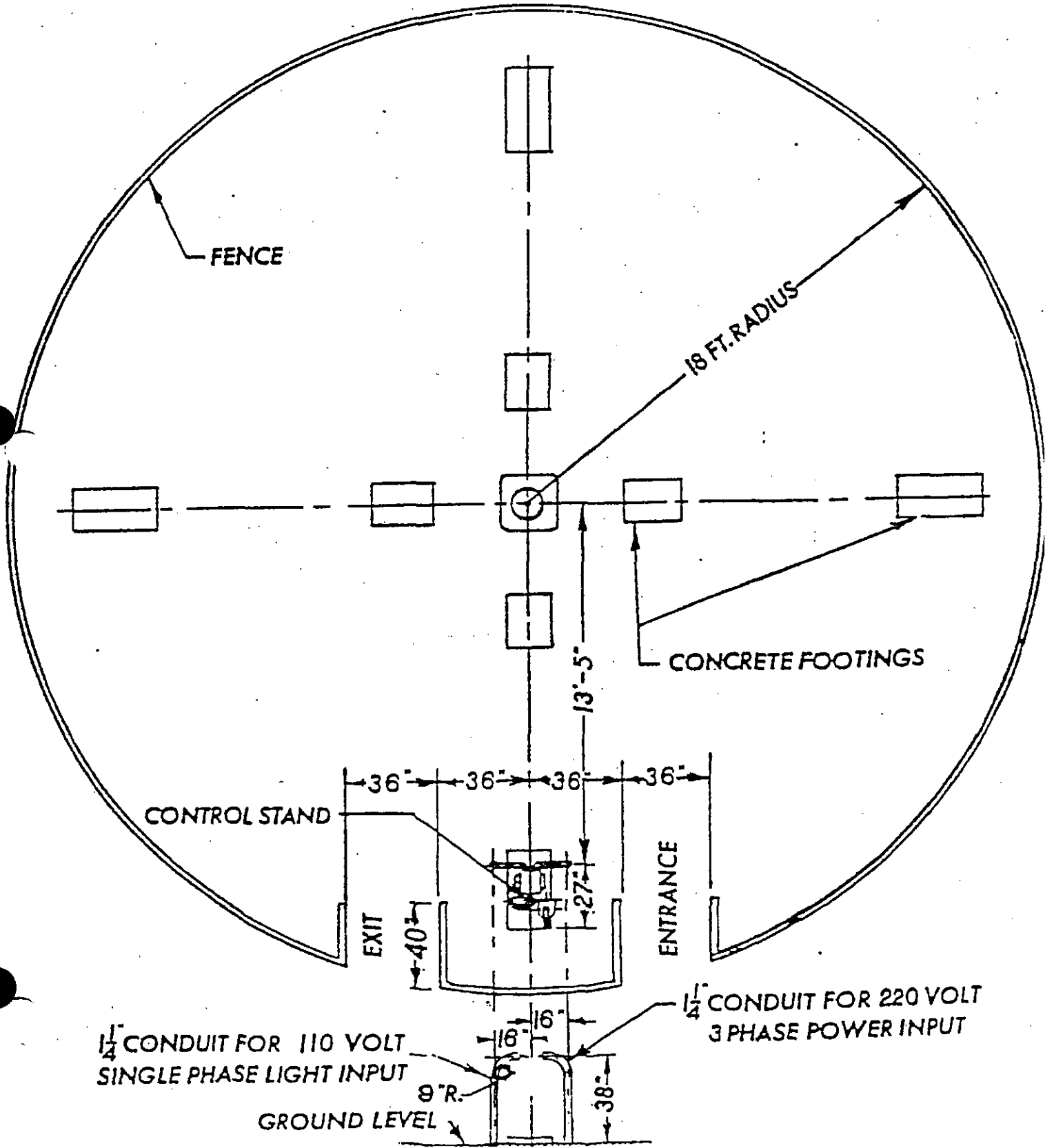
FRONT VIEW

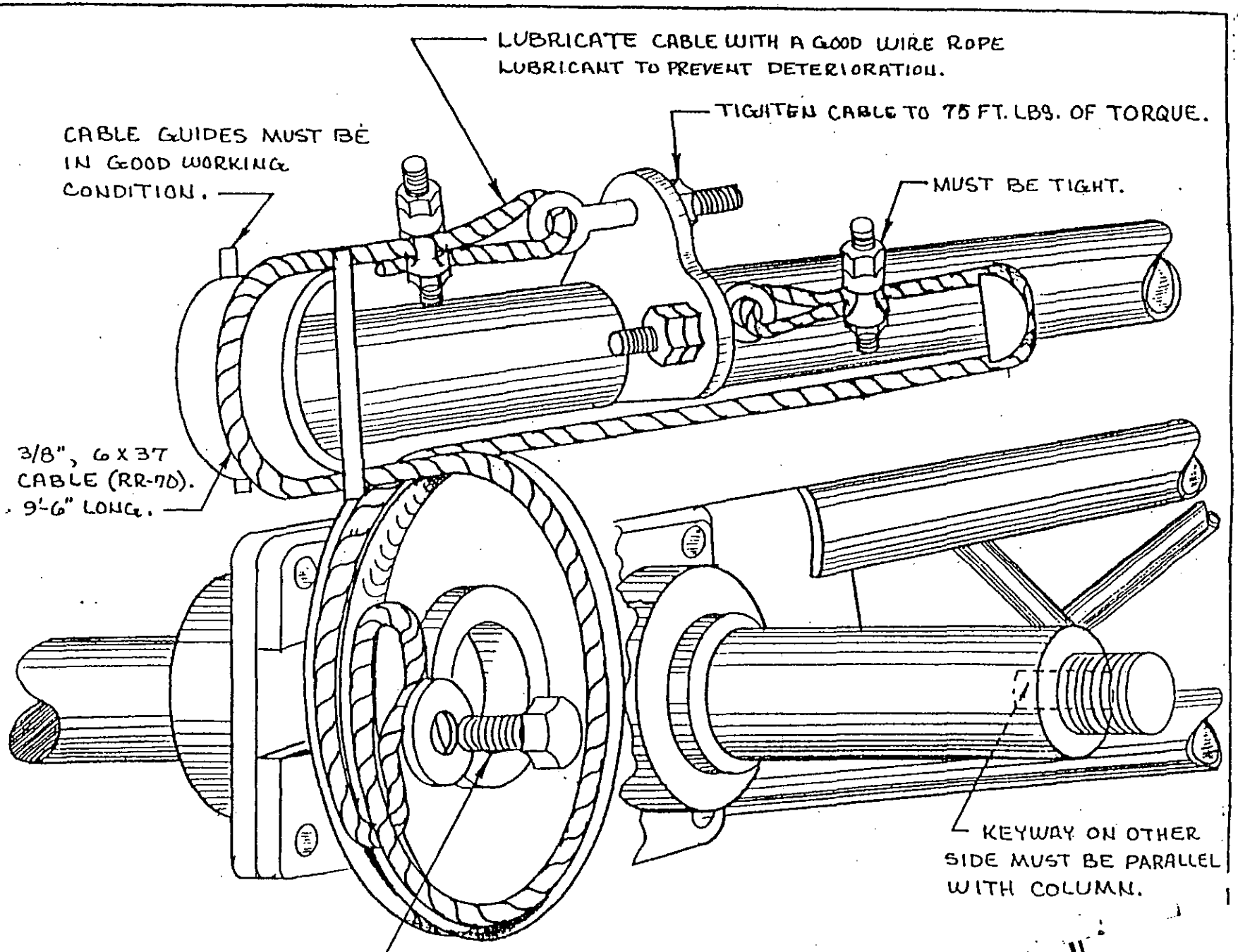


SIDE VIEW

EVERGREEN AIRCRAFT CO. SALEM, ORE.

FENCE & CONDUIT PLAN





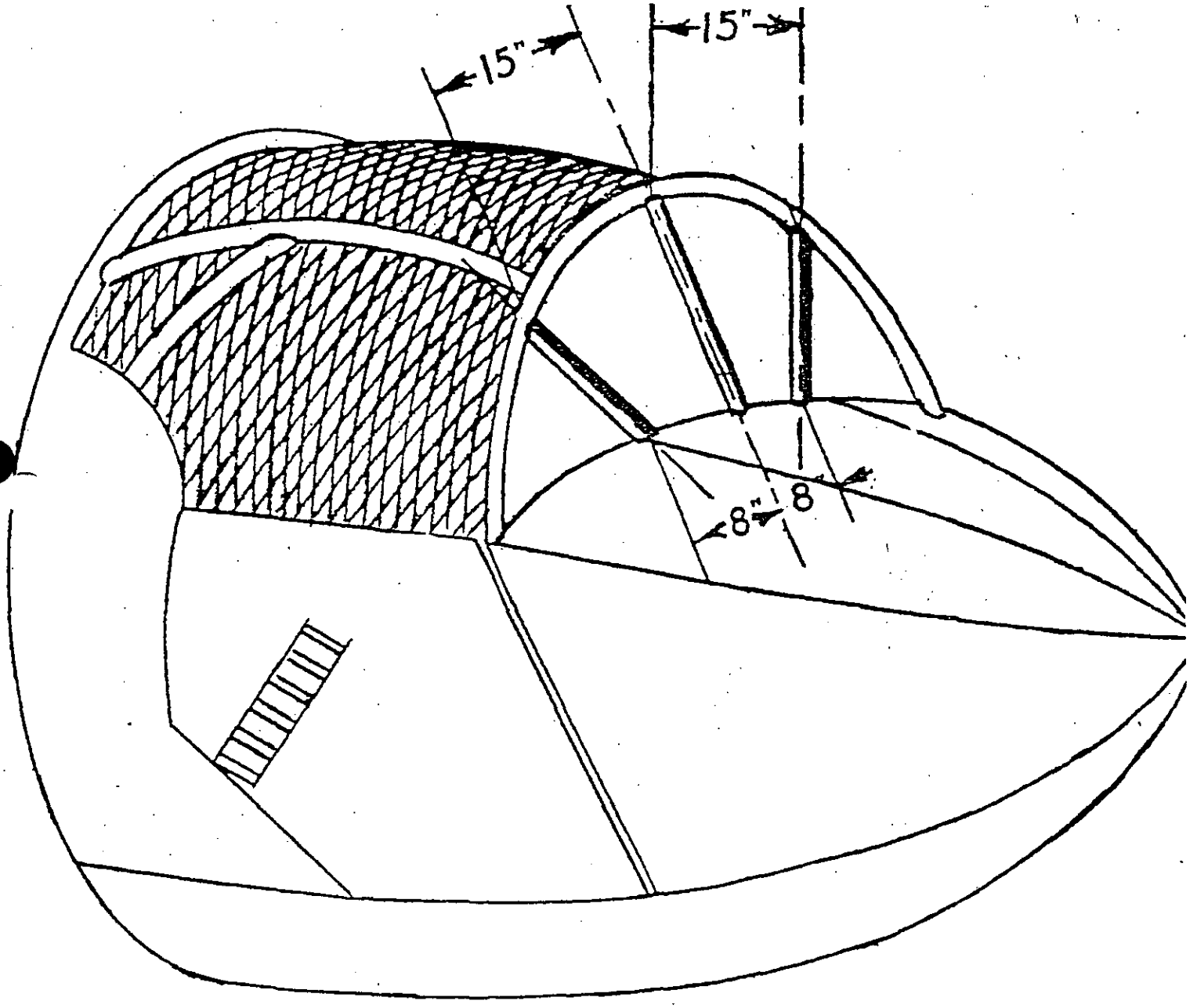
CAR REVOLVING CABLE

DRAWN BY:	SCALE:	NO. REQ'D.:	MATERIAL:
NEAL	NONE	~	~

DATE:	NEXT ASSY.:	SDS. NO.:	SOD. BY NO.:
9-21-77	~		

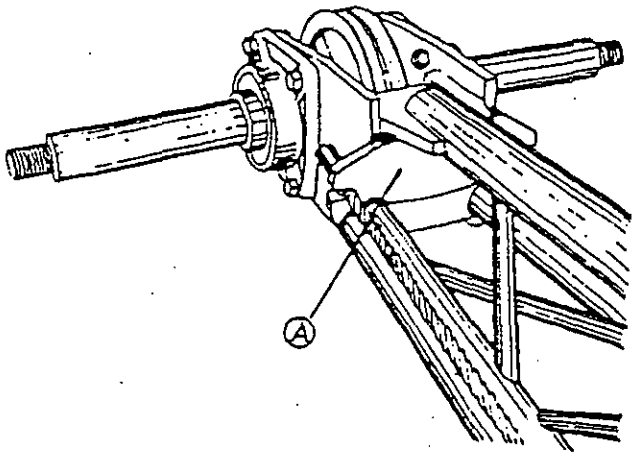
Dtg. No. RR-10-77

INSTRUCTIONS FOR INSTALLING SAFETY BA
ON ROLL-O-PLANE CARS



WELD IN THREE EQUALLY SPACED BARS OF ONE-HALF INCH PIPE.
CUT BARS TO FIT, WELDING THE LONG ONE ON THE CENTER LINE,
SPACING THE OTHERS AS SHOWN.

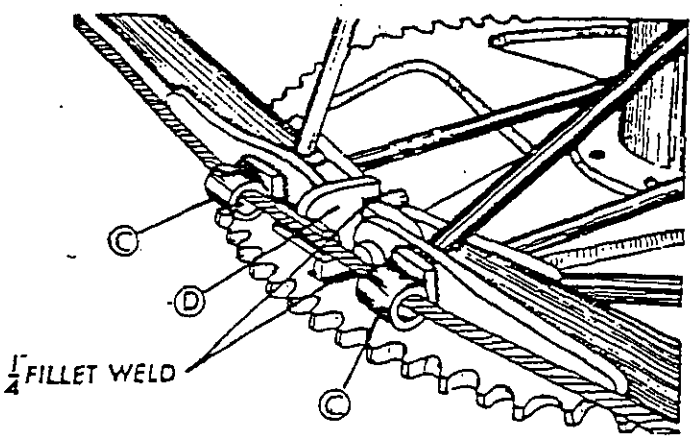
SAFETY CABLE FOR ROLL-O-PLANE BOOM



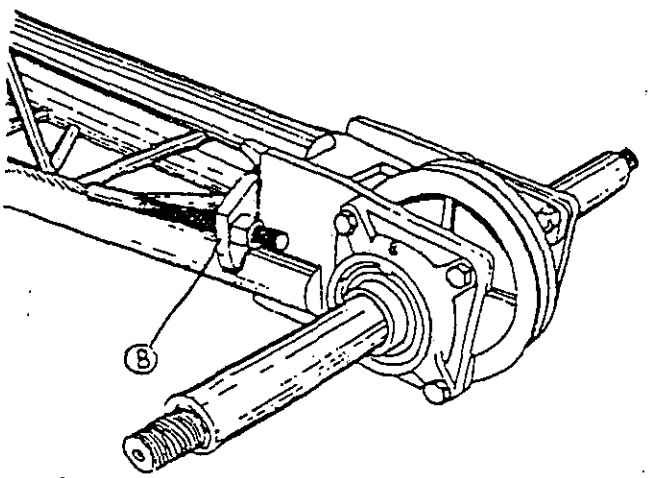
WELD BRACKET "A" TO THE BOOM AS SHOWN ON ABOVE DRAWING. USE 1/4" FILLET WELDS WHEREVER BRACKET CONTACTS BOOM.

WE RECOMMEND THAT YOU APPLY THE SAFETY CABLES TO YOUR ROLL-O-PLANE AS SHOWN ON THE DRAWINGS BELOW. THIS ELIMINATES THE POSSIBILITY OF AN ACCIDENT DUE TO THE NEGLECT OR LOSS OF THE COTTER KEYS IN THE BOOM PINS. IT WILL ALSO RETARD THE WEAR AND TAKE UP THE SLACK IN THE BOOM PINS.
THIS APPLIES TO ALL ROLL-O-PLANES

UPON RECEIPT OF YOUR ORDER WITH SHIPPING INSTRUCTIONS, WE WILL SUPPLY THE NECESSARY PARTS TO YOU AT OUR COST F.O.B. FACTORY.



THE DRAWING ABOVE SHOWS THE BOOMS EQUIPPED WITH BRACKETS "C" WHICH WERE USED ON SOME BOOMS FOR SAFETY BOLTS. IF YOUR BOOMS ARE EQUIPPED WITH THESE BRACKETS, RUN THE CABLES THROUGH THEM AS SHOWN ON THE ABOVE DRAWING. WELD BRACKET "D" TO THE SPROCKET EVEN THOUGH YOUR BOOMS ARE EQUIPPED WITH BRACKETS "C".



WELD BRACKET "B" TO THE BOOM AS SHOWN ON ABOVE DRAWING. USE 1/4" FILLET WELDS WHEREVER BRACKET CONTACTS BOOM.

ORI

OREGON RIDES INC.

MEMBER

ROLLO - O - PLANE CHECKLIST

(Device) Name _____ Serial Number _____

INSPECTION DATE _____ INSPECTED BY _____

Please refer to the proper factory Parts Catalog and Operating Instruction Manual for detailed explanation of Inspection and Maintenance procedures. (Additional copies are available from us). In addition to your routine inspection and maintenance the following items should be checked:

DESCRIPTION	WHAT TO CHECK	OK/BY	DATE	NOTES & REMARKS
1. Mudsills 2. Column 3. Booms	Cracks or structural damage.			Notify ORI if damage or cracks are discovered.
4. Sway Brace Rods	Straightness, cracks, damaged threads or nuts.			If rods are bent, straighten cold. If nuts are damaged, Rod cracked, replace.
5. Mudsill Tie Rods	Straightness, cracking at the head, worn threads & nuts			If any of these conditions are adverse, replacement is necessary.
6. Pins & Safeties	Looseness in the pins. Proper safety pins.			If pins are loose, ream holes and replace with factory over sized pins. Replace damaged or improper pins with pins shown in parts manual.
7. Cars	Loose, cracked, or missing screen. Worn or broken tubing.			Repair or replace damaged or missing screen. Contact ORI if worn or broken tubing is found.

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DESCRIPTION	WHAT TO CHECK	OK/BY	DATE	NOTES & REMARKS
8. Automatic Belt Return Bar	Condition of all fasteners, lost or broken springs, belt bar door key hole for wear. (Max, from outside of hole to end of bar 3/8") Worn or damaged door keys, missing door key straps, restraint belt condition.			Replace worn belts, enlarged key holes should be weld-fitted and drilled to proper size. Install new fasteners, keys & straps as required.
9. Car Hubs	Looseness on spindle when lock nuts are set. Key & keyway, inner tapered nut, condition of special car lock washer.			If taper hub is worn so that it will not seat properly, contact ORI for instructions. Replace tapered inner nut if damaged. Replace worn car lock washer.
10. Car Spindle	Visually check for wear or damage. Looseness on hub.			If spindle is worn or has been welded on, replacement is ABSOLUTELY NECESSARY.
1. Crank arm & Bushing	Excessive play in crank arm, worn bushing.			Replacement is necessary if any adverse condition exists. DO NOT operate if crank arm is loose or removed.
2. Main Support Spindle & Bushing	Check with ride in operating position, cars @ loading position. Push cars toward tower, & then pull back away from tower.			If boom attaching pins are tight there should be no play. If play exceeds 1", replacement of inner bushing and/or outer bearing will be necessary.
3. Car revolving Cable & All Safety Cables	Tightness, corrosion, damage, & general condition Cable clamps.			If any adverse condition exists, replace. Car revolving cab should be tight in the sheaves. Replace worn or deformed clamps.

DESCRIPTION	WHAT TO CHECK	OK/BY	DATE	NOTES & REMARKS
13. (CONTINUED)				Looseness of the revolving cabl will result in excessive strain on the crank arm.
14. Lift Assy Connecting Rod	Condition of bolts, bearings, cracks at stub shaft weldments.			See bulletin RR 11-65, revision 69 for field repair reinforceme of connecting rod. Replace wor bearings, bolts and nuts.
15. All Roller Chains & Sprockets	Stretch & adjustment. Worn sprocket teeth.			A loose, improperly adjusted or stretched chain will result in excessive wear on the sprockets Replace chain and/or sprockets if excessive wear is found.
16. Loading Platform & all Supporting Structures	Loose or damaged braces, platform condition.			Repair or replace as necessary.
17. Control Stand	Condition of ratchet & ratchet lug.			If handle will no longer lock in place, grind lug or replace with new handle. Ratchet quadrant cannot be ground, replace.
18. Fasteners	Looseness, missing, damaged improper size or grade.			Tighten or replace with factory specified fasteners.
19. Electrical Components	Worn or bad cord, plugs light rings brushes.			If any worn or unsafe condition exist, repair or replace with correct type & size wire or cable. Replace brushes if damaged or worn excessively

*NOTE: When ordering parts, please give the serial number of your machine along with the part numbers from the Parts Catalog and Operating Instruction Manual.