

# INSTRUCTIONS

*for*

## Operating *and* Maintenance

JORDAN

TYPE "A" MACHINES

MODEL No's. 3-175, 3-200

### IMPORTANT

Every machine is inspected thoroughly before leaving our plant and is shipped in perfect order. In case of foreign shipment the machine is completely built and tested, properly boxed and crated for export, with detail erection and assembly drawings accompanying the shipment. If properly assembled and cared for, it will give many years of satisfactory service. Keep it in good order at all times. Should any defect develop, it should be eliminated as soon as possible. When replacements of worn or broken castings or other parts are necessary, address your orders to the O. F. JORDAN COMPANY, East Chicago, Indiana, U.S.A. specifying plainly the catalog number, quantity required, if right or left hand, and give serial number of car which appears on company name plate. We make immediate shipment on all standard parts.

O. F. JORDAN COMPANY  
East Chicago, Indiana  
U. S. A.

\* \* \* \* \*

## INSTRUCTIONS

for

### OPERATING TYPE A SPREADER-DITCHER

To have the car ready for operation proceed as follows:

IF LOCOMOTIVE IS EQUIPPED WITH SPECIAL AIR LINE, connect the special air hose at the rear end of the car on left side to the air line leading to the main reservoir on the locomotive.

Turn on the special angle cock handle. This will connect the main reservoir to the special air line on the car.

IF LOCOMOTIVE IS NOT EQUIPPED WITH SPECIAL AIR LINE, the regular train line is to be used for supplying compressed air to the tank on the car. Cut out brake reservoir from train line when air for the reservoir is being supplied through train line. Failure to do this will set the car brakes when the air is applied to operating cylinders.

Train line pressure must be raised to at least 90 pounds for successful operation.

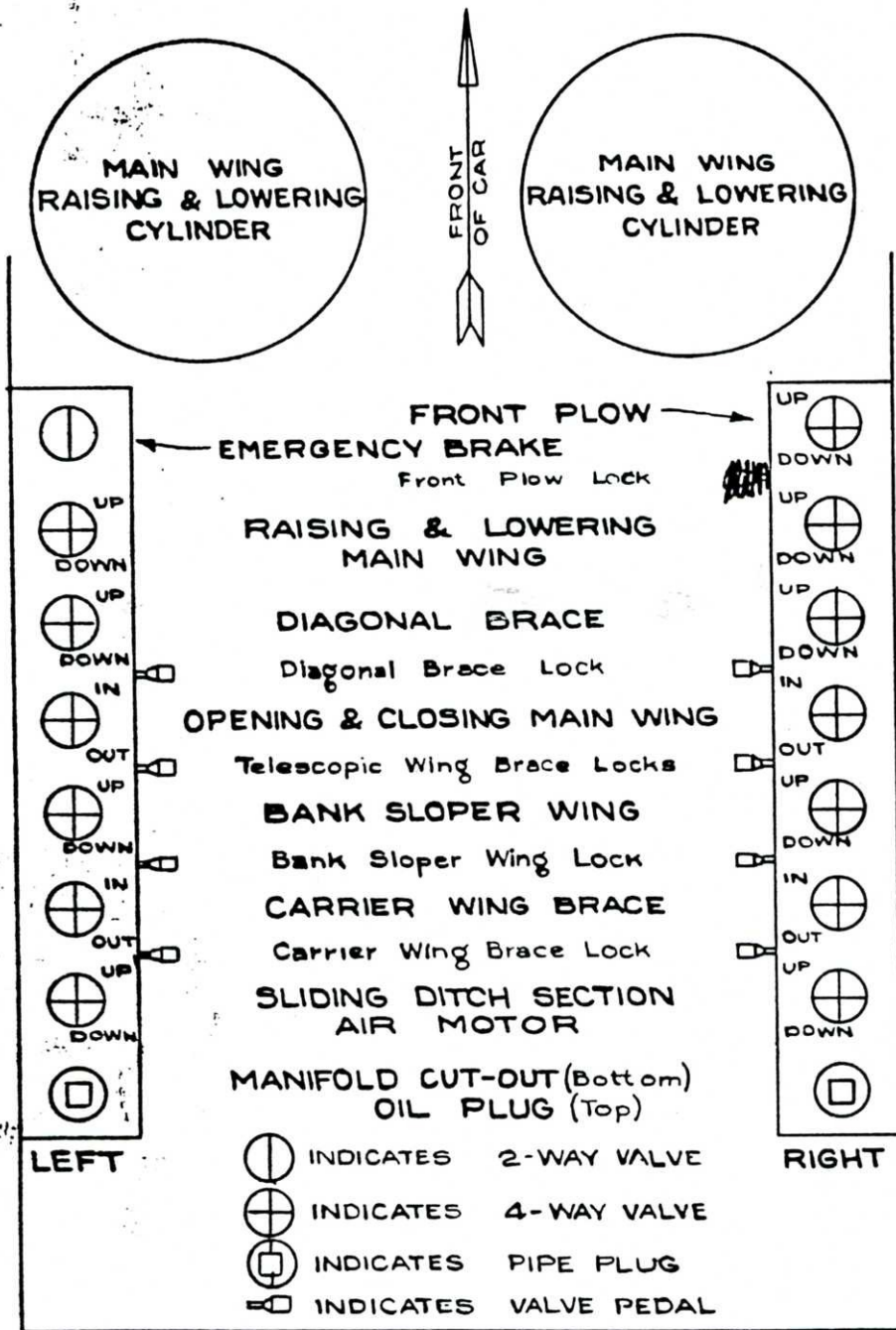
In case of either locomotive equipment, turn on the cut-out valve at the horizontal air tank on the car. Now air is being conveyed from the locomotive into the air tank on the car and an air pressure gauge installed in the cab will be found registering the increasing pressure in the tank.

The air tank is constructed for 125 pounds per square inch working pressure, however; in most cases, a lower pressure is sufficient for successful operation. To drain air reservoir, open drain cock at bottom of air reservoir.

### OPERATING MANIFOLD

Look over all operating handles in the cab on both sides and see that they are all in neutral position. In other words see that all air cylinders on the machine are cut off from main air line. Turn on the cutout valve located in the cab at the floor, near the rear end of manifolds, this allows the air to come from the main air reservoir, located underneath the cab, to the individual operating valves. This is to be done on the side which is intended to be worked or on both sides, if both sides are to be ready for operation.

Last used for setting wings & frame on car bottom flange



On each side in the cab and within easy reach, there are installed valves controlling various features of the machine as shown on the accompanying diagram.

Whenever necessary make use of signal cord suspended under the ceiling of the cab and attached to the whistle on outside of the cab.

A conductor's valve for applying the train brakes is also placed at convenient point on the left manifold.

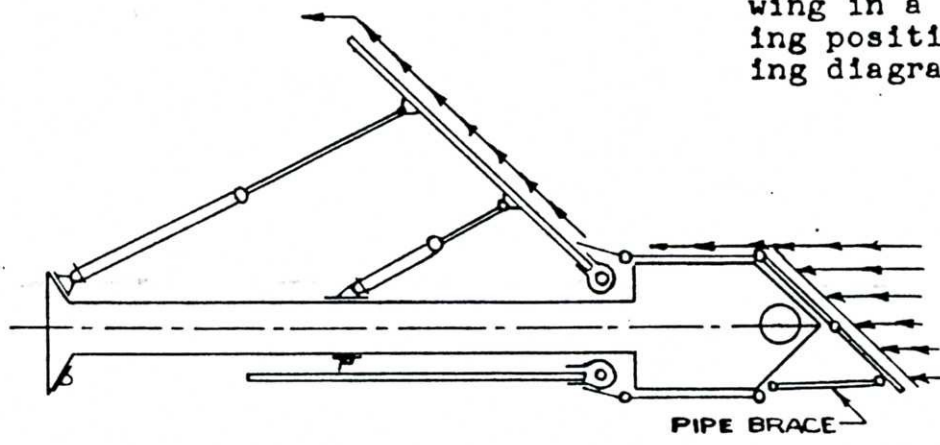
When the machine has arrived at the place where it is to work and the trail is brought to a stop, the following should be done:

PLOW

Adjust plow cutting shoes which are to slide over the rail to the depth required. To do this remove two wedges at the outer end of front plow, open the wing and adjust

the rail shoes for desired depth below top of rail. suitable thickness.

To spread material from one side of the track to the other, open plow wings and insert the pipe braces in position to hold the wing in a continuous cutting position. (See following diagram.)



Last used for short wing frame on Car Serial #022

When the left plow wing is to be used, and before opening it, the air hose and vertical pipe must be taken out of the way either by swinging it upwards or by disconnecting it at the first union. Remove safety chain bolt (slack take-up) located at end of each plow, small end wing to allow independent movement of main wing and small end wing. Now the machine is ready to apply air to the plow cylinder which can be done from right hand manifold in the cab. Turn the handle in direction indicated "Up". This will raise the plow and release the weight of it from the two safety pins supporting the crossbar, supporting the crossbar.

Remove the two pins and insert them in corresponding holes that will permit the plow to lower until the rail sliding shoes are about to touch the rail.

Release the two safety chains at the back of the plow side wings and adjust them to the depth required.

TO LOWER THE PLOW, ~~press foot on plow valve pedal with~~ ~~stop pin looking the crossbar~~ and turn the valve handle at indication "Front Plow" slowly to the direction indicating "Down". The plow may be lowered to any desired depth.

TO RAISE THE PLOW, ~~press the valve pedal~~ ~~turn the plow~~ <sup>TURN</sup> the plow valve handle to the direction indicating "Up" and when the plow has reached the highest position, ~~release the foot valve pedal~~ then lower plow slowly by releasing the air from plow cylinder until full weight rests on pin and turn valve to neutral position.

Care should be taken to see that the stop or lock pin is fully inserted under the crossbar. Use safety pins when car is in transit or plow is not operated.

TO OPEN AND CLOSE WINGS

GEAR RACK TELESCOPIC BRACES

Braces are locked at all times when foot pedal valve is released. Therefore, to move and adjust wings to working position, first step on foot valve pedal to release locks on "Gear Rack Telescopic Braces". Keep foot on pedal until wing is in desired working position.

DIAGONAL BRACE

With one foot on the wing lock pedal valve and the other foot pressed down on valve pedal to release lock block on diagonal brace, then turn diagonal brace valve handle in the direction "Up". When the wing is raised above its safety rest on the side of the car, then move opening and closing valve handles in the direction "Out". This will open the wing at any desired spread.

At the same time the telescopic wing braces will be unlocked and pulled out. Release diagonal brace valve and when diagonal brace is lowered to proper operating position, remove foot from foot pedal valve on diagonal brace which will lock diagonal brace in that position.

## OPENING AND CLOSING WINGS

As mentioned in preceding explanation, first step on wing brace foot lock pedal, then turn the folding cylinder valve in the direction of "Out". This will open wing.

Important when wing is opened, reverse wing folding cylinder valve slightly to release the pressure in the folding cylinder. Avoid any attempt to raise or lower wings they are being opened or closed.

To close wings, the above operation is reversed. Also before attempting to close wings care must be taken to see that they are raised to their full height on the main post, diagonal brace and bank sloper wing. Failure to do this may cause damage to the wing braces. Also see that gear lock blocks on wing braces are released before attempting to open or close main wings.

## RAISE AND LOWER MAIN WINGS

Turn the valve handle operating the main cylinders in direction "Up". This will permit releasing of the two pins supporting the main wings at the main posts. Withdraw the pins and insert one of them in a hole below to correspond with the depth of spread desired. Use of both pins is necessary when the car is in transit.

To lower the main wing turn the valve handle in opposite direction slowly until the wing reaches working depth. To raise the wings reverse the operation.

## DITCHING ATTACHMENTS

Ditching machines are constructed identically with the straight Spreaders. They have all above mentioned features and in addition are equipped with the following attachments:

Bank Sloper  
Air Operated Carrier Wing Brace  
Adjustable Ballast Section  
Mechanically Operated Ditch section

## BANK SLOPER

The bank sloper is connected to the main wing and can be lowered or raised by means of an air cylinder, located on the main wing. It can be locked in any position by means of a pneumatic lock pin. To raise the bank sloper, press foot down on bank sloper valve pedal to withdraw bank sloper lock pin and turn the valve handle marked "Bank Sloper" in the direction "Up". As soon as weight is taken by piston the lock pin will be forced out and the bank sloper can be raised or lowered to any desired position. To lock the bank sloper in any position, release the valve pedal and the lock pin will be forced into a hole in bank sloper.

To operate bank sloper wing up and down without too much wing distortion, place bank sloper wing in half way position before wing braces are locked.

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To operate bank sloper wing up and down without too much wing distortion, place bank sloper wing in half way position before wing braces are locked.

## BANK SLOPER IN CARRY WING FORM

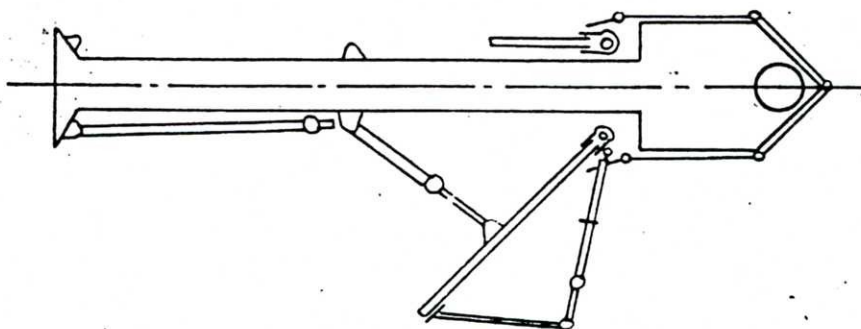
The same wing can be used for carrying material from cuts. To change to the carry wing or bank sloper wing to drag form, when main wing is in closed position, disconnect rear brace from bank sloper and chain rear brace to bank sloper rest on car body. Open main wings in usual manner, lower sloper wing to level position and lock with pneumatic pin.

Disconnect bank sloper cylinder connecting rod at bank sloper wings and pull the connecting unit up on the template wing. Remove 1-1/2" bolt extending through the hinge and bank sloper wing, swing bank sloper or carrier wing around parallel with the car. Remove air operated carry wing brace from its rest by means of block and tackle furnished with machine. When this brace is lowered and in line with carry wing which has been swung around parallel to the car, step on foot valve marked "Carry Wing Brace", move carry wing brace valve around in direction of "Out" and connect the extended position of air operated carry wing brace to bank sloper wing.

The carrier wing hook which extends through the main template wing will catch the wing and hold it in place, when wings are folded to side of car.

To open wings, first release the carrier wing hook and continue as described under "Opening and Closing Wings".

The following sketch illustrates how the wings will look when opened in carrier wing form:



To convert the machine back in spreading and ditching form reverse operation.

### IMPORTANT

Do not ship machine in carrier wing form.

### ADJUSTABLE BALLAST SECTION

Adjustable ballast section is being used principally in skeletonizing track and in any other spreading. Adjustable ballast section is pivoted at the toe of the ballast shoulder and can be adjusted to various depths by means of bolts.

## MECHANICALLY OPERATED DITCH SECTION

TO LOWER THE BOX DITCH SECTION, turn the valve handle at indication "Ditch Section" from its neutral position to the direction indicating "Down". The air motor located on the back of the wing with actuate the screw drive and ditch section will gradually descend to any desired depth.

TO STOP THE AIR MOTOR, turn the valve handle back to neutral position.

TO RAISE THE DITCH SECTION, turn the valve handle to the direction indicating "Up". The motor will turn in the opposite direction and raise the ditch section to any intermediate position or up to its maximum, thus transferring the ditcher wing into a straight spreader wing.

### GENERAL INSTRUCTIONS

All drains in air lines and reservoir must be opened occasionally to allow accumulated water to drain off. Particular care of this should be taken when machine is being used in cold weather.

The moving parts of the Type A machine are heavy and must be operated slowly at all times to prevent damage to the machine and to the track in case of derailments or otherwise.

Do not do too much spreading or ditching at one movement, especially when in heavy material. The machine will last longer and do better work if not overloaded.

When it is necessary to work around wings, braces or front plow, in the open or down position, first place them in the desired position. Then either allow wings to go down until they rest on the ground or else block them securely so that there is no possible chance for them to drop or swing in. Never allow air in any cylinder supporting a part that will move while working about machine.

When machine is travelling over road, even for short distances, the pins supporting the main wings and the front plow must be in holes, and safety chains at the rear of plow side wings must be pulled tight to prevent the above parts from dropping.

Main wings must rest securely in hooks or wing rests located on side of car and diagonal brace must be locked by the pneumatic pin.

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East Chicago, Indiana  
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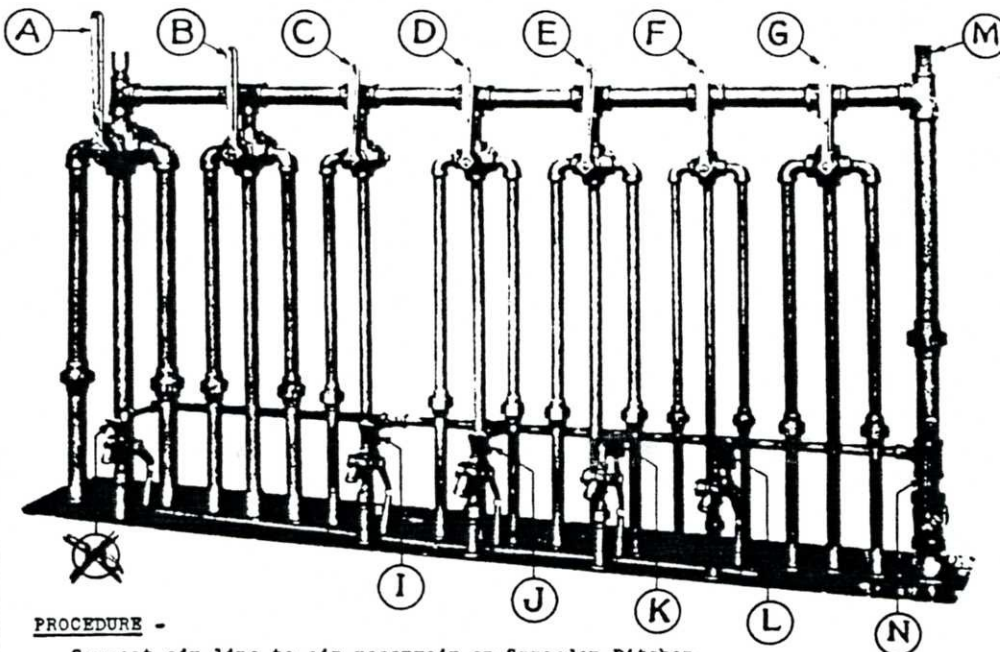
Last used for Short Wing Frame on Car Serial #832



# OPERATING INSTRUCTIONS

## FOR TYPE A JORDAN SPREADER-DITCHER

### WITH GEAR TYPE TELESCOPIC BRACES



#### PROCEDURE -

Connect air line to air reservoir on Spreader-Ditcher.  
See that all operating valve handles are in neutral position.  
Remove all safety rods and chains.

#### TO OPERATE FRONT PLOW -

Move valve handle (A) to "up" position.  
~~Remove adjustment pins from under crosshead and re-set pins in holes for desired depth.~~  
Remove adjustment pins and insert in holes for desired flanging depth.  
To lower plow, move valve handle (A) to "down" position.  
When crosshead reaches adjustment pins, move valve handle (A) to neutral position.  
To raise plow, reverse operation.

#### TO OPEN SPREADER-DITCHER WINGS -

Move valve handle (B) to "up" position.  
Remove adjustment pins from under crosshead and re-set pins in holes for desired depth of cut.  
Step on foot pedal valve (I) and (J) and move valve handle (C) to "up" position.  
Move valve handle (D) slowly to "out" position when desired wing operating angle is reached, slightly reverse valve (D) to cushion air in cylinder then return to neutral position.  
Move valve handle (C) to "down" position when desired wing slope is reached, remove foot from foot pedal (I) thus locking diagonal brace.

#### TO SET BANK SLOPER WING -

Step on foot pedals (J) and (K), move valve handle (E) to "down" position and release foot pedal (K) when bank sloper wing reaches 45° position, return valve handle (E) to neutral position.

#### MAIN WINGS -

Move valve handle (B) to "down" position, lowering main wing approximately 8", then release foot pedal (J) which locks wing braces.  
Main wing can now be raised and lowered also bank sloper wing set at various operating slopes.

#### TO OPERATE SLIDING DITCH SECTION -

Move valve handle (G) to lower and raise ditch section.  
When not in operation, always raise ditch section.

TO CLOSE SPREADER-DITCHER WINGS - Reverse above operations.

#### CARRIER WING FORM -

With main wing closed, disconnect rear wing brace, apply brace safety chain.

Open main wing, lower bank sloper wing to level position and lock, disconnect operating cylinder.

Remove bolt holding bank sloper wing to pivot hinge and swing forward.

Remove safety chain, and by means of block and tackle remove carrier wing brace and connect to bank sloper wing.

Step on foot pedal (L) to release lock and move valve handle (F) to open and close carrier wing to desired position, leading slightly into bank.

#### GENERAL INSTRUCTIONS -

Emergency brake valve is located in same position as valve (A) in left hand manifold.

Remember main wing braces are locked at all times when foot pedals are released.

Keep all moving parts well greased except gear rack on telescopic wing braces.

To oil air cylinders, turn outout cock (R) to cut air out of operating manifold. Remove oil plug (M), pour in half pint of light oil, replace oil plug. Turn air into manifold, give each valve a quick turn so a small amount of oil is sprayed into each air cylinder.

Keep all bolts tight, renew cutting shoes before excessive wear occurs.

For complete operating instructions and Repair Parts List, write O. F. Jordan Co., East Chicago, Indiana, giving machine serial number.

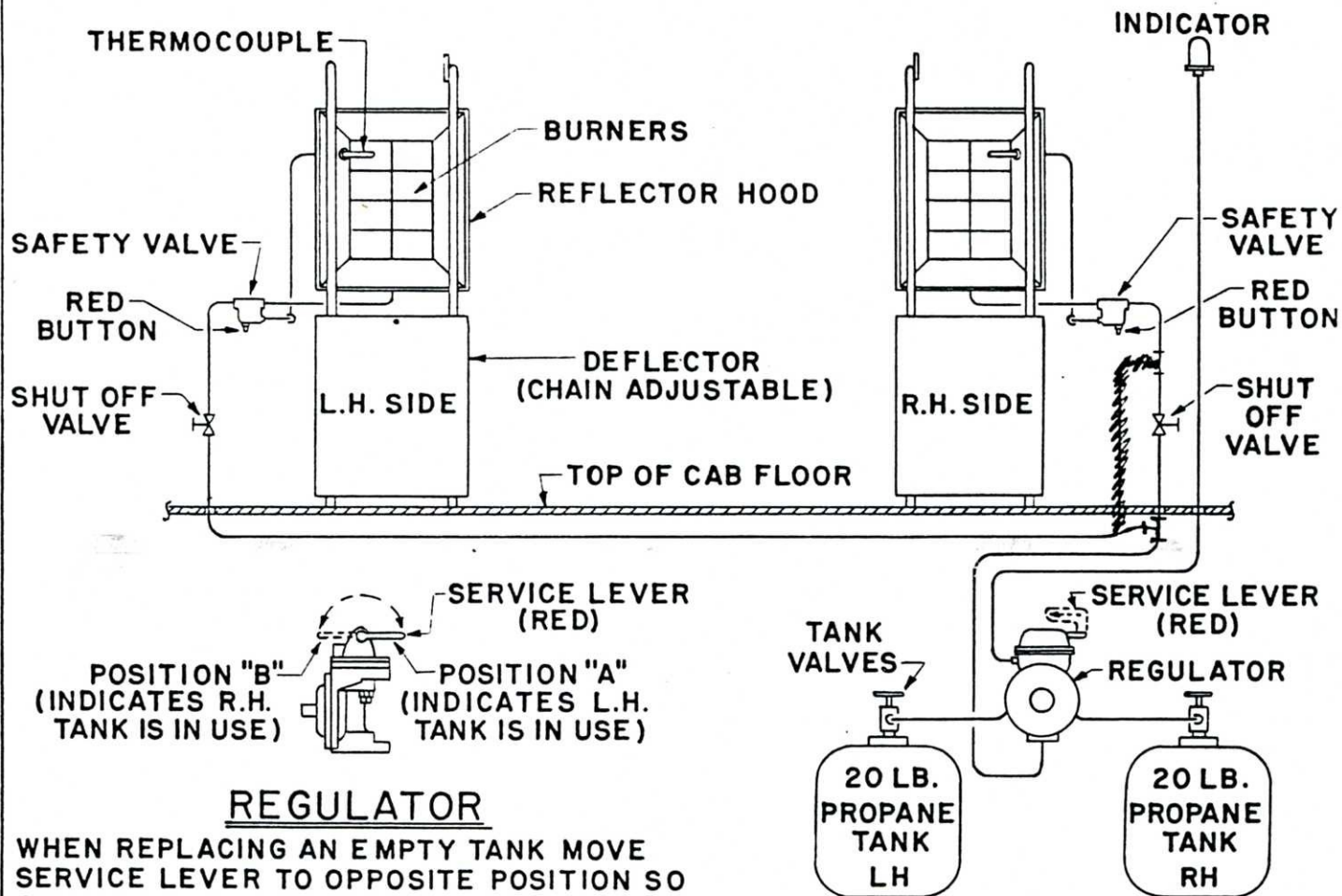
Suggestions from operators always welcomed.

#### CAUTION

Do not operate Spreader-Ditcher wings at a lesser angle than 25° out from car body.

O. F. JORDAN COMPANY  
EAST CHICAGO, INDIANA

# INFRA-RAY HEATER OPERATION



## REGULATOR

WHEN REPLACING AN EMPTY TANK MOVE SERVICE LEVER TO OPPOSITE POSITION SO ARROW ON LEVER IS POINTING TO TANK STILL IN USE. (CLOSE TANK VALVE WHEN REMOVING EMPTY TANK)

APPROX. 20 HOURS OF SERVICE PER TANK

**STEP 1:** HAVE PROPANE TANKS CHARGED TO 20 LBS. WHEN REINSTALLED OPEN BOTH TANK VALVES FULLY. POSITION SERVICE LEVER TO DESIRED TANK.

**STEP 2:** OPEN BOTH SHUT OFF VALVES IN CAB IF BOTH HEATERS ARE TO BE USED. PUSH IN RED BUTTON ON SAFETY VALVE AND HOLD A LIGHTED MATCH TO LOWER FACE OF BURNERS. WHEN LIT CONTINUE HOLDING RED BUTTON IN FOR ABOUT ONE MINUTE TO MAKE SURE THERMOCOUPLE IS HEATED SUFFICIENTLY SO IT WILL ALLOW SAFETY VALVE TO REMAIN OPEN. (IF FOR ANY REASON BURNERS BLOW OUT THERMOCOUPLE WILL AUTOMATICALLY SHUT OFF PROPANE). ADJUST DEFLECTOR TO SUIT.

**NOTE:** WHEN ONE TANK IS USED UP THE INDICATOR IN CAB WILL SHOW A RED SIGNAL AND REGULATOR HAS AUTOMATICALLY SWITCHED OVER TO OPPOSITE TANK. SERVICE LEVER MUST BE POSITIONED TO POINT AT TANK BEING USED WHEN EMPTY TANK IS BEING REPLACED OR RED SIGNAL IN INDICATOR WILL STILL REMAIN. REMEMBER TO OPEN TANK VALVE FULLY AFTER NEW TANK IS INSTALLED.

WHEN IN REVENUE FREIGHT TRAIN OR WHEN HEATERS ARE NOT IN USE ALWAYS MAKE SURE THAT THE TANK VALVES AND SHUT OFF VALVES ARE SECURELY CLOSED.

LUBRICATION INSTRUCTIONS  
FOR  
JORDAN SPREADERS-DITCHERS-SNOW PLOWS

Always be sure the gear racks of the main wing telescopic braces are kept absolutely free of oil or grease. Clean periodically of accumulated dirt. Keep air lock cylinder packing glands snug to prevent oil or grease dropping onto the gear racks.

Oil, grease, or dirt on the gear racks will result in the braces slipping, causing serious damage to the wing.

At the start of each days work remove plugs at the rear end of the manifolds. Pour about 1 pint of a good grade of engine lubricating oil and replace plug, and turn air into manifold. Move each valve handle back and forth. This will blow oil into each operating cylinder.

In temperatures above freezing a #20 or #30 S.A.E. grade oil is satisfactory.

The following parts should be lubricated with a heavy cup grease preferably heated to a liquid state, and poured or brushed on.

Stationary post channel guides of the Standard and Road-Master Type Models.

Stationary post column of the Type A Models, using lubricating plug on Sliding Post Assembly.

Plow Slides and Guide Castings of Standard Type Models with High Snow Plow Attachment.

Cables and Sheaves of Front Plow, preferably brushed on the cables. Bank Sloper Wing Operating Cables and Sheaves if a Standard or Road-Master Model.

Hinge Pins connecting Main Wing Hinge to Slide Post Hinge Butt on Standard and Road-Master Models.

Coupler Cover plate guide bars on Standard Model with High Snow Plow Attachment.

Grease Cups on Sliding Ditch Section of Type A Models equipped with Air Motor.

Inside all Gear Rack Brace Pinion Gears and inside large pipe of Main Wing Braces. These points are well lubricated at time of construction and little maintenance is required.

ROLLERS ON SLIDE POST OF STANDARD AND ROAD-MASTER MODELS. Lubricate as required when the JORDAN is in use, with a good grade of engine oil.

All piston rods of operating cylinders.

Universal Joints of Main Wing Gear Rack Braces, and Folding Cylinder, also Diagonal Brace Universal Joint connection at Sliding Post on Standard and Road-Master Models.

All air valves.

Rollers on Slide Posts of Standard and Road-Master Models.

Crosshead Guide and Guide Beam of Bank Sloper Cylinder on Type A Models.

Trucks to be lubricated in accordance with the standard practiced by the railroad. Friction side bearings and truck center castings should be kept well greased at all times. Late Type A Models have a lubricating plug on front deck to reach the truck side bearings.

At the end of each days work be sure to drain all water from the main reservoir.

When car is to idle for a considerable period of time be sure all exposed piston rods of operating cylinders are coated with a neutral grease.

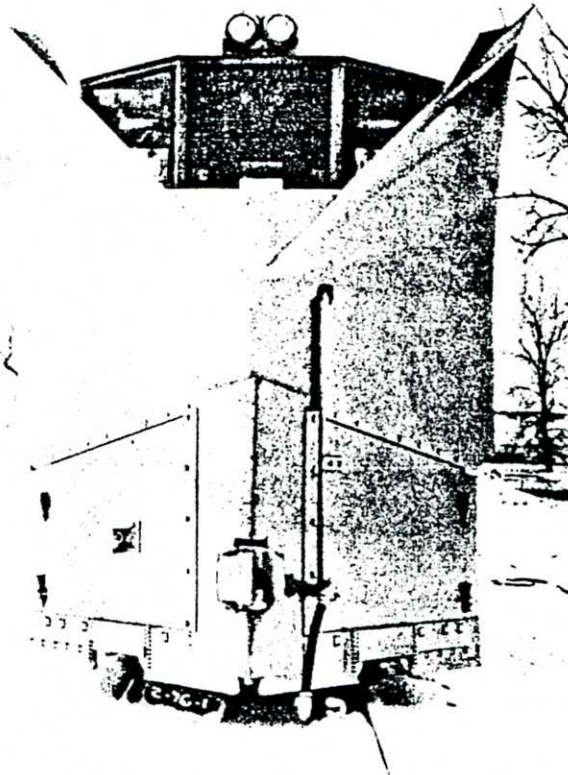
#### WINTER LUBRICATION

Where temperatures below freezing are expected, pour 1 pint of alcohol in each manifold lubricating plug, before turning air into the car from the locomotive. Allow a few minutes for alcohol to flow into the main reservoir. Alcohol fumes will prevent frost forming in air lines and cylinders. Follow with a very light grade of engine lubricating oil, preferably S.A.E. #10 and lubricate valves and cylinders as noted in second paragraph.

Alcohol will not effect packing or packing cups in the cylinder if a lubricating agent is used.

O. F. JORDAN COMPANY  
East Chicago, Indiana

COUPLER HOLE COVER PLATE

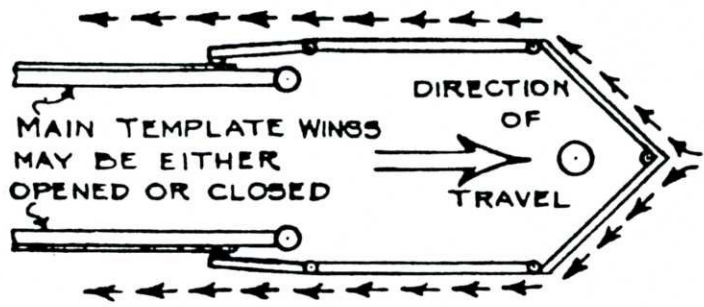


Two plates are mounted to retainer strips off the plow center. Each plate is notched to fit over half of the coupler shank. When installed, the two plates form a "V" at the apex of the front plow, fit over the coupler, and remain stationary while the plow is actuated vertically upward or downward.

In plowing any material, the cover plates prevent entry of material through the coupler hole, thus keeping the back side of the front plow as well as trucks free of foreign matter.

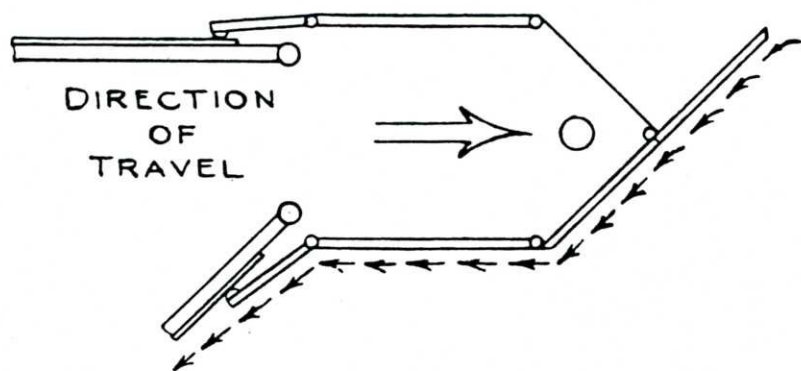
When not in use, the plates can be conveniently and easily detached from their position and stored on the deck of the frame.

## DIRECTION PLOWING WITH A JORDAN



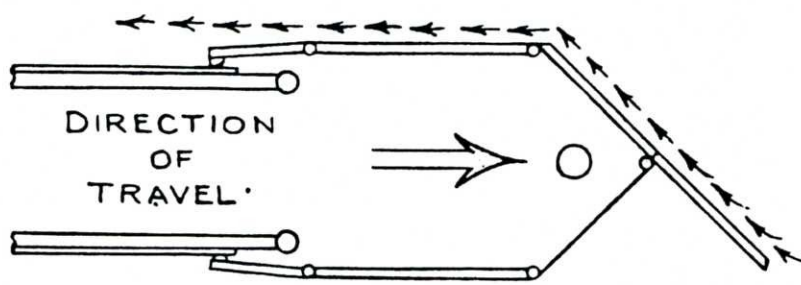
CENTER PLOWING

Plowing on single track with "V" nose of a JORDAN. Material is separated at center and flows to the sides. Both template wings are shown in closed position, although either or both may be opened.



RIGHT HAND PLOWING

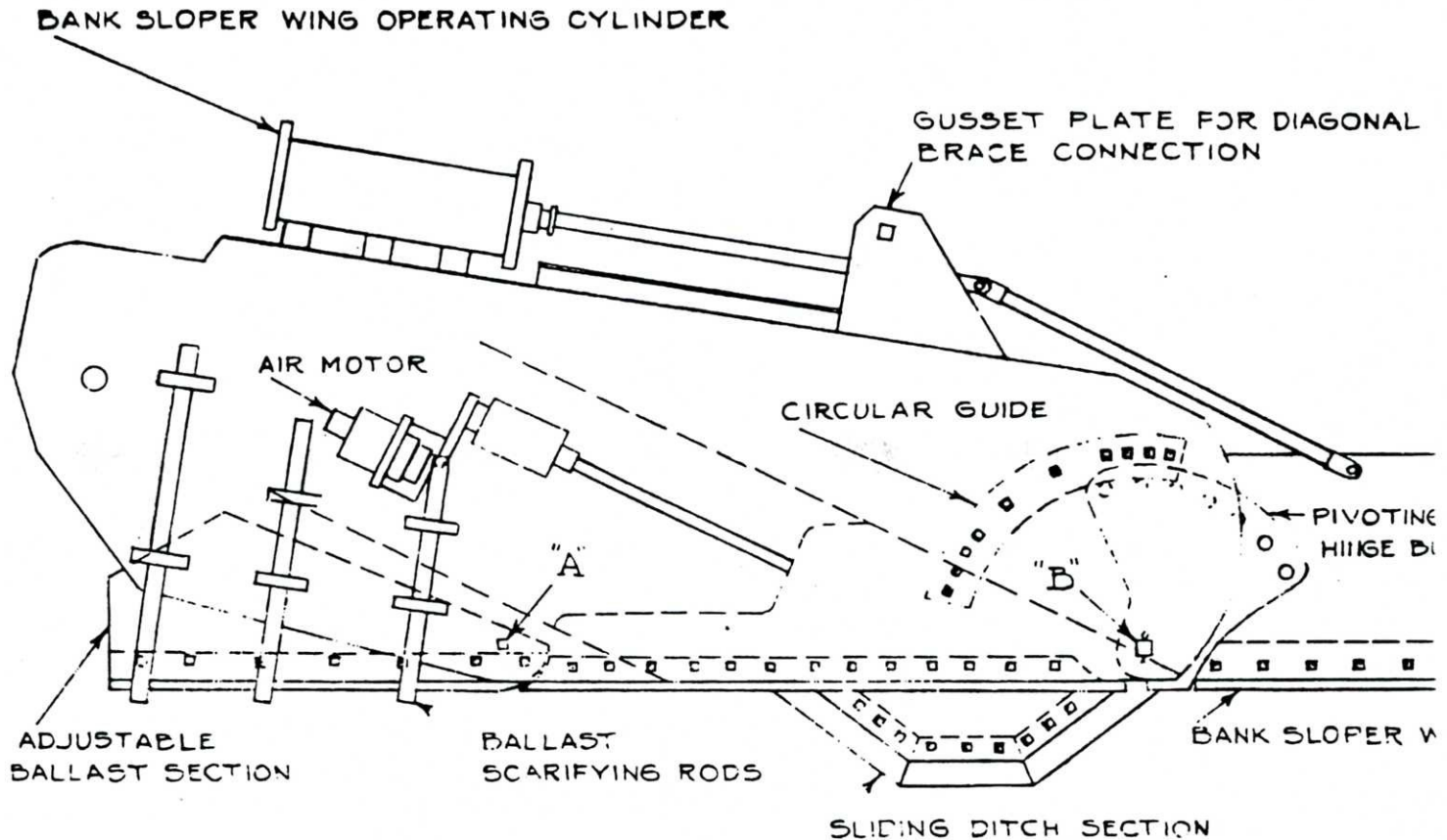
The left hand front plate of the plow is swung forward and supporting braces inserted on territory where single direction plowing to the right is desired. Conversion takes only a few minutes. Right hand main wing may be extended as shown to direct material further away if desired.



LEFT HAND PLOWING

Reverse procedure of above condition, except showing both main wings closed. Right hand and left hand plowing options are invaluable on double track or mountainous territory where cut side and open side alternate.

# DITCHER TEMPLATE WING ARRANGEMENT



Above is a general view of the ditcher template wing arrangement on the Heavy Duty Type A JORDAN Spreader-Ditcher.

Adjustable ballast section pivots about point 'A' from maximum low position, as shown, to an uppermost position and can be locked in each position.

Sliding ditch section is retractible into cavity within the wing by an air motor and screw shaft arrangement.

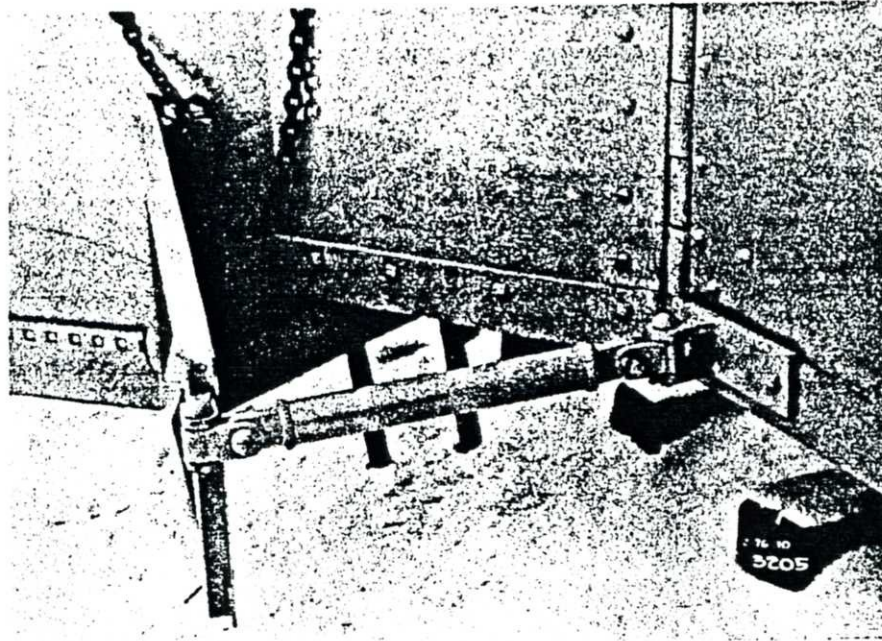
Bank sloper wing is adjustable in seven locking positions from horizontal to upward by a bank sloper wing operating cylinder and its direct connection. It pivots about point "B".

Pivoting hinge butt casting allows (1) the bank sloper wing to be locked while in bank sloping form positions, and (2) the bank sloper wing to be converted to carrier wing form.

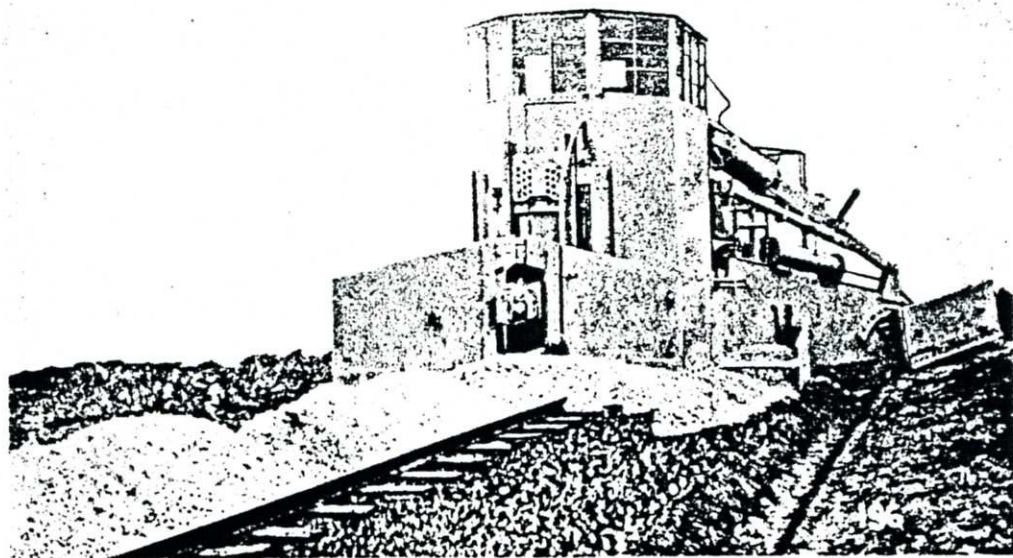
Ballast scarifying rods are vertically adjustable from clearance to any desired scarifying depth.

O. F. JORDAN COMPANY  
East Chicago, Indiana

BALLAST CARRY WING ARRANGEMENT



Method of applying the ballast carry wing to the JORDAN template wing. The ballast carry wing is hinged freely at its connection to the template wing and the opposite end is braced by a structural member. Nearly all JORDAN template wings may be converted into this form.



The ballast carry wing in action. It can handle all types of ballast material without disturbing the remainder of the roadbed structure.



## BALLAST CARRY WING ATTACHMENT

### OPERATING INSTRUCTIONS

To apply the ballast carry wing attachment to the main ditcher wing when out on the road proceed as follows:

Open the main ditcher wing and lower it into the roadbed section, stopping it approximately one inch above the berm line. Next check the flanger plow rail shoes. They should be adjusted to their highest position. Apply the ballast carry wing brace connecting bracket to the flanger plow side wing. Lower the flanger plow and insert plow adjustment pin in adjustment hole so that rail shoe is held approximately one half inch above rail.

Flanger plow cutting edge, plow side wing and small end wing should all be approximately five inches below top of rail. Apply the ballast carry wing assembly to the hinge bracket at the ballast toe line on the main ditcher wing. These wings are constructed right and left hand, the plate side of the wing should be facing the ballast. Connect the ballast wing pipe brace to the universal links on the end of the ballast wing and the bracket on the car side wing.

You should now be ready to operate the ballast carry wing. If the main ditcher wing was positioned as afore mentioned you should be only a few inches from your operating position. Swing the main wing in or out until the ballast wing hinge is directly over your required toe line of ballast. The bottom edge of the main wing should be adjusted to your subgrade slope by the diagonal lift brace above the main wing. PLEASE NOTE the bottom edge of the main wing should be operated as close to a level position as possible.

For this reason, if the diagonal lift brace is lowered to give a steep subgrade slope, the point end of the ballast carry wing will raise and push out, and if the diagonal lift brace raises the outer end of the main wing above a level position the point end of the ballast carry wing will dig down and pull in to the track. The ideal position of the ballast carry wing is when the bottom edge is level with the berm or ballast line and the point end of the ballast carry wing is leading a few inches outside the ballast line

so it can rake in ballast that has run out too far. Position slightly above the earth so that dirt is not dragged into the ballast.

To close the main wing to the side of car, operate the flanger plow valve and the main wing vertical post valve to lift the plow and main wing at the same time. If this is hard to do, favor the lifting of the main wing for a short lift, then raise the plow up half way, and so on until the ballast has fallen out of the pocket. The flanger plow and main wing should be raised to their highest position before main wing is swung in to the side of car.

To open the main wing with a ballast carry wing attachment, open the main wing first to the approximate operating position. Lower the outer end of the wing with the diagonal lift brace until wing is level. Lower the main wing about two-thirds of the way down, on the main wing vertical post. Lower the flanger plow all the way down, then complete the lowering of the main wing into the work.

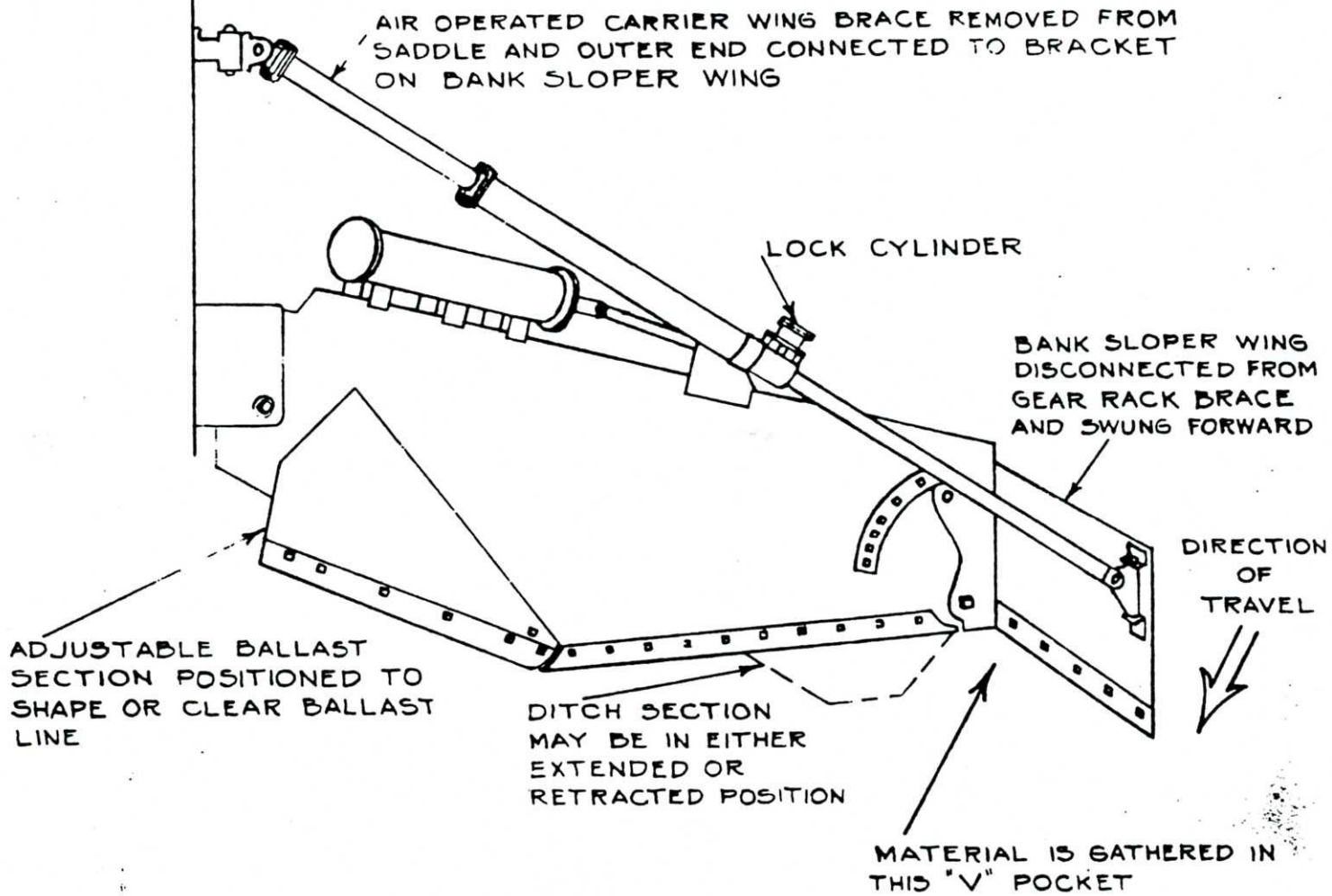
The point end of the ballast carry wing can be made to swing outward or inward by lowering or raising the flanger plow.

#### CAUTION

Follow the procedure of closing the main wing as afore mentioned when a load of ballast is in the pocket. Watch the closing procedure carefully to prevent damage to the parts.

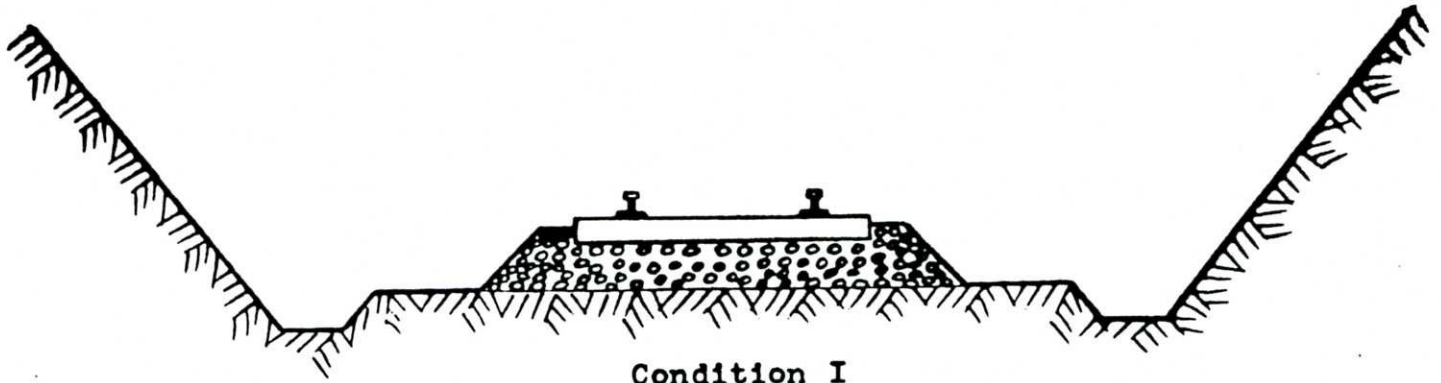
O. F. JORDAN COMPANY  
East Chicago, Indiana  
October 5, 1956

## CARRIER WING FORM



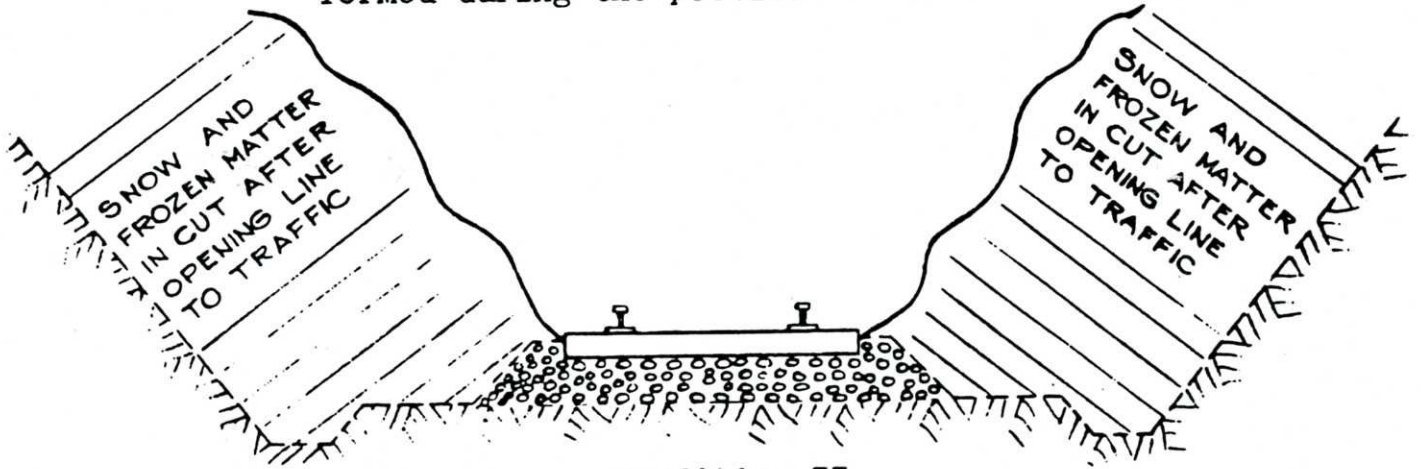
The purpose of this arrangement is to carry material from a cut to a fill in one operation. This eliminates necessity of loading and hauling. Approximately 15 yards of dirt can be carried in each R.H. and L.H. pocket. Speeds of 5-10 m.p.h. are common under load. The roadway is pleasingly profiled at the same time. Entire arrangement can be folded to side of car without fouling passing track by simply closing main template wing.

# WATER PROBLEM IN THAWING SNOW CUTS



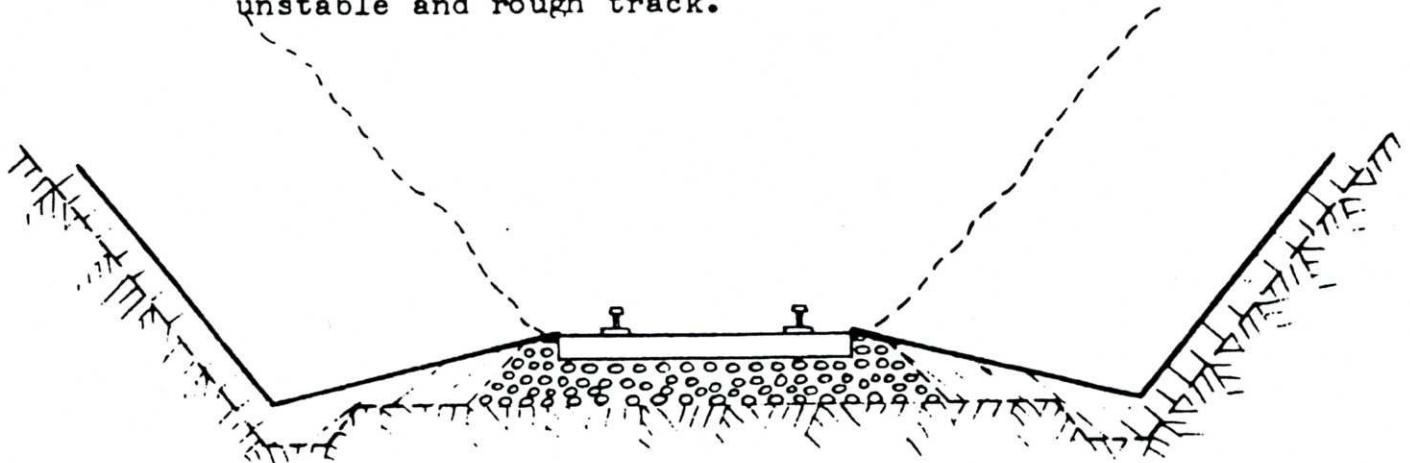
## Condition I

It is assumed that the cut has been properly ditched and adequate surface ditches formed during the previous work season



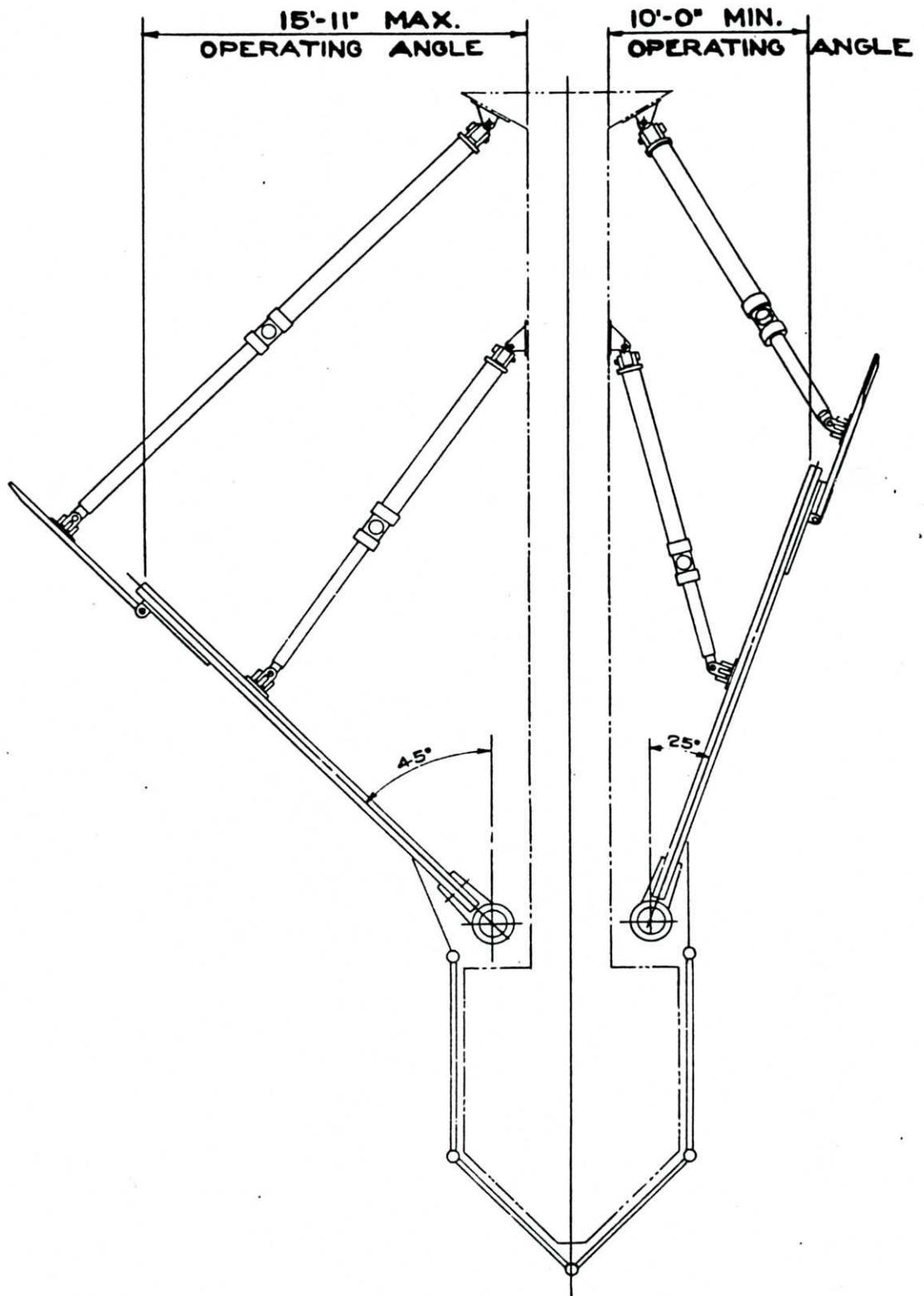
## Condition II

With warmer weather approaching, the snow will settle in cut. Colder night weather will cause surface crusting. Subsequent thawing causes water to flow toward the track area, entering ballast. Repetitive freezing here will create unstable and rough track.



## Condition III

Using a JORDAN in spreader form with its bank sloper wing in elevated position, the snow can be plowed out of the cut and a "V" contour created as shown above. Water will drain along this channel, ultimately becoming the surface ditch. Most important, no water is permitted to overflow or enter the roadbed. The process is fast and saves many subsequent maintenance problems.



**O. F. JORDAN CO.**  
 EAST CHICAGO, - INDIANA

**MAXIMUM AND MINIMUM  
 WING OPERATING ANGLES  
 FOR  
 TYPE "A" CAR  
 MODEL B-175 & B-200**

SCALE	DRWG NO.
DATE MAY 7, 1931	<b>3434</b>
DRAWN BY S. H.	

## CHECK LIST

### AIR CONNECTIONS FOR A JORDAN TO DIESEL POWER

1. The JORDAN must be connected directly to the main reservoir of the Diesel, using the special connection located at the rear of the Spreader leading directly to the main reservoir of the JORDAN. Do not take air thru the train line, as the brake system of practically all Diesels have restrictions which hinder rapid flow of compressed air.

2. Check the air outlet of the Diesel main reservoir for restrictions or small sized pipe, if outlet leads to end of locomotive. Certain railroads have found the solution by increasing the size of diesel reservoir outlet to 1" of  $1\frac{1}{4}$ " on class locomotives used with air operated work equipment.

3. The condition of the JORDAN is of vital importance. Air must be conserved at all times in movements of the operating assemblies by the operator.

4. Check all air lines and manifold valves for air leaks.

5. Air hoses should be checked for brittleness and swelling encountered under ordinary weather conditions.

6. Rusted or corroded air pipes should be replaced.

7. Rusted or corroded piston rods should be corrected.

8. Packing cups and rod packing in all air cylinders should be of correct size. Oversized rod packing and cups would hinder operation of any cylinder. Incidentally, Wabco cups used on JORDAN equipment is designed for our use.

9. On Standard Type JORDANS check slide post rollers for extreme wear. This is a common cause of unnecessary friction and causing poor alinement of slide posts.

10. Check slide and stationary posts of Standard machines and stationary post columns of Type "A" JORDANS for true alinement.

11. Lubricate all working parts according to factory instruction furnished with each unit. Do not lubricate gear racks.

12. In freezing weather use alcohol as shown in lubrication instruction to eliminate frosted air lines.

O. F. JORDAN COMPANY, INC.  
EAST CHICAGO, INDIANA

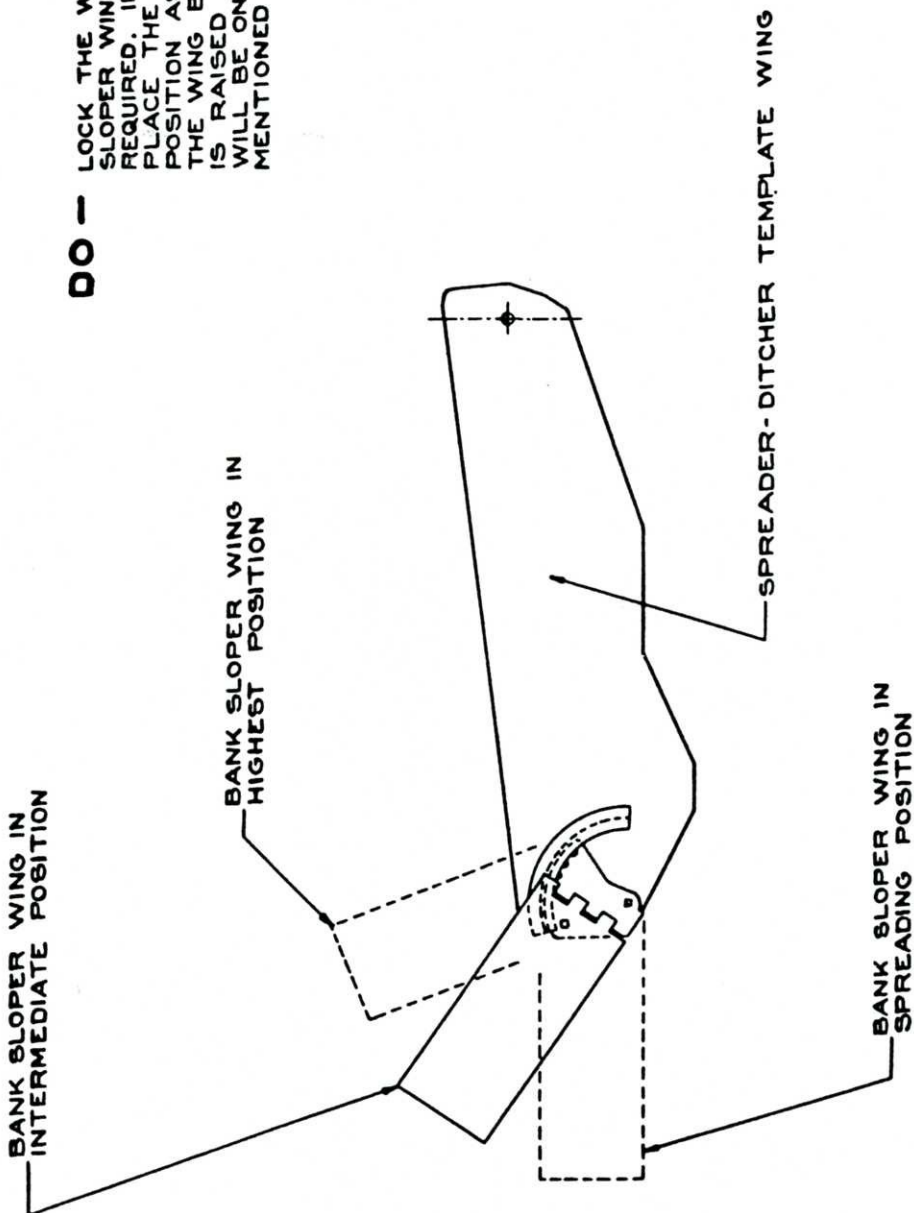
## WHEN OPERATING BANK SLOPER WINGS

### DON'T -

LOCK THE WING BRACES WHEN BANK SLOPER WING IS IN THE UP POSITION, IF BANK SLOPER IS TO BE LOWERED BECAUSE THE WING BRACE PUSHES THE BANK SLOPER OUTWARD AND DAMAGE TO THE HINGE MAY OCCUR.

### DO -

LOCK THE WING BRACES AFTER THE BANK SLOPER WING IS POSITIONED FOR THE SLOPE REQUIRED. IF THIS IS IMPRACTICAL THEN PLACE THE BANK SLOPER IN THE HALF WAY POSITION AS SHOWN IN THE SKETCH AND LOCK THE WING BRACES. NOW IF THE BANK SLOPER IS RAISED OR LOWERED THE WING DISTORTION WILL BE ONLY HALF AS MUCH AS THAT MENTIONED ABOVE.



REVISIONS		
DATE	LOC	WAS

**O. F. JORDAN CO.**  
EAST CHICAGO, INDIANA

**BANK SLOPER WING  
OPERATION**

SCALE NOV. 30, 1949 DRWG. NO.  
DRAWN BY S. K. **3132**



## GENERAL INSTRUCTIONS

### PREPARING A JORDAN FOR TRAIN MOVEMENT

#### 1. General

A JORDAN moves from one job location to another as a piece of rolling stock in a revenue train or in a "special". It must conform to all regulations governing the movement as any other car. Because of its unusual design (distinguished from rolling stock), certain extra precautions should be taken before inserting a JORDAN into a string of cars. This will insure a safe trip, avoid loss of life, injuries, and property damage.

These precautions are outlined below. You will recognize many of them as standard procedure for terminating a day's work.

There are many types and models of JORDAN machines in service today. They range from new machines to units built 50 years ago. These instructions cover the entire range of JORDAN equipment, as originally built in the factory. In addition, the railroad at some time may have applied certain devices. Each machine, therefore, must be judged on its own merits as regards any speed or other restrictions to apply in train movement.

It is important to note that existing railway rules and practice takes precedent over any instructions contained herein, in the event of a conflict.

#### 2. Trucks and Running Gear

- a. With particular emphasis on the front trucks, check all journal boxes for oil, proper packing, condition of brasses, and location of wedges.

- b. Hand brake to be released. Brake levers and rods to be "free". See if brake shoes are worn.
- c. Check air brake cylinder rod travel. Adjust if out of keeping with railway practice. When possible, use single car test device, particularly after unit was "shopped" for repairs.
- d. Couplers and uncoupling devices to be closely examined for proper operation.

### 3. Front Plow

- a. Be sure the front plow cutting shoes are firmly secured.
- b. On modern JORDANS, remove front coupler hole cover plate.
- c. Raise front plow to maximum "up" position, insert stop pins in pin rack holes, and allow plow crosshead to rest on stop pins. Install cotter pins.
- d. On modern JORDANS, auxiliary plow support device to be pulled manually into "hold" position.
- e. Check cotter pins on plow tubular braces.
- f. On Type A and Roadmaster Type models, be sure the front plow wings are secured to plow framing. A steel wedge and cotter pin, top and bottom of each plate, are provided for this purpose.
- g. Check rear safety chain at plow side wings to see if it is holding plow in "up" position.
- h. On certain JORDANS, the front plow is held in "up" position by means of a lock cylinder. Be sure the lock cylinder is engaged properly.

- i. On older JORDANS, the front plow is held in "up" position by a safety lock casting swung into lock position manually, by a chord from control manifold. Be sure this member is in lock position.

4. Stationary Post

- a. Move piston rod so that main wing is in extreme "up" position.
- b. Insert stop pins in pin racks to hold crosshead with wings in up position. Allow crosshead to rest on stop pins. Insert cotter pins (or twist stop pin so that retaining plate is engaged, in modern JORDANS.)
- c. Above pins are attached to a holding chain. Tie chains to pin racks to keep pins from working out.

5. Diagonal Brace

- a. Move piston rod so that main wing is raised to extreme "up" position.
- b. After wing is swung to car body, be sure its "saddle" goes over the wing rest. Lower diagonal brace until saddle reposes on wing rest.

6. Bank Sloper Wing (Ditcher models only)

- a. Move piston rod so that bank sloper wing is raised to extreme "up" position.
- b. Lock cylinder piston rod should be released after it is aligned with maximum "up-position" hole of the pivot hinge butt casting on ditcher template wing.
- c. Be certain that pivot hinge bolts and fasteners are tightened and cotter pinned.

7. Ditcher Template Wings (Ditcher models only)

- a. Adjustable ballast sections should be in "up" position. Insert retaining bolt through ballast section plate and hole in template wing. Apply nut and cotter pin.
- b. On Type A models, the sliding ditch section should be recessed to extreme "up" position inside the wing cavity.
- c. On certain Type A Ditchers where sliding ditch section is actuated by an air cylinder, a lock cylinder holds the ditch section in the "up" position. Be sure lock cylinder is engaged.
- d. Check main wing hinge pin and nut for tightness.

8. Spreader Wings (Spreader models only)

- a. Adjustable ballast section should be in "up" position. Insert retaining bolt through ballast section plate and hole in spreader wing. Apply nut and cotter pin.

9. Carrier Wing Brace (telescopic and stationary types)

- a. The bottom section of the telescopic type should be raised to extreme "up" (recessed) position. Align lock cylinder piston rod with corresponding hole to hold the bottom (telescopic) section in "up" position, then release foot control. Piston rod will plunge into hole.  
The entire telescopic carrier wing brace should ride in a "saddle" attached to the diagonal brace member or main wing bank sloper cylinder. Safety chain should be secured whenever carrier wing brace is not used.
- b. On the stationary type carrier wing brace, located at front end of old style JORDANS, make fast the structural steel

member by chaining to car side. Pin at bottom of front stationary column should be installed to hold brace in "up" position.

10. Main Wing Braces (telescopic and knuckle type)

- a. Pneumatic operated telescopic wing braces have locking cylinders in which a locking block is automatically engaged to the gear rack when air is released from the lock cylinder. Observe if locking blocks are meshed with gear rack teeth. They should not ride on top of teeth.
- b. Hydraulic operated telescopic wing braces on early Type A cars have no transit locking devices.
- c. Knuckle braced JORDANS (last built 1929) have no transit locking devices.

11. Pneumatic System

- a. Cut-off air to manifold by levering main valve on each side.
- b. Exhaust all air lines leading to and from operating cylinders. All valve handles should remain in center position.
- c. Blow down air reservoir. Leave exhaust valve open.
- d. Be sure air line from train line to manifold is cut-off and pin with cotter installed.
- e. Check train line and train line hoses.
- f. Open air brake valve.

12. Hydraulic System

- a. On early Type A units a pair of ram-operated hydraulic cylinders provided pressure for the friction locks on

telescopic wing braces. Relieve air pressure on the pneumatic cylinders, which relieves the hydraulic oil line pressure.

13. Operator's Cab

- a. Any fire in heating stove should be extinguished. Check stove mounting bolts for tightness.
- b. All windows and doors to be closed and locked.
- c. Any hand tools or equipment (chains, cable, etc.) should be picked from the floor and placed in tool box.

14. Machine Exterior

- a. Make a check of safety devices (hand holds, grab irons, stirrups, railings, steps, and platforms) and correct defects.
- b. Tie-down securely any loose objects on car frame or walkway.  
  
These may be spare parts or auxiliary components (ditch sections, ballast section braces, ballast carry wings, ice cutter attachment, etc.) used with the machine.
- c. Examine the tied-up machine for clearance purposes. Do the wings lay out to far? Anything dragging underneath? Is it within the clearance diagram of the route to destination?
- d. Check condition of the underframe, truck center pins, truck center plates, and side bearing clearance.
- e. Lubricate side bearings and truck center plates.
- f. Look at plow side lift cables to check for wear and tightness in sockets. Rear of front plow should be at same

horizontal level as front of plow.

15. Machine Tie-up

- a. Apply safety chain over rear brace rest (telescopic type).
- b. Insert long, safety tie-rod extending across car through both wings. Install double nut and cotter pin.
- c. On modern JORDANS, a pin is attached by chain to the under-frame at side where wing folds inward. Insert this pin to bracket when wing is folded to car side. Apply cotter pin.
- d. Apply safety chain between main wing and plow small end wing. Chain to be shortened by looping and bolt inserted to hold loop.
- e. On older JORDANS (knuckle braced), secure wings to side of machine by means of winch.
- f. Certain knuckle braced units had a hook arrangement at end of wing which is to be secured to car body.
- g. On older style JORDANS (including the knuckle braced models), the plow small end wings need to be swung forward and bolted to plow frame at side.
- h. Journal inspection doors on plow side wing to be swung upward and bolted in place.

16. Actual Movement

- a. JORDAN has no recommendations on train speeds for its equipment, since this depends entirely upon the specific condition of an individual machine. New equipment from Works, East Chicago, Indiana has no speed restriction.

- b. When a machine is being forwarded to shops for repairs after sustaining damage in the field, it is advisable to move it with wings in trailing position (i.e. plow end to front of train.)
- c. Do not place the JORDAN into train movement when wings are arranged in carrier wing form.
- d. Do not place the JORDAN into train movement when complete ice cutter attachment is mounted to front plow.
- e. Machines equipped with ballast carry wing accessories should not be placed into train service until ballast carry wings are removed.