OPERATOR'S MANUAL

Brillion

SURE-TILL HARROW

MODELS DS-102 DS-142 DS-180

FEMA

BRILLION IRON WORKS
BRILLION, WISCONSIN 54110

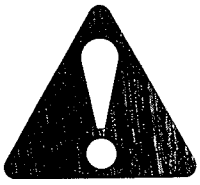
380

2J-610

INTRODUCTION

Your Brillion Sure-Till Harrow is built with the best materials and workmanship available. It has been designed to give years of trouble-free operation, and proper care and operation will insure the service and long life built into it.

Study this manual carefully before attempting to assemble or operate the machine.



This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injuries and carefully read the message that follows.

LOCATION REFERENCE

"Right" and "Left", "Front" and "Rear" refer to operators "Right" and "Left", "Front" and "Rear" when he faces in the same direction as the machine will travel.

SAFETY INSTRUCTIONS

CAUTION: This machine is drawbar light. Always lower the machine to the ground before unhooking the drawbar from the tractor.

CAUTION: Do not allow anyone near the machine when folding or unfolding the wings. ALWAYS STAND IN FRONT OF THE MACHINE when folding or unfolding the wings.

CAUTION: When transporting the machine, put the lock pin in the wing stands to prevent the wings from "bouncing" into the working position.

CAUTION: This machine was designed to be transported at a maximum speed of 20 M. P. H. DO NOT EXCEED THIS SPEED AT ANY TIME. When transporting, slow down while traveling over rough or bumpy ground.

CAUTION: When transporting the harrow on a road or highway use adequate warning symbols, reflectors and lights as required.

SAFETY RULES

DO NOT ADJUST THE MACHINE WHILE IT IS IN MOTION.

NEVER PERMIT ANY PERSON OTHER THAN THE OPERATOR ON THE TRACTOR.

NEVER RIDE OR PERMIT OTHERS TO RIDE ON THE MACHINE.

ALWAYS LOWER THE MACHINE TO THE GROUND WHEN STORING IT.

THE SPIKES ON THIS MACHINE ARE SHARP. ALWAYS STORE THE MACHINE SO THAT NO ONE CAN STUMBLE OR FALL AGAINST THE SPIKES.

DO NOT BACK UP WHILE THE HARROW IS IN WORKING POSITION.

OPERATING INSTRUCTIONS

The drawbar hitch is designed to operate with a Brillion ratchet jack or a standard 8" stroke agricultural hydraulic cylinder. The wheels on the machine are adjustable, by means of a turnbuckle, to aid in controlling the working depth. (See Figure 1)

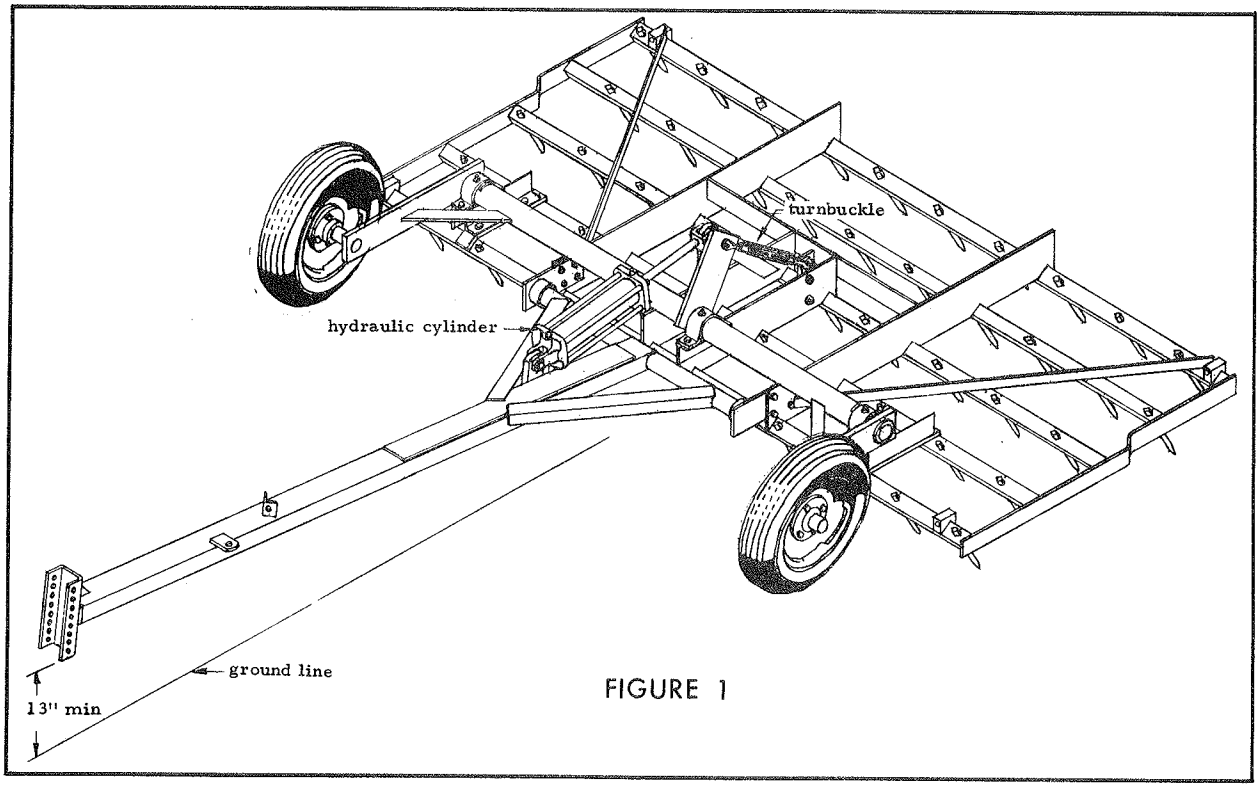


FIGURE 1

To work properly the harrow drawbar must be a least 13" above the ground surface. To put downward pressure on the rear tooth bar of the harrow the ratchet jack or hydraulic cylinder must be fully extended. The higher the drawbar or hitch point the more pressure can be applied to the rear tooth bar.

The adjustable wheels permit you to set the working depth of the front spikes from a full depth of 6" to a shallow 2". This adjustment will allow the transport wheels to carry part of the weight of the machine. Retracting the turnbuckle all the way puts the machine in the deepest working position, while extending the turnbuckle full length puts it in the shallowest working position.

LUBRICATION

The three grease fittings on the axle bearings are the only ones on the machine. This shaft only moves when the wheels are adjusted therefore, the fittings need grease once a week to keep the shaft from rusting tight.

Use a dry lubricant such as teflon spray to keep the turnbuckle from rusting.

Repack the wheel bearings at the beginning of each season. To repack the bearings, remove the hubcap, cotter pin and slotted nut. Use care in pulling off the hub as the seal must drag off the inner bearing cone. Remove the seal if it did not pull out of the hub. If the seal is not damaged, slide it back on the spindle, if damaged, replace it with a new one. Clean bearings and repack with a good grade of wheel bearing grease. Reassemble the hub but do not press the seal into the hub. Tighten the nut while turning the hub until a definite drag is felt on the hub. Back off the nut at least one notch but less than two notches and lock with the cotter pin. Drive the seal back into the hub and replace the hub cap.

MAINTENANCE AND ADJUSTMENT

After the first 5 or 6 hours of operation, go over the machine and tighten all nuts which may be loose. Normal periodic checks should be made thereafter.

The teeth of the Brillion Sure-Till Harrow are heat treated for wear and require little up keep. Raise the harrow for backing to avoid unnecessary tooth breakage.

The spikes are pressed thru the tubular frame and welded to the underside. This unique method of fastening the spikes to the frame eliminates the need for special clamps, bolts, and nuts.

To replace broken spikes, cut the weld free with a hammer and chisel and drive the old spike out with a punch. Drive the new spike in from the top and weld with a small weld to one of the flared ears on the bottom of the tubular frame. For best results, use a low hydrogen rod and have the metal clean and dry.

SURE-TILL HARROW SPECIFICATIONS

Model	Description	No. of Teeth	Weight
DS-102	Basic 8'-6" Section	50	657#
DS-142	Basic 11'-10" Section	70	782#
DS-180	Basic 15'-1 Section	90	940#
WS-42	Set of 2 - 3'-6" wings including hardware	20	300#
WS-52	Set of 2 - 4'-4" wings including hardware	25	350#
WS-62	Set of 2 - 5'-2" wings including hardware	30	400#
8D-295	Wing Hold Down Kit - locks wing in rigid position		

Your Brillion Sure-Till Harrow is shipped to you in separate assemblies. Before assembling the unit, separate the various assemblies and open the box assembly, taking care not to lose any of the parts or hardware. Refer to the repair parts catalog for relative location of parts and hardware used to fasten them together.

DRAWBAR HITCH ASSEMBLY

Place the 2J-205 drawbar brackets on the ends of the drawbar tube and fit between the frame plates on the main frame. Bolt in place with the 1/2" x 1-1/2" long capscrews, lockwashers and nuts. Next, (on the 15' frame only) bolt the drawbar braces to the outer frame lugs with the 5/8" x 1-3/4" long capscrews and locknuts and to the drawbar with the 1/2" x 1-1/2" long capscrews and locknuts.

Fasten the 6D-333 cylinder hose support to the mating lug on the drawbar with the 5/8" x 1-3/4" long capscrew, 5/8" flat washer, lockwasher, and nut provided.

Attach the 2D-349 clevis assembly to the drawbar bracket with the 3/4" x 5" long capscrew and 3/4" locknut. The hole position of the clevis into the drawbar bracket will depend on the tractor drawbar height and the desired amount of downward pressure to be applied on the rear tooth bars when the cylinder is fully extended.

Bolt the 1J-768 lug to the inside frame plate of the main frame, as shown, with the 5/8" x 2" long capscrews, lockwashers and nuts.

AXLE ASSEMBLY

Bolt the 1J-764 right hand axle mount and the 1J-765 left hand axle mount to the straps on the main frame with the 5/8" x 2" long capscrews, lockwashers and nuts. Position the axle assembly on the axle mounts and center angle with the wheel arms to the front and the turnbuckle arm upward. Coat the inside of the three 3D-543 bearing clamps with grease and fit the bearings over the axle where indicated. Place the 1/2" x 1-1/2" long capscrews in the bearings and partially tighten them. Turn the axle a couple of times to make sure it turns freely. After tightening all the bearing bolts, the axle should still turn freely. If any of the bearings bind, place a flat washer as a spacer between the bearing clamps and the axle mounts.

NOTE: Use 6:70 x 15 rib implement 4 ply tires or equivalent automotive size.

Assemble the turnbuckle by sliding the handle through the hole in the body and then driving the roll pins through the holes in the ends of the handle. Fasten the turnbuckle to the arm on the axle and the lug on the main frame with the 3/4 x 2-1/2" long capscrews and stover locknuts.

A standard agricultural, 8" stroke, double-acting, hydraulic cylinder (NOT FURNISHED) is required to operate the drawbar hitch. Attach the anchor end to the drawbar and the rod end to the cylinder lug on the main frame. It should be equipped with hoses approximately 120" long.

MAIN FRAME AND WING ASSEMBLY

The folding wings are hinged to the main frame with the hardware assembled in the wing hinge straps. Align the holes in the wing hinge straps with the holes in the hinge lugs welded to the main frame. Insert the 5/8" x 4" long drilled capscrews with the head on the outside against the hinge strap. Fasten with the flat washer, slotted nut and cotter pin but do not tighten the nut completely to permit movement of the wings. See Figure 2.

Attach the 1J-632 left hand wing stand and the 1J-633 right hand wing stand to the center tooth bar of the main frame with the 3/8" x 3-3/4" long capscrews, lockwashers and nuts. Location of the wing stands varies according to the size of the main frame and the wings. When the wings are raised a 3/8" x 4" long drilled bolt fastened with a ring pin holds the wing in the wing stand.

Wing hold down clamps are available to lock the wings in a rigid position while using the machine. See Figure 2 for location of the clamps on the side straps of the main frame and wings.

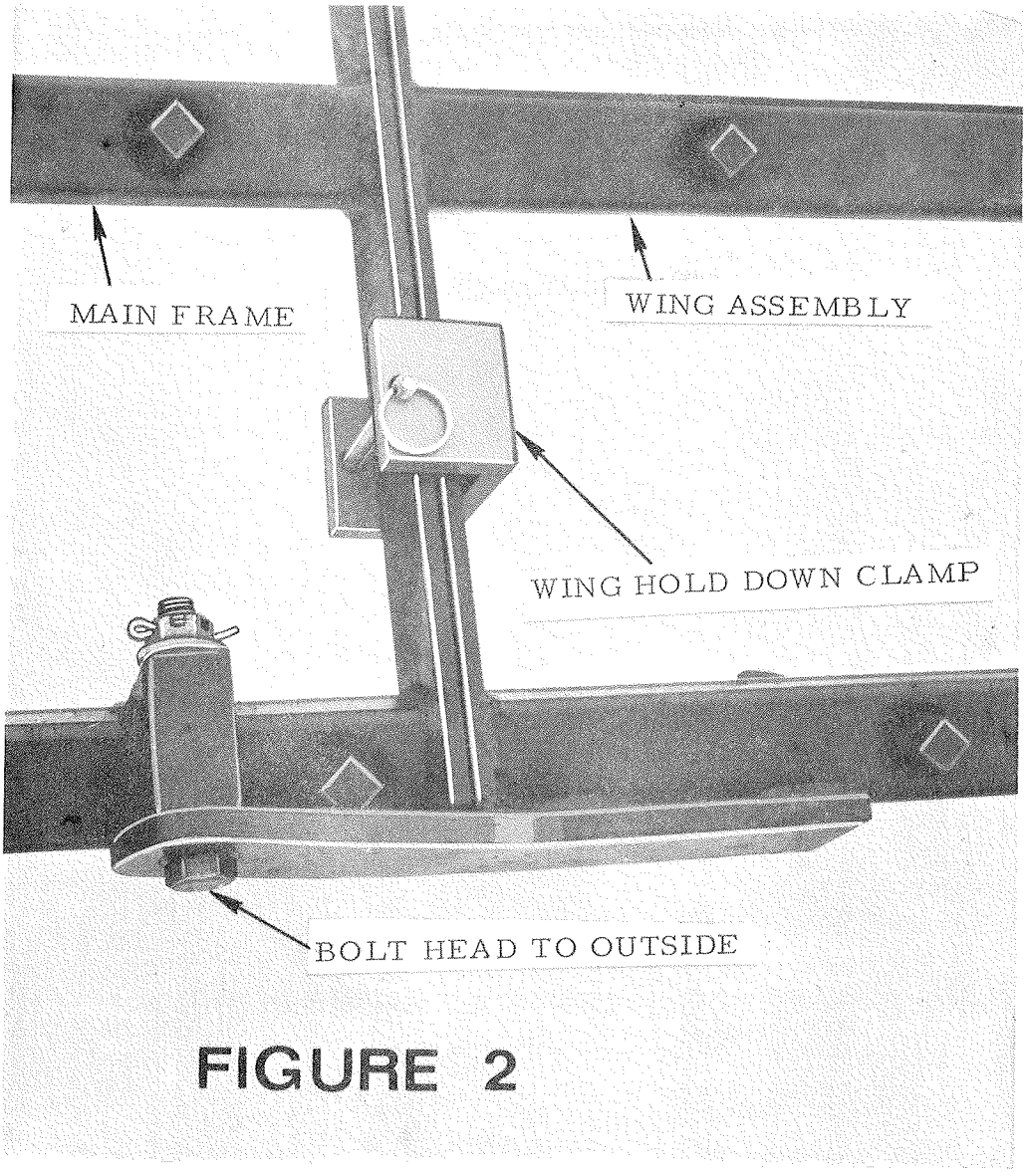

MAIN FRAME
WING ASSEMBLY
WING HOLD DOWN CLAMP
BOLT HEAD TO OUTSIDE

FIGURE 2