

GRADER
PLAHER
ROLLER
CRANE

Shop Manual

H-1.10 R1

CIRCLE ADJUSTMENT

APPLICABLE MODELS

T-500C
 T-500M
 T-600C
 A-500
 A-550
 A-600

SERIAL NUMBERS

07995 & Up
 07995 & Up
 02536 & Up
 09269 & Up
 09251 & Up
 02850 & Up

CAUTION

ALL COMPONENTS MUST BE PROPERLY SUPPORTED DURING DISASSEMBLY AND ASSEMBLY.

ALL JACKING, HOISTING, AND GENERAL WORKSHOP EQUIPMENT REQUIRED FOR THIS OPERATION MUST BE IN GOOD WORKING ORDER.

EXTREME CAUTION TO BE OBSERVED AT ALL TIMES TO PREVENT INJURY.

SAFE WORKSHOP PRACTICES ARE A MUST.

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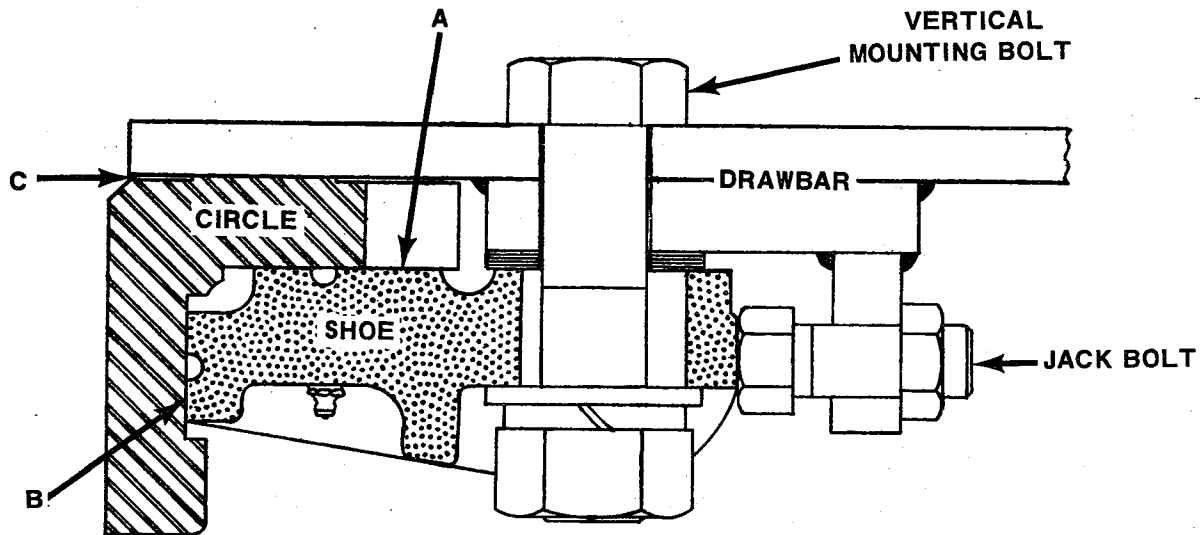
GENERAL TORQUE VALUES

The following General Torques are to be used in all cases where SPECIFIC TORQUES are not given.

| NOTE: Torque Values listed throughout this manual are Lubricated (Wet) Threads; values should be increased 1/3 for Non-Lubricated (Dry) Threads. | | | | |
|--|--|-----------------------|--|-----------------------|
| Thread Size | Heat treated material Grade 5 & Grade 8 | | | |
| | Grade 5 (3 radial dashes on bolt or cap screw head) | | Grade 8 (6 radial dashes on bolt or cap screw head) | |
| | Foot Pounds (Ft. Lbs.) | Newton Meters (Nm) | Foot Pounds (Ft. Lbs.) | Newton Meters (Nm) |
| 1/4 - 20 | 6 | 8 | 9 | 12 |
| 1/4 - 28 | 7 | 9 | 11 | 15 |
| 5/16 - 18 | 13 | 18 | 18 | 24 |
| 5/16 - 24 | 15 | 20 | 21 | 28 |
| 3/8 - 16 | 24 | 33 | 34 | 46 |
| 3/8 - 24 | 27 | 37 | 38 | 52 |
| 7/16 - 14 | 38 | 52 | 54 | 73 |
| 7/16 - 20 | 42 | 57 | 60 | 81 |
| 1/2 - 13 | 58 | 79 | 82 | 111 |
| 1/2 - 20 | 65 | 88 | 90 | 122 |
| 9/16 - 12 | 84 | 114 | 120 | 163 |
| 9/16 - 18 | 93 | 126 | 132 | 179 |
| 5/8 - 11 | 115 | 156 | 165 | 224 |
| 5/8 - 18 | 130 | 176 | 185 | 251 |
| 3/4 - 10 | 205 | 278 | 290 | 393 |
| 3/4 - 16 | 230 | 312 | 320 | 434 |
| 7/8 - 9 | 305 | 414 | 455 | 617 |
| 7/8 - 14 | 335 | 454 | 515 | 698 |
| 1 - 8 | 455 | 617 | 695 | 942 |
| 1 - 14 | 510 | 691 | 785 | 1064 |
| 1 1/8 - 7 | 610 | 827 | 990 | 1342 |
| 1 1/8 - 12 | 685 | 929 | 1110 | 1505 |
| 1 1/4 - 7 | 860 | 1166 | 1400 | 1898 |
| 1 1/4 - 12 | 955 | 1295 | 1550 | 2102 |
| 1 3/8 - 6 | 1130 | 1532 | 1830 | 2481 |
| 1 3/8 - 12 | 1290 | 1749 | 2085 | 2827 |
| 1 1/2 - 6 | 1500 | 2034 | 2430 | 3295 |
| 1 1/2 - 12 | 1690 | 2291 | 2730 | 3701 |
| 1 3/4 - 5 | 2370 | 3213 | 3810 | 5166 |
| 2 - 4 1/2 | 3550 | 4813 | 5760 | 7810 |

INTRODUCTION

This section is written as a guide to properly adjust the drawbar and circle operating clearances. The adjustment will be made to the vertical mounting shoes and the circle pinion gear. There are two (2) major contact points on the mounting shoes. The top of the shoes provide a horizontal bearing surface for the circle, (A). The edge of each shoes opposite the jack bolts provides a vertical bearing surface for the circle (B).



The number of shims used with each vertical mounting bolt determines the overall clearance at point (C). A gap, no less than 1/32" and no more than 1/16", must be maintained between the bottom of the drawbar and top of the circle at this point to ensure no binding when circle is rotated. This clearance will be measured at areas directly above the three shoes.

After completing the adjustments in this section, the gap running the length of each bearing surface (A & B) should be consistent. The shoes should be adjusted for proper alignment before tightening vertical bolts. Improper alignment at surface (B) on any shoe will cause uneven wear. Each shoe should be of equal distance from the vertical edge of the circle. The shoe clearance at (A) should be consistent throughout its length. A & C are the same depending on whether or not blade is in the air.

The adjustments detailed here were performed on new equipment. Variables may appear in this procedure as equipment components become worn through work.



DO NOT REMOVE ALL THE VERTICAL BOLTS FROM THE SHOES AT THE SAME TIME. THE SHOE IS VERY HEAVY AND WILL CAUSE INJURY IF IT FALLS FROM THE MOUNTING BOLTS.

VERTICAL ADJUSTMENT

SHOE #1: Set parking brake. With moldboard set crosswise under grader, apply slight down pressure with the blade lift controls.

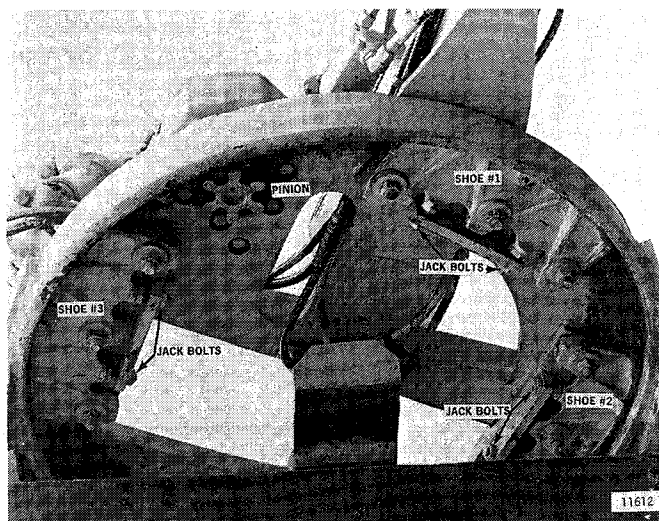
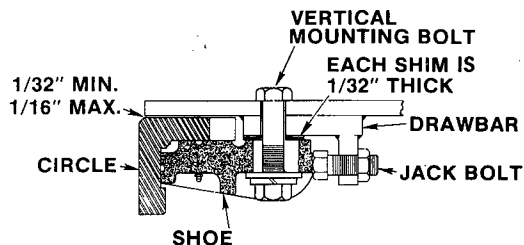
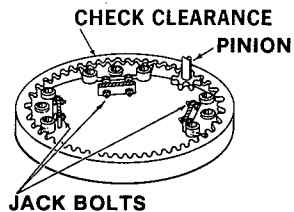


Figure 1



CAUTION: DO NOT Remove All Mounting Bolts At Same Time.

Figure 2



CLEARANCE AT FRONT SHOE

1. Apply parking brake
2. Moldboard crosswise under grader with slight down pressure.
3. 1/32 inch min. 1/16 inch. max.

Figure 3

With moldboard in this position, the gap at shoe #1, between the bottom of the moldboard plate and the top of the circle, should be 1/32" (0.0312 mm) minimum - 1/16" (0.0625 mm) maximum.

If the clearance in this area is less than 1/32" or greater than 1/16", shims should be added to or removed from each bolt. Removing/adding one shim from each bolt will decrease/increase the gap 1/32".

SHOES #2 and #3: Raise moldboard 1" from the ground. Measure the clearance at shoes #2 and #3. After measuring the gap, slight down pressure should be applied to the moldboard before adding or removing shims.

When blade is in the air, the circle tips or tilts (usually) such that an air gap occurs at (C) on shoes #2 and #3, and also occurs at (A) on shoe #1, but not at (C).



WHEN ADDING OR REMOVING SHIMS, THE MOLDBOARD SHOULD BE CROSSWISE UNDER THE GRADER WITH SLIGHT DOWN PRESSURE APPLIED.

Do not torque vertical bolts at this time. It is necessary for the shoes to be movable in order to perform the pinion adjustment.

PINION ADJUSTMENT

Rotate circle until pinion gear is in the position shown.

With pinion in this position, the tooth clearance at point (A) should be $1/8"$ (0.125 mm) maximum throughout 360° rotation.

NOTE: *At no time should pinion tooth tip bottom out in root gap between any two teeth of circle.*

In order to make the pinion adjustments, the six jack bolts and jam nuts should be loosened to allow the circle to move under the drawbar. If the tooth clearance is greater than $1/8"$, tighten the jack bolts on shoe #3 until the clearance is reached. If the tooth clearance is less than $1/8"$, tighten the jack bolts on shoe #2 until the clearance is reached. After making adjustments to the proper shoe, be sure to retighten the jack bolts and jam nuts on the remaining shoes.

NOTE: *When tightening the jack bolts and jam nuts, make certain that the edge of the shoe against the vertical side of the circle is making equal contact on each end.*

After final adjustment is made, torque the nine vertical mounting bolts to 455 Ft.Lbs. (617 Nm). Lubricate by applying ML2 to bottomside of circle and between circle teeth with a suitable brush.

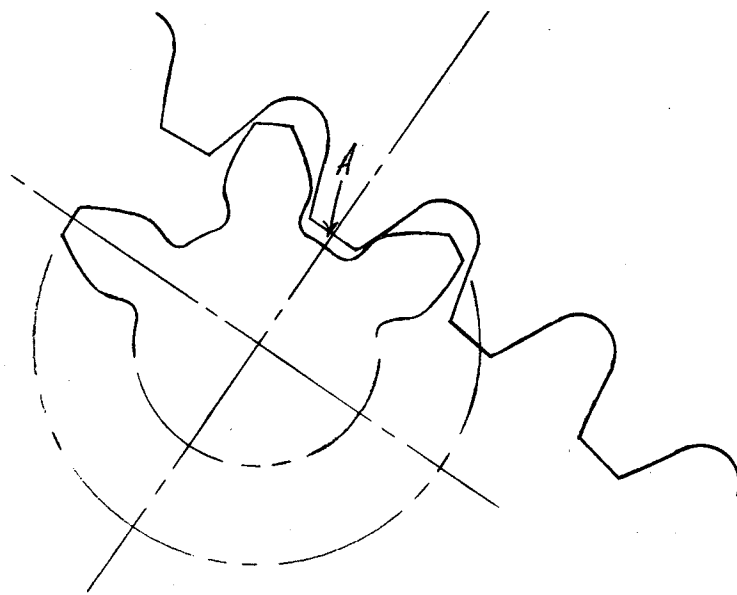


Figure 4

