

INSTALLING STOPS ON GEAR CASES AND BEARING BOXES
OF FRICTION ROLL DRIVES

1. GENERAL

1.01 This section covers procedures for installing stops on gear cases and bearing boxes of friction roll drives to prevent accidental rotary movement of a gear case or bearing box. This section also covers procedures for preserving the same relationship between the friction rolls and the clutches when it is necessary to shift or remove the stops.

1.02 The section is reissued to cover mounting gear case stops on line finder frames where the ground bar is mounted on the frame uprights directly opposite the gear case.

1.03 The procedures covered herein apply to all friction roll drives except those associated with the 300 point line finder frame and some earlier type frames where the shape of the frame uprights prohibits the use of the stops. Sets of parts (stops) per D-159143 are used on all frames covered by this section except those line finder frames where the ground bar is mounted on the frame upright opposite the gear case. Where the ground bar is so mounted the sets of parts (stops) per D-159463 are used. Each set of parts consists of a gear case stop and a bearing box stop. The bearing box stops forming a part of the sets are identical.

1.04 Where clutches are to be readjusted and gear case and bearing box stops are to be used, the stops should be installed before any readjustments are made on the clutches.

1.05 After installing the stop, do not loosen or remove the stop bearing or mounting screws except as outlined in Part 4.

2. TOOLS

Code or Spec. No.	Description
<u>Tools</u>	
245 (2 Req'd)	3/8" and 7/16" Hex. Open Double End Flat Wrench
R-1051	6" Pillar File
R-1640	Center Punch
R-1770	1/2" and 9/16" Hex. Open Double End Flat Wrench

Code or Spec. No.

Description

R-1764	3/8" Straight Shank Drill (Part of R-2314 Tap, Bit and Drill Set)
-	Hack Saw Frame and Blades
-	No. 1441 Hand Drill, North Bros. Mfg. Co., Philadelphia, Pa.
-	Power Drill (if furnished)
-	4 Oz. Riveting Hammer
-	No. 13 Hex. Socket Wrench Set, Frank Mossberg Co., Attleboro, Mass.
-	7/8" and 3/4" 12 Point Box Wrench, J.H. Williams Co., New York, N.Y.

3. PROCEDURES FOR MOUNTING GEAR CASE AND BEARING BOX STOPS

3.01 In view of the variety of frames in the field, no attempt is made to cover the exact method of mounting the stop. In some cases it may be necessary to smooth the surface of the frame upright with a file to facilitate the mounting of the stop.

D-159143 Gear Case Stops

3.02 Mounting Gear Case Stop: Back off the lock nuts with the No. 245 wrench and back off the mounting screw with the No. 245 wrench and the bearing screws with the fingers until the tips of the screws are flush with the frame of the stop. Place the gear case stop over the frame upright with the lip of the stop in the space between the upright and the gear case. Slide the stop up or down as required until it is so located that when the bearing screws are tightened, they will engage the back of the gear case and the gear case cover as shown in Fig. 1. In some cases it may be necessary to locate the stop in the notch in the frame upright in order to provide a surface for the bearing screws. In these cases, it may be necessary in order to increase the effective length of the mounting screw to place the mounting screw lock nut on the inside of the gear case stop. When locating a stop, do not permit the bearing screw to come into contact with a gear case cover mounting screw.

3.03 With the stop satisfactorily located on the frame upright, turn the mounting screw in a clockwise direction until the screw bears against the upright. Continue turning

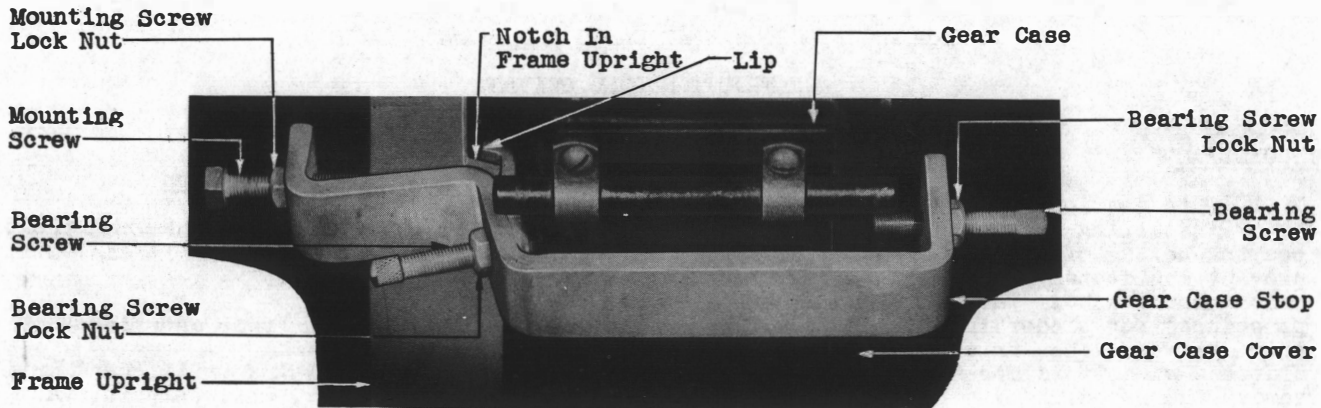


Fig. 1 - D-159143 Gear Case Stop

the screw in two or three additional turns until the cone point penetrates the frame upright using the No. 245 wrench in order to securely tighten the stop in place. Then lock it in place by tightening the lock nut with the No. 245 wrench.

3.04 Carefully turn the two bearing screws simultaneously with the fingers until both screws touch the gear case or gear case cover at the same time. Do not use pliers or a wrench on the bearing screws.

Caution: Do not tighten the screws after they touch the surfaces on which they bear as this may shift the gear case on its bearings.

3.05 With the bearing screws touching the gear case and gear case cover, hold the screws in place with the fingers of one hand and tighten the lock nuts with the No. 245 wrench.

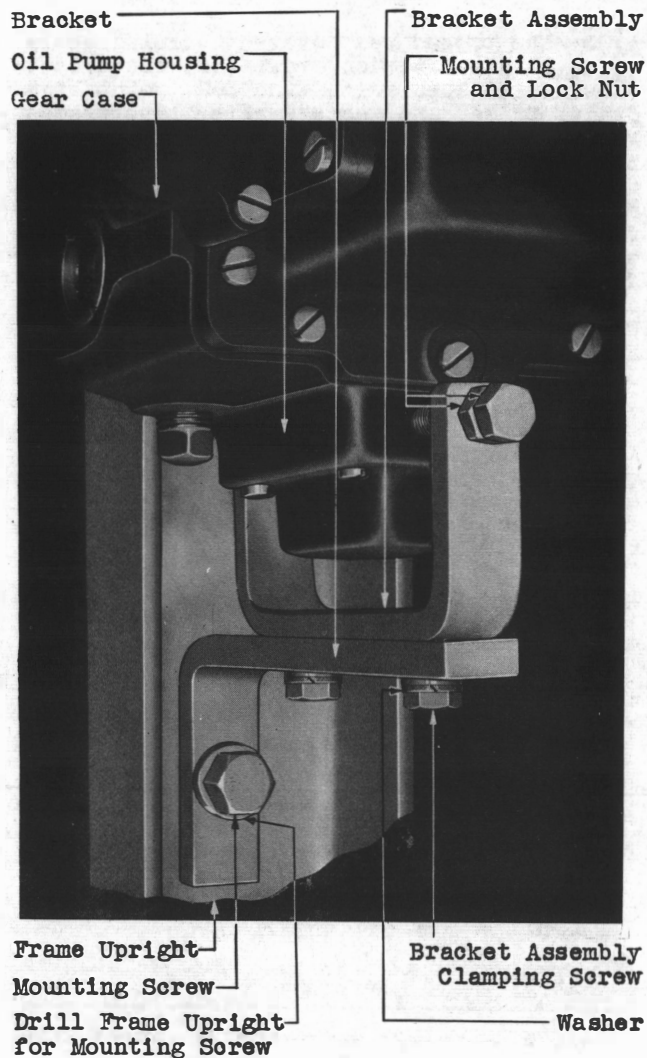


Fig. 2 - D-159463 Gear Case Stop

┌ D-159463 Gear Case Stops

3.06 Locating Gear Case Stop on Frame Upright: Separate the gear case stop mounting screw and lock nut with the fingers and remove the screw from the stop. Remove the bracket assembly clamping screws and washers with the No. 245 wrench and separate the bracket and bracket assembly. Mount the bracket assembly on the oil pump housing of the gear case so that the pin in the assembly is resting against the rear side of the housing and then tighten the mounting screw finger tight taking care not to disturb the position of the gear case. Tighten the lock nut finger tight. Hold the wide surface of the long leg of the bracket against the bottom surface of the bracket assembly and insert and tighten the mounting screws finger tight. Back off the mounting screws 1/4 turn and slide the bracket against the frame upright as shown in Fig. 2. Tighten the

mounting screws in place. Note the position of the mounting hole in the short leg of the bracket with respect to the frame upright. If to all appearances the gear case stop mounting screw may not clear the webbing of the upright, loosen the bracket assembly mounting screw and shift the entire assembly up or down or in or out as required until the best possible position is obtained. Then tighten the bracket assembly mounting screw in position. Again note the position of the mounting hole and using the R-1640 center punch and the riveting hammer, spot a point on the frame upright so that when a hole is drilled in the upright it will be in alignment with the hole in the bracket. Loosen the bracket assembly mounting screw with the No. 245 wrench and remove the gear case stop from the oil pump housing. Separate the bracket assembly and bracket.

3.07 Drilling Frame: Drill a $3/8$ " hole through the frame upright at the point marked by the center punch.

3.08 Mounting Gear Case Stop: Mount the bracket assembly on the oil pump housing as outlined in 3.06 and then assemble the bracket loosely against the bracket assembly with the mounting screws. Slide the bracket toward and against the frame upright and insert the gear case stop mounting screw through the bracket and frame upright. If necessary shift the position of the bracket assembly so that the bracket and bracket assembly are in alignment. Mount the hexagonal nut on the mounting screw and tighten it securely in place using the proper wrench of the No. 13 wrench set to turn the screw while holding the nut with the $11/16$ " Williams wrench. With the gear case stop securely held in place, securely tighten the bracket mounting screws with the No. 245 wrench taking care not to disturb the position of the gear case.

D-159143 and D-159463 Bearing Box Stops

3.09 Mounting Bearing Box Stop: Back off the lock nuts with the R-1770 wrench and back off the bearing screws with the fingers until only the tips of the screws are flush with the lock nuts. Separate the two parts of the stop by removing the two mounting screws with the No. 245 wrench. The inner screw will be held in place in one part by one of the bearing screws. Do not remove this screw.

3.10 Place the Z-shaped part of the stop around the right hand side of the frame upright with the tip of the bearing screw toward the bearing box. Place the U-shaped part against the left hand side of the frame upright so that the open side of the part is toward the left and the tip of the bearing screw is toward the bearing box cover as shown in Fig. 3.

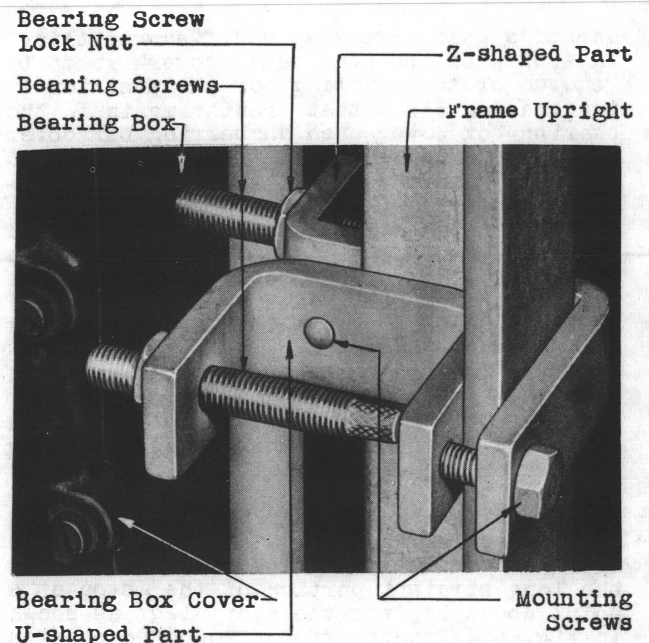


Fig. 3 - D-159143 and D-159463 Bearing Box Stop

3.11 Secure the parts loosely together with the two mounting screws. Shift the stop up or down as required until the bearing screws are opposite the bearing box and cover preferably opposite flat surfaces. Then tighten the mounting screws securely in place with the No. 245 wrench.

3.12 Carefully turn the two bearing screws simultaneously with the fingers until both screws touch the bearing box and bearing box cover at the same time. Do not use pliers or a wrench on the bearing screws.

Caution: Do not tighten the screws after they touch the surfaces on which they bear as this may shift the bearing box on its bearings.

3.13 With the bearing screws touching the bearing box and bearing box cover hold the screws in place with the fingers of one hand and securely tighten the lock nuts with the R-1770 wrench.

4. PROCEDURES TO BE FOLLOWED WHERE SUBSEQUENT SHIFTING OR REMOVING A GEAR CASE OR BEARING BOX STOP IS REQUIRED

Where D-159143 Gear Case Stop is Used

4.01 General: After a gear case or bearing box has been secured in place, the stop should not be moved unless precautions are taken to maintain the existing relationship between the friction rolls and the clutches. These precautions may involve the

use of a gear case stop modified as outlined in 4.02 when the gear case cover is to be removed or the shifting of the position of the bearing screw that rests against the bearing box cover when the bearing box cover is to be removed. If it is necessary to remove a gear case stop to effect the removal of any part except the gear case, give consideration to the use of the modified gear case stop mentioned above and proceed as outlined in 4.03 to 4.06 inclusive to substitute the modified stop on the frame. If it is necessary to move a bearing box stop, to effect the removal of any part except the bearing box, proceed as outlined in 4.08. If it is necessary to remove a gear case or bearing box, remove the associated stop from the frame in the reverse manner from which it was mounted.

→ 4.02 Modification of Gear Case Stop: Modify a spare gear case stop by cutting it into two parts with a hack saw, sawing through the long straight portion of the stop at a point about 1" from the short leg as shown in Fig. 4. Smooth off any rough edges with the R-1051 file.

4.03 Before removing a gear case stop where a modified stop is to be used, note whether the modified stop can be mounted on the gear case while the regular stop is still in place and, if it can be mounted, proceed as outlined in 4.04, otherwise proceed as outlined in 4.05. After the work has been completed, proceed as outlined in 4.06.

4.04 Mounting a Modified Gear Case Stop While the Regular Stop is Still Mounted: If the modified stop can be mounted before the regular stop is removed, securely mount it as outlined in 3.03. Turn in the bearing

screw until it touches the gear case and tighten the associated lock nut securely to hold the screw in place. Then back off the lock nuts of the regular stop with the No. 245 wrench and back off the bearing screws with the fingers, and the mounting screw with the No. 245 wrench and remove the stop.

4.05 Mounting a Modified Gear Case Stop Where the Regular Stop is First Removed: If the modified stop can not be mounted before the regular stop is removed, hold the knurled end of one bearing screw and loosen the associated lock nut with the No. 245 wrench taking care not to disturb the adjustment of the bearing screw. Repeat for the other bearing screw lock nut. With both lock nuts loosened, back off the bearing screws simultaneously. Loosen the mounting screw lock nut with the No. 245 wrench and back off the mounting screw with the same wrench. Remove the stop from the frame upright taking care not to disturb the location of the gear case. Mount the modified stop on the frame upright as outlined in 3.03 and turn in the bearing screw until it touches the gear case and tighten the associated lock nut securely to hold the screw in place.

4.06 Removal of Modified Gear Case Stop: When the necessary work has been completed, proceed as follows. Make sure that the gear case rests against the modified stop. If the modified stop was mounted on the gear case before the regular stop was removed, remount the regular stop as outlined in 3.02 to 3.05, inclusive and then back off the lock nuts of the modified stop with the No. 245 wrench and back off the bearing and mounting screws and remove the modified stop. If the modified stop could not be mounted

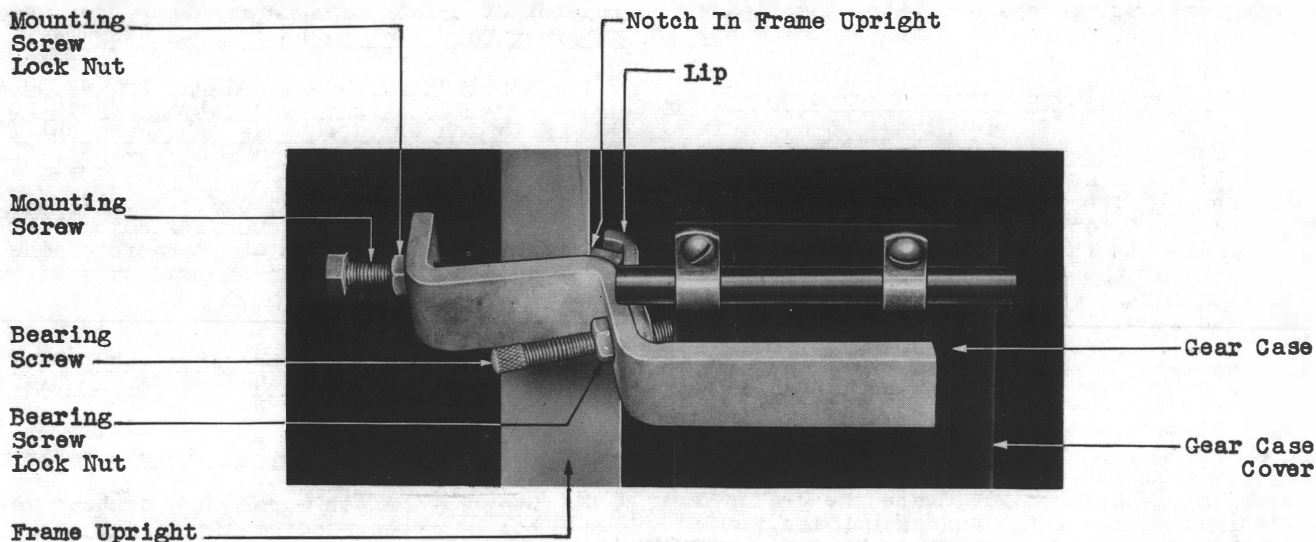


Fig. 4 - Modified D-159143 Gear Case Stop

on the gear case without removing the regular stop, remove the modified stop taking care not to disturb the location of the gear case. Remount the regular stop as outlined in 3.02 to 3.05 inclusive.

Where D-159463 Gear Case Stop Is Used

4.07 Where a D-159463 gear case stop is used to secure a gear case in place, it will be necessary to remove the stop to effect the removal of the oil pump housing. Whenever this stop is removed, check the adjustment of the clutches as the position of the gear case may have changed during the replacement operation and affected the

adjustment of the clutches. In this case adjust the clutches as outlined in the Division 026 sections covering clutches.

4.08 Bearing Box Stop: Without disturbing any other screw or lock nut, loosen, with the R-1770 wrench, the bearing screw lock nut of the bearing screw that is in contact with the bearing box cover and back off the bearing screw with the fingers. After the necessary work has been completed, make sure that the bearing box is resting against the bearing screw that had not been moved and then adjust and secure the other bearing screw as outlined in 3.12.

