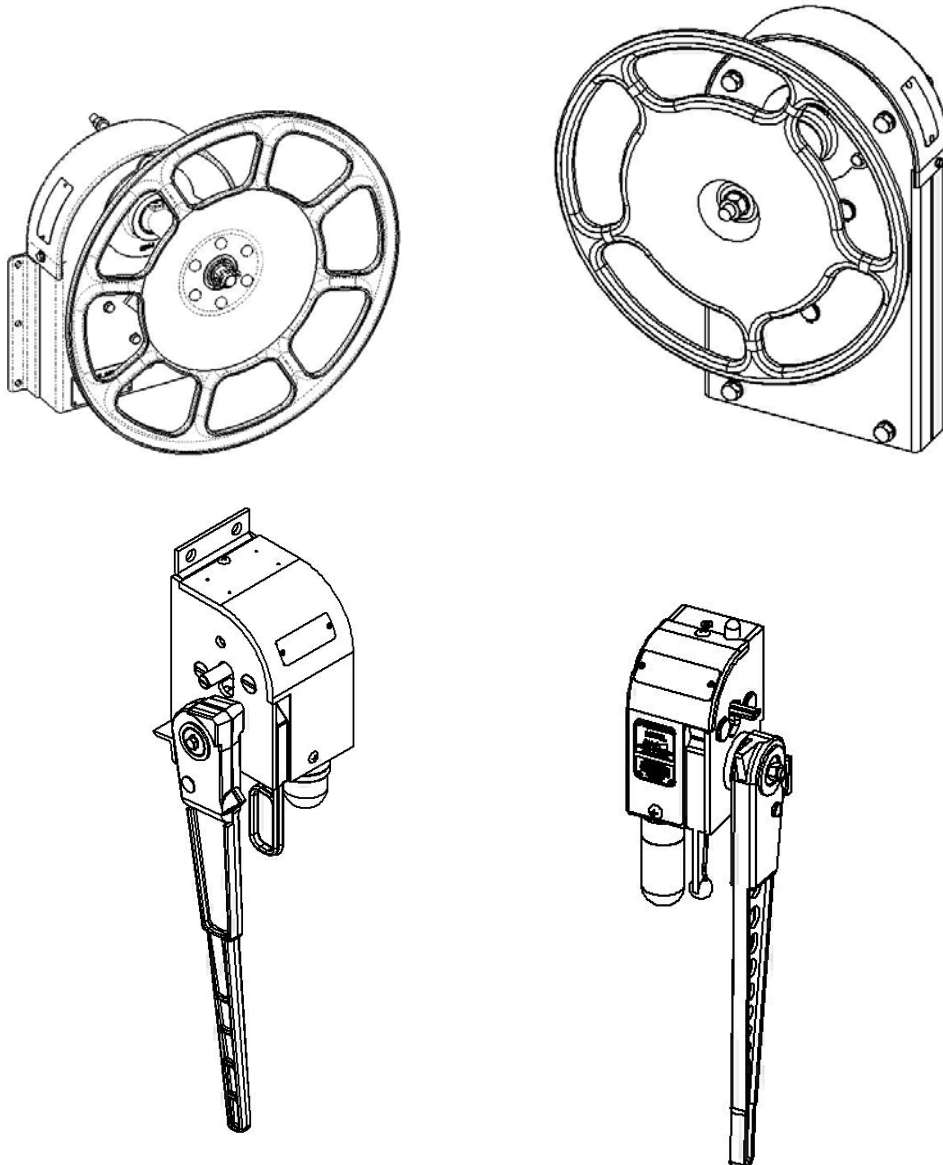


## INSPECTION OF LOCOMOTIVE HAND BRAKE MODELS 210, 800, 840 & 850



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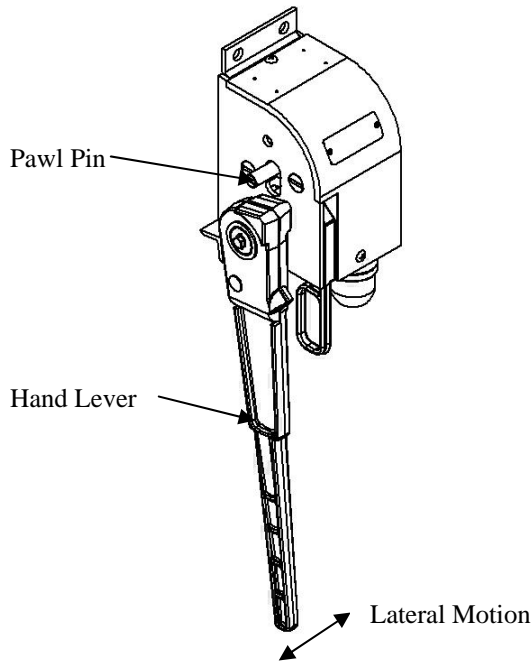
Date of Last Revision: 6-14-06

**INSPECTION OF LOCOMOTIVE HAND BRAKES (210, 800, 840 & 850)**

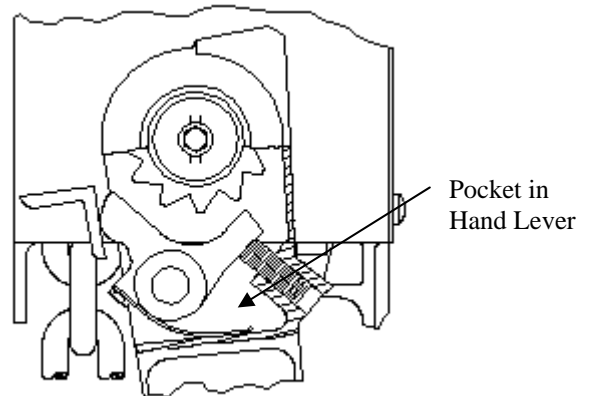
1. Inspection of lever hand brakes Models 800 & 840

1.1. Model 800 Hand Brake

- 1.1.1. Visually inspect hand brake assembly for defects.
- 1.1.2. Ensure the hand brake applies and releases properly.
- 1.1.3. Check to see if Pawl Pin is loose or bent. Replace if required.
- 1.1.4. Release the hand brake. The Pawl Pin should be in the lowermost position.
- 1.1.5. Check to see if there is sufficient spring pressure holding the Pawl Pin in the lowermost position. If not remove the hand brake.
- 1.1.6. Pump the Hand Lever a few times. The Pawl Pin should be in the uppermost position.
- 1.1.7. Check to see if there is sufficient spring pressure holding the Pawl Pin in the uppermost position. If not remove the hand brake.
- 1.1.8. Inspect that all shafts and bolts are tight. Inspect that all shafts are “staked” in place.
- 1.1.9. Inspect Hand Lever for excessive lateral motion. If the lateral motion is greater than that listed in the below chart remove the hand brake.
- 1.1.10. Inspect and remove any excessive foreign matter in the pocket in the Hand Lever which could cause the Hand Lever Pawl to malfunction.



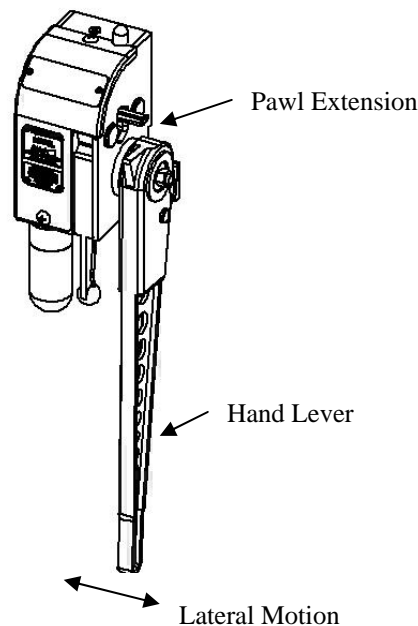
Hand Lever Length	Max. Lateral Motion
16"	1 3/16"
18"	1 5/16"
20"	1 1/2"
22"	1 5/8"
24"	1 3/4"



**INSPECTION OF LOCOMOTIVE HAND BRAKES (210, 800, 840 & 850)**

1.2. Model 840 Hand Brake

- 1.2.1. Visually inspect hand brake assembly for defects.
- 1.2.2. Ensure the hand brake applies and releases properly.
- 1.2.3. Replace hand brake if Pawl Extension is loose or bent.
- 1.2.4. Release the hand brake. The Pawl Extension should be in the lowermost position.
- 1.2.5. Check to see if there is sufficient spring pressure holding the Pawl Extension in the lowermost position. If not remove the hand brake.
- 1.2.6. Pump the Hand Lever a few times. The Pawl Extension should be in the uppermost position.
- 1.2.7. Check to see if there is sufficient spring pressure holding the Pawl Extension in the uppermost position. If not remove the hand brake.
- 1.2.8. Inspect that all shafts and bolts are tight.
- 1.2.9. Inspect Hand Lever for excessive lateral motion. If greater than 1 5/16” at the end of the 18” Hand Lever remove the hand brake. If greater than 7/8” at the end of the 12” Hand Lever remove the hand brake.

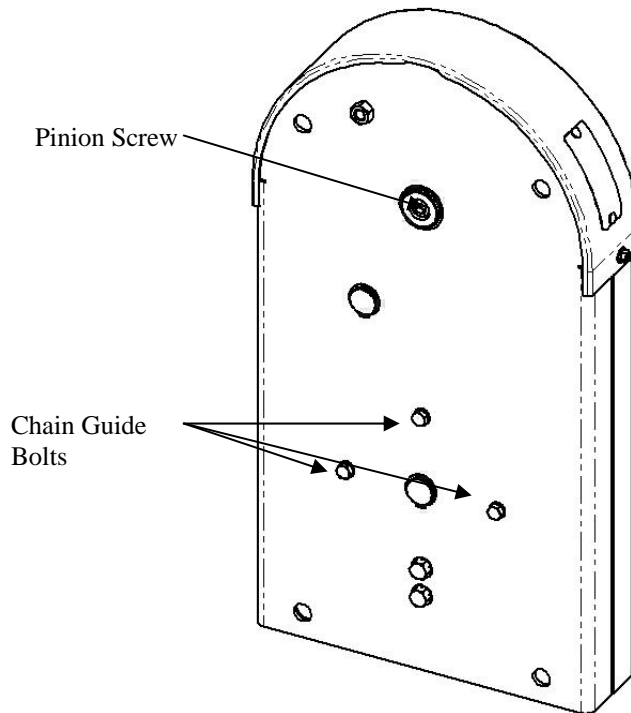


**INSPECTION OF LOCOMOTIVE HAND BRAKES (210, 800, 840 & 850)**

2. Inspection of vertical wheel hand brakes Models 210 & 850

2.1 Model 210 Hand Brake

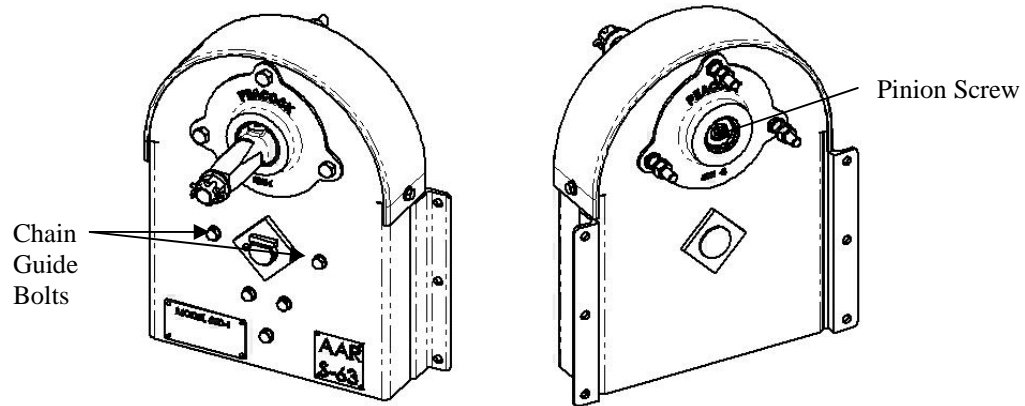
- 2.1.1. Visually inspect hand brake assembly for defects.
- 2.1.2. Ensure the hand brake applies and releases properly.
- 2.1.3. Inspect hand wheel drive shaft bearing wear. Drive shaft bearing wear can be measured using a 3/32 inch hex wrench if a 1/2 inch length of the wrench can be inserted between drive shaft bearing and the drive shaft. Wear in excess of 3/32 inch requires removal of hand brake.
- 2.1.4. Inspect that all bolts are tight.
- 2.1.5. If possible inspect the Chain Guide mounting bolts without removing the hand brake. If any Chain Guide bolt is missing or broken remove the hand brake.
- 2.1.6. If possible inspect the rear Pinion Screw without removing the hand brake. If Pinion Screw is loose, broken or missing, remove the hand brake.



**INSPECTION OF LOCOMOTIVE HAND BRAKES (210, 800, 840 & 850)**

2.2. Model 850 Hand Brake

- 2.2.1. Visually inspect hand brake assembly for defects.
- 2.2.2. Ensure the hand brake applies and releases properly.
- 2.2.3. Inspect hand wheel drive shaft bearing wear. Drive shaft bearing wear can be measured using a 3/32 inch hex wrench if a 1/2 inch length of the wrench can be inserted between drive shaft bearing and the drive shaft. Wear in excess of 3/32 inch requires removal of hand brake.
- 2.2.4. Inspect that all bolts are tight.
- 2.2.5. If possible inspect the Chain Guide mounting bolts without removing the hand brake. If any Chain Guide bolt is missing or broken remove the hand brake.
- 2.2.6. If possible inspect the rear Pinion Screw without removing the hand brake. If Pinion Screw is loose, broken or missing, remove the hand brake.



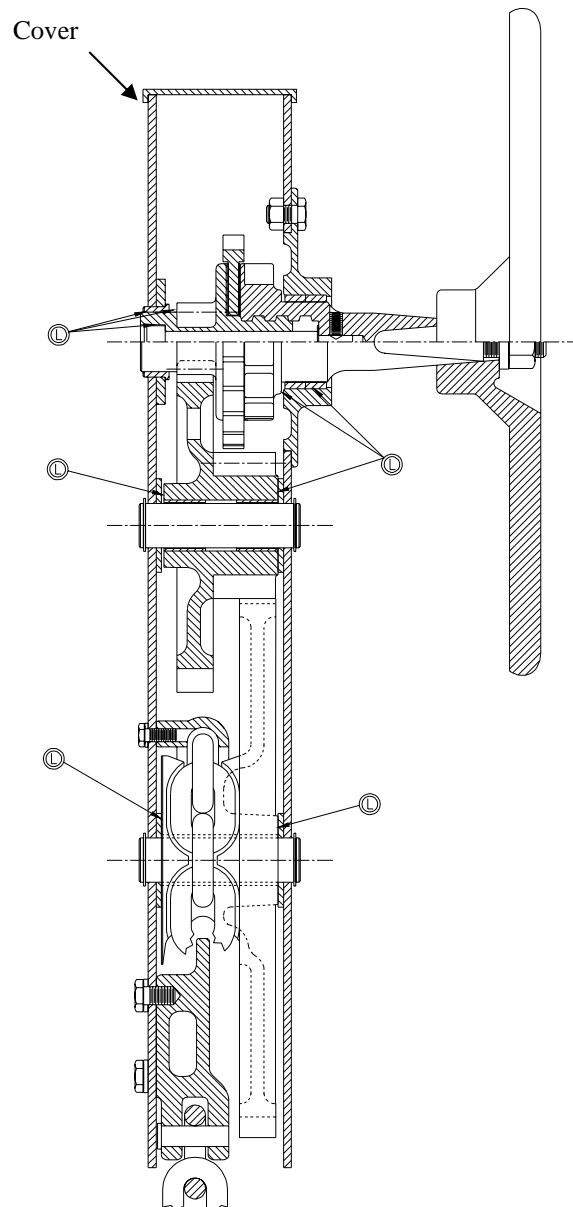
3.0 Lubrication of Hand Brakes

Note: In order to preserve the efficiency of hand brakes they should be periodically cleaned and lubricated. Use any good grade of lubricating oil or spray lubricant. The hand brake should be lubricated at least once a year.

## INSPECTION OF LOCOMOTIVE HAND BRAKES (210, 800, 840 & 850)

### 3.1 Model 210 Hand Brake

- 3.1.1 Remove the Cover.
- 3.1.2 Lubricate all points as shown below.



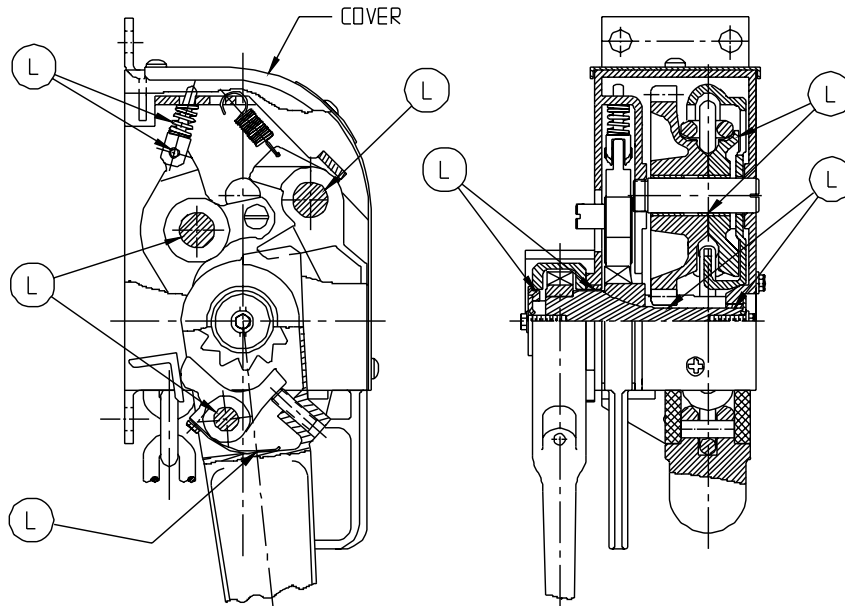


## INSPECTION OF LOCOMOTIVE HAND BRAKES (210, 800, 840 & 850)

### 3.2 Model 800 Hand Brake

3.2.1 Remove the Cover.

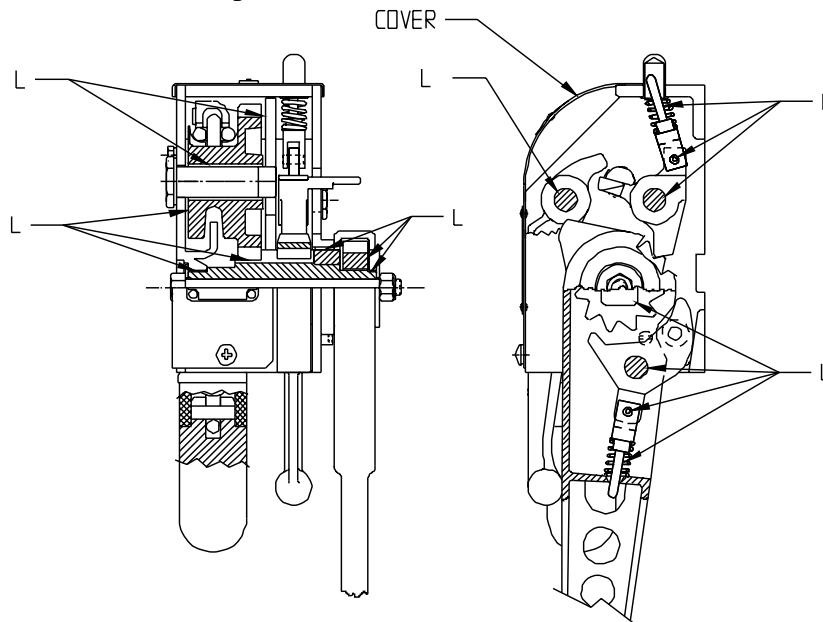
3.2.2 Lubricate all points as shown below.



### 3.3 Model 840 Hand Brake

3.3.1 Remove the Cover.

3.3.2 Lubricate all points as shown below.



**INSPECTION OF LOCOMOTIVE HAND BRAKES (210, 800, 840 & 850)**

3.4 Model 850 Hand Brake

3.4.1 Remove the Cover.

3.4.2 Lubricate all points as shown below.

