

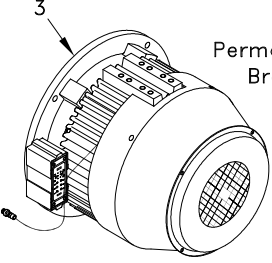
3.3 Replace drive motor

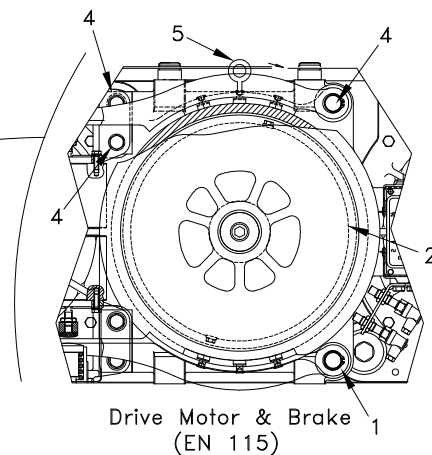
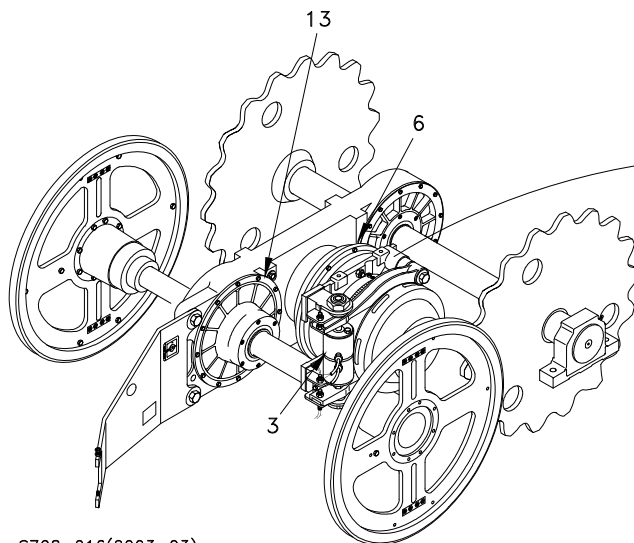
NOTE! When moving the step band during the following procedures, always run the escalator on inspection (use hand held pendant control).

3.3.1 Remove drive motor

Complete the following to remove a drive motor on a single drive escalator.

Step	Action	Note
1.	Position barricades, and remove both access covers.	
2.	Remove ten steps, and position step band opening to allow access to the gear box oil drain plug (1). NOTE! Insert a step spacer bar after the fifth step removed.	
3.	Turn main power supply OFF, and engage step band lock. WARNING! Serious injury or death can occur from rotating step band. Make sure main power supply is OFF and step band lock is engaged before working in the step band.	
4.	Remove all comb segments to prevent damage to teeth and gain additional clearance to motor (2).	
5.	Position a suitable drain pan, under the gear box, and remove the oil drain plug (1) to completely drain all lubricant from gear box. NOTE! Install new oil seal on oil drain plug before reinstalling drain plug into gear box.	NOTE! Gear box capacity is as follows: <ul style="list-style-type: none"> • 1 drive motor: Gear box capacity is 7 liters [7.4 quarts] • 2 drive motors: Gear box capacity is 8 liters [8.5 quarts]
6.	Remove drive motor cover, if equipped.	
7.	Disconnect all electrical plugs and harnesses from the motor and brake assembly.	

Step	Action	Note
8.	Remove brake (3) from drive motor.	 <p data-bbox="1115 331 1327 388">Permanent Magnet Brake (ANSI)</p> <p data-bbox="904 569 1081 590">S708-065(2008-02)</p>
9.	Erect a suitable overhead lifting device, and install a 12 mm eye bolt (5) in the threaded opening on top of motor.	
10.	Connect the hoist to the eye bolt (5) and apply a minimal lifting force to support the motor's weight.	
11.	<p data-bbox="344 506 828 667">Remove the six motor mounting flange nuts (6), and carefully pry the motor (in a horizontal direction only) clear from the housing. Take care not to damage the motor pinion gear.</p> <p data-bbox="344 680 828 892">NOTE!The planetary gear may be pulled out from gear box a small amount while drive motor is being removed. Push the planetary gear back into position in the gear box if this happens.</p>	



3.3.2 Replace drive motor

- If the same motor will be used for replacement, no adjustments are necessary.
- If a different motor is used, the pinion dimensions of the new motor must be checked and reshimmed, if necessary, to ensure proper pinion to planetary gear alignment.

Complete the following to install a new drive motor on a single drive escalator.

Step	Action	Note
1.	Remove pinion gear (7) and brass disk (8) from old drive motor that is being replaced.	
2.	Measure the depth (X) between inner (A) and outer flange (B) of new drive motor with a depth gauge and a straight piece of bar stock.	Dimensions are examples only based on 180 mm bar stock (actual bar stock used may vary). <div style="text-align: right;"> (X) 183 mm (Y) 186 mm <hr style="width: 100px; margin: 0 auto;"/> (Difference between X and Y) 3 mm </div>
3.	Measure the depth (Y) at gear box from top of bar (C) to mounting surface of planetary gear (D) with a depth gauge and a straight piece of bar stock.	
4.	Find the difference between the drive motor depth (X) and gear box depth (Y), and add a brass ring dimension that will leave a tolerance of 0.4 mm to 0.9 mm. Brass rings are: <ul style="list-style-type: none"> • 2 mm (DEE2159148) • 2.5 mm (DEE2159139) • 3 mm (DEE2159140) • 3.5 mm (DEE2159141) 	Subtract a brass ring dimension that will leave a tolerance of 0.4 mm to 0.9 mm <div style="text-align: right;"> (Difference between X and Y) 3 mm - (Brass ring dimension) 2.5 mm <hr style="width: 100px; margin: 0 auto;"/> 0.5 mm Tolerance of 0.5 mm is within the range of 0.4 mm to 0.9 mm <small>5008377 (2004-10)</small> </div>
5.	Install pinion gear (7), and brass ring (8). <ul style="list-style-type: none"> • Use Loctite on pinion gear mounting screw (9). • After pinion gear is installed, the pinion gear should have an up and down movement on shaft of from 3 to 4 mm [0.11 to 0.15 in.]. • Use a small amount of grease on bottom surface of brass ring to help brass ring stay in position as drive motor is installed. 	
6.	Install a new sealing ring (10) between motor and planetary gear. NOTE! Use sealing ring DEE2247034.	
7.	Install drive motor on gearbox. <ul style="list-style-type: none"> • Turn drive motor by hand until pinion gear teeth are aligned with planetary gear teeth as the drive motor is guided into position on gear box. 	

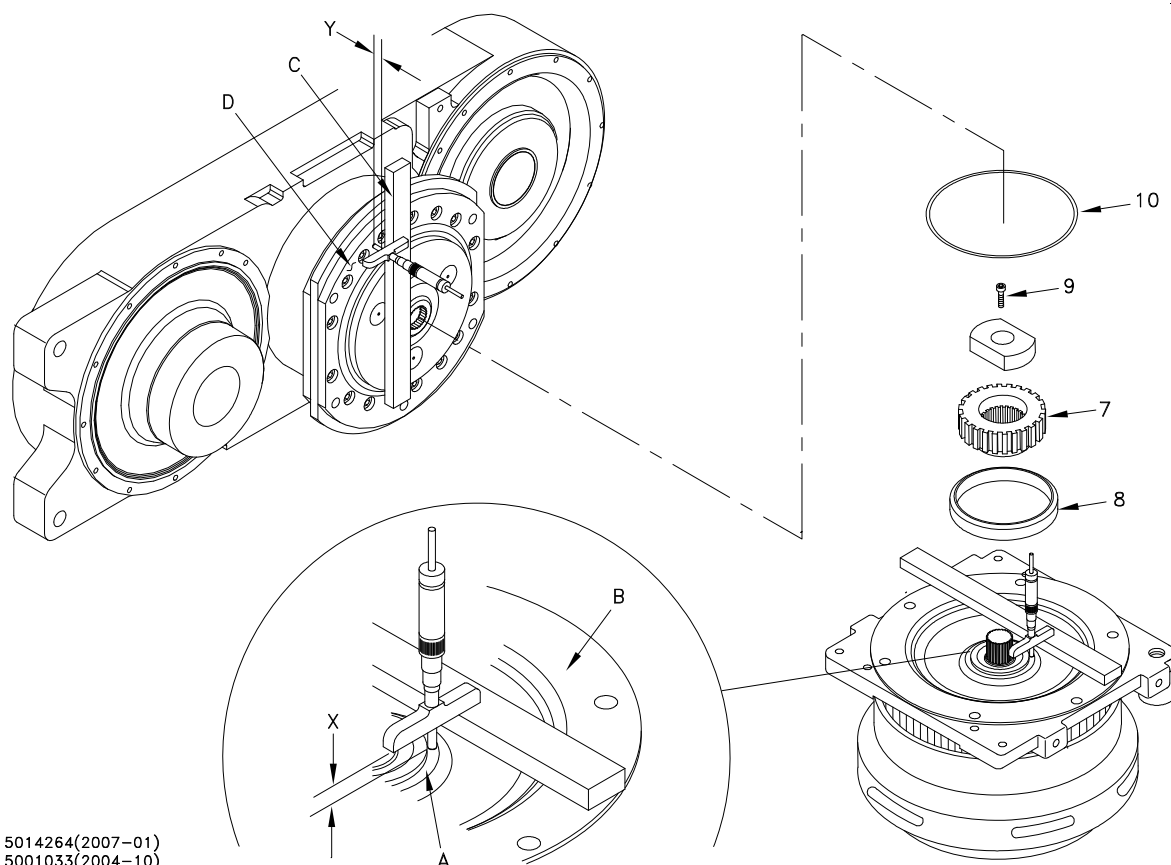
Step	Action	Note
8.	Install two flange nuts on opposite sides of drive motor, and remove hoisting device.	
9.	Install remaining flange nuts and tighten all opposing flange nuts in a sequence as shown at the right.	
10.	Reinstall electrical connections and brakes.	
11.	Remove oil fill plug, and replace gear box oil. NOTE! Install new oil seal on oil fill plug before reinstalling fill plug into gear box.	
12.	Reinstall drive motor cover, if equipped.	
13.	Replace comb segments.	

Dual drive escalators: Remove drive motor in the same manner a single drive motor is removed with the following exception.

- Loosen bolts on drive station torque arms.
- Loosen lock ring on of drive sprocket shaft on opposite side of drive motor being removed
- Shift motor to allow drive motor to be removed from the planetary gear.

NOTE! Drive station can be shifted up to 20 mm [13/16 in.].

7-002067 (2010-02)



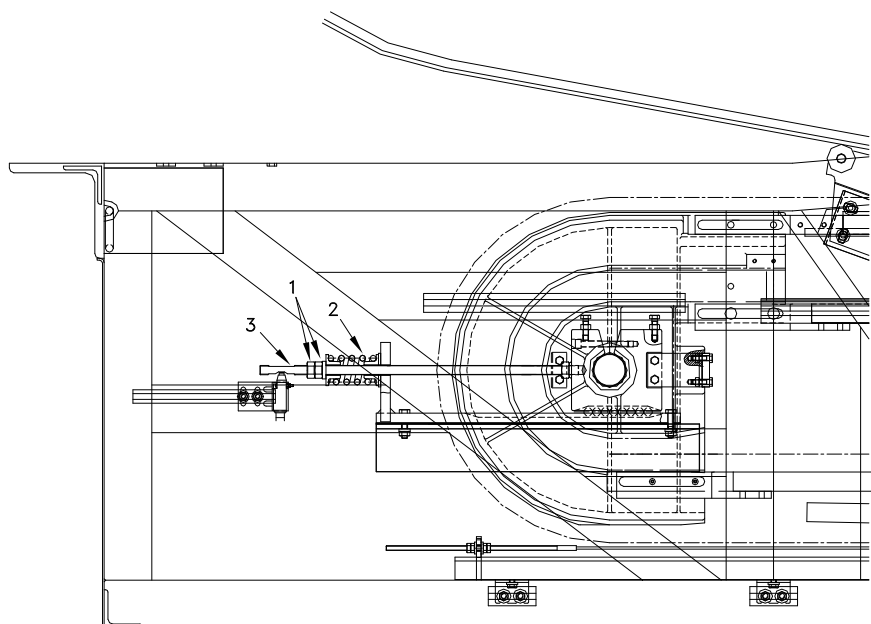
5014264(2007-01)
5001033(2004-10)

3.4 Replace drive unit

NOTE! Before starting the following procedures, barricade the working area at the upper end of the escalator to avoid any hazards to unauthorized persons in the working area.

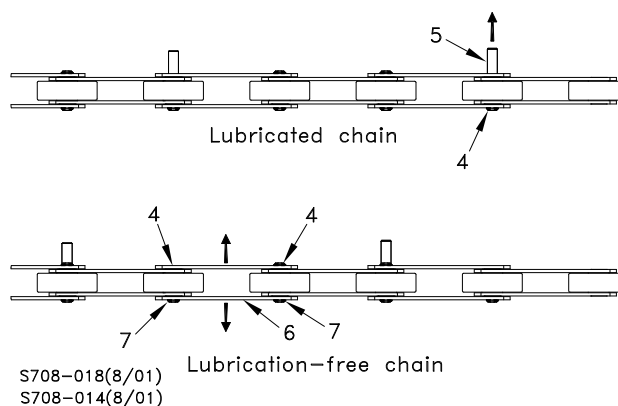
3.4.1 Disconnect step chain

Step	Action	Note
1.	Place barricades at both ends of the escalator, and remove both access covers.	
2.	Remove approximately 20 steps. NOTE! Make sure a spacer bar is inserted for a step at every fifth step chain pin.	
3.	Position hole in step band to equally surround the upper end to allow a clear path for drive unit to be removed.	
4.	Turn main power supply OFF.	
5.	Remove upper end combplate.	
6.	Loosen lock nuts (1) on step chain tension device located in lower end pit, and allow springs (2) to float freely on threaded rod (3).	



S708-017(8/99)
C707-010(2002-10)

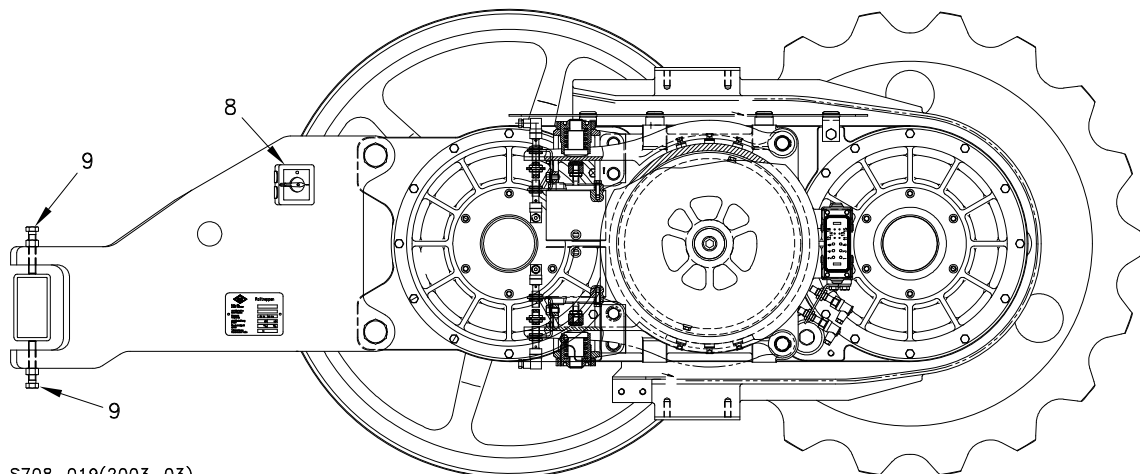
Step	Action	Note
7.	<p>Install a set of four web-type ratchet band clamps, one at each corner of the steps and to a truss cross member. Attach clamps downhill from drive unit at the upper end of the incline.</p> <ul style="list-style-type: none"> The web-type ratchet band clamps are used to apply lifting force and support to the remaining step band. This will allow some clearance at the drive sprockets for the step chains to be separated. 	
8.	Disconnect step chain by removing snap type retaining rings (4) at step chain side bars (6).	
9.	Tap lightly on chain link pins (7), and remove chain link pins to separate link.	
10.	Position and tie the step chains out of the way to allow the drive sprockets enough clearance to move.	
11.	Remove the step band lock mounting bolts, and position the step band lock out of the way.	



Disconnecting step chain

3.4.2 Disconnect and remove drive unit

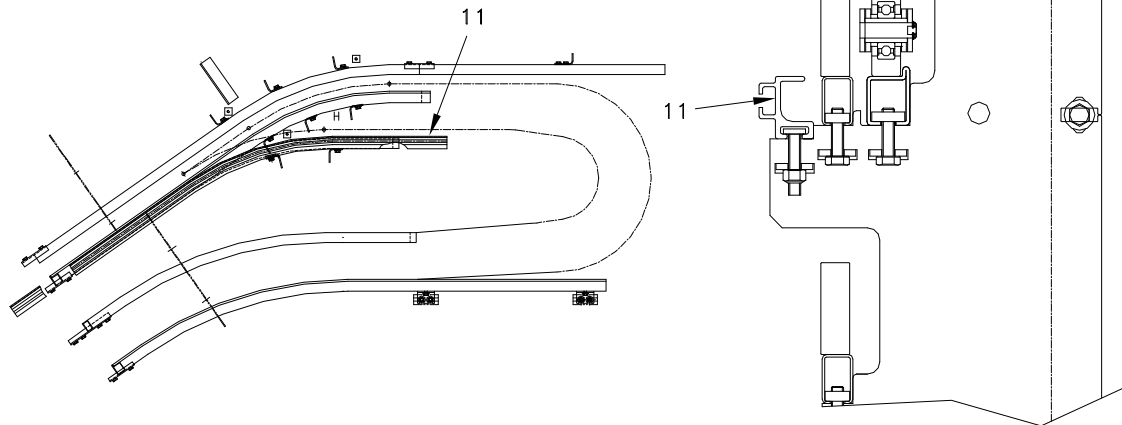
Step	Action	Note
1.	Remove mounting hardware, and cut tie wraps from the disconnect switch (8).	
2.	Position disconnect switch and wiring harness out of the way.	
3.	Loosen both gear box center support set screws (9), located at the first center truss support, in front of the gear box.	



S708-019(2003-03)

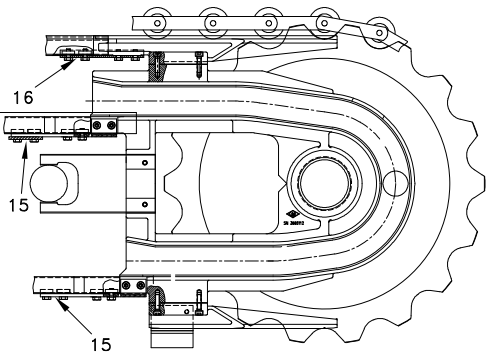
Disconnect stop switch and loosen support set screws

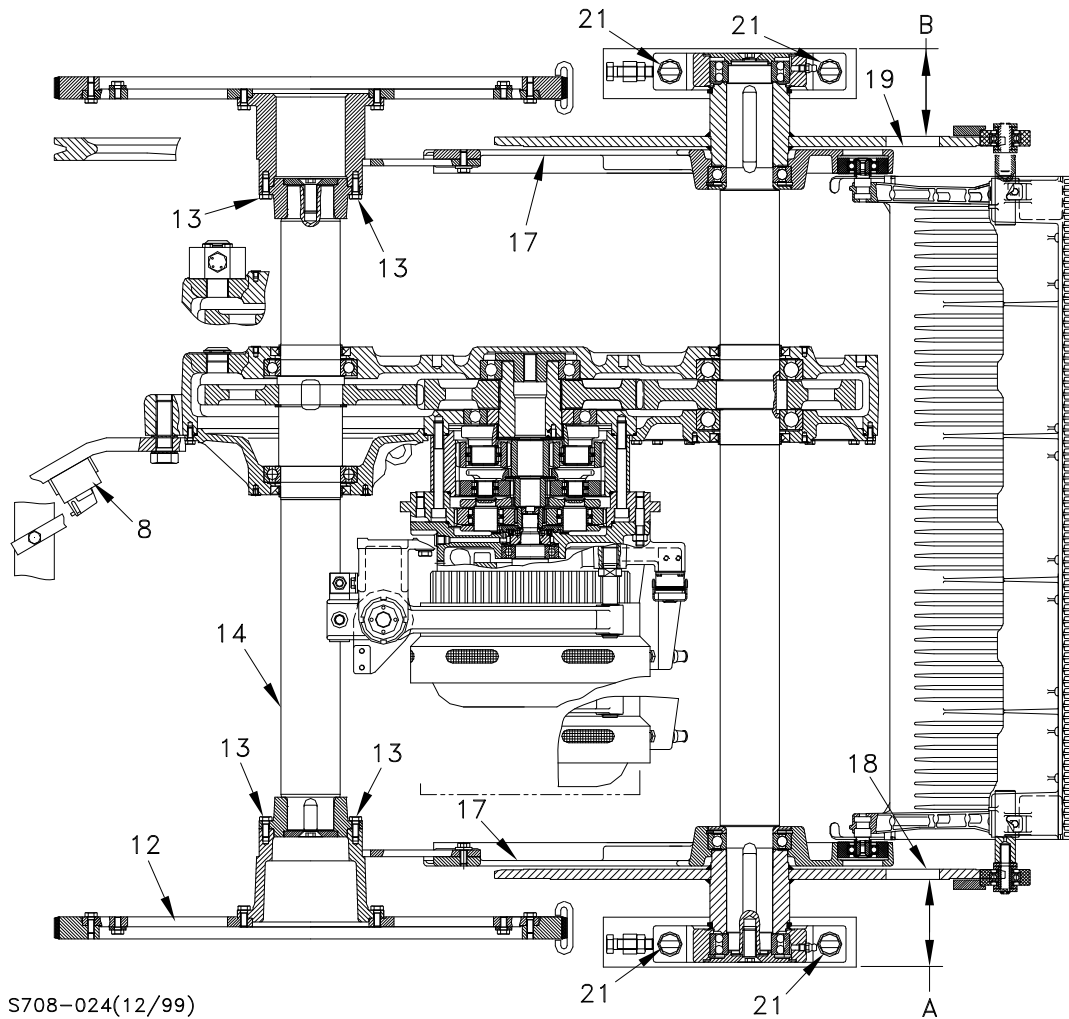
Step	Action	Note
4.	Remove the step sag switch assemblies (10) and both aluminum step lift extrusions (11).	<p>S708-111(2002-11) <i>Remove step sag switch assemblies</i></p>



S708-020(9/99)

Remove aluminum step lift extrusions

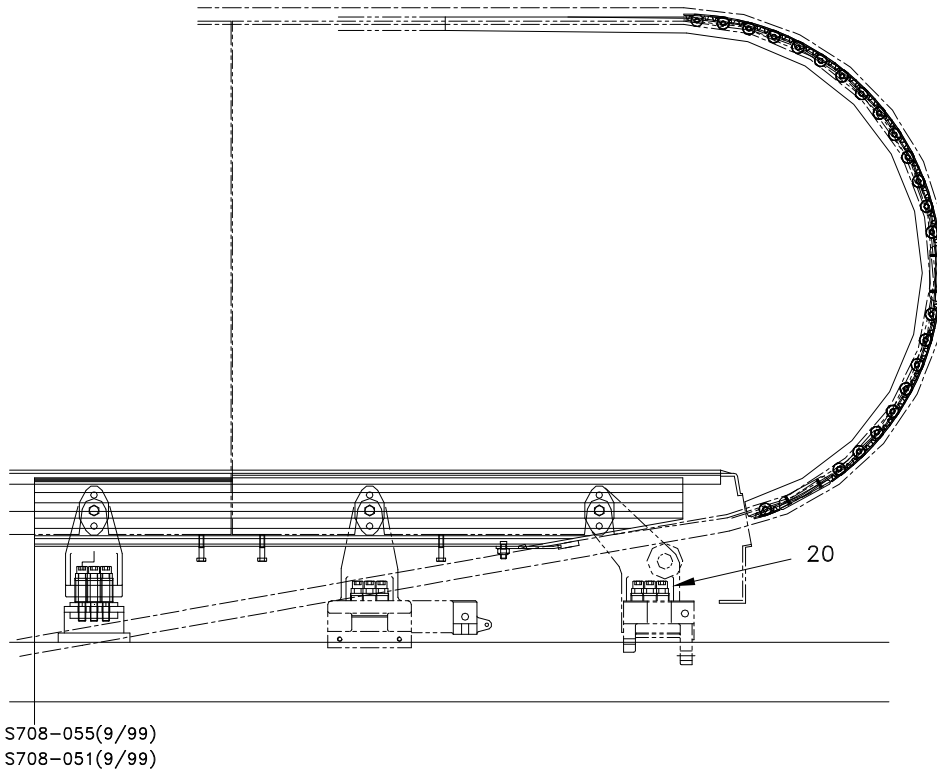
Step	Action	Note
5.	Loosen nuts, located in lower end pit, from the handrail tension device, and release tension on the handrail.	
6.	Remove handrail from the lower end curve to release pressure on the handrail drive wheel (12).	
7.	Remove six mounting bolts (13) that attach the handrail drive shaft (14) to the handrail drive wheel, and pry the wheels outward to clear the shafts.	
8.	Remove both (left and right hand side of the escalator) upper step roller track splice plates (15).	 <p>S708-022(8/99)</p> <p><i>Remove step roller and chain roller track splice plates</i></p>
9.	Remove both (left and right hand side of the escalator) bottom chain roller splice plates (16).	
10.	Remove both top and bottom turnaround supports (17).	
11.	Measure (A) outside edge of the drive sprocket (18) to a fixed point of the truss and record it for later use when realigning the unit.	
12.	In a similar manner measure (B) the opposite side sprocket (19) and record it for later use.	



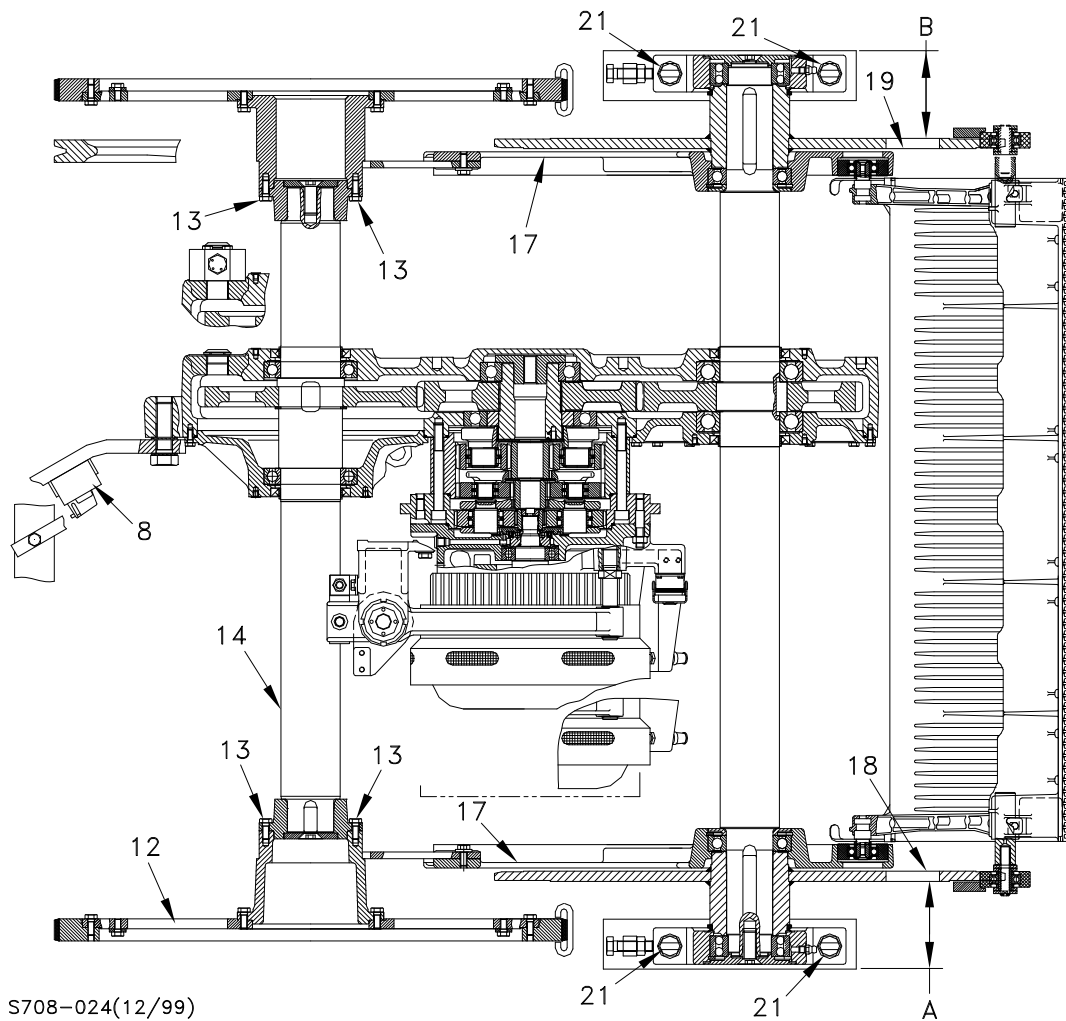
Disconnecting drive unit from truss

Step	Action	Note
13.	Remove both (left and right hand side of the escalator) newel glass support brackets (20). NOTE! There are three brackets on each side of the escalator. Remove only the first bracket (20).	
14.	Remove both handrail cluster roller assemblies.	
15.	Remove outer pillow block bolts (21) from left and right hand side of the escalator, and remove top half of pillow block.	
16.	Attach a 3-point lifting device consisting of three individual hand hoists and a suitable overhead frame to drive unit.	
17.	Lift and maneuver drive unit safely out of the truss.	
18.	Replace drive unit in reverse order of removal procedure.	

7-002069 (2009-11)



Removing newel glass support brackets



Complete removal of drive unit