SMP NO.:	46615
ISSUE DATE:	August 21, 1984
REVISION DATE:	February 11, 2004
TITLE:	Heli-Coil Repair to Upper Primary Suspensions

EQUIPMENT TYPE					
	All Passenger Trains				
Locomotives		Cars			
	All Locomotives		All Cars	X	All Types
	Acela HST Power Car		Acela		Baggage
	AEM-7		Amfleet I		Cafe
	Cab Car: (Under Cars)	X	Amfleet II		Coach
	Car Movers		Auto Carrier		Diner
	Commuter		Commuter		Dinette
	E-60MA (HEP)		Freight		Lounge
	F40PH		Heritage HEP		Sleeper
	F59PHI		Horizon		Other:
	GP40PH		Material Handling Cars		
	HHP8		Private Cars		
	MP15		Roadrailers		
	Non Powered Control Units		Superliner I		
	P32-8		Superliner II		
	P32AC-DM		Surfliner		
	P-40		Talgo		
	P-42		Turboliner		
	SW1001		Viewliner		
	SW1200		Other:		
	SW1500				
	Turboliner				
	Talgo				
	Other:				

MAINTENANCE TYPE	
	L – Locomotive C – Cars
	All Maintenance – L/C
	Daily – L/C
	30 Day – C
	60 Day – C
	90 Day – C
	92 Day – L
	180 Day – C
	184 Day – L
	360 Day – L/C
	720 Day – L
	COT&S – C
	Initial Terminal – L/C
	Intermediate Terminal – L/C
	Modification – L/C
C	Overhaul – L/C
C	Running Repair – L/C
	Seasonal – C
	Wheels – L/C
	Facility
	Other:

1.0 PURPOSE

The purpose of this SMP is to outline the step-by-step procedure for repairing stripped or cross-threaded bolt holes in Amfleet II Upper Primary Suspensions.

2.0 SCOPE

This SMP outlines the step-by-step procedure for repairing stripped or cross-threaded bolt holes in Amfleet II Upper Primary Suspensions.

3.0 HISTORY

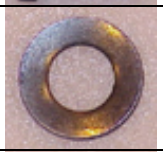
Check 12 months history of equipment for past Upper Primary Suspensions problems and or repairs in WMS and facility records.

4.0 SAFETY PRECAUTIONS

4.1 Prior to starting work on equipment ensure all Code of Federal Regulations (Title 49, Chapter II, Part 218) and Amtrak's Blue Signal Protections are followed.

4.2 Wear approved PPE (Personal Protective Equipment).

5.0 REQUIRED PARTS AND TOOLS

Description	Vendor #	AAMPS #	Photo	Quantity
½" Heavy Duty Electric Drill		45-722-0500X		1
41/64" drill bit		N/A		1
5/8"-18 Heli-Coil Installation Kit, includes, heli-coils (6), heli-coil tap, & insertion tool	HCP 5402-10	20-165-03250		1
5/8"-18 Heli-Coil Refill (pack of 6 Heli-Coils)	HCP R1191-10	20-120-13000		As needed
Bolt, (Lower Primary)		20-456-00201		32
Washer, Flat (Lower Primary)		20-456-0021X		32
Bolt (Primary Retainer)		11-030-24800		8
Washer, (Primary Retainer)		20-345-0023X		32
Nut, Lock, (Primary Retainer)		11-455-00262		16

6.0 PROCEDURE

6.1 Remove primary retainer from axle assembly. (Refer to figure 2)

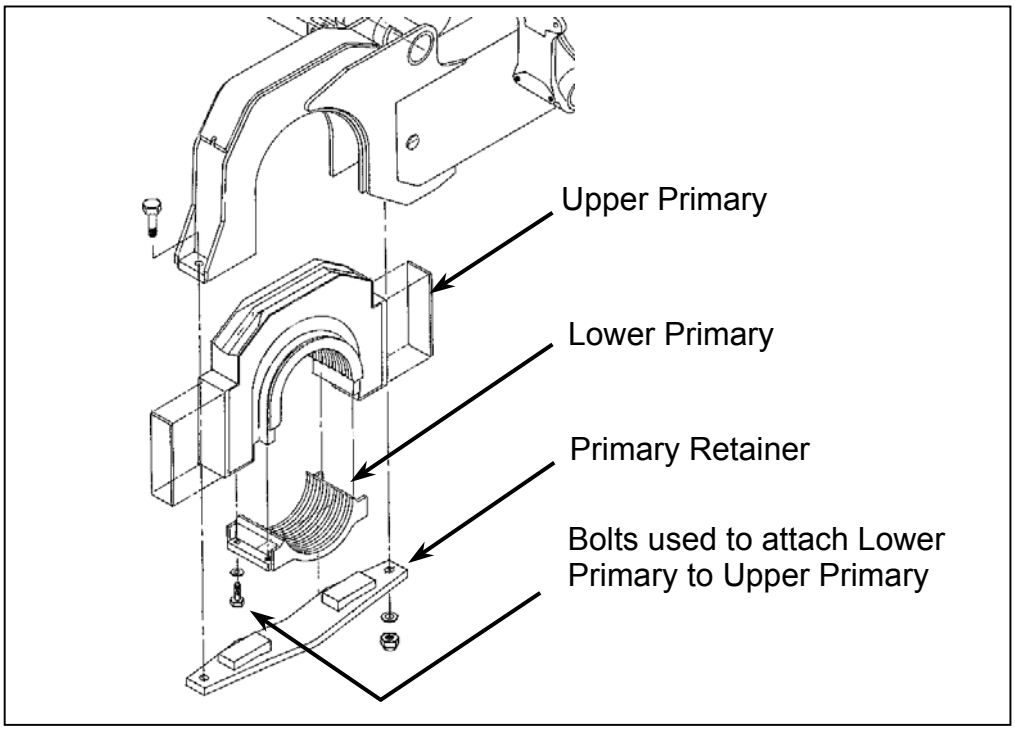


Figure 2 – Exploded View of Primary Suspension Assembly.

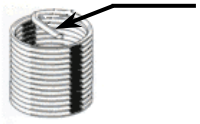
6.2 Remove broken, cross-treaded, or loose bolts used to attach lower primary to upper primary.

6.3 With the 41/64″ drill bit supplied with the heli-coil kit, drill out damaged threads. Drill should penetrate a minimum of 1-1/2″.

6.4 Tap hole with heli-coil tap included with kit. Note: The heli-coil tap is designated as 5/8-18 but is actually a special thread for the heli-coil insert.

6.5 Run tap down until a minimum on 1-1/4″ of material has tapped threads.

6.6 Insertion of the heli-coil is achieved using the appropriate installation tool (supplied in installation kit). The driving tang is engaged in a slot in the tool and pre-wound into the nozzle. (Refer to Figure 3)



Driving Tang Needs To Be Engaged In Slot Of Installation Tool

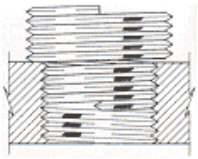
Figure 3 – Heli-Coil Tang

6.7 Place the tool over the correctly tapped hole; further winding will install the heli-coil to the correct depth.

6.8 Screw the heli-coil into tapped hole to a depth of ¼ to ½ turn below the surface.

6.9 Unscrew installation tool.

6.10 Once fitted, the heli-coil will not move. It is secured in position through radial pressure exerted by the coils on the thread flanks. Radial pressure exists because the outside diameter of the heli-coil in its "Free State" is larger by a calculated amount than the hole into which it is to be installed. (Refer to Figure 4)



Heli-Coil Is Larger Than Hole Into Which It Is Being Installed.

Figure 4 – Heli-Coil Being Inserted Into Hole.

6.11 Insert a screwdriver, pin, or other tool, in previously installed heli-coil and by pushing, snap tang off heli-coil.

6.12 Install new bolt through lower primary into newly installed heli-coil.

6.13 Reinstall primary with new locking nuts. Inspect washers and bolts, replace if needed.

7.0 RECORD KEEPING

Document repairs to the equipment in WMS (Work Management System) and on a MAP 9 form.