



# Harsco Track Technologies

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## SERVICE BULLETIN MAINTENANCE OF WAY EQUIPMENT

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**DATE:** 11-15-2007 **BULLETIN NO:** 07-017

**TITLE:** AUTO WORKHEAD DIAGNOSTICS QUICK REFERENCE GUIDE

**RATING:**

<input type="checkbox"/>	<b>DIRECTIVE</b> (Action Is Required)	<input type="checkbox"/>	<b>ALERT</b> (Potential Problem)
<input checked="" type="checkbox"/>	<b>INFORMATION</b> (Action Is Optional)	<input type="checkbox"/>	<b>PRODUCT IMPROVEMENT</b> (Enhance Product)

**PRODUCT SERIES / MODEL:** 6700S and 3300S Tampers

**SERIAL NO:** 6700S Tampers with Auto Workhead Option (non-Jupiter Models Only)  
3300S Tampers with Auto Workhead Option

**SUMMARY:** A quick reference guide has been developed as a laminated placard for the Auto Workhead Option. This placard has instructions for running the Diagnostics Program of the unit. The placard can be attached to any convenient location adjacent to the Auto Workhead Option so it is readily available for use.

**OPERATIONAL IMPACT:** Operator ease of use to run the Diagnostic Program of the Auto Workhead Option.

**ACTION:** The following Auto Workhead Diagnostics Quick Reference Guides are available:

6700S s/n 152700 and higher - #2013342 AWH Quick Reference Guide 4 Digit  
6700S s/n 152682 and lower - #2013343 AWH Quick Reference Guide 3 Digit  
3300S all machines - #2013344 AWH Quick Reference Guide 3 Digit

**CONTACT:** If you have any questions or if we can be of any service, please contact Eugene Russell at the Ludington, MI facility.  
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**SAFETY INFORMATION**

- n FOLLOW APPLICABLE RAILROAD LOCKOUT - TAGOUT PROCEDURE TO REMOVE MACHINE FROM ENERGY SOURCES. FAILURE TO COMPLY COULD RESULT IN SEVERE BODILY INJURY.**

**QUICK REFERENCE GUIDE INSTALLATION**

1. Attach the laminated Quick Reference Guide placard to any convenient location adjacent to the Auto Workhead Option so it is readily available for use.

**QUICK REFERENCE GUIDE USE**

2. Use the Quick Reference Guide instructions for running the Diagnostics Program of the Auto Workhead Option or see the Quick Reference Guide instructions included in this Service Bulletin:

6700S s/n 152700 and higher	- #2013342 AWH Quick Reference Guide 4 Digit
6700S s/n 152682 and lower	- #2013343 AWH Quick Reference Guide 3 Digit
3300S all machines	- #2013344 AWH Quick Reference Guide 3 Digit

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## 6700 AUTOMATIC WORKHEAD DIAGNOSTICS

### ATTENTION!

DO NOT ASSUME THAT A SIGNAL IS MISSING JUST BECAUSE THE LED ASSOCIATED WITH IT DOES NOT TURN ON. LED'S CAN BURN OUT, CHECK FOR THE REQUIRED VOLTAGE LEVEL AT THE TERMINAL BOARD.

REMEMBER THAT WHEN THE DIAGNOSTICS TEST ROUTINE IS BEING RUN, THE MACHINE IS STILL FUNCTIONAL.

### NOTE

The rightmost LED in the bottom row of LED's on the interface card is used as a go/no-go indicator for the signal being tested. When the monitored signal is on, the diagnostic LED will also be on. When the monitored signal is off, the diagnostic LED will be off. When an output signal is generated, the diagnostic LED will turn on and the corresponding output LED should turn on. Disregard any additional LED's that may be on.

The software will not advance to the next step until the diagnostics push button is depressed, it will continue to advance with each successive press of the diagnostics push button. If you become lost during the test, simply place the Auto/Manual switch to Manual and restart at step 1.

Do not press the diagnostics push button until instructed to. Read and understand each step before proceeding.

1. To run the automatic workhead diagnostics, place the Insertions switch to 1, Switch/Production switch to Production, Clamp/Unclamp switch to Unclamp and place workheads Auto/Manual switch to Auto.
2. Press and release the diagnostics pushbutton. The diagnostics LED will turn on and remain on until the pushbutton is released. The diagnostics test routine is now running.
3. Place the Clamp/Unclamp switch to the Clamp position, the diagnostics LED should turn on. This monitors the voltage on the Clamp input wire # 1915A.
4. Press and release the diagnostics pushbutton. Place the Clamp/Unclamp switch to Unclamp, the diagnostics LED should turn on. This monitors the voltage on the Unclamp input wire # 1906A.
5. Press and release the diagnostics pushbutton. Place the Clamp/Unclamp switch to Clamp, the diagnostics LED should turn on. This monitors the voltage on the Jack Enable input wire # 3106B.
6. Place the Clamp/Unclamp switch to Unclamp.

Continue the diagnostics test using the table below.

Step	Diagnostic PB	Actions		Diagnostic LED	Notes
7	Press and release			Off	
		Insertions switch	2	On	LED at Wire # 3105A - ON
8	Press and release			Off	
		Insertions switch	3	On	LED at Wire # 3103A - ON
9	Press and release			Off	
		All 4 Work Heads	Mid position	On	LED at Wire # 3111A - ON
<b>For the following 4 tests, disable all workheads except the one to be tested. Manually send the workhead to be tested down. Re-enable all workheads after completing step # 13</b>					
10	Press and release			Off	
		Left inside Workhead	Down	On	LED at Wire # 1513A - ON
11	Press and release			Off	
		Left outside Workhead	Down	On	LED at Wire # 1534A - ON

## 6700 AUTOMATIC WORKHEAD DIAGNOSTICS

Step	Diagnostic PB	Actions		Diagnostic LED	Notes
12	Press and release			Off	
		Right inside Workhead	Down	On	LED at Wire # 1610A - ON
13	Press and release			Off	
		Right outside Workhead	Down	On	LED at Wire # 1634A - ON
14	Press and release			Off	
		Squeeze Time Delay	0	On	Rightmost Rotary Switch
15	Repeat step 14 for the remaining timer positions 1 - 9				
16	Press and release			Off	
		Over Travel Time Delay	0	On	Leftmost Rotary Switch
17	Repeat step 16 for the remaining timer positions 1 - 9				
18	Press and release			<b>Flashing</b>	<b>Output signal testing next</b>
19	Press and hold			Off	
20	Release	All 4 Workheads	Go Down	On	LED at Wire # 1515A - ON energizing CR1515, CR1518 and CR1520
21	Press and release	All 4 Workheads	Come Up	Off	
	5 Sec Delay	Mid-position Limit Relays	Energized	After 5 sec. On	LED at Wire # 3109A - ON energizing CR3114 and CR3116
22	Press and release	Relays	D-energized	Off	
	5 Sec Delay	Squeeze Relays	Energized	After 5 sec. On	LED at Wire # 3108C - ON energizing CR3109 and CR3111
23	Press and release	Relays	D-energized	Off	
	5 Sec Delay	Maintain Clamp Relay	Energized	After 5 sec. On	LED at Wire # 3105B - ON energizing CR3106
24	Press and release	Relay	D-energized	Off	
	5 Sec Delay	Over Travel Warning Relay	Energized	After 5 sec. On	LED at Wire # 3102A - ON energizing CR3103
25	Press and release	Relays	D-energized		
		Memory test		After 5 sec. Flashing	
				After 10 sec. Off	Diagnostic test complete

When the diagnostics LED stops flashing, the workheads will be back in the automatic mode.

### **NOTE**

If the memory test fails, the LED will remain off. To repeat the diagnostics test routine, or use the workheads in the automatic mode, you must reset the system by placing the Auto/Manual workheads switch to Manual and then returning it to Auto.

## 6700 AUTOMATIC WORKHEAD DIAGNOSTICS

### ATTENTION!

DO NOT ASSUME THAT A SIGNAL IS MISSING JUST BECAUSE THE LED ASSOCIATED WITH IT DOES NOT TURN ON. LED'S CAN BURN OUT, CHECK FOR THE REQUIRED VOLTAGE LEVEL AT THE TERMINAL BOARD.

REMEMBER THAT WHEN THE DIAGNOSTICS TEST ROUTINE IS BEING RUN, THE MACHINE IS STILL FUNCTIONAL.

### NOTE

The rightmost LED in the bottom row of LED's on the interface card is used as a go/no-go indicator for the signal being tested. When the monitored signal is on, the diagnostic LED will also be on. When the monitored signal is off, the diagnostic LED will be off. When an output signal is generated, the diagnostic LED will turn on and the corresponding output LED should turn on. Disregard any additional LED's that may be on.

The software will not advance to the next step until the diagnostics push button is depressed, it will continue to advance with each successive press of the diagnostics push button. If you become lost during the test, simply place the Auto/Manual switch to Manual and restart at step 1.

Do not press the diagnostics push button until instructed to. Read and understand each step before proceeding.

1. To run the automatic workhead diagnostics, place the Insertions switch to 1, Switch/Production switch to Production, Clamp/Unclamp switch to Unclamp and place workheads Auto/Manual switch to Auto.
2. Press and release the diagnostics pushbutton. The diagnostics LED will turn on and remain on until the pushbutton is released. The diagnostics test routine is now running.
3. Place the Clamp/Unclamp switch to the Clamp position, the diagnostics LED should turn on. This monitors the voltage on the Clamp input wire # 249A.
4. Press and release the diagnostics pushbutton. Place the Clamp/Unclamp switch to Unclamp, the diagnostics LED should turn on. This monitors the voltage on the Unclamp input wire # 284A.
5. Press and release the diagnostics pushbutton. Place the Clamp/Unclamp switch to Clamp, the diagnostics LED should turn on. This monitors the voltage on the Jack Enable input wire # 396.
6. Place the Clamp/Unclamp switch to Unclamp.

Continue the diagnostics test using the table below.

Step	Diagnostic PB	Actions		Diagnostic LED	Notes
7	Press and release			Off	
		Insertions switch	2	On	LED at Wire # 387 - ON
8	Press and release			Off	
		Insertions switch	3	On	LED at Wire # 388 - ON
9	Press and release			Off	
		All 4 Work Heads	Mid position	On	LED at Wire # 386 - ON
<b>For the following 4 tests, disable all workheads except the one to be tested. Manually send the workhead to be tested down. Re-enable all workheads after completing step # 13</b>					
10	Press and release			Off	
		Left inside Workhead	Down	On	LED at Wire # 212 - ON
11	Press and release			Off	
		Left outside Workhead	Down	On	LED at Wire # 219 - ON

## 6700 AUTOMATIC WORKHEAD DIAGNOSTICS

Step	Diagnostic PB	Actions		Diagnostic LED	Notes
12	Press and release			Off	
		Right inside Workhead	Down	On	LED at Wire # 228 - ON
13	Press and release			Off	
		Right outside Workhead	Down	On	LED at Wire # 237 - ON
14	Press and release			Off	
		Squeeze Time Delay	0	On	Rightmost Rotary Switch
15	Repeat step 14 for the remaining timer positions 1 - 9				
16	Press and release			Off	
		Over Travel Time Delay	0	On	Leftmost Rotary Switch
17	Repeat step 16 for the remaining timer positions 1 - 9				
18	Press and release			<b>Flashing</b>	<b>Output signal testing next</b>
19	Press and hold			Off	
20	Release	All 4 Workheads	Go Down	On	LED at Wire # 389 - ON energizing CR20, CR21 and CR22
21	Press and release	All 4 Workheads	Come Up	Off	
	5 Sec Delay	Mid-position Limit Relays	Energized	After 5 sec. On	LED at Wire # 390 - ON energizing CR25 and CR26
22	Press and release	Relays	D-energized	Off	
	5 Sec Delay	Squeeze Relays	Energized	After 5 sec. On	LED at Wire # 391 - ON energizing CR27 and CR28
23	Press and release	Relays	D-energized	Off	
	5 Sec Delay	Maintain Clamp Relay	Energized	After 5 sec. On	LED at Wire # 392 - ON energizing CR23
24	Press and release	Relay	D-energized	Off	
	5 Sec Delay	Over Travel Warning Relay	Energized	After 5 sec. On	LED at Wire # 393 - ON energizing CR24
25	Press and release	Relays	D-energized		
		Memory test		After 5 sec. Flashing	
				After 10 sec. Off	Diagnostic test complete

When the diagnostics LED stops flashing, the workheads will be back in the automatic mode.

### **NOTE**

If the memory test fails, the LED will remain off. To repeat the diagnostics test routine, or use the workheads in the automatic mode, you must reset the system by placing the Auto/Manual workheads switch to Manual and then returning it to Auto.

## 3300 AUTOMATIC WORKHEAD DIAGNOSTICS

### ATTENTION!

DO NOT ASSUME THAT A SIGNAL IS MISSING JUST BECAUSE THE LED ASSOCIATED WITH IT DOES NOT TURN ON. LED'S CAN BURN OUT, CHECK FOR THE REQUIRED VOLTAGE LEVEL AT THE TERMINAL BOARD.

REMEMBER THAT WHEN THE DIAGNOSTICS TEST ROUTINE IS BEING RUN, THE MACHINE IS STILL FUNCTIONAL.

### NOTE

The rightmost LED in the bottom row of LED's on the interface card is used as a go/no-go indicator for the signal being tested. When the monitored signal is on, the diagnostic LED will also be on. When the monitored signal is off, the diagnostic LED will be off. When an output signal is generated, the diagnostic LED will turn on and the corresponding output LED should turn on. Disregard any additional LED's that may be on.

The software will not advance to the next step until the diagnostics push button is depressed, it will continue to advance with each successive press of the diagnostics push button. If you become lost during the test, simply place the Auto/Manual switch to Manual and restart at step 1.

Do not press the diagnostics push button until instructed to. Read and understand each step before proceeding.

1. To run the automatic workhead diagnostics, place the Insertions switch to 1, Switch/Production switch to Production, Enable/Disable switch to Disable and place workheads Auto/Manual switch to Auto.
2. Press and release the diagnostics pushbutton. The diagnostics LED will turn on and remain on until the pushbutton is released. The diagnostics test routine is now running.
3. Place the Enable/Disable switch to the Enable position, the diagnostics LED should turn on. This monitors the voltage on the Enable input wire # 380.
4. Press and release the diagnostics pushbutton. Place the Enable/Disable switch to Disable, the diagnostics LED should turn on. This monitors the voltage on the Disable input wire # 381.
5. Place the Enable/Disable switch to Disable.

Continue the diagnostics test using the table below.

Step	Diagnostic PB	Actions	Diagnostic LED	Notes
6	Press and release		Off	
		Insertions switch      2	On	LED at Wire # 387 - ON
7	Press and release		Off	
		Insertions switch      3	On	LED at Wire # 388 - ON
8	Press and release		Off	
		All 4 Work Heads      Mid position	On	LED at Wire # 386 - ON
<b>For the following 4 tests, disable all workheads except the one to be tested. Manually send the workhead to be tested down. Re-enable all workheads after completing step # 12</b>				
9	Press and release		Off	
		Left inside Workhead      Down	On	LED at Wire # 244 - ON
10	Press and release		Off	
		Left outside Workhead      Down	On	LED at Wire # 251 - ON

## 3300 AUTOMATIC WORKHEAD DIAGNOSTICS

Step	Diagnostic PB	Actions		Diagnostic LED	Notes
11	Press and release			Off	
		Right inside Workhead	Down	On	LED at Wire # 258 - ON
12	Press and release			Off	
		Right outside Workhead	Down	On	LED at Wire # 265 - ON
13	Press and release			Off	
		Squeeze Time Delay	0	On	Rightmost Rotary Switch
14	Repeat step 13 for the remaining timer positions 1 - 9				
15	Press and release			Off	
		Over Travel Time Delay	0	On	Leftmost Rotary Switch
16	Repeat step 15 for the remaining timer positions 1 - 9				
17	Press and release			<b>Flashing</b>	<b>Output signal testing next</b>
18	Press and hold			Off	
19	Release	All 4 Workheads	Go Down	On	LED at Wire # 389 - ON energizing CR20, CR21 and CR22
20	Press and release	All 4 Workheads	Come Up	Off	
	5 Sec Delay	Mid-position Limit Relays	Energized	After 5 sec. On	LED at Wire # 390 - ON energizing CR25 and CR26
21	Press and release	Relays	D-energized	Off	
	5 Sec Delay	Squeeze Relays	Energized	After 5 sec. On	LED at Wire # 391 - ON energizing CR27 and CR28
22	Press and release	Relays	D-energized	Off	
	5 Sec Delay	Maintain Enable Relay	Energized	After 5 sec. On	LED at Wire # 392 - ON energizing CR23
23	Press and release	Relay	D-energized	Off	
	5 Sec Delay	Over Travel Warning Relay	Energized	After 5 sec. On	LED at Wire # 393 - ON
24	Press and release	Relays	D-energized		
		Memory test		After 5 sec. Flashing	
				After 10 sec. Off	Diagnostic test complete

When the diagnostics LED stops flashing, the workheads will be back in the automatic mode.

### **NOTE**

If the memory test fails, the LED will remain off. To repeat the diagnostics test routine, or use the workheads in the automatic mode, you must reset the system by placing the Auto/Manual workheads switch to Manual and then returning it to Auto.