

HYSTER COMPANY

WAREHOUSE PRODUCT DEVELOPMENT CENTER GREENVILLE, NC

CROWN RR 5220-45

TEST REPORT, 2006

Over a period of 5 months in 2006, a Hyster N45ZR AC Reach Truck, a Crown RR 5220-45 Reach Truck, and a Raymond 7400-R45TT Reach Truck were vigorously evaluated at the Hyster Warehouse Development Design Center in Greenville, NC. The purpose of this testing was to document the respective performance capabilities of these trucks under controlled test conditions. Certain guidelines and test procedures were followed in order to assemble fair and accurate data –

1. Prior to testing, the trucks were checked and 'set-up' according to the manufacturer's recommended procedures and specifications and utilized a fully charged battery.
2. The operators selected drove all three trucks and were familiar with operating trucks in the reach truck 4500 pound capacity range.
3. A variety of operational requirements were utilized to ensure equitable comparison of full operating cycles.
4. Any cycle times that included operator error were eliminated from the overall average cycle calculation, ensuring representative results of the trucks were achieved.

The results obtained from the testing are given on the following pages.



- Test results listed in this report are the actual performances recorded by the Center Technical Staff. These results are based on the Crown and Raymond trucks that Hyster purchased for this evaluation and may not be representative of every truck in the series (Note: A high performance optional package was on the tested Hyster truck and Raymond truck, but not on the Crown truck).

HYSTER WAREHOUSE PRODUCT DEVELOPMENT CENTER TEST REPORT

MEASURED TEST RESULTS

* Crown RR 5220-45

I.	Productivity Test Results		
A.	Cycle Test (Full Cycle)		
	Cycles per Hour		35.31
	Ah per Hour		181.26
	Seconds per Cycle		101.95
	Ah per Cycle		5.13
II.	Performance Test Results		
A.	Maximum Travel Speed - Forward		
	mph – No Load		5.6
	mph – Rated Load		5.6
B.	Maximum Travel Speed – Reverse		
	mph – No Load		7.2
	mph – Rated Load		7.0
C.	Acceleration Time – Forward		
	Sec – 50 ft, No Load		7.4
	Sec – 50 ft, Rated Load		8.2
D.	Upright Speeds (fpm)		
	Lift – No Load		109.1
	Lift – Rated Load		63.2
	Lower – No Load		87.4
	Lower – Rated Load		94.9
III.	Auxiliary Test Results		
A.	Sideshifting Speed (in/s)		
	No Load		1.48
	Rated Load		1.19
B.	Reaching (in/s)		
	No Load		13.88
	Rated Load		12.07
C.	Retracting (in/s)		
	No Load		13.1
	Rated Load		12.33
D.	Noise Levels – Traction (dBa)		
	No Load		78.2
	Loaded		78.9
E.	Noise Levels – Upright (dBa)		
	Lift – No Load		72.2
	Lift – Loaded		75.1
	Lowering – No Load		65.7
	Lowering – Loaded		73.1

- After completion of a full cycle run, the Hyster ZR AC truck showed an efficiency advantage of 6.4% over the Crown truck. (Amp draw)

* Results may vary in the event a high performance package was used on the Crown truck.