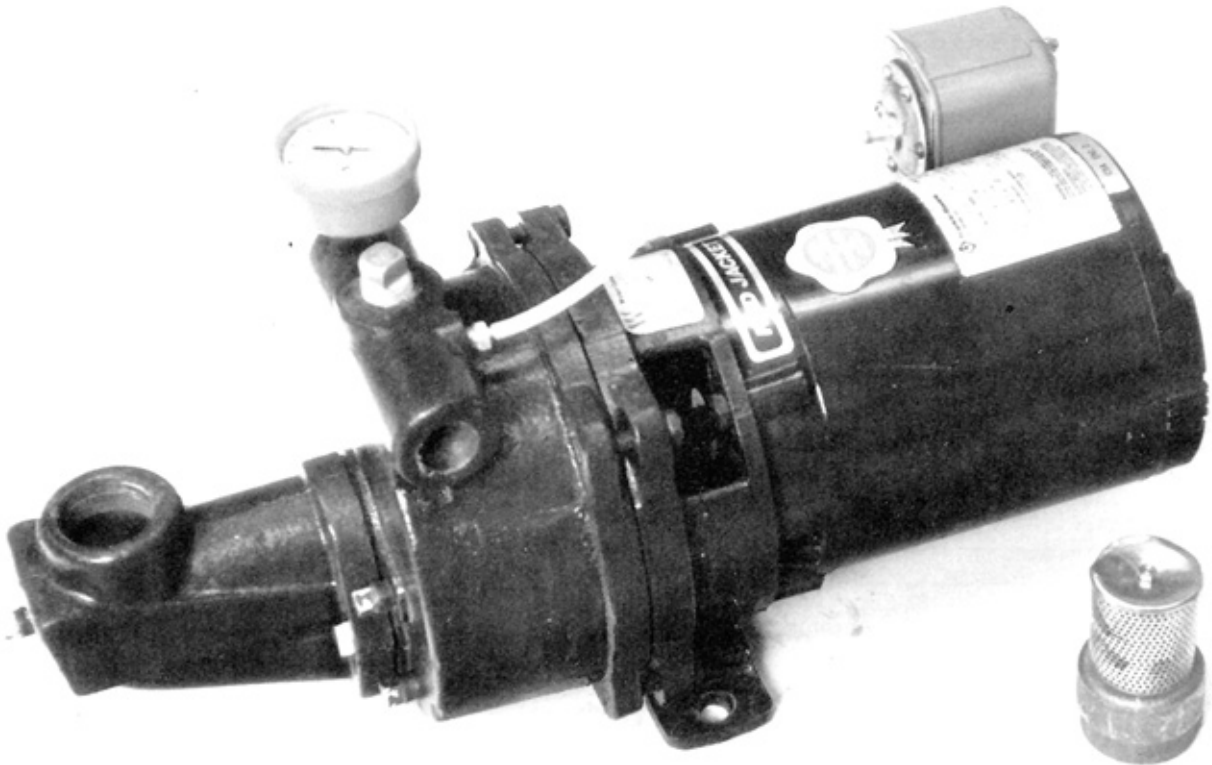


# Evaluation Report 240



## RED JACKET 'TRAILBLAZER' RJ-500 SHALLOW WELL JET PUMP

A Co-operative Program Between



ALBERTA  
FARM  
MACHINERY  
RESEARCH  
CENTRE



PRAIRIE AGRICULTURAL MACHINERY INSTITUTE

## RED JACKET 'TRAILBLAZER' R J-500 SHALLOW WELL JET PUMP

### MANUFACTURER:

Wylain Canada Ltd.  
126 East Drive  
Brampton, Ontario  
L6T 1C2

### DISTRIBUTOR:

Westburne Industrial Enterprises Ltd.  
(Outlets in all major centres)

**RETAIL PRICE:** \$314.00 (March, 1980, f.o.b. Brampton, Ontario).

### SUMMARY AND CONCLUSIONS

Measured water flow of the Red Jacket RJ-500 jet pump varied from 47 L/min (10.4 gal/min) to 5 L/min (1.1 gal/min) over a range of total heads from 8 to 40 m (26 to 131 ft) with a 4.5 m (15 ft) suction lift. At peak efficiency, flow was 6% lower than the manufacturer's published data.

Peak overall efficiency of 13.4% occurred at a discharge head of 21 m (69 ft) with a flow of 41.7 L/min (9.2 gal/min). The corresponding pump power output was 0.17 kW.

The owner's manual supplied with the pump was clearly written, and contained comprehensive installation, electrical, priming, maintenance and troubleshooting instructions. A pressure switch was supplied with the pump.

### RECOMMENDATIONS

No need for recommendations was apparent.

*Chief Engineer -- E. O. Nyborg*

*Senior Engineer -- J. C. Thauberger*

*Project Engineer: Gregory R. Pool*

### THE MANUFACTURER STATES:

We are members of the Canadian Water Systems Manufacturers' Association. The by-laws allow members to publish performance data within plus or minus 10% of actual performance.

Note: This report has been prepared using SI units of measurement. A conversion table is given in APPENDIX II.

### GENERAL DESCRIPTION

The Red Jacket R J-500 is a single stage, shallow well jet pump, with a 35 mm (nominal 1.25 inch NPT) inlet and a 25 mm (nominal 1 inch NPT) outlet, designed for use in wells up to 7.5 m (25 ft) deep. It is powered by a 115/230V, 0.37 kW Franklin Electric electric motor.

Detailed specifications are given in APPENDIX I.

### SCOPE OF TEST

The performance characteristics of the Red Jacket R J-500 were determined with water, over a full range of discharge heads and suction lifts, using a standard pump testing procedure<sup>1</sup>. In addition, ease of installation, the suitability of the owner's manual and the safety of the pump were evaluated.

### RESULTS AND DISCUSSION

#### PERFORMANCE CHARACTERISTICS

Pump performance characteristics, over a range of total heads<sup>2</sup> from 5 to 42 m (16 to 138 ft) of water, are given in FIGURE 1, for a 4.5 m (15 ft) suction lift. Maximum flow at 5 m (16 ft) total head was 48 L/min (10.6 gal/min), while flow ceased at a total head of 42 m (138 ft). The manufacturer's published performance data indicated higher flows than those obtained, at heads greater than 24 m (79 ft) of water. At the point of peak overall efficiency,

the measured flow was 6% lower than that indicated by the manufacturer. The peak efficiency, occurring at a discharge head of 21 m (69 ft), was 13.4%. The corresponding flow was 41.7 L/min (9.2 gal/min).

Maximum pump power output was 0.17 kW, occurring at the peak efficiency point, with a corresponding current draw of 5.7A at a 230V line voltage.

### EASE OF INSTALLATION

Two street elbows were required to connect the suction pipe to the pump inlet. A brass foot valve was supplied with the pump, and was installed on the lower end of the suction pipe throughout the test. Access to the inlet and outlet, for plumbing connections, was convenient.

A priming plug was conveniently located on top of the pump body. Priming of the pump was accomplished after the pump body had been filled with water only one time.

### OPERATOR'S MANUAL AND SAFETY ASSESSMENT

The owner's manual was clearly written and contained comprehensive installation, electrical, priming, maintenance and troubleshooting instructions. Wiring and plumbing recommendations were provided. If the instructions were followed closely, a safe electrical connection could be made. The pump motor had CSA approval.

<sup>1</sup> PAMI T7821, Detailed Test Procedure for Domestic Water Pumps.

<sup>2</sup> Total head is the sum of the discharge head and the suction lift.

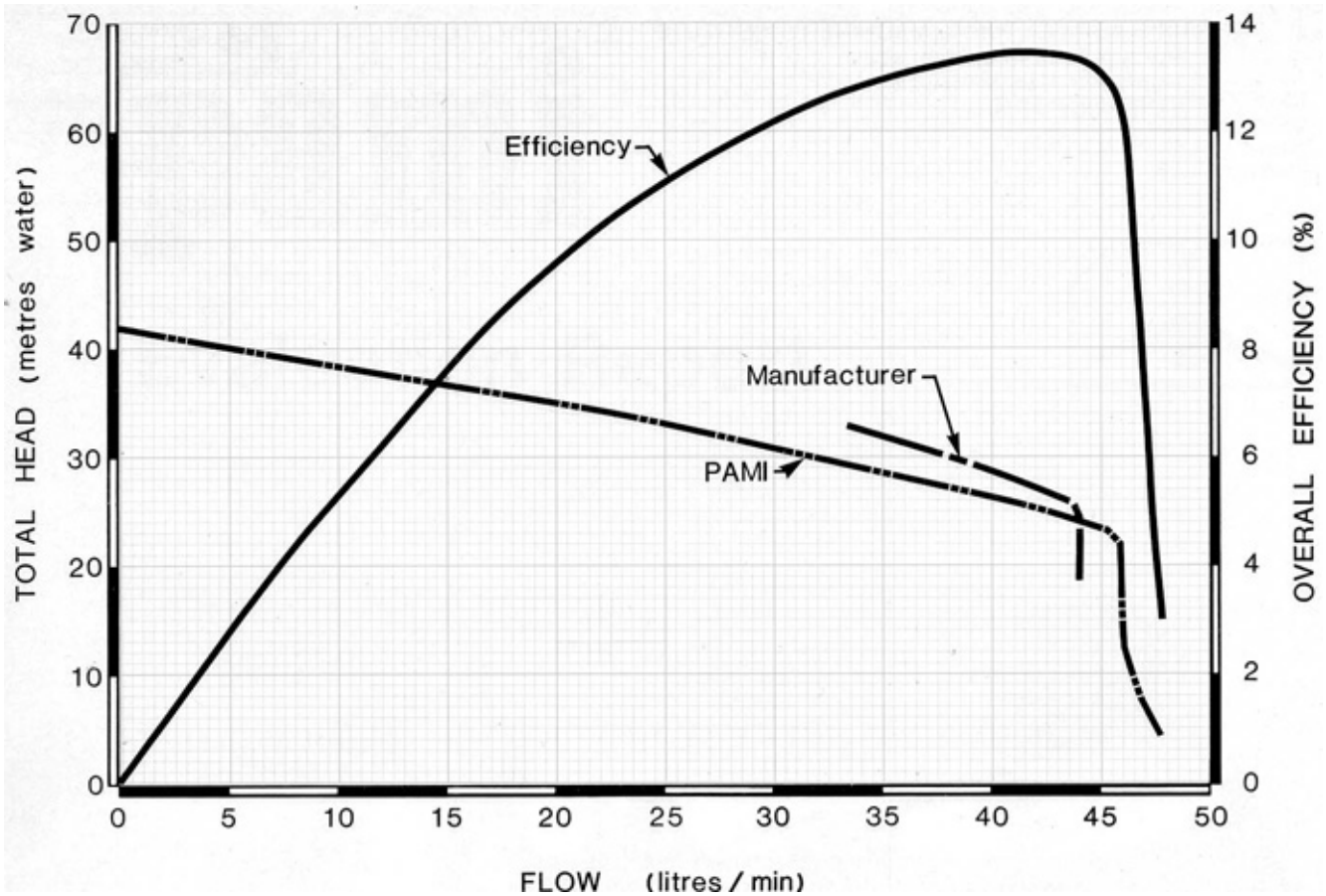


FIGURE 1. Performance Characteristics.

APPENDIX I	
<b>SPECIFICATIONS</b>	
<i>PUMP:</i>	
-- make	Red Jacket 'Trailblazer'
-- model	RJ-500
-- serial no.	7911
<i>MOTOR:</i>	
-- make	Franklin Electric
-- model	110301 2431
-- power rating	0.37 kW
-- voltage rating	115/230 V
-- current rating	8.2/4.1 A
-- service factor	1.6
-- speed	3450 rpm
<i>OVERALL DIMENSIONS:</i>	
-- length	530 mm
-- width	245 mm
-- height	260 mm
<i>TOTAL WEIGHT:</i>	21.1 kg
<i>INLET:</i>	
-- location	top of ejector body
-- nominal size	35 mm (1.25 inch NPT)
<i>OUTLET:</i>	
-- location	top right side
-- nominal size	25 mm (1 inch NPT)
<i>FOOT VALVE:</i>	
-- type	brass
-- nominal size	35 mm (1.25 inch NPT)
<i>PRESSURE REGULATOR SWITCH:</i>	
-- make	Pumptrol -- Square 'D'
-- switching pressure range	140 - 280 kPa

APPENDIX II	
<i>CONVERSION TABLE</i>	
1 litre (L)	= 0.22 Imperial gallon (gal)
1 kilowatt (kW)	= 1.3 horsepower (hp)
1 metre water (m)	= 1.4 pounds force/square inch (psi)
1 metre water (m)	= 3.3 feet water (ft)
1 kilopascal (kPa)	= 0.15 pounds force/square inch (psi)

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