

provide ship clearance where it crosses the Seaway, the bridge was raised a total of 80 feet. By slowly jacking the southern spans and adding layers of concrete to the existing piers, engineers raised the bridge 50 feet. The final 30 feet required for full clearance was gained by removing the old section with its network of steel struts beneath, and installing another span supported from above.

The new section was completely pre-assembled on tracks, and coupled alongside the span it would replace. Then a group of eighty engineers and technicians gathered to begin an operation as minutely planned as a wartime commando raid; to move the new through-span sideways, 78 feet into place. The seventy-eight foot slide was broken into a series of four-foot moves; the rails lay greased and ready. When the hydraulic jacks began, the old section was pulled sideways out of the way, and the new span coupled to it slowly moved into place.

At the operation's nerve centre, midway down the old span, control men prepared to record the movement of the individual ends, at half-inch intervals, on

special measuring rods. The control engineer telephoned the start of the cycle to the jack operators at both ends of the spans. As the control levers advanced, electrically driven pumps forced oil to the giant jacks at pressures up to six thousand pounds per square inch.

Slowly the two spans began to move.

As the spans completed their four-foot travel along the rails, the pressure was removed from the jacks, and technicians slipped wooden wedges under each carriage to prevent it rolling back. At the other end of the rails, workmen quickly removed the plate links from the chain, one set for each four-foot move, and slid them down disposal chutes to the sand piles below. Then the shortened chain was rejoined, and the cycle repeated, until the new section finally pulled into place.

The through-span was paved and readied for traffic beforehand, so no time would be lost in returning the bridge to use.

The following day work was resumed on the jacking operations that completed the seven million dollar uplift on old Jacques Cartier Bridge.