Single span structures should be jacked from one end only. Symmetrical two span structures may be jacked from one end only or jacked from both ends. Unsymmetrical bridges should be jacked from one end or both ends as required by the design. Three span or longer structures should be jacked from both ends.

Several prestressing systems should be checked to verify that the eccentricity and anchorage details will work. In determining the center of gravity of the strands, the Z factor, the difference between the center of gravity of the strands and the center of the ducts, shall be considered. For structures over 120 meters in length, in determining the c.g. of the strands, the diameter of the ducts should be oversized by 13 millimeters to allow for ease of pulling the strands.

For horizontally curved bridges, special care shall be taken in detailing stirrups and duct ties. Friction losses should be based on both vertical and horizontal curvatures. In designing for horizontal curvature, the exterior web with the smallest radius shall be used. Consideration to the ± 5% variation allowed per web shall be included.

403 PRECAST PRESTRESSED CONCRETE

403.01 CONCRETE (AASHTO 9.2)

Concrete for highway structures shall have a minimum specified initial and final concrete strengths as shown below. Higher strength concrete may only be used when required by design and when approved.

Initial	f'_{ci} = 290 kg/cm^2 Min
	f'_{ci} = 320 kg/cm^2 Max
Final	f'_c = 360 kg/cm^2 Min
	f'_c = 420 kg/cm^2 Max

403.02 DEFLECTIONS (AASHTO 9.11)

The Release, Initial and Final Deflections shall be shown on the plans. Deflections shall be shown in centimeters at the tenth points.

The Release Deflection equals the deflection the prestress girder undergoes at the time of strand release. The Release Deflection includes the dead load of the girder and the release prestressing force (including the effects of elastic shortening).

The Initial Deflection equals the deflection the prestress girder undergoes at the time of erection prior to the diaphragm or deck pours. The Initial Deflection includes the deflection due to the dead load of the girder, the initial prestressing and the effects of creep and shrinkage up to the time of erection. The time of erection should be assumed to be 60 days after release.

The Final Deflection equals the deflection due to the dead load of the deck slab, diaphragms and barriers and the effects of long term creep on the composite girders. The effects of the 120 kg/m^2 future wearing surface shall be excluded from deflection calculations.

Minimum build-up at the edge of Type III girders and smaller shall be 15 millimeters. For Type IV, V and VI girders the minimum build-up shall be 25 millimeters. This minimum build-up at the critical section will ensure that the flange of the girder will not encroach into the gross depth of the slab.

The tops of the erected girders shall be surveyed in the field prior to placement of the deck forming. If the tops of the erected girder elevations are higher than the finish grade plus camber elevations minus deck slab and buildup thickness, adjustments will have to be made in the roadway profile or in the girder seat elevations. Encroachment into the slab of up to 15 millimeters will be allowed for random occurrences.

403.03 ALLOWABLE STRESSES-PRESTRESSING STEEL (AASHTO 9.15.1)

For pretensioned members, overstressing the prestressing steel above the initial stressing limit for short periods of time to offset seating losses is not permitted.