

# A-2 鋼連続箱桁橋の中間支点部の変形

Deformation of central support members of continuous steel box girder bridge



支点上箱桁  
Box girder on  
the fixed bearings

ピン支承  
Pin bearings



損傷した箱桁の内部  
Inside of the damaged box girder



箱桁下フランジの損傷  
Damage of the bottom flange

■ 損傷内容 / ①神P-120橋脚上の固定支承(ピン支承)の上巻とピンが下巻からはずれた②水平方向の力により、上部工(箱桁)が、神戸側に約65cm、海側に約1m10cm移動した③破損したピン支承の下巻が、荷重を支えるための補強をしていない部分の箱桁下フランジを突き破った

■ 位置 / 3号神戸線 神S-119~120 (芦屋市)

■ 構造形式 / 2径間連続RC床版鋼箱桁橋

■ 竣工時期 / 昭和44年度

■ 適用基準 / 鋼道路橋設計・製作方書(昭和39年)ほか

■ 復旧方法 / 桁下の交通規制条件を考え、損傷した部分を切り取り、新しい部材と取り替えた

■ 展示物紹介 / 撤去した箱桁損傷部 / 固定支承(ピン支承)

■ 展示物諸元

箱桁 (切断撤去部)	下フランジ(材質SM58、板厚35mm) ウェブ(材質SM58、板厚15mm)
固定支承 (反力781.4t)	下巻(材質SC46、質量1,014kg) ピン(材質SS41、質量49kg)

■ Damage descriptions / ①Upper shoes and pins disengaged from the lower shoes in the fixed bearings (pin bearings) on the central pier (P-120). ②The box girders in the superstructure moved about 65 cm toward the east (Kobe side) and about 110 cm toward the south due to the horizontal force. ③The lower shoes of the damaged pin bearings broke through a bottom flange of the box girder where the load carrying reinforcement was not provided.

■ Location / S-119 to S-120 on the Kobe Route #3 (Ashiya City)

■ Structural configuration / 2-span continuous steel box girder bridge with reinforced concrete decks

■ Completion / 1969

■ Major standards applied / Design and Fabrication Specifications for Highway Steel Bridges (1964)

■ Restoration / With traffic restrictions imposed on road below the bridge taken into account, the damaged members were cut out and removed, and subsequently new members were installed.

■ Descriptions of the exhibits / Damaged and removed portions of the box girder and fixed bearings (pin bearings)

■ Specifications of the exhibits

Box girder (cut-out and removed portion)	Bottom flange (material: SM58; thickness: 35 mm) Web (material: SM58; thickness: 15 mm)
Fixed bearings (reaction force: 781.4 tons)	Lower shoes (material: SC46; mass: 1,014 kg) Pins (material: SS41; mass: 49 kg)

