

Survey Results of Gate Structure

(27 / 96)

Gate No.	W19	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf	Thickness-Avg	Top 10.0 Mid 10.0 Low 9.8 Blm 9.2 (9.5mf)			G	Wire Rope	% Distortion: -- Corrosion: -- Oil: --	G	
	Corrosion	U/S-Bottom L M S				Main-Left	% Distortion: -- Corrosion: -- Oil: --	G	
	Damage-Rivet	Corner-L -- Corner-R --				Main-Right	% Distortion: -- Corrosion: -- Oil: --	C	
Truss	Thickness-Avg	Bottom Flange 18.9 Bottom Web 18.3 (19.1mm)			G	Roller Train-L	% Distortion: -- Corrosion: -- Oil: --	C	
	Distortion					Roller Train-R	% Distortion: -- Corrosion: -- Oil: --	C	
End Girder	Thickness-Avg	L-Bottom 9.9 R-Bottom 10.4 (11.1mm)			C	Left	Damage: -- Function: --	RS	
	Remodeling	Left No Right No				Right	Damage: -- Function: --	↑	
Bottom	Distortion	Left -- Right --				Drum	Damage: -- Oil: --	↓	
	Thickness-Avg	Flange 14.6 mm (16.3), Web 9.5 mm (9.4)				Counter Shaft	Damage: -- Oil: --	RS	
Girder	Corrosion	L (M) S				Reduction Gear	Damage: -- Oil: --	C	
	Remodeling	Left No Right No				Drum Gear-L	Damage: -- Fitting: -- Backlash: -- Oil: --	RS	
Rocker	Distortion	Left -- Right --				Drum Pinion-L	Damage: --	↑	
	Others	No Function				Drum Gear-R	Damage: -- Fitting: -- Backlash: -- Oil: --		
Roller Train	Missing	Left -- Right --				Drum Pinion-R	Damage: --		
	Diameter-Roller	Average -- mm				Gear-Middle	Damage: -- Fitting: -- Backlash: -- Oil: --		
Seal	Distortion	Left -- Right --				Pinion-Middle	Damage: --		
	Left	--				Drum-L	Damage: -- Corrosion: L M (S)	↓	
Inclination	Bottom	--				Drum-R	Damage: -- Corrosion: L M (S)	↓	
	Right	--				Drive Device	Damage: -- Corrosion: L (M) S	RS	
Leakage	Top Level Difference	0 mm				Drive Chain	Damage: -- Looseness: -- Oil: --	C	
		L M (S)				Chain Sprocket	Damage: -- Corrosion: L (M) S	↑	
Sill	Side Seal	Left: -- mm, Right: -- mm			RS	Reduction Gear	Damage: -- Corrosion: L (M) S		
	Roller Truck	Left: -- mm, Right: -- mm			RL	Cover	Damage: -- Corrosion: L M (S)		
Sill Beam	Missing	Left 0 Right 0			N	Drum-L	Damage: -- Corrosion: L M (S)	↓	
	Detect	Left 0 Right 0			N	Drum-R	Damage: -- Corrosion: L M (S)	↓	
Concrete	Abrasion	L M (S)			RS	Gear-Middle	Damage: -- Corrosion: L (M) S	C	
	Damage-Left	L (M) S			RS	Counter Shaft	Damage: -- Corrosion: L M S	G	
Concrete	Damage-Right	L (M) S			RS	Counter Weight	Damage: -- Corrosion: L M S	RS	
	Damage-Bottom	L (M) S			RS	Hoisting	Wet Condition 52.5 kg/m	RL	
Superstructure						Torque	Dry Condition 3.9 kg/m	RS	
							Damage: -- Corrosion: L M (S)	RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(28 / 95)

Gate No.	W20	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf									
Thickness-Avg	Top - Mid - Low - Btm 8.8 (9.5mm)				G	Main-Left	Y: - Distortion: - Corrosion: - Oil: -		
Corrosion	U/S-Bottom L M S				G	Main-Right	Y: - Distortion: - Corrosion: - Oil: -		
Damage-Rivet	Corner-L - Corner-R -				C	Roller Train-L	Y: - Distortion: - Corrosion: - Oil: -		
Thickness-Avg	Bottom Flange 18.6, Bottom Web 18.5 (19.1mm)				C	Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -		
Distortion						Left	Damage: - Function: -	RS	
Thickness-Avg	L-Bottom 9.5, R-Bottom 10.8 (11.1mm)				C	Right	Damage: - Function: -	↑	
Remodeling	Left No Right No				↑	Drum	Damage: - Oil: -	↓	
Distortion	Left - Right -					Counter Shaft	Damage: - Oil: -	RS	
Thickness-Avg	Flange 15.0 mm (16.3), Web 9.1 mm (9.4)					Reduction Gear	Damage: - Oil: -	C	
Corrosion	L (M) S					Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
Remodeling	Left No Right No					Drum Pinion-L	Damage: -	↑	
Distortion	Left 1 m Broken Right -					Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
Others	No Function					Drum Pinion-R	Damage: -		
Missing	Left 1 Right -					Gear-Media	Damage: - Fitting: - Backlash: - Oil: -		
Diameter-Roller	Average - mm					Pinion-Middle	Damage: -		
Distortion	Left - Right -					Drum-L	Damage: - Corrosion: L M (S)		
Left	-					Drum-R	Damage: - Corrosion: L M (S)	↓	
Bottom	-					Drive Device	Damage: - Corrosion: L (M) S	RS	
Right	-					Drive Chain	Damage: - Looseness: L Oil: -	C	
Inclination	Top Level Difference 20 mm				↓	Chain Sprocket	Damage: - Corrosion: L (M) S	↑	
Leakage	L M S				C	Reduction Gear	Damage: - Corrosion: L (M) S		
Side Seal	Left: - mm, Right: - mm				RS	Drum-L	Damage: - Corrosion: L M (S)		
Roller Truck	Left: - mm, Right: - mm				RL	Drum-R	Damage: - Corrosion: L M (S)	↓	
Roller Guard Missing	Left 0 Right 1				N	Gear-Microte	Damage: - Corrosion: L (M) S	C	
Defect	Left 1 Right 0				N	Counter Shaft	Damage: - Corrosion: L M S	G	
Abrasion	L M S				-	Counter Weight	Damage: - Corrosion: L M S	RS	
Damage-Left	L M (S)				RS	Hoisting	Wet Condition 61.2 kg/m	RL	
Damage-Right	L (M) S				RS	Torque	Dry Condition 3.9 kg/m	RS	
Damage-Bottom	L (M) S				RS	Superstructure	Damage: - Corrosion: L M (S)	RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, FL: Large Repair, RM: Medium Repair, RS: Small Repair, O: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(29 / 96)

Gate No. W21 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - 81m 9.3 (9.5mm)	G	Main-Left	% - Distortion: - Corrosion: - Oil: -	G	
Corrosion	U/S-Bottom L M S	-	Main-Right	% - Distortion: - Corrosion: - Oil: -	G	
Damage-Rivet	Corner-L - Corner-R -	-	Roller Train-L	% - Distortion: - Corrosion: - Oil: -	C	
Thickness-Avg	Bottom Flange 18.2, Bottom Web 18.3 (19.1mm)	G	Roller Train-R	% - Distortion: - Corrosion: - Oil: -	C	
Distortion		-	Left	Damage: - Function: -	RS	
Thickness-Avg	L-Bottom 10.2, R-Bottom 11.3 (11.1mm)	C	Right	Damage: - Function: -	↑	
Remodeling	Left No Right No	↑	Drum	Damage: - Oil: -	↓	
Distortion	Left - Right -	-	Counter Shaft	Damage: - Oil: -	RS	
Thickness-Avg	Flange 15.0 mm (16.3), Web 10.0 mm (9.4)		Reduction Gear	Damage: - Oil: -	C	
Corrosion	L M ⊕		Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
Remodeling	Left No Right No		Drum Pinion-L	Damage: -	↑	
Distortion	Left - Right -		Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
Others	No Function		Drum Pinion-R	Damage: -		
Missing	Left 2 Right 1		Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
Diameter-Roller	Average - mm		Pinion-Middle	Damage: -		
Distortion	Left - Right -		Drum-L	Damage: - Corrosion: L M ⊕		
Left	-		Drum-R	Damage: - Corrosion: L M ⊕	↓	
Bottom	-		Drive Device	Damage: - Corrosion: L ⊕ M S	RS	
Right	-		Drive Chain	Damage: - Looseness: - Oil: -	C	
Inclination	Top Level Difference 115 mm	↓	Chain Sprocket	Damage: - Corrosion: L ⊕ M S	↑	
Leakage	⊕ M S	C	Reduction Gear	Damage: - Corrosion: L ⊕ M S		
Sill						
Side Seal	Left: - mm, Right: - mm	RS	Cover	Damage: - Corrosion: L M ⊕		
Roller Truck	Left: - mm, Right: - mm	RL	Drum-L	Damage: - Corrosion: L M ⊕	↓	
Roller Guard	Left 0 Right 1	N	Gear-Middle	Damage: - Corrosion: L ⊕ M S	C	
Defect	Left 1 Right 1	N	Counter Shaft	Damage: - Corrosion: L M S	C	
Abrasion	L ⊕ M S	N	Counter Weight	Damage: - Corrosion: L M S	RS	
Damage-Left	⊕ M S	RS	Hoisting	Wet Condition	28 kg-m	
Damage-Right	⊕ M S	RS	Torque	Dry Condition	5.9 kg-m	
Damage-Bottom	L ⊕ M S	RS	Superstructure	Damage: - Corrosion: L M ⊕	RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(30 / 96)

Gate No. W22 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - Rim 8.7 (9.5mm)	G	Wire Rope			
Corrosion	L/S-Bottom L M S	-	Main-Left	y - Distortion - Corrosion - Oil -	G	
Damage-Rivet	Cornel-L - Corner-R -	-	Main-Right	y - Distortion - Corrosion - Oil -	G	
Thickness-Avg	Bottom Flange 18.5, Bottom Web 18.6 (19 mm)	G	Roller Train-L	y - Distortion - Corrosion - Oil -	C	
Distortion		-	Roller Train-R	y - Distortion - Corrosion - Oil -	C	
Thickness-Avg	L-Bottom 10.3, R-Bottom 9.7 (11.1mm)	C	Left	Damage: - Function: -	RS	
Remodeling	Left: No Right: No	↑	Right	Damage: - Function: -	↑	
Distortion	Left - Right -		Drum	Damage: - Oil: -	↓	
Thickness-Avg	Flange 14.5 mm (16.3), Web 9.2 mm (9.4)		Counter Shaft	Damage: - Oil: -	RS	
Corrosion	L (M) S		Reduction Gear	Damage: - Oil: -	C	
Remodeling	Left: No Right: No		Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
Distortion	Left - Right -		Drum Pinion-L	Damage: -	↑	
Others	No Function		Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
Missing	Left - Right -		Drum Pinion-R	Damage: -		
Diameter-Roller	Average - mm		Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
Distortion	Left - Right -		Pinion-Middle	Damage: -		
Left	-		Drum-L	Damage: - Corrosion: L M (S)		
Bottom	-		Drum-R	Damage: - Corrosion: L M (S)	↓	
Right	-		Drive Device	Damage: - Corrosion: L (M) S	RS	
Inclination	Top Level Difference 90 mm	↓	Drive Chain	Damage: - Looseness: - Oil: -	C	
Leakage						
	(L) M S	C	Chain Sprocket	Damage: - Corrosion: L (M) S	↑	
			Reduction Gear	Damage: - Corrosion: L (M) S		
Sill						
Side Seal	Left: - mm, Right: - mm	RS	Drum-L	Damage: - Corrosion: L M (S)	↓	
Roller Truck	Left: - mm, Right: - mm	RL	Drum-R	Damage: - Corrosion: L M (S)		
Roller Guard	Left 0 Right 1	N	Gear-Middle	Damage: - Corrosion: L (M) S	C	
	Left 0 Right 0	N	Counter Shaft	Damage: - Corrosion: L M S	G	
	L M S	-	Counter Weight	Damage: - Corrosion: L M S	RS	
	L M (S)	RS	Hoisting	Wet Condition 31.5 kg-m	RL	
	L (M) S	RS	Torque	Dry Condition 3.1 kg-m	RS	
	L (M) S	RS	Superstructure	Damage: - Corrosion: L M (S)	RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(32 / 96)

Gate No. W24 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - Rim 8.7 (9.5mm)	G	Wine Rope			
Corrosion	U/S-Bottom L M S	-	Main-Left	Y: - Distortion: - Corrosion: - Oil: -	G	
Damage-Rivet	Corner-L - Corner-R -	-	Main-Right	Y: - Distortion: - Corrosion: - Oil: -	G	
Thickness-Avg	Bottom Flange 18.3, Bottom web 18.5 (19.1mm)	G	Roller Train-L	Y: - Distortion: - Corrosion: - Oil: -	C	
Distortion		-	Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C	
Thickness-Avg	L-Bottom 10.3, R-Bottom 9.8 (11.1mm)	C	Drum	Damage: - Function: -	RS	
Remodeling	Left No Right No	↑	Right	Damage: - Function: Miss Alignment	↑	
Distortion	Left - Right -	-	Drum	Damage: - Oil: -	↓	
Thickness-Avg	Flange 15.7 mm (16.3), Web 8.9 mm (9.4)	-	Counter Shaft	Damage: - Oil: -	RS	
Corrosion	L (M) S	-	Reduction Gear	Damage: - Oil: -	C	
Remodeling	Left No Right No	-	Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
Distortion	Left 0.2 m Broken Right 0.2 m Broken	-	Drum Pinion-L	Damage: -	↑	
Others	No Function	-	Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -	-	
Missing	Left 0 Right 1	-	Drum Pinion-R	Damage: -	-	
Diameter-Roller	Average - mm	-	Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -	-	
Distortion	Left - Right -	-	Pinion-Middle	Damage: -	-	
Left	-	-	Drum-L	Damage: - Corrosion: L M (S)	-	
Bottom	-	-	Drum-R	Damage: - Corrosion: L M (S)	↓	
Right	-	-	Drive Device	Damage: - Corrosion: L (M) S	RS	
Inclination	Top Level Difference 35 mm	↓	Drive Chain	Damage: - Looseness: - Oil: -	C	
Leakage						
	(L) M S	C	Chain Sprocket	Damage: - Corrosion: L (M) S	↑	
Sill						
Side Seal	Left: - mm, Right: - mm	RS	Reduction Gear	Damage: - Corrosion: L (M) S	-	
Roller Truck	Left: - mm, Right: - mm	RL	Cover	Drum-L	Damage: - Corrosion: L M (S)	
Roller Guard	Left 0 Right 0	N	Drum-R	Damage: - Corrosion: L M (S)	↓	
Defect	Left 0 Right 0	N	Gear-Middle	Damage: - Corrosion: L (M) S	C	
Abrasion	L M S	-	Counter Shaft	Damage: - Corrosion: L M S	G	
Damage-Left	L M (S)	RS	Counter Weight	Damage: - Corrosion: L M S	RS	
Damage-Right	L M (S)	RS	Hoisting	Wet Condition	38.5 kg-m	
Damage-Bottom	L (M) S	RS	Torque	Dry Condition	8.6 kg-m	
Superstructure						
				Damage: - Corrosion: L M (S)	RS	

Remarks: Judgment: N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Gate No. W25 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - Btm 8.8 (9.5mm)	G	Main-Left	Y: - Distortion: - Corrosion: - Oil: -	G	
Corrosion	L/S-Bottom L M S	-	Main-Right	Y: - Distortion: - Corrosion: - Oil: -	G	
Damage-Rivet	Cornel-L - Corner-R -	-	Roller Train-L	Y: - Distortion: - Corrosion: - Oil: -	C	
Thickness-Avg	Bottom Flange 19.0, Bottom Web 18.7 (19.1mm)	G	Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C	
Distortion		-	Left	Damage: - Function: Miss Alignment	RS	
Thickness-Avg	L-Bottom 9.4, R-Bottom 9.1 (11.1mm)	C	Right	Damage: - Function: -	↑	
Remodeling	Left No Right No	↑	Drum	Damage: - Oil: -	↓	
Distortion	Left - Right -		Counter Shaft	Damage: - Oil: -	RS	
Thickness-Avg	Flange 13.2 mm (16.3), Web 8.7 mm (9.4)		Reduction Gear	Damage: - Oil: -	C	
Corrosion	L M S		Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
Remodeling	Left No Right No		Drum Pinion-L	Damage: -	↑	
Distortion	Left - Right 0.3 m Broken		Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
Others	No Function		Drum Pinion-R	Damage: -		
Missing	Left No.3 Broken Right 2		Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
Diameter-Roller	Average - mm		Pinion-Middle	Damage: -		
Distortion	Left - Right -		Drum-L	Damage: - Corrosion: L M S		
Left	-		Drum-R	Damage: - Corrosion: L M S	↓	
Bottom	-		Drive Device	Damage: - Corrosion: L M S	RS	
Right	-		Drive Chain	Damage: - Looseness: - Oil: -	C	
Inclination	Top Level Difference 80 mm	↓	Chain Sprocket	Damage: - Corrosion: L M S	↑	
Leakage	L M S	C	Reduction Gear	Damage: - Corrosion: L M S		
Sill	Abrasion-Max	Left: - mm, Right: - mm	Drum-L	Damage: - Corrosion: L M S		
	Abrasion-Max	Left: - mm, Right: - mm	Drum-R	Damage: - Corrosion: L M S	↓	
	Missing	Left 1 Right 0	Gear-Middle	Damage: - Corrosion: L M S	C	
	Defect	Left 0 Right 0	Counter Shaft	Damage: - Corrosion: L M S	G	
Abrasion	L M S	Counter Weight	Damage: - Corrosion: L M S	RS		
Damage-Left	L M S	Hoisting	Wet Condition	40 kg-m	RL	
Damage-Right	L M S	Torque	Dry Condition	5.9 kg-m	RS	
Damage Bottom	L M S	Superstructure	Damage: - Corrosion: L M S		RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(34 / 96)

Gate No.	W26	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf									
Sun Plate	Thickness-Avg	Top → Mid - Low - Blm 8.7 (9.5mm)	G	Main-Left	γ - Distortion: - Corrosion: - Oil: -	G	Main-Right	γ - Distortion: - Corrosion: - Oil: -	G
	Corrosion	U/S-Bottom	L M S		γ - Distortion: - Corrosion: - Oil: -			C	
Truss	Damage-Rivet	Cornet-L - Corner-R -	-	Roller Train-L	γ - Distortion: - Corrosion: - Oil: -	C	Roller Train-R		Broken
	Thickness-Avg	Bottom Flange 18.0, Bottom Web 18.2 (19.1mm)	G	Left	Damage: - Function: -		RS	Right	Function: -
End Girder	Distortion		-	Drum	Damage: - Oil: -	↑		Drum	Oil: -
	Thickness-Avg	L-Bottom 9.9, R-Bottom 10.6 (11.1mm)	C	Bearing	Damage: - Oil: -		RS	Counter Shaft	Oil: -
Bottom	Remodelling	Left No Right No	↑	Reduction Gear	Damage: - Fitting: - Backlash: - Oil: -	C		Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -
	Distortion	Left - Right -		Drum Pinion-L	Damage: -		↑	Drum Pinion-R	Damage: -
Girder	Thickness-Avg	Flange 13.8 mm (16.3), Web 9.1 mm (9.4)	L (M) S	Gear	Damage: -	-		Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -
	Corrosion			Drum Pinion-Middle	Damage: -		-	Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -
Rocker	Remodelling	Left No Right No		Pinion-Middle	Damage: -	-		Pinion-Middle	Damage: -
	Distortion	Left - Right -		Drum-L	Damage: - Corrosion: L M (S)		↓	Drum-R	Damage: - Corrosion: L M (S)
Assembly	Others	No Function		Drive Device	Damage: - Corrosion: L (M) S	RS		Drive Device	Damage: - Corrosion: L (M) S
	Missing	Left - Right -		Drive Chain	Damage: - Looseness: L Oil: -		C	Drive Chain	Damage: - Looseness: L Oil: -
Roller Train	Diameter-Roller	Average - mm		Chain Sprocket	Damage: - Corrosion: L (M) S	↑		Chain Sprocket	Damage: - Corrosion: L (M) S
	Distortion	Left - Right -		Reduction Gear	Damage: - Corrosion: L (M) S		-	Reduction Gear	Damage: - Corrosion: L (M) S
Seal	Left			Cover	Damage: - Corrosion: L M (S)	↓		Drum-L	Damage: - Corrosion: L M (S)
	Bottom			Drum-R	Damage: - Corrosion: L M (S)		C	Gear-Middle	Damage: - Corrosion: L (M) S
Inclination	Right			Counter Shaft	Damage: - Corrosion: L M S	G		Counter Shaft	Damage: - Corrosion: L M S
	Top Level Difference	S mm	↓	Counter Weight	Damage: - Corrosion: L M S		RS	Counter Weight	Damage: - Corrosion: L M S
Leakage		L M (S)	C	Hoisting	Wet Condition	RL		Hoisting	36 kg-m
				Torque	Dry Condition		RS	Torque	9.9 kg-m
Sill				Superstructure	Damage: - Corrosion: L M (S)	RS		Superstructure	Damage: - Corrosion: L M (S)
							RS		

Remarks: Judgment: N: Totally Replace, C: Partly Replace, G: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(35 / 96)

Gate No. W27 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - Btm 8.6 (9.5mm)	G	Main-Left	y - Distortion: - Corrosion: - Oil: -	G	
Corrosion	U/S-Bottom L M S	-	Main-Right	y - Distortion: - Corrosion: - Oil: -	G	
Damage-Rivet	Corner-L - Corner-R -	-	Roller Train-L	y - Distortion: - Corrosion: - Oil: -	C	
Thickness-Avg	Bottom Flange 18.4, Bottom Web 18.4 (19.1mm)	G	Roller Train-R	y - Distortion: - Corrosion: - Oil: -	C	
Distortion		-	Left	Damage: - Function: -	RS	
Thickness-Avg	L-Bottom 10.4, R-Bottom 10.9 (11.1mm)	C	Right	Damage: - Function: -	↑	
Remodeling	Left No Right No	↑	Drum	Damage: - Oil: -	↓	
Distortion	Left - Right -		Counter Shaft	Damage: - Oil: -	RS	
Thickness-Avg	Flange 15.2 mm (16.3), Web 8.4 mm (9.4)		Reduction Gear	Damage: - Oil: -	C	
Corrosion	L (M) S		Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
Remodeling	Left No Right No		Drum Pinion-L	Damage: -	↑	
Distortion	Left - Right -		Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
Others	No Function		Drum Pinion-R	Damage: -		
Missing	Left - Right -		Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
Diameter-Roller	Average - mm		Pinion-Middle	Damage: -		
Distortion	Left - Right -		Drum-L	Damage: - Corrosion: L M (S)		
Left	-		Drum-R	Damage: - Corrosion: L M (S)	↓	
Bottom	-		Drive Device	Damage: - Corrosion: L (M) S	RS	
Right	-		Drive Chain	Damage: - Looseness: L Oil: -	C	
Inclination	Top Level Difference 0 mm	↓	Chain Sprocket	Damage: - Corrosion: L (M) S	↑	
Leakage						
	(L) M S	C	Reduction Gear	Damage: - Corrosion: L (M) S		
Sill						
Side Seal	Abrasion-Max Left: - mm, Right: - mm	RS	Drum-L	Damage: - Corrosion: L M (S)	↓	
Roller Truck	Abrasion-Max Left: - mm, Right: - mm	RL	Drum-R	Damage: - Corrosion: L M (S)		
Roller Guard	Missing Left 0 Right 0	N	Gear-Middle	Damage: - Corrosion: L (M) S	C	
Defect	Left 0 Right 0	N	Counter Shaft	Damage: - Corrosion: L M S	G	
Sill Beam	Abrasion L M S	-	Counter Weight	Damage: - Corrosion: L M S	RS	
Concrete	Damage-Left L (M) S	RS	Hoisting	Wet Condition 40 kg-m	RL	
	Damage-Right L M (S)	RS	Torque	Dry Condition 7.4 kg-m	RS	
	Damage-Bottom L (M) S	RS	Superstructure	Damage: - Corrosion: L M (S)	RS	

Remarks: Judgment = N: Totally Replace, C: Patchy Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(36 / 96)

Gate No.	W28	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf	Thickness-Avg	Top - Mid - Low - 81m 9.0 (9.5mm)	C			Main-Left	% - Distortion: - Corrosion: - Oil: -	G	
	Corrosion	UIS-Bottom L M S	-			Main-Right	% - Distortion: - Corrosion: - Oil: -	G	
Truss	Damage-Rivet	Corner-L - Corner-R -	-			Roller Train-L	% - Distortion: - Corrosion: - Oil: -	G	
	Thickness-Avg	Bottom Flange 18.8, Bottom Web 18.6 (19.1mm)	G			Roller Train-R	% - Distortion: - Corrosion: - Oil: -	C	
End Girder	Distortion		-			Left	Damage: - Function: Miss Alignment	RS	
	Thickness-Avg	L-Bottom 10.1, R-Bottom 10.7 (11.1mm)	C			Right	Damage: - Function: -	↑	
Bottom	Remodeling	Left No Right No	↑			Drum	Damage: - Oil: -	RS	
	Distortion	Left - Right -				Counter Shaft	Damage: - Oil: -	RS	
Girder	Thickness-Avg	Flange 14.0 mm (16.3), Web 7.9 mm (9.4)				Reduction Gear	Damage: - Oil: -	C	
	Corrosion	L M S				Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
Rocker Assembly	Remodeling	Left No Right No				Drum Pinion-L	Damage: -	↑	
	Distortion	Left - Right -				Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
Roller Train	Others	No Function				Drum Pinion-R	Damage: -		
	Missing	Left 1 Right 1				Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
Seal	Diameter-Roller	Average - mm				Pinion-Middle	Damage: -		
	Distortion	Left - Right -				Drum-L	Damage: - Corrosion: L M S	↓	
Inclination	Left					Drum-R	Damage: - Corrosion: L M S	RS	
	Bottom					Drive Device	Damage: - Looseness: - Oil: -	C	
Leakage	Right					Chain Sprocket	Damage: - Corrosion: L M S	↑	
	Top Level Difference	30 mm	↓			Reduction Gear	Damage: - Corrosion: L M S		
Sill		L M S	C			Cover	Damage: - Corrosion: L M S		
	Abrasion-Max	Left: - mm, Right: - mm	RS			Drum-L	Damage: - Corrosion: L M S	↓	
Roller Truck	Abrasion-Max	Left: - mm, Right: - mm	N			Drum-R	Damage: - Corrosion: L M S	C	
	Missing	Left 1 Right 0	N			Gear-Middle	Damage: - Corrosion: L M S	G	
Sill Beam	Defect	Left 0 Right 1	N			Counter Shaft	Damage: - Corrosion: L M S	RS	
	Abrasion	L M S	RS			Counter Weight	Damage: - Corrosion: L M S	RL	
Concrete	Damage-Left	L M S	RS			Hoisting	Wet Condition 40 kg-m	RS	
	Damage-Right	L M S	RS			Torque	Dry Condition 5.9 kg-m	RS	
Sill	Damage-Bottom	L M S	RS			Superstructure	Damage: - Corrosion: L M S	RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

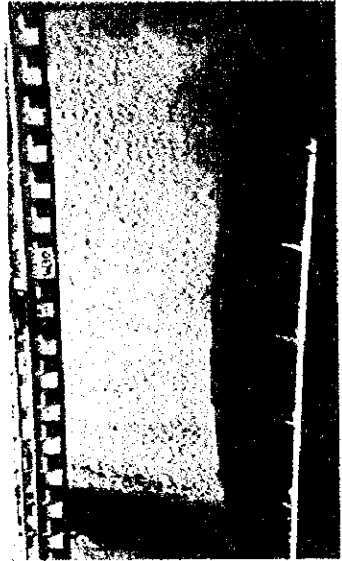
Gate No.	W29	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	
Gate Leaf			Thickness-Avg	Top - Mid - Low - Blm 9.0 (9.0mm)	C	Wire Rope	Main-Left Y - Distortion: - Corrosion: - Oil: -	G	
			Corrosion	U/S-Bottom L M S	-	Main-Right	Y - Distortion: - Corrosion: - Oil: -	G	
			Damage-Rivet	Corner-L - Corner-R -	-	Roller Train-L	Y - Distortion: - Corrosion: - Oil: -	C	
			Thickness-Avg	Bottom Flange 18.5, Bottom Web 18.5 (19.1mm)	G	Roller Train-R	Y - Distortion: - Corrosion: - Oil: -	C	
			Distortion		-	Left	Damage: - Function: -	RS	
			Thickness-Avg	L-Bottom 9.3, R-Bottom 9.3 (11.1mm)	C	Right	Damage: - Function: Miss Alignment	↑	
			Remodeling	Left No Right No	↑	Drum	Damage: - Oil: -	→	
			Distortion	Left - Right -		Counter Shaft	Damage: - Oil: -	RS	
			Thickness-Avg	Flange 14.6 mm (16.3), Web 8.4 mm (9.4)		Reduction Gear	Damage: - Oil: -	C	
			Corrosion	L M S		Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
			Remodeling	Left No Right No		Drum Pinion-L	Damage: -	↑	
			Distortion	Left Small Right Small		Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
			Others	No Function		Drum Pinion-R	Damage: -		
			Missing	Left - Right -		Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
			Diameter-Roller	Average - mm		Pinion-Middle	Damage: -		
Distortion	Left - Right -		Drum-L	Damage: - Corrosion: L M S					
Left	-		Drum-R	Damage: - Corrosion: L M S	↓				
Bottom	-		Drive Device	Damage: - Corrosion: L M S	RS				
Right	-		Drive Chain	Damage: - Looseness: L Oil: -	C				
Inclination	Top Level Difference 220 mm	↓	Chain Sprocket	Damage: - Corrosion: L M S	↑				
Leakage			Reduction Gear	Damage: - Corrosion: L M S					
Sill			Abrasion-Max	Left: - mm, Right: - mm	RS	Cover	Drum-L	Damage: - Corrosion: L M S	
			Abrasion-Max	Left: - mm, Right: - mm	RL	Drum-R	Damage: - Corrosion: L M S	↓	
			Missing	Left 1 Right 1	N	Gear-Middle	Damage: - Corrosion: L M S	C	
			Defect	Left 0 Right 0	N	Counter Shaft	Damage: - Corrosion: L M S	G	
			Abrasion	L M S	N	Counter Weight	Damage: - Corrosion: L M S	RS	
			Damage-Left	L M S	RS	Hoisting	Wet Condition 36 kg-m	RL	
			Damage-Right	L M S	RS	Torque	Dry Condition 17.2 kg-m	RS	
			Damage-Bottom	L M S	RG	Superstructure	Damage: - Corrosion: L M S	RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

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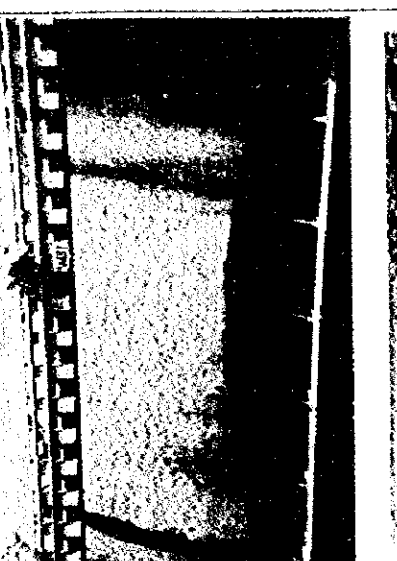
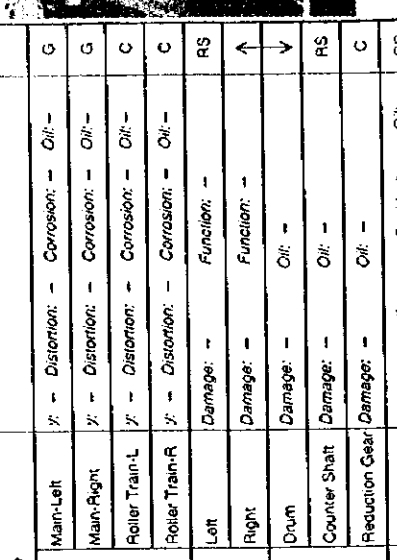
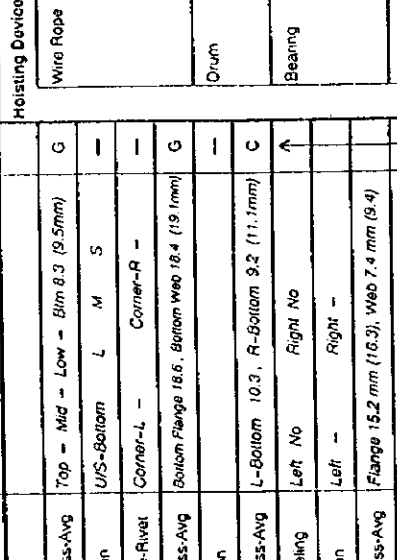
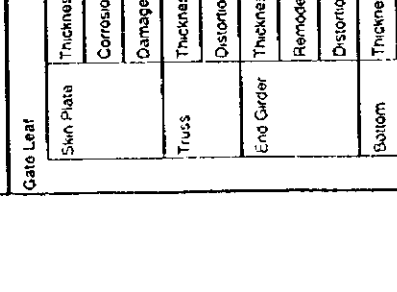
Gate No.	W30	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf	Sun Plate	Thickness-Avg	Top - Mid - Low - Blm 8.6 (9.5mm)	G	Hoisting Device	Main-Left	y: - Distortion: - Corrosion: - Oil: -	G	
			Corrosion	U/S-Bottom L M S		-	Main-Right	y: - Distortion: - Corrosion: - Oil: -	
	Truss	Damage-Rivet	Corner-L - Corner-R -	-	Roller Train-L	y: - Distortion: - Corrosion: - Oil: -	C		
			Thickness-Avg	Bottom Flange 19.1, Bottom Web 18.7 (19.1mm)	G	Roller Train-R	y: - Distortion: - Corrosion: - Oil: -	C	
	End Girder	Distortion	L-Bottom 10.4, R-Bottom 9.6 (11.1mm)	C	Left	Damage: - Function: Miss Alignment	RS		
			Remodeling	Left No Right No	↑	Right	Damage: - Function: Over Lapping	↑	
	Bottom	Distortion	Left - Right -	-	Drum	Damage: - Oil: -	RS		
			Thickness-Avg	Flange 15.3 mm (16.3), Web 9.3 mm (9.4)	-	Counter Shaft	Damage: - Oil: -	RS	
	Girder	Corrosion	Left - Right -	-	Reduction Gear	Damage: - Oil: -	C		
			Remodeling	Left No Right No	-	Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
	Rocker Assembly	Distortion	Left - Right -	-	Drum Pinion-L	Damage: -	↑		
			Others	No Function	-	Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -	-	
	Roller Train	Missing	Left - Right -	-	Drum Pinion-R	Damage: -	-		
			Diameter-Roller	Average - mm	-	Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -	-	
	Seal	Distortion	Left - Right -	-	Pinion-Middle	Damage: -	-		
			Left - Bottom - Right -	-	Drum-L	Damage: - Corrosion: L M S	↓		
	Inclination	Leakage	Top Level Difference 85 mm	↓	Drum-R	Damage: - Corrosion: L M S	RS		
			Left - Bottom - Right -	-	Drive Device	Damage: - Corrosion: L M S	RS		
	Sill	Side Seal	Abrasion-Max	Left: - mm, Right: - mm	RS	Drive Chain	Damage: - Looseness: L Oil: -	C	
			Roller Truck	Left: - mm, Right: - mm	RL	Chain Sprocket	Damage: - Corrosion: L M S	↑	
Concrete	Roller Guard	Missing	Left 1 Right 1	N	Reduction Gear	Damage: - Corrosion: L M S	-		
		Sill Beam	Defect	Left 0 Right 0	N	Cover	Drum-L	Damage: - Corrosion: L M S	
Concrete	Damage-Left	Abrasion	Left M Right S	RS	Drum-R	Damage: - Corrosion: L M S	↓		
		Damage-Right	Left M Right S	RS	Gear-Middle	Damage: - Corrosion: L M S	C		
Concrete	Damage-Bottom	Damage-Left	Left 0 Right 0	N	Counter Shaft	Damage: - Corrosion: L M S	G		
		Damage-Right	Left M Right S	RS	Counter Weight	Damage: - Corrosion: L M S	RS		
Concrete	Damage-Bottom	Damage-Left	Left M Right S	RS	Hoisting	Wet Condition	48 kg-m	RL	
		Damage-Right	Left M Right S	RS	Torque	Dry Condition	5.9 kg-m	RS	
Concrete	Damage-Bottom	Damage-Left	Left M Right S	RS	Superstructure	Damage: - Corrosion: L M S	RS		
		Damage-Right	Left M Right S	RS					

Remarks: Judgment = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(39 / 96)

Gate No.	W31	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf									
Skin Plate	Thickness-Avg	Top - Mid - Low - Blm 8.3 (9.5mm)		G	Hoisting Device	Main-Left	y: - Distortion: - Corrosion: - Oil: -	G	
	Corrosion	U/S-Bottom L M S		-		Main-Right	y: - Distortion: - Corrosion: - Oil: -	G	
Truss	Damage-Rivet	Corner-L - Corner-R -		-	Roller Train-L	y: - Distortion: - Corrosion: - Oil: -	C		
	Thickness-Avg	Bottom Flange 18.6, Bottom Web 18.4 (19.1mm)		G	Roller Train-R	y: - Distortion: - Corrosion: - Oil: -	C		
End Girder	Distortion			-	Left	Damage: - Function: -	RS		
	Thickness-Avg	L-Bottom 10.3, R-Bottom 9.2 (11.1mm)		C	Right	Damage: - Function: -	↑		
Bottom	Remodeling	Left No Right No		↑	Drum	Damage: - Oil: -	↓		
	Distortion	Left - Right -			Counter Shaft	Damage: - Oil: -	RS		
Girder	Thickness-Avg	Flange 15.2 mm (16.3), Web 7.4 mm (9.4)			Reduction Gear	Damage: - Oil: -	C		
	Corrosion	L M S			Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS		
Rocker	Remodeling	Left No Right No			Drum Pinion-L	Damage: -	↑		
	Distortion	Left - Right -			Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -			
Assembly	Others	No Function			Drum Pinion-R	Damage: -			
	Missing	Left - Right -			Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -			
Roller Train	Diameter-Roller	Average - mm			Pinion-Middle	Damage: -			
	Distortion	Left - Right -			Drum-L	Damage: - Corrosion: L M S			
Seal	Left	-			Drum-R	Damage: - Corrosion: L M S	↓		
	Bottom	-			Drive Device	Damage: - Corrosion: L M S	RS		
Inclination	Right	-			Drive Chain	Damage: - Looseness: L Oil: -	C		
	Top Level Difference	120 mm		↓	Chain Sprocket	Damage: - Corrosion: L M S	↑		
Leakage		L M S		C	Reduction Gear	Damage: - Corrosion: L M S			
					Cover	Damage: - Corrosion: L M S			
Sill	Side Seal	Left: - mm, Right: - mm		RS	Drum-L	Damage: - Corrosion: L M S	↓		
	Roller Truck	Left: - mm, Right: - mm		RL	Drum-R	Damage: - Corrosion: L M S			
Sill Beam	Roller Guard	Left 0 Right 1		N	Gear-Middle	Damage: - Corrosion: L M S	C		
	Defect	Left 0 Right 0		N	Counter Shaft	Damage: - Corrosion: L M S	G		
Concrete	Abrasion	L M S		RS	Counter Weight	Damage: - Corrosion: L M S	RS		
	Damage-Left	L M S		RS	Hoisting	Wet Condition 24 kg-m	G		
	Damage-Right	L M S		RS	Torque	Dry Condition 4.3 kg-m	RS		
	Damage-Bottom	L M S		RS	Superstructure	Damage: - Corrosion: L M S	RS		

Remarks: Judgement: N: Totally Replace, C: Partly Replace, RS: Small Repair, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.
 () shows design dimension.

Survey Results of Gate Structure

(40/96)

Gate No. W32 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - Rim 8.9 (9.5mm)	G	Wire Rope			
Corrosion	L/S-Bottom L M S	-	Main-Left	Y - Distortion: - Corrosion: - Oil: -	G	
Damage-Rivet	Corner-L - Corner-R -	-	Main-Right	Y - Distortion: - Corrosion: - Oil: -	G	
Thickness-Avg	Bottom Flange 18.4, Bottom Web 18.5 (19.1mm)	G	Roller Train-L	Y - Distortion: - Corrosion: - Oil: -	C	
Distortion		-	Roller Train-R	Y - Distortion: - Corrosion: - Oil: -	C	
Thickness-Avg	L-Bottom 9.8, R-Bottom 10.1 (11.1mm)	C	Left	Damage: - Function: -	RS	
Remodeling	Left No Right No	↑	Right	Damage: - Function: -	↑	
Distortion	Left - Right -		Drum	Damage: - Oil: -	↓	
Thickness-Avg	Flange 14.2 mm (16.3), Web 8.7 mm (9.4)		Counter Shaft	Damage: - Oil: -	RS	
Corrosion	L (M) S		Reduction Gear	Damage: - Oil: -	C	
Remodeling	Left No Right No		Drum Gear-L	Damage: - Filing: - Backlash: - Oil: -	RS	
Distortion	Left - Right -		Drum Pinion-L	Damage: -	↑	
Others	No Function		Drum Gear-R	Damage: - Filing: - Backlash: - Oil: -		
Missing	Left - Right -		Drum Pinion-R	Damage: -		
Diameter-Roller	Average - mm		Gear-Middle	Damage: - Filing: - Backlash: - Oil: -		
Distortion	Left - Right -		Pinion-Middle	Damage: -		
Left	-		Drum-L	Damage: - Corrosion: L M (S)		
Bottom	-		Drum-R	Damage: - Corrosion: L M (S)	↓	
Right	-		Drive Device	Damage: - Corrosion: L (M) S	RS	
Incination	Top Level Difference 90 mm	↓	Drive Chain	Damage: - Looseness: - Oil: -	C	
Leakage						
	L M (S)	C	Chain Sprocket	Damage: - Corrosion: L (M) S	↑	
Sill						
Side Seal	Left: - mm, Right: - mm	RS	Reduction Gear	Damage: - Corrosion: L (M) S		
Roller Truck	Left: - mm, Right: - mm	RL	Drum-L	Damage: - Corrosion: L M (S)		
Roller Guard	Left 1 Right 1	N	Drum-R	Damage: - Corrosion: L M (S)	↓	
Defect	Left 0 Right 0	N	Gear-Middle	Damage: - Corrosion: L (M) S	C	
Abrasion	L M S	-	Counter Shaft	Damage: - Corrosion: L M S	G	
Damage-Left	L (M) S	RS	Counter Weight	Damage: - Corrosion: L M S	RS	
Damage-Right	L (M) S	RS	Hoisting	44 kg-m	RL	
Damage-Bottom	L (M) S	RS	Torque	7.8 kg-m	RS	
Superstructure						
				Damage: - Corrosion: L M (S)	RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(41 / 96)

Gate No.	W33	(Main Weir Gate)		Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf	Skin Plate	Thickness-Avg	Top - Mid - Low - Bim 8.8 (9.5mm)	G	Main-Left	Y: - Distortion: - Corrosion: - Oil: -	G	Photograph		
			Corrosion	L M S		Main-Right			Y: - Distortion: - Corrosion: - Oil: -	
			Damage-Rivet	Corner-L - Corner-R -					C	
	Truss	Thickness-Avg	Bottom Flange 16.7, Bottom Web 18.6 (19.1mm)	G	Roller Train-L	Broken	C			
			Distortion		Roller Train-R	Corrosion: - Oil: -	C			
	End Girder	Thickness-Avg	L-Bottom 10.5, R-Bottom 9.7 (11.1mm)	C	Left	Damage: - Function: Miss Alignment	RS			
			Remodeling	Left No Right No	Right	Damage: - Function: Miss Alignment	↑			
	Bottom	Distortion	Left - Right -		Drum	Damage: - Oil: -	↓			
			Thickness-Avg	Flange 15.2 mm (16.3), Web 8.6 mm (9.4)		Counter Shaft	Damage: - Oil: -		RS	
	Girder	Corrosion	L M S		Reduction Gear	Damage: - Oil: -	C			
			Remodeling	Left No Right No	Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS			
	Rocker Assembly	Distortion	Left 0.2 m Bend Right 2		Drum Pinion-L	Damage: -	↑			
			Others	No Function	Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -				
	Roller Train	Missing	Left - Right -		Drum Pinion-R	Damage: -				
			Diameter-Roller	Average - mm	Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -				
Seal	Distortion	Left Deform Right -		Pinion-Middle	Damage: -					
		Left - Bottom - Right -		Drum-L	Damage: - Corrosion: L M S	↓				
Inclination	Leakage	Top Level Difference 20 mm	↓	Drum-R	Damage: - Corrosion: L M S	RS				
				Drive Device	Damage: - Corrosion: L M S	RS				
Sill	Side Seal	Left - mm, Right - mm	RS	Chain Sprocket	Damage: - Corrosion: L M S	↑				
		Left - mm, Right - mm	RL	Reduction Gear	Damage: - Corrosion: L M S					
Roller Truck	Roller Guard	Left 1 Right 1	N	Cover	Drum-L	Damage: - Corrosion: L M S	↓			
		Left 0 Right 0	N	Drum-R	Damage: - Corrosion: L M S	↓				
Sill Beam	Concrete	Left 0 Right 0	N	Gear-Middle	Damage: - Corrosion: L M S	C				
		Left 0 Right 0	N	Counter Shaft	Damage: - Corrosion: L M S	G				
Concrete	Damage-Left	L M S	RS	Counter Weight	Damage: - Corrosion: L M S	RS				
		L M S	RS	Hosing	Wat Condition	44 kg-m	RL			
Concrete	Damage-Right	L M S	RS	Torque	Dry Condition	3.5 kg-m	RS			
		L M S	RS	Superstructure	Damage: - Corrosion: L M S	RS				

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(42 / 95)

Gate No.	W34	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf	Thickness-Avg	Top 10.0 Mids 9.9 Lows 6.6 Btms 9.4 (9.5mm)	G			Wire Rope			
	Corrosion	U/S-Bottom L M S	-			Main-Left	y: -- Distortion: -- Corrosion: -- Oil: --	G	
Truss	Damage-Rivet	Corner-L - Corner-R -	-			Main-Right	y: -- Distortion: -- Corrosion: -- Oil: --	G	
	Thickness-Avg	Bottom Flange 18.7, Bottom Web 18.1 (18.1mm)	G			Roller Train-L	Broken	C	
End Girder	Distortion		-			Roller Train-R	y: -- Distortion: -- Corrosion: -- Oil: --	C	
	Thickness-Avg	L-Bottom 10.8, R-Bottom 11.6 (11.1mm)	C			Left	Damage: -- Function: --	RS	
Bottom	Remodeling	Left No Right No	^			Right	Damage: -- Function: --	^	
	Distortion	Left - Right Bend				Drum	Damage: -- Oil: --	^	
Girder	Thickness-Avg	Flange 14.0 mm (16.3), Web 7.4 mm (9.4)				Counter Shaft	Damage: -- Oil: --	RS	
	Corrosion	L M S				Reduction Gear	Damage: -- Oil: --	C	
Rocker	Remodeling	Left No Right No				Drum Gear-L	Damage: -- Fitting: -- Backlash: -- Oil: --	RS	
	Distortion	Left - Right -				Drum Pinion-L	Damage: --	^	
Assembly	Others	No Function				Drum Gear-R	Damage: -- Fitting: -- Backlash: -- Oil: --		
	Missing	Left - Right -				Drum Pinion-R	Damage: --		
Roller Train	Diameter-Roller	Average - mm				Gear-Middle	Damage: -- Fitting: -- Backlash: -- Oil: --		
	Distortion	Left - Right -				Pinion-Middle	Damage: --		
Seal	Left					Drum-L	Damage: -- Corrosion: L M S		
	Bottom					Drum-R	Damage: -- Corrosion: L M S	^	
Inclination	Right					Drive Device	Damage: -- Corrosion: L M S	RS	
	Top Level Difference	5 mm	^			Drive Chain	Damage: -- Looseness: -- Oil: --	C	
Leakage	Left					Chain Sprocket	Damage: -- Corrosion: L M S	^	
	Right					Reduction Gear	Damage: -- Corrosion: L M S		
Sill	Abrasion-Max	Left: - mm, Right: - mm	RS			Cover	Damage: -- Corrosion: L M S		
	Abrasion-Min	Left: - mm, Right: - mm	RL			Drum-L	Damage: -- Corrosion: L M S	^	
Side Seal	Missing	Left 0 Right 1	N			Drum-R	Damage: -- Corrosion: L M S	C	
	Defect	Left 0 Right 0	N			Gear-Middle	Damage: -- Corrosion: L M S	C	
Sill Beam	Abrasion	L M S	-			Counter Shaft	Damage: -- Corrosion: L M S	G	
	Damage-Left	L M S	RS			Counter Weight	Damage: -- Corrosion: L M S	RS	
Concrete	Damage-Right	L M S	RS			Housing	Wet Condition	7.0 kg/m	
	Damage-Bottom	L M S	RS			Torque	Dry Condition	3.9 kg/m	
						Superstructure	Damage: -- Corrosion: L M S	RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, G: Fully Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, ^: No Repair, -: No Data.

() shows design dimension

Survey Results of Gate Structure

(43 / 96)

Gate No. W35 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - Blm - (9.5mm)	-	Wire Rope			
Corrosion	U/S-Bottom L M S	-	Main-Left	Y: - Distortion: - Corrosion: - Oil: -	G	
Damage-Rivet	Corner-L - Corner-R -	-	Main-Right	Y: - Distortion: - Corrosion: - Oil: -	G	
Thickness-Avg	Bottom Flange - Bottom Web - (19.1mm)	-	Roller Train-L	Y: - Distortion: - Corrosion: - Oil: -	C	
Distortion		-	Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C	
Thickness-Avg	L--Bottom 10.4 , R--Bottom 10.3 (11.1mm)	C	Left	Damage: - Function: -	RS	
Remodeling	Left No Right No	↑	Right	Damage: - Function: -	↑	
Distortion	Left - Right -		Drum	Damage: - Oil: -	↓	
Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)		Counter Shaft	Damage: - Oil: -	RS	
Corrosion	L M S		Reduction Gear	Damage: - Oil: Brake Broken	C	
Remodeling	Left No Right No		Drum Gear-L	Damage: - Filing: - Backlash: - Oil: -	RS	
Distortion	Left - Right -		Drum Pinion-L	Damage: -	↑	
Others	No Function		Drum Gear-R	Damage: - Filing: - Backlash: - Oil: -		
Missing	Left - Right -		Drum Pinion-R	Damage: -		
Diameter-Roller	Average - mm		Gear-Middle	Damage: - Filing: - Backlash: - Oil: -		
Distortion	Left - Right -		Pinion-Middle	Damage: -		
Left	-		Drum-L	Damage: - Corrosion: L M (S)	↓	
Bottom	-		Drum-R	Damage: - Corrosion: L M (S)	RS	
Right	-		Drive Device	Damage: - Corrosion: (L) M S C	C	
Inclination	Top Level Difference 25 mm	↓	Drive Chain	Damage: - Looseness: L Oil: -	↑	
Leakage						
	(L) M S	C	Chain Sprocket	Damage: - Corrosion: L (M) S		
Sill						
Side Seal	Left: - mm, Right: - mm	RS	Reduction Gear	Damage: - Corrosion: L (M) S		
Roller Truck	Left: - mm, Right: - mm	RL	Cover	Damage: - Corrosion: L M (S)		
Roller Guard	Left 0 Right 0	N	Drum-L	Damage: - Corrosion: L M (S)	↓	
Defect	Left 1 Right 1	N	Drum-R	Damage: - Corrosion: L M (S)	↓	
Sill Beam	L M S	-	Gear-Middle	Damage: - Corrosion: L (M) S C	C	
Concrete	Damage-Left L M (S)	RS	Counter Shaft	Damage: - Corrosion: L M S G	G	
	Damage-Right L (M) S	RS	Counter Weight	Damage: - Corrosion: L M S	RS	
	Damage-Bottom L (M) S	RS	Hoisting	Wet Condition 36 kg-m	RL	
			Torque	Dry Condition 2.0 kg-m	RS	
			Superstructure	Damage: - Corrosion: L M (S)	RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, - No Data.

() shows design dimension.

Survey Results of Gate Structure

(44 / 96)

Gate No. W36 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - Btm - (9.5mm)	-	Wire Rope			
Corrosion	U/S-Bottom L M S	-	Main-Left	Y: - Distortion: - Corrosion: - Oil: -	G	
Damage-Rivet	Corner-L - Corner-R -	-	Main-Right	Y: - Distortion: - Corrosion: - Oil: -	C	
Thickness-Avg	Bottom Flange - , Bottom Web - (19.1mm)	-	Roller Train-L	Y: - Distortion: - Corrosion: - Oil: -	C	
Distortion		-	Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C	
End Girder	L-Bottom - , R-Bottom - (11.1mm)	C	Left	Damage: - Function: -	RS	
Remodeling	Left No Right No	↑	Right	Damage: - Function: -	↑	
Distortion	Left - Right -		Drum	Damage: - Oil: -	↓	
Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)		Counter Shaft	Damage: - Oil: -	RS	
Girder	L M S		Reduction Gear	Damage: - Oil: -	C	
Remodeling	Left No Right No		Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
Distortion	Left - Right -		Drum Pinion-L	Damage: -	↑	
Others	No Function		Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
Roller Train	Left - Right -		Drum Pinion-R	Damage: -		
Missing	Left - Right -		Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
Diameter-Roller	Average - mm		Pinion-Middle	Damage: -		
Distortion	Left - Right -		Drum-L	Damage: - Corrosion: L M (S)		
Left	-		Drum-R	Damage: - Corrosion: L M (S)	↓	
Bottom	-		Drive Device	Damage: - Corrosion: L (M) S	RS	
Right	-		Drive Chain	Damage: - Looseness: - Oil: -	C	
Inclination	Top Level Difference 20 mm	↓	Chain Sprocket	Damage: - Corrosion: L (M) S	↑	
Leakage	(L) M S	C	Reduction Gear	Damage: - Corrosion: L (M) S		
Sill			Cover	Damage: - Corrosion: L M (S)		
Side Seal	Left: - mm, Right: - mm	RS	Drum-L	Damage: - Corrosion: L M (S)	↓	
Roller Truck	Left: - mm, Right: - mm	RL	Drum-R	Damage: - Corrosion: L M (S)	C	
Roller Guard	Left 1 Right 1	N	Gear-Middle	Damage: - Corrosion: L (M) S	G	
Defect	Left 0 Right 0	N	Counter Shaft	Damage: - Corrosion: L M S	RS	
Abrasion	L (M) S	N	Counter Weight	Damage: - Corrosion: L M S	RS	
Damage-Left	L (M) S	RS	Hoisting	Wet Condition 40 kg-m	RL	
Damage-Right	L (M) S	RS	Torque	Dry Condition 2.9 kg-m	RS	
Damage-Bottom	L (M) S	RS	Superstructure	Damage: - Corrosion: L M (S)	RS	

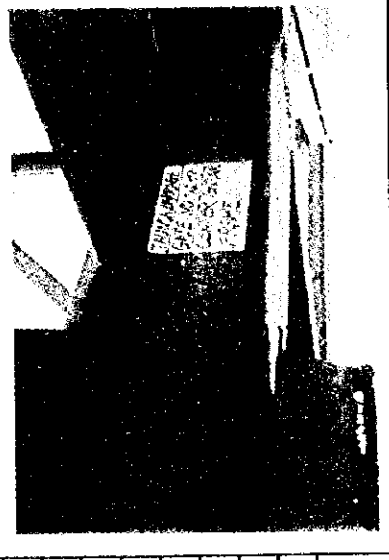
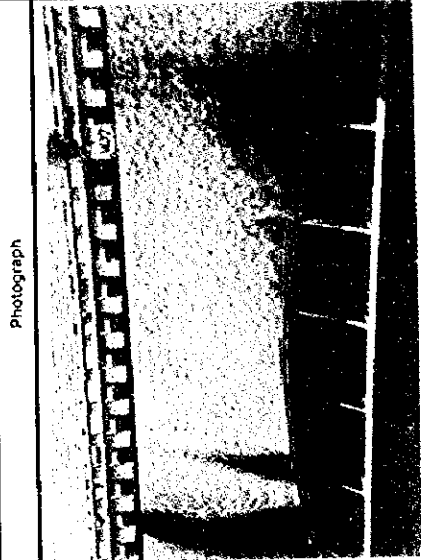
Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(45 / 96)

Gate No.	W37	(Main Weir Gate)	Survey Result	Judge	Survey Item	Survey Result	Judge
Gate Leaf							
Skin Plate	Thickness-Avg	Top - Mid - Low - Blm - (9.5mm)	-		Wire Rope	Main-Left Main-Right Roller Train-L Roller Train-R	C G C C
	Corrosion	L/S-Bottom L M S	-		Drum	Left Right	RS ↑
	Damage-Rivet	Corner-L - Corner-R -	-		Bearing	Drum Counter Shaft	↓ RS
	Thickness-Avg	Bottom Flange - , Bottom Web - (19.1mm)	-		Gear	Reduction Gear	C
	Distortion		-			Drum Gear-L Drum Pinion-L	RS ↑
End Girder	Thickness-Avg	L-Bottom - , R-Bottom - (11.7mm)	G			Drum Gear-R Drum Pinion-R	↓ -
	Remodelling	Left No Right No	↑			Gear-Middle	-
	Distortion	Left - Right -	-			Pinion-Middle	-
Bottom	Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)	-		Basement	Drum-L Drum-R	↓ ↓
Girder	Corrosion	L M S	-			Drive Device	RS
Rocker	Remodelling	Left No Right No	-			Chain	-
Assembly	Distortion	Left - Right -	-			Chain Sprocket	-
	Others	No Function	-			Reduction Gear	-
Roller Train	Missing	Left - Right -	-			Cover	-
	Diameter-Roller	Average - mm	-			Drum-L Drum-R	↓ ↓
	Distortion	Left - Right -	-			Gear-Middle	C
Seal	Left	-	-			Counter Shaft	G
	Bottom	-	-			Counter Weight	RS
	Right	-	-			Hoisting	RL
Inclination		Top Level Difference 160 mm	↓			Torque	RS
Leakage		(L) M S	C			Superstructure	RS
Sill							
	Side Seal	Abrasion-Max Left: - mm, Right: - mm	RS				
	Roller Truck	Abrasion-Max Left: - mm, Right: - mm	RL				
	Roller Guard	Missing Left 0 Right 0	N				
		Defect Left 1 Right 1	N				
	Sill Beam	Abrasion L M S	-				
	Concrete	Damage-Left L (M) S	RS				
		Damage-Right L (M) S	RS				
		Damage-Bottom L M (S)	RS				



Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(45 / 96)

Gate No. W38 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - Btm = (9.5mm)	-	Wire Rope			
Corrosion	U/S-Bottom L M S	-	Main-Left	Y: - Distortion: - Corrosion: - Oil: -	G	
Damage-Rivet	Corner-L = Corner-R =	-	Main-Right	Y: - Distortion: - Corrosion: - Oil: -	G	
Thickness-Avg	Bottom Flange - , Bottom Web - (19.1mm)	-	Roller Train-L	Y: - Distortion: - Corrosion: - Oil: -	C	
Distortion		-	Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C	
Thickness-Avg	L-Bottom - , R-Bottom - (11.1mm)	C	Left	Damage: - Function: -	RS	
Remodelling	Left No Right No	↑	Right	Damage: - Function: -	↑	
Distortion	Left - Right -		Drum	Damage: - Oil: -	↓	
Thickness-Avg	Flange = mm (16.3), Web = mm (9.4)		Counter Shaft	Damage: - Oil: -	RS	
Corrosion	L M S		Reduction Gear	Damage: - Oil: -	C	
Remodelling	Left No Right No		Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	AS	
Distortion	Left - Right -		Drum Pinion-L	Damage: -	↑	
Others	No function		Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
Missing	Left - Right -		Drum Pinion-R	Damage: -		
Diameter-Roller	Average = mm		Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
Distortion	Left - Right -		Pinion-Middle	Damage: -		
Left			Drum-L	Damage: - Corrosion: L M ⊕		
Bottom			Drum-R	Damage: - Corrosion: L M ⊕		
Right			Drive Device	Damage: - Corrosion: L ⊕ S	RS	
Inclination	Top Level Difference 10 mm	↓	Drive Chain	Damage: - Looseness: - Oil: -	C	
Leakage						
	(L M S)	C	Chain Sprocket	Damage: - Corrosion: L ⊕ S	↑	
Sill						
Side Seal	Left: - mm, Right: - mm	RS	Reduction Gear	Damage: - Corrosion: L ⊕ S		
Roller Truck	Left: - mm, Right: - mm	RL	Drum-L	Damage: - Corrosion: L M ⊕		
Roller Guard	Left 0 Right 1	N	Drum-R	Damage: - Corrosion: L M ⊕	↓	
Sill Beam	Left 1 Right 0	N	Gear-Middle	Damage: - Corrosion: L ⊕ S	C	
Concrete	Damage-Left	RS	Counter Shaft	Damage: - Corrosion: L M S	G	
	Damage-Right	RS	Counter Weight	Damage: - Corrosion: L M S	RS	
	Damage-Bottom	RS	Hoisting	Wet Condition 21 kg-m	G	
			Torque	Dry Condition 3.9 kg-m	RS	
			Superstructure	Damage: - Corrosion: L M ⊕	RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(47 / 96)

Gate No. W39 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Side Plate	Thickness-Avg: Top - Mid - Low - Btm - (9.5mm)	-	Wire Rope	Main-Left: Y: - Distortion: - Corrosion: - Oil: -	G	
	Corrosion: U/S-Bottom L M S	-		Main-Right: Y: - Distortion: - Corrosion: - Oil: -	G	
	Damage-Rivet: Corner-L - Corner-R -	-	Roller Train-L	Broken	C	
Truss	Thickness-Avg: Bottom Flange - , Bottom Web - (19.1mm)	-	Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C	
	Distortion	-	Left	Damage: - Function: -	RS	
End Girder	Thickness-Avg: L-Bottom - , R-Bottom - (11.1mm)	C	Right	Damage: - Function: Miss Alignment	↑	
	Remodeling: Left No Right No	↑	Drum	Damage: - Oil: -	↓	
	Distortion: Left - Right -		Counter Shaft	Damage: - Oil: -	RS	
Bottom	Thickness-Avg: Flange - mm (16.3), Web - mm (9.4)		Reduction Gear	Damage: - Oil: -	C	
Girder	Corrosion: L M S		Drum Gear-L	Damage: - Filing: - Backlash: - Oil: -	RS	
Rocter	Remodeling: Left No Right No		Drum Pinion-L	Damage: -	↑	
Assembly	Distortion: Left - Right -		Drum Gear-R	Damage: - Filing: - Backlash: - Oil: -		
	Others: No Function		Drum Pinion-R	Damage: -		
Roller Train	Missing: Left - Right -		Gear-Middle	Damage: - Filing: - Backlash: - Oil: -		
	Diameter-Roller: Average - mm		Pinion-Middle	Damage: -		
Seal	Distortion: Left - Right -		Drum-L	Damage: - Corrosion: L M S		
	Left		Drum-R	Damage: - Corrosion: L M S	↓	
	Bottom		Drive Device	Damage: - Corrosion: L M S	RS	
	Right		Drive Chain	Damage: - Looseness: L Oil: -	C	
Inclination	Top Level Difference 10 mm	↓	Chain Sprocket	Damage: - Corrosion: L M S	↑	
Leakage			Reduction Gear	Damage: - Corrosion: L M S		
Sill			Cover	Damage: - Corrosion: L M S		
	Side Seal: Left: - mm, Right: - mm	RS	Drum-L	Damage: - Corrosion: L M S	↓	
	Roller Truck: Left: - mm, Right: - mm	RL	Drum-R	Damage: - Corrosion: L M S		
	Roller Guard: Left 0 Right 1	N	Gear-Middle	Damage: - Corrosion: L M S	C	
	Defect: Left 0 Right 0	N	Counter Shaft	Damage: - Corrosion: L M S	C	
	Abrasion: L M S	-	Counter Weight	Damage: - Corrosion: L M S	-	
Concrete	Damage-Left: L M S	RS	Hoisting	Damage: - Corrosion: L M S	G	
	Damage-Right: L M S	RS	Torque	Damage: - Corrosion: L M S	-	
	Damage-Bottom: L M S	RS	Superstructure	Damage: - Corrosion: L M S	RS	

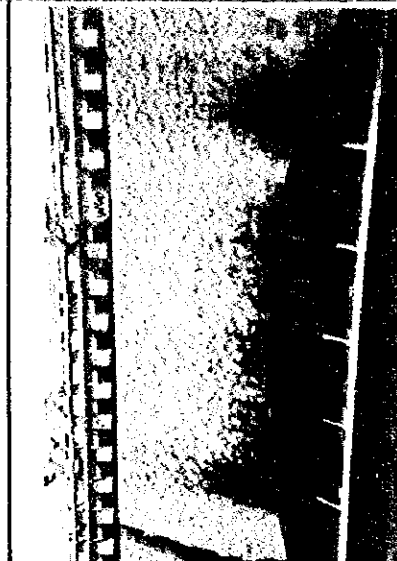
Remarks: Judgment = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, - : No Data.

() shows design dimension.

Survey Results of Gate Structure

(48 / 96)

Gate No. W40 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - 81m - (9.5mm)	-	Moisting Device			
Corrosion	U/S-Bottom L M S	-	Wire Rope	Main-Left Main-Right Roller Train-L Roller Train-R	Y - Distortion - Corrosion - Oil - Y - Distortion - Corrosion - Oil - Y - Distortion - Corrosion - Oil - Y - Distortion - Corrosion - Oil -	
Damage-Rivet	Corner-L - Corner-R -	-	Drum	Left Right	Damage - Function - Damage - Function -	
Thickness-Avg	Bottom Flange - , Bottom Web - (19.1mm)	-	Bearing	Drum	Damage - Oil -	
Distortion		-	Counter Shaft	Reduction Gear	Damage - Oil - Damage - Oil -	
Thickness-Avg	L-Bottom - , R-Bottom - (11.1mm)	C	Gear	Drum Gear-L Drum Pinion-L Drum Gear-R Drum Pinion-R	Damage - Fitting - Backlash - Oil - Damage - Damage - Fitting - Backlash - Oil - Damage -	
Remodeling	Left No Right No	↑	Basement	Drum-L Drum-R	Damage - Corrosion - L M S Damage - Corrosion - L M S	
Distortion	Left - Right -		Drive Chain	Drive Device	Damage - Corrosion - L M S	
Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)		Chain Sprocket	Reduction Gear	Damage - Corrosion - L M S Damage - Corrosion - L M S	
Corrosion	L M S		Cover	Drum-L Drum-R	Damage - Corrosion - L M S Damage - Corrosion - L M S	
Remodeling	Left No Right No		Counter Shaft	Counter Shaft	Damage - Corrosion - L M S	
Distortion	Left - Right -		Counter Weight	Counter Weight	Damage - Corrosion - L M S	
Others	No Function		Hoisting	Wet Condition	44.4 kg-m	
Missing	Left - Right -		Torque	Dry Condition	- kg-m	
Diameter-Roller	Average - mm		Superstructure		Damage - Corrosion - L M S	
Distortion	Left - Right -					
Left	-					
Bottom	-					
Right	-					
Inclination	Top Level Difference 20 mm	↓				
Leakage	Ⓛ M S	C				
Sill						
Side Seal	Abrasion-Max Left: - mm, Right: - mm	RS				
Roller Truck	Abrasion-Max Left: - mm, Right: - mm	RL				
Roller Guard	Missing Left 1 Right 1	N				
Defect	Left 0 Right 0	N				
Abrasion	L M S	-				
Damage-Left	L M S	RS				
Damage-Right	L M S	RS				
Damage-Bottom	Ⓛ M S	RS				

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, -: No Repair, -: No Data.
() shows design dimension.

Survey Results of Gate Structure

(49 / 96)

Gate No. W41 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - Btm - (9.5mm)	--	Wire Rope	% - Distortion: - Corrosion: - Oil: -		
Corrosion	U/S-Bottom L M S	--	Main-Left	% - Distortion: - Corrosion: - Oil: -	G	
Damage-Rivet	Corner-L - Corner-R -	--	Main-Right	% - Distortion: - Corrosion: - Oil: -	G	
Thickness-Avg	Bottom Flange - , Bottom Web - (19.1mm)	--	Roller Train-L	% - Distortion: - Corrosion: - Oil: -	C	
Distortion		--	Roller Train-R	% - Distortion: - Corrosion: - Oil: -	C	
Thickness-Avg	L-Bottom - , R-Bottom - (11.1mm)	C	Left	Damage: - Function: -	RS	
Remodeling	Left No Right No	A	Right	Damage: - Function: -	↑	
Distortion	Left - Right -		Drum	Damage: - Oil: -	↓	
Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)		Counter Shaft	Damage: - Oil: -	PS	
Corrosion	L M S		Reduction Gear	Damage: Loose Oil: -	C	
Remodeling	Left No Right No		Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	PS	
Distortion	Left - Right -		Drum Pinion-L	Damage: -	↑	
Others	No Function		Drum Pinion-R	Damage: - Fitting: - Backlash: - Oil: -		
Missing	Left - Right -		Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
Diameter-Roller	Average - mm		Pinion-Middle	Damage: -		
Distortion	Left - Right -		Drum-L	Damage: - Corrosion: L M S	↓	
Left			Drum-R	Damage: - Corrosion: L M S		
Bottom			Drive Device	Damage: - Corrosion: L M S	RS	
Right			Drive Chain	Damage: - Looseness: - Oil: -	C	
Inclination	Top Level Difference 35 mm	↓	Chain Sprocket	Damage: - Corrosion: L M S	↑	
Leakage			Reduction Gear	Damage: - Corrosion: L M S		
Sill			Cover	Damage: - Corrosion: L M S		
Side Seal	Left: - mm, Right: - mm	RS	Drum-L	Damage: - Corrosion: L M S		
Roller Truck	Left: - mm, Right: - mm	RL	Drum-R	Damage: - Corrosion: L M S	↓	
Roller Guard	Left 0 Right 0	N	Gear-Middle	Damage: - Corrosion: L M S	C	
Defect	Left 0 Right 1	N	Counter Shaft	Damage: - Corrosion: L M S	G	
Abrasion	L M S	RS	Counter Weight	Damage: - Corrosion: L M S		
Damage-Left	L M S	RS	Hoisting	Wet Condition 37 kg/m	RL	
Damage-Right	L M S	RS	Torque	Dry Condition - kg/m		
Damage-Bottom	L M S	RS	Superstructure	Damage: - Corrosion: L M S	RS	

Remarks: Judgement: N: Totally Replace, C: Partly Replace, PS: Small Repair, RS: Medium Repair, FM: Large Repair, RL: Large Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(51 / 96)

Gate No.	W43	(Main Weir Gate)	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf	Skin Plate	Thickness-Avg	Top - Mid - Low - Bitm - (9.5mm)	-	Hoisting Device	Wire Rope	Y: - Distortion: - Corrosion: - Oil: -	G
		Corrosion	U/S-Bottom L M S	-		Main-Left	Y: - Distortion: - Corrosion: - Oil: -	G
		Damage-Rivet	Corner-L - Corner-R -	-		Main-Right	Y: - Distortion: - Corrosion: - Oil: -	G
	Truss	Thickness-Avg	Bottom Flange - Bottom Web - (19.1mm)	-		Roller Train-L	Y: - Distortion: - Corrosion: - Oil: -	C
		Distortion		-		Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C
		End Girder	L-Bottom - R-Bottom - (11.1mm)	C		Left	Damage: - Function: -	RS
	Bottom	Remodeling	Left No Right No	↑		Right	Damage: - Function: -	↑
		Distortion	Left - Right -			Drum	Damage: - Oil: -	↓
		Thickness-Avg	Flange - mm (16.3) Web - mm (9.4)			Counter Shaft	Damage: - Oil: -	RS
	Girder	Corrosion	L M S			Reduction Gear	Damage: - Oil: -	C
		Remodeling	Left No Right No			Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS
		Distortion	Left - Right -			Drum Pinion-L	Damage: -	↑
	Rocker Assembly	Others	No Function			Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -	-
		Missing	Left - Right -			Drum Pinion-R	Damage: -	-
		Diameter-Roller	Average = mm			Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -	-
Roller Train	Distortion	Left - Right -		Pinion-Middle	Damage: -	-		
	Left			Drum-L	Damage: - Corrosion: L M S	-		
	Bottom			Drum-R	Damage: - Corrosion: L M S	↓		
Seal	Right			Drive Device	Damage: - Corrosion: L M S	RS		
	Left			Drive Chain	Damage: - Looseness: L Oil: -	C		
	Bottom			Chain Sprocket	Damage: - Corrosion: L M S	↑		
Inclination	Right			Reduction Gear	Damage: - Corrosion: L M S	-		
	Left			Cover	Drum-L	Damage: - Corrosion: L M S	-	
	Top Level Difference 5 mm		↓	Drum-R	Damage: - Corrosion: L M S	↓		
Leakage	Left			Gear-Middle	Damage: - Corrosion: L M S	C		
	Right			Counter Shaft	Damage: - Corrosion: L M S	G		
	Bottom			Counter Weight	Damage: - Corrosion: L M S	-		
Sill	Side Seal	Left: - mm, Right: - mm	RS	Hoisting	Wet Condition	38.5 kg-m	RL	
	Roller Truck	Left: - mm, Right: - mm	RL	Torque	Dry Condition	- kg-m	-	
	Roller Guard	Left 0 Right 0	N	Superstructure	Damage: - Corrosion: L M S	-	RS	
Concrete	Sill Beam	Left 0 Right 0	N					
	Damage-Left	L M S	RS					
	Damage-Right	L M S	RS					
	Damage-Bottom	L M S	RS					

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(52 / 96)

Gate No.	W44	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf	Thickness-Avg	Top - Mid - Low - Dim - (9.5mm)				Wire Rope			
	Corrosion	L M S				Main-Left	Y: - Distortion: - Corrosion: - Oil: -	G	
	Damage-Rivet	Corner-L - Corner-R -				Main-Right	Y: - Distortion: - Corrosion: - Oil: -	G	
	Thickness-Avg	Bottom Flange - , Bottom Web - (18.1mm)				Roller Train-L	Y: - Distortion: - Corrosion: - Oil: -	C	
	Distortion					Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C	
	Thickness-Avg	L-Bottom - , R-Bottom - (11.1mm)				Left	Damage: - Function: -	RS	
	Remodeling	Left No Right No				Right	Damage: - Function: -	↑	
	Distortion	Left - Right -				Drum	Damage: - Oil: -	↓	
	Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)				Counter Shaft	Damage: - Oil: -	RS	
	Corrosion	L M S				Reduction Gear	Damage: - Oil: -	C	
	Remodeling	Left No Right No				Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
	Distortion	Left - Right -				Drum Pinion-L	Damage: -	↑	
	Others	No Function				Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
	Missing	Left - Right -				Drum Pinion-R	Damage: -		
	Diameter-Roller	Average - mm				Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
	Distortion	Left - Right -				Pinion-Middle	Damage: -		
	Left					Drum-L	Damage: - Corrosion: L M (S)		
	Bottom					Drum-R	Damage: - Corrosion: L M (S)	↓	
	Right					Drive Device	Damage: - Corrosion: L (M) S	RS	
	Inclination	Top Level Difference 5 mm				Drive Chain	Damage: - Looseness: L Oil: -	C	
	Leakage	(L) M S				Chain Sprocket	Damage: - Corrosion: L (M) S	↑	
	Sill					Reduction Gear	Damage: - Corrosion: L (M) S		
	Side Seal	Abrasion-Max Left: - mm, Right: - mm				Cover	Damage: - Corrosion: L M (S)		
Roller Truck	Abrasion-Max Left: - mm, Right: - mm				Drum-L	Damage: - Corrosion: L M (S)	↓		
Roller Guard	Missing Left 0 Right 0				Drum-R	Damage: - Corrosion: L M (S)	RL		
Sill Beam	Abrasion Left: - mm, Right: - mm				Gear-Middle	Damage: - Corrosion: L (M) S	C		
Concrete	Damage-Left L M (S)				Counter Shaft	Damage: - Corrosion: L M S	G		
	Damage-Right L M (S)				Counter Weight	Damage: - Corrosion: L M S			
	Damage-Bottom L (M) S				Hoisting	Wet Condition 44.4 kg/m	RL		
					Torque	Dry Condition			
					Superstructure	Damage: - Corrosion: L M (S)	RS		
							RS		

Remarks: Judgement = N; Totally Replace, C; Partly Replace, RS; Medium Repair, RL; Large Repair, RM; No Repair, : No Data.

() shows design dimension.

Survey Results of Gate Structure

(53 / 96)

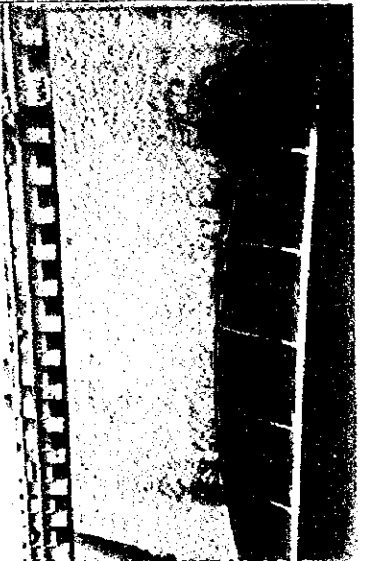
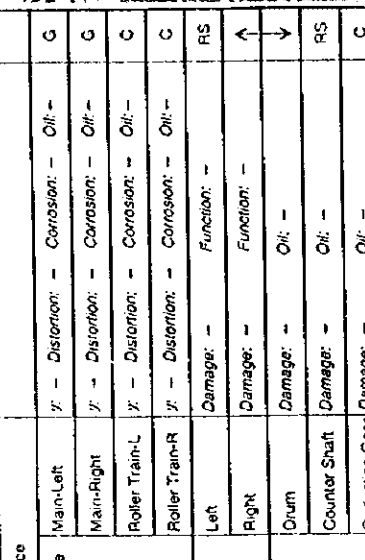
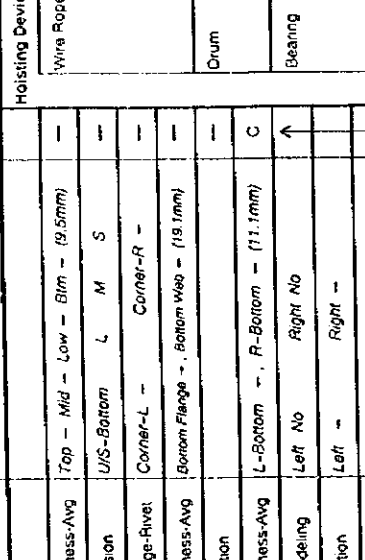
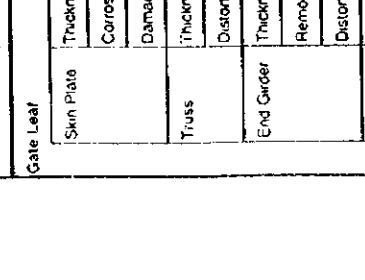
Gate No.	W45	(Main Weir Gate)	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf	Thickness-Avg	Top - Mid - Low - Btm - (9.5mm)			Wire Rope	Main-Left Y: - Distortion: - Corrosion: - Oil: -	G	
	Corrosion	U/S-Bottom L M S			Main-Right Y: - Distortion: - Corrosion: - Oil: -	G		
Truss	Damage-Rivet	Corner-L - Corner-R -			Roller Train-L	Y: - Distortion: - Corrosion: - Oil: -	C	
	Thickness-Avg	Bottom Flange -, Bottom Web - (19.1mm)			Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C	
End Girder	Distortion				Left	Damage: - Function: -	RS	
	Thickness-Avg	L-Bottom -, R-Bottom - (11.1mm)	C		Right	Damage: - Function: -	↑	
Bottom	Remodeling	Left No Right No			Drum	Damage: - Oil: -	→	
	Distortion	Left - Right -			Counter Shaft	Damage: - Oil: -	RS	
Girder	Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)			Reduction Gear	Damage: - Oil: -	C	
	Corrosion	L M S			Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
Rocker	Remodeling	Left No Right No			Drum Pinion-L	Damage: -	↑	
	Distortion	Left - Right -			Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
Roller Train	Others	No Function			Drum Pinion-R	Damage: -		
	Missing	Left - Right -			Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
Seal	Diameter-Roller	Average - mm			Pinion-Middle	Damage: -		
	Distortion	Left - Right -			Drum-L	Damage: - Corrosion: L M S		
Inclination	Left	-			Drum-R	Damage: - Corrosion: L M S	↓	
	Bottom	-			Drive Device	Damage: - Corrosion: L M S	RS	
Leakage	Right	-			Drive Chain	Damage: - Looseness: L Oil: -	C	
	Top Level Difference	5 mm	↓		Chain Sprocket	Damage: - Corrosion: L M S	↑	
Sill	Abrasion-Max	Left: - mm, Right: - mm			Reduction Gear	Damage: - Corrosion: L M S		
	Abrasion-Max	Left: - mm, Right: - mm			Cover	Damage: - Corrosion: L M S		
Concrete	Missing	Left 1 Right 1	N		Drum-L	Damage: - Corrosion: L M S		
	Defect	Left 0 Right 0	N		Drum-R	Damage: - Corrosion: L M S	↓	
Sill Beam	Abrasion	L M S			Gear-Middle	Damage: - Corrosion: L M S	C	
	Damage-Left	L M S			Counter Shaft	Damage: - Corrosion: L M S	G	
Concrete	Damage-Right	L M S	RS		Counter Weight	Damage: - Corrosion: L M S		
	Damage-Bottom	L M S	RS		Hoisting	Wet Condition 35 kg.m	RL	
Superstructure	Damage-Right	L M S	RS		Torque	Dry Condition - kg.m		
	Damage-Bottom	L M S	RS		Superstructure	Damage: - Corrosion: L M S	RS	

Remarks: Judgement = N: Totally Replace; C: Partly Replace; RL: Large Repair; RM: Medium Repair; RS: Small Repair; G: No Repair; -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(54 / 96)

Gate No.	W46	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph	
Gate Leaf	Thickness-Avg	Top - Mid - Low - Blm - (9.5mm)				Wine Rope				
	Corrosion	L/S-Bottom L M S				Main-Left	y: - Distortion: - Corrosion: - Oil: -	G		
Truss	Damage-Rivet	Corner-L - Corner-R -				Main-Right	y: - Distortion: - Corrosion: - Oil: -	G		
	Thickness-Avg	Bottom Flange - , Bottom Web - (19.1mm)				Roller Train-L	y: - Distortion: - Corrosion: - Oil: -	G		
End Girder	Distortion					Roller Train-R	y: - Distortion: - Corrosion: - Oil: -	C		
	Thickness-Avg	L-Bottom - , R-Bottom - (11.1mm)				Left	Damage: - Function: -	RS		
Bottom	Remodeling	Left No Right No				Right	Damage: - Function: -	↑		
	Distortion	Left - Right -				Drum	Damage: - Oil: -	↓		
Girder	Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)				Counter Shaft	Damage: - Oil: -	RS		
	Corrosion	L M S				Reduction Gear	Damage: - Oil: -	C		
Rocker Assembly	Remodeling	Left No Right No				Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS		
	Distortion	Left - Right -				Drum Pinion-L	Damage: -	↑		
Roller Train	Others	No Function				Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -			
	Missing	Left - Right -				Drum Pinion-R	Damage: -			
Seal	Diameter-Roller	Average - mm				Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -			
	Distortion	Left - Right -				Pinion-Middle	Damage: -			
Inclination	Left					Drum-L	Damage: - Corrosion: L M (S)			
	Bottom					Drum-R	Damage: - Corrosion: L M (S)	↓		
Leakage	Right					Drive Device	Damage: - Corrosion: L (M) S	RS		
	Top Level Difference	0 mm				Drive Chain	Damage: - Looseness: - Oil: -	C		
Sill	Abrasion-Max	Left: - mm, Right: - mm				Chain Sprocket	Damage: - Corrosion: L (M) S	↑		
	Abrasion-Max	Left: - mm, Right: - mm				Reduction Gear	Damage: - Corrosion: L (M) S			
Concrete	Missing	Left 1 Right 1				Cover	Drum-L	Damage: - Corrosion: L M (S)		
	Defect	Left 0 Right 0				Drum-R	Damage: - Corrosion: L M (S)	↓		
Sill Beam	Abrasion	L M S				Gear-Middle	Damage: - Corrosion: L (M) S	C		
	Damage-Left	L M S				Counter Shaft	Damage: - Corrosion: L M S	G		
Concrete	Damage-Right	L M S				Counter Weight	Damage: - Corrosion: L M S			
	Damage-Bottom	L M (S)				Hoisting	Damage: - Corrosion: L M S	RL		
						Torque	Wet Condition	35 kg-m		
						Superstructure		Dry Condition	- kg-m	
								Damage: - Corrosion: L M (S)	RL	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, R: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(55 / 96)

Gate No. W47 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - Blm - (9.5mm)	-	Wire Rope			
Corrosion	L/S-Bottom L M (S)	G	Main-Left	Y: - Distortion: - Corrosion: - Oil: -	G	
Damage-Rivet	Corner-L 1 Corner-R 1	G	Main-Right	Y: - Distortion: - Corrosion: - Oil: -	G	
Thickness-Avg	Bottom Flange - , Bottom Web - (19.1mm)	-	Roller Train-L	Y: - Distortion: - Corrosion: - Oil: -	C	
Distortion		-	Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C	
Thickness-Avg	L-Bottom - , R-Bottom - (11.1mm)	C	Left	Damage: - Function: -	RS	
Remodeling	Left No Right No	↑	Right	Damage: - Function: -	↑	
Distortion	Left - Right 5 mm Bend		Drum	Damage: - Oil: -	↓	
Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)		Counter Shaft	Damage: - Oil: -	RS	
Corrosion	L M S		Reduction Gear	Damage: - Oil: -	C	
Remodeling	Left No Right No		Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
Distortion	Left M Ab. Right Heavy Ab.		Drum Pinion-L	Damage: -	↑	
Others	No Function		Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
Missing	Left - Right -		Drum Pinion-R	Damage: -		
Diameter-Roller	Average - mm		Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
Distortion	Left - Right -		Pinion-Middle	Damage: -		
Left	Lost		Drum-L	Damage: - Corrosion: L M (S)	↓	
Bottom	Lost		Drum-R	Damage: - Corrosion: L M (S)	↓	
Right	Lost		Drive Device	Damage: - Corrosion: L (M) S	RS	
Inclination	Top Level Difference 10 mm	↓	Drive Chain	Damage: - Looseness: - Oil: -	C	
Leakage						
	L (M) S	C	Chain Sprocket	Damage: - Corrosion: L (M) S	↑	
Sill						
Sill Seal	Left: - mm, Right: - mm	RS	Reduction Gear	Damage: - Corrosion: L (M) S		
Roller Truck	Left: 15 mm, Right: 10 mm	RL	Cover	Damage: - Corrosion: L M (S)		
Roller Guard	Left 0 Right 0	N	Drum-L	Damage: - Corrosion: L M (S)	↓	
Sill Beam	Left 1 Right 0	N	Drum-R	Damage: - Corrosion: L M (S)	↓	
Concrete	Damage-Left	RS	Clear-Middle	Damage: - Corrosion: L (M) S	C	
	Damage-Right	RS	Counter Shaft	Damage: - Corrosion: L M S	G	
	Damage-Bottom	-	Counter Weight	Damage: - Corrosion: L M S	RS	
			Hoisting	Wei. Condition 51.8 kg-m	RL	
			Torque	Dry Condition 3.9 kg-m	RS	
			Superstructure	Damage: - Corrosion: L M (S)	RS	

Remarks: Judgement # N: Totally Replace, C: Partly Replace, G: Fully Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, -: No Repair, -: No Data.
 () shows design dimension.

Survey Results of Gate Structure

(56 / 96)

Gate No. W48 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf						
Thickness-Avg	Top - Mid - Low - Blm - (9.5mm)	--	Wire Rope	Y: - Distortion: - Corrosion: - Oil: -	G	
Corrosion	U/S-Bottom L M (S)	G	Main-Left	Y: - Distortion: - Corrosion: - Oil: -	G	
Damage-Rivet	Corner-L 2 Corner-R 1	G	Roller Train-L	Y: - Distortion: - Corrosion: - Oil: -	C	
Thickness-AVG	Bottom Flange - , Bottom Web - (19.1mm)	-	Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C	
Distortion		-	Left	Damage: - Function: -	RS	
Thickness-Avg	L-Bottom - , R-Bottom - (11.1mm)	C	Right	Damage: - Function: -	↑	
Remodeling	Left No Right No	↑	Drum	Damage: - Oil: -	↓	
Distortion	Left - Right -		Counter Shaft	Damage: - Oil: -	RS	
Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)		Reduction Gear	Damage: - Oil: -	C	
Corrosion	L M S		Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
Remodeling	Left No Right No		Drum Pinion-L	Damage: -	↑	
Distortion	Left Heavy Ab. Right Heavy Ab.		Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
Others	No Function		Drum Pinion-R	Damage: -		
Missing	Left -1 Right -		Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
Diameter-Roller	Average - mm		Pinion-Middle	Damage: -		
Distortion	Left - Right -		Drum-L	Damage: - Corrosion: L M (S)		
Left	4.5 m Broken		Drum-R	Damage: - Corrosion: L M (S)	↓	
Bottom	Lost		Drive Device	Damage: - Corrosion: L (M) S	RS	
Right	3.0 m Broken		Drive Chain	Damage: - Looseness: - Oil: -	C	
Inclination	Top Level Difference 30 mm	↓	Chain Sprocket	Damage: - Corrosion: L (M) S	↑	
Leakage	(L) M S	C	Reduction Gear	Damage: - Corrosion: L (M) S		
Sill			Cover	Damage: - Corrosion: L M (S)		
Side Seal	Abrasion-Max Left: - mm, Right: - mm	RS	Drum-L	Damage: - Corrosion: L M (S)	↓	
Roller Truck	Abrasion-Max Left: 10 mm, Right: 10 mm	RL	Drum-R	Damage: - Corrosion: L M (S)		
Roller Guard	Missing Left 0 Right 0	N	Gear-Middle	Damage: - Corrosion: L (M) S	C	
Sill Beam	Abrasion Left 0 Right 0	N	Counter Shaft	Damage: - Corrosion: L M S	G	
Concrete	Damage-Left L M S	-	Counter Weight	Damage: - Corrosion: L M S	RS	
	Damage-Right L M S	-	Heising	Wet Condition 44 kg-m	RL	
	Damage-Bottom L M S	-	Torque	Dry Condition 5.9 kg-m	RS	
			Superstructure	Damage: - Corrosion: L M (S)	RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, AM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(57 / 96)

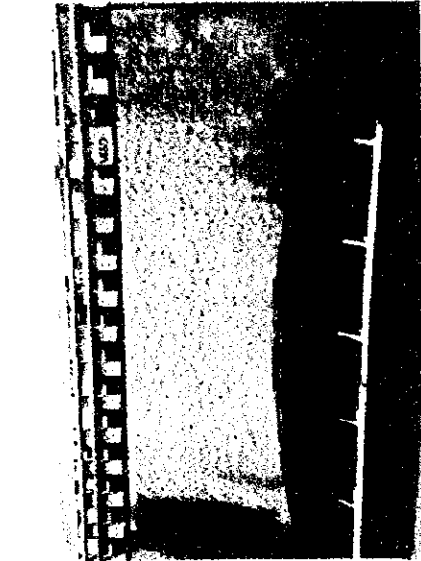

Gate No.	W49	(Main Weir Gate)	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf								
Skirt Plate	Thickness-Avg	Top - Mid - Low - Btm - (2.5mm)	—		Wire Rope	Y - Distortion: - Corrosion: - Oil: -	G	
	Corrosion	L/S-Bottom L (S) S	G		Main-Right	Y - Distortion: - Corrosion: - Oil: -	G	
	Damage-Rivet	Corner-L 1 Corner-R 1	G		Roller Train-L	Y - Distortion: - Corrosion: - Oil: -	C	
	Thickness-Avg	Bottom Flange - Bottom Web - (19.1mm)	—		Roller Train-R	Broken	C	
	Distortion		—		Left	Damage: - Function: -	RS	
	Thickness-Avg	L-Bottom - R-Bottom - (11.1mm)	C		Right	Damage: - Function: -	↑	
	Remodeling	Left No Right No	↑		Drum	Damage: - Oil: -	↓	
	Distortion	Left - Right -			Counter Shaft	Damage: - Oil: -	AS	
	Thickness-Avg	Flange - mm (16.3); Web - mm (9.4)			Reduction Gear	Damage: - Oil: -	C	
	Corrosion	L M S			Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS	
	Remodeling	Left No Right No			Drum Pinion-L	Damage: -	↑	
	Distortion	Left Heavy Ab. Right Heavy Ab.			Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
	Others	No Function			Drum Pinion-R	Damage: -		
	Missing	Left 1 Right 1			Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
	Diameter-Roller	Average - mm			Pinion-Middle	Damage: -		
	Distortion	Left - Right -			Drum-L	Damage: - Corrosion: L M (S)		
	Left	4.0 m Broken			Drum-R	Damage: - Corrosion: L M (S)	↓	
	Bottom	Lost			Drive Device	Damage: - Corrosion: L (M) S	RS	
	Right	4.0 m Broken			Damage: - Looseness: - Oil: -	C		
	Inclination	Top Level Difference 20 mm	↓		Chain Sprocket	Damage: - Corrosion: L (M) S	↑	
	Leakage	L M (S)	C		Reduction Gear	Damage: - Corrosion: L (M) S		
	Sill				Cover	Damage: - Corrosion: L M (S)		
	Side Seal	Left: - mm, Right: - mm	RS		Drum-L	Damage: - Corrosion: L M (S)	↓	
	Roller Truck	Left: 16 mm, Right: 14 mm	RL		Drum-R	Damage: - Corrosion: L M (S)		
	Roller Guard	Left 0 Right 0	N		Gear-Middle	Damage: - Corrosion: L (M) S	C	
	Defect	Left 0 Right 0	N		Counter Shaft	Damage: - Corrosion: L M S	G	
	Abresion	L M S	—		Counter Weight	Damage: - Corrosion: L M S	RS	
	Damage-Left	L M S	—		Hoisting	29.6 kg-m	G	
	Damage-Right	L M S	—		Torque	8.6 kg-m	RS	
	Damage-Bottom	L M S	—		Superstructure	Damage: - Corrosion: L M (S)	RS	

Remarks: Judgement: N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.
 () shows design dimension.

Survey Results of Gate Structure

(59 / 96)

Gate No. W50 (Main Weir Gate)

Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph	
Gate Leaf							
Thickness-Avg	Top - Mid - Low - Btm = (9.5mm)	—	Wire Rops				
Corrosion	U/S-Bottom L (M) S	G	Main-Left	% - Distortion: - Corrosion: - Oil: -	G		
Damage-Rivet	Corner-L 1 Corner-R 1	G	Main-Right	% - Distortion: - Corrosion: - Oil: -	G		
Thickness-Avg	Bottom Flange - , Bottom Web - (19.1mm)	—	Roller Train-L	% - Distortion: - Corrosion: - Oil: -	C		
Distortion		—	Roller Train-R	% - Distortion: - Corrosion: - Oil: -	C		
Thickness-Avg	L-Bottom - , R-Bottom - (11.1mm)	C	Left	Damage: - Function: -	RS		
Remodeling	Left No Right No	↑	Right	Damage: - Function: -	↑		
Distortion	Left - Right 10 mm Bend		Drum	Damage: - Oil: -	↓		
Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)		Counter Shaft	Damage: - Oil: -	RS		
Corrosion	L M S		Reduction Gear	Damage: - Oil: -	C		
Remodeling	Left No Right No		Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS		
Distortion	Left Heavy Ab. Right Heavy Ab.		Drum Pinion-L	Damage: -	↑		
Others	No Function		Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -			
Missing	Left 2 Right 0		Drum Pinion-R	Damage: -			
Diameter-Roller	Average - mm		Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -			
Distortion	Left - Right -		Pinion-Middle	Damage: -			
Left	4.0 m Broken		Drum-L	Damage: - Corrosion: L M (S)	↓		
Bottom	Lost		Drum-R	Damage: - Corrosion: L M (S)			
Right	Lost		Drive Device	Damage: - Corrosion: L (M) S	RS		
Inclination	Top Level Difference 50 mm	↓	Drive Chain	Damage: - Looseness: - Oil: -	C		
Leakage							
	(L) M S	C	Chain Sprocket	Damage: - Corrosion: L (M) S	↑		
Sill							
See Seal	Abrasion-Max Left: - mm, Right: - mm	RS	Reduction Gear	Damage: - Corrosion: L (M) S			
Roller Truck	Abrasion-Max Left: 14 mm, Right: 15 mm	RL	Cover	Drum-L	Damage: - Corrosion: L M (S)		
Holler Guard	Missing Left 0 Right 0	N	Drum-R	Damage: - Corrosion: L M (S)	↓		
Sill Beam	Abrasion Left 0 Right 0	N	Gear-Middle	Damage: - Corrosion: L (M) S	C		
Concrete	Damage-Left L M S	—	Counter Shaft	Damage: - Corrosion: L M S	G		
	Damage-Right L M S	—	Counter-Weight	Damage: - Corrosion: L M S	RS		
	Damage-Bottom L M S	—	Hosing	Wet Condition 14.8 kg-m	G		
		—	Torque	Dry Condition 2.0 kg-m	S		
		—	Superstructure	Damage: - Corrosion: L M (S)	RS		

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

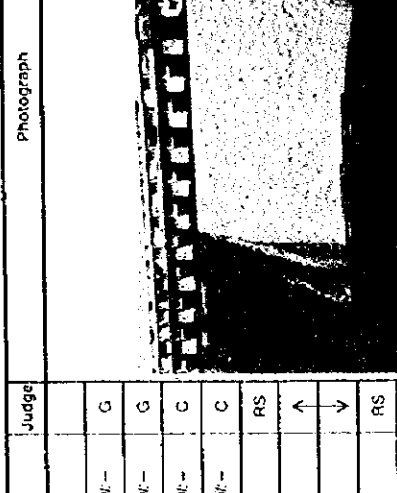
Gate No.	W51	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf	Thickness-Avg	Top 10.0 Mid 10.0 Low 9.8 Btm - (9.5mm)		G	Hoisting Device	Main-Left	Y: - Distortion: - Corrosion: - Oil: -	G	
	Corrosion	L/S-Bottom L M (S)		G		Main-Right	Y: - Distortion: - Corrosion: - Oil: -	G	
Truss	Damage-Rivet	Corner-L 1 Corner-R 1		G	Roller Train-L	Broken	C		
	Thickness-Avg	Bottom Flange - , Bottom Web - (12.1mm)		-	Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	G		
End Girder	Distortion	Vertical Truss (L4 Flange Bend)		RS	Left	Damage: - Function: Miss Alignment	RS		
	Thickness-Avg	L-Bottom 10.9 , R-Bottom 10.7 (11.1mm)		C	Right	Damage: - Function: Miss Alignment	↑		
Bottom	Remodeling	Left No Right No		↑	Drum	Damage: - Oil: -	↓		
	Distortion	Left - Right -			Counter Shaft	Damage: - Oil: -	RS		
Girder	Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)			Reduction Gear	Damage: - Oil: -	C		
	Corrosion	L M S			Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS		
Rocker	Remodeling	Left No Right No			Drum Pinion-L	Damage: -	↑		
	Distortion	Left 0.5 m Broken Right Heavy Ab.			Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -			
Roller Train	Others	No Function			Drum Pinion-R	Damage: -			
	Missing	Left 0 Right 0			Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -			
Seal	Diameter-Roller	Average 151.9 mm			Pinion-Middle	Damage: -			
	Distortion	Left Top Bend Right -			Drum-L	Damage: - Corrosion: L M (S)	↓		
Inclination	Left	Lost			Drum-R	Damage: - Corrosion: L M (S)	RS		
	Bottom	Lost			Drive Device	Damage: - Corrosion: L (M) S	C		
Leakage	Right	3 m Broken			Drive Chain	Damage: - Looseness: - Oil: -	C		
	Top Level Difference	70 mm		↓	Chain Sprocket	Damage: - Corrosion: L (M) S	↑		
Sill	Left	(S) M S		C	Reduction Gear	Damage: - Corrosion: L (M) S			
	Right	(S) M S			Cover	Damage: - Corrosion: L M (S)	↓		
Sills Seal	Abrasion-Max	Left: - mm, Right: - mm		RS	Drum-L	Damage: - Corrosion: L M (S)			
	Roller Truck	Left: 11 mm, Right: 13 mm		RL	Drum-R	Damage: - Corrosion: L M (S)	C		
Sill Beam	Missing	Left 0 Right 0		N	Gear-Middle	Damage: - Corrosion: L (M) S	G		
	Defect	Left 1 Right 0		N	Counter Shaft	Damage: - Corrosion: L M S	RS		
Concrete	Abrasion	L M S		-	Counter Weight	Damage: - Corrosion: L M S	RL		
	Damage-Left	L M S		-	Hoisting	Wet Condition 31.5 kg-m	RS		
Concrete	Damage-Right	L M S		-	Torque	Dry Condition 3.9 kg-m	RS		
	Damage-Bottom	L M S		-	Superstructure	Damage: - Corrosion: L M (S)	RS		

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, - : No Data.

() shows design dimension.

Survey Results of Gate Structure

(60 / 96)

Gate No.	W52	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf									
Gate Leaf	Thickness Avg	Top - Mid - Low - Rim - (9.5mm)			G	Wire Rope			
	Corrosion	U/S-Bottom L M (S)			G	Main-Left	y - Distortion - Corrosion - Oil -	G	
	Damage-Rivet	Corner-L 1.5 Corner-R 1			G	Main-Right	y - Distortion - Corrosion - Oil -	G	
	Thickness-Avg	Bottom Flange - , Bottom Web - (19.1mm)			-	Roller Train-L	y - Distortion - Corrosion - Oil -	C	
	Distortion				-	Roller Train-R	y - Distortion - Corrosion - Oil -	C	
	Thickness-Avg	L-Bottom - , R-Bottom - (11.1mm)			C	Left	Damage - Function -	RS	
	Remodeling	Left No Right No			↑	Right	Damage - Function -	↑	
	Distortion	Left - Right -				Drum	Damage - Oil -	↓	
	Thickness-Avg	Flange - mm (16.3), Web - mm (9.4)				Counter Shaft	Damage - Oil -	RS	
	Corrosion	L M S				Reduction Gear	Damage - Oil -	C	
Remodeling	Left No Right No				Drum Gear-L	Damage - Fitting - Backlash - Oil -	RS		
Distortion	Left Heavy Ab. Right Heavy Ab.				Drum Pinion-L	Damage -	↑		
Others	No Function				Drum Pinion-R	Damage - Fitting - Backlash - Oil -			
Missing	Left - Right -				Gear-Middle	Damage - Fitting - Backlash - Oil -			
Diameter-Roller	Average - mm				Pinion-Middle	Damage -			
Distortion	Left - Right -				Drum-L	Damage - Corrosion: L M (S)	↓		
Left	4.0 m Broken				Drum-R	Damage - Corrosion: L M (S)			
Bottom	Lost				Drive Device	Damage - Corrosion: L (M) S	RS		
Right	3.0 m Broken				Chain	Damage - Looseness - Oil -	C		
Inclination	Top Level Difference 0 mm			↓	Chain Sprocket	Damage - Corrosion: L (M) S	↑		
Leakage									
		L (M) S			C	Reduction Gear	Damage - Corrosion: L (M) S		
Sill									
Side Seal	Abrasion-Max	Left: - mm, Right: - mm			RS	Drum-L	Damage - Corrosion: L M (S)		
Roller Truck	Abrasion-Max	Left: - mm, Right: - mm			RL	Drum-R	Damage - Corrosion: L M (S)		
Roller Guard	Missing	Left 0, Right 0			N	Gear-Middle	Damage - Corrosion: L (M) S	C	
	Defect	Left 1, Right 0			N	Counter Shaft	Damage - Corrosion: L M S	G	
Sill Beam	Abrasion	L M S			-	Counter Weight	Damage - Corrosion: L M S	RS	
Concrete	Damage-Left	L M S			-	Hoisting	Wat Condition	43.8 kg-m	
	Damage-Right	L M S			-	Torque	Dry Condition	5.9 kg-m	
	Damage-Bottom	L M S			-	Superstructure		Damage - Corrosion: L M (S)	
		L M S			-				

Remarks: Judgement = N: Totally Replace, C: Partly Replace, G: No Repair, RS: Small Repair, RM: Medium Repair, RL: Large Repair, - : No Data.

() shows design dimension.

Survey Results of Gate Structure

(61 / 96)

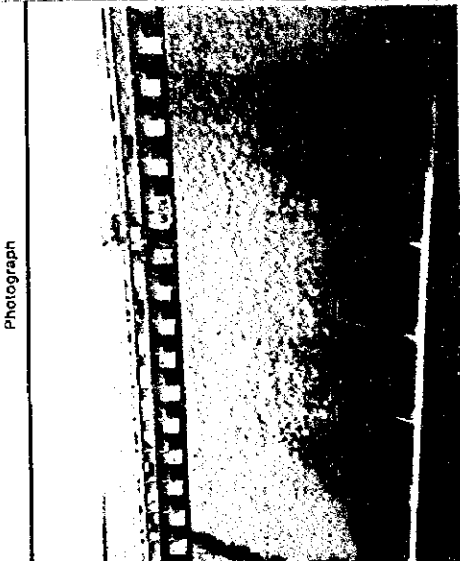
Gate No.	W53	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph
Gate Leaf	Thickness-Avg	Top - Mid - Low - Blim - (9.5mm)			G	Wire Rope	Main-Left Y: - Distortion: - Corrosion: - Oil: -	G	
	Corrosion	U/S-Bottom L M (S)			G	Main-Right Y: - Distortion: - Corrosion: - Oil: -	G		
Truss	Damage-Rivet	Corner-L 3 Corner-R 1			G	Roller Train-L	Broken	C	
	Thickness-Avg	Bottom Flange -, Bottom Web - (19.1mm)			---	Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C	
End Girder	Distortion	Vertical Truss (L5 Bottom Bend)			RS	Left	Damage: - Function: Miss Alignment	RS	
	Thickness-Avg	L-Bottom -, R-Bottom - (11.1mm)			C	Right	Damage: - Function: Miss Alignment	↑	
Bottom	Remodeling	Left No Right Nb			↑	Drum	Damage: - Oil: -	RS	
	Distortion	Left - Right -				Counter Shaft	Damage: - Oil: -	RS	
Girder	Thickness-Avg	Flange - mm (16.3); Web - mm (9.4)				Reduction Gear	Damage: - Oil: -	C	
	Corrosion	L M S				Drum Gear-L	Damage: - Fitting: 100% Backlash: 2.2 mm Oil: -	RS	
Rocker	Remodeling	Left No Right No				Drum Pinion-L	Damage: -	↑	
	Distortion	Left Heavy Ab. Right Heavy Ab.				Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -		
Assembly	Others	No Function				Drum Pinion-R	Damage: -		
	Missing	Left 0 Right 1				Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -		
Roller Train	Diameter-Roller	Average 152.0 mm				Pinion-Middle	Damage: -		
	Distortion	Left - Right -				Drum-L	Damage: - Corrosion: L M (S)		
Seal	Left	3.0 m Broken				Drum-R	Damage: - Corrosion: L M (S)	↓	
	Bottom	Lost				Drive Device	Damage: - Corrosion: L (M) S	RS	
Inclination	Right	3.0 m Broken				Drive Chain	Damage: - Looseness: L Oil: -	C	
	Top Level Difference	0 mm			↓	Chain Sprocket	Damage: - Corrosion: L (M) S	↑	
Leakage		(L) M S			C	Reduction Gear	Damage: - Corrosion: L (M) S		
						Cover	Damage: - Corrosion: L M (S)		
Sill	Abrasion-Max	Left: - mm, Right: - mm			RS	Drum-L	Damage: - Corrosion: L M (S)	↓	
	Abrasion-Max	Left: - mm, Right: - mm			RL	Drum-R	Damage: - Corrosion: L M (S)		
Roller Guard	Missing	Left 0 Right 1			N	Gear-Middle	Damage: - Corrosion: L (M) S	C	
	Defect	Left 0 Right 1			N	Counter Shaft	Damage: - Corrosion: L M S	G	
Sill Beam	Abrasion	L M S			---	Counter Weight	Damage: - Corrosion: L M S	RS	
	Damage-Left	L M S			---	Hoisting	Wet Condition 44.4 kg-m	RL	
Concrete	Damage-Right	L M S			---	Torque	Dry Condition 7.0 kg-m	RS	
	Damage-Bottom	L M S			---	Superstructure	Damage: - Corrosion: L M (S)	RS	

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.

Survey Results of Gate Structure

(62 / 96)

Gate No.	W54	(Main Weir Gate)	Survey Item	Survey Result	Judge	Survey Item	Survey Result	Judge	Photograph	
Gate No.	W54	(Main Weir Gate)	Hoisting Device							Photograph
			Wire Rope	Main-Left	Y: - Distortion: - Corrosion: - Oil: -	G				
				Main-Right	Y: - Distortion: - Corrosion: - Oil: -	G				
				Roller Train-L	Y: - Distortion: - Corrosion: - Oil: -	C				
				Roller Train-R	Y: - Distortion: - Corrosion: - Oil: -	C				
				Drum	Damage: - Function: -	RS				
				Right	Damage: - Function: -	↑				
				Drum	Damage: - Oil: -	↓				
				Counter Shaft	Damage: - Oil: -	RS				
				Reduction Gear	Damage: - Oil: -	C				
				Drum Gear-L	Damage: - Fitting: - Backlash: - Oil: -	RS				
				Drum Pinion-L	Damage: -	↑				
				Drum Gear-R	Damage: - Fitting: - Backlash: - Oil: -					
				Drum Pinion-R	Damage: -					
				Gear-Middle	Damage: - Fitting: - Backlash: - Oil: -					
				Pinion-Middle	Damage: -					
				Drum-L	Damage: - Corrosion: L M S					
				Drum-R	Damage: - Corrosion: L M S	↓				
				Drive Device	Damage: - Corrosion: L M S	RS				
				Drive Chain	Damage: - Looseness: L Oil: -	C				
				Chain Sprocket	Damage: - Corrosion: L M S	↑				
				Reduction Gear	Damage: - Corrosion: L M S					
				Cover	Drum-L	Damage: - Corrosion: L M S		↓		
		Drum-R	Damage: - Corrosion: L M S							
		Gear-Middle	Damage: - Corrosion: L M S	C						
		Counter Shaft	Damage: - Corrosion: L M S	G						
		Counter Weight	Damage: - Corrosion: L M S	RS						
		Hoisting	Wet Condition 44.4 kg-m	RL						
		Torque	Dry Condition 3.9 kg-m	RS						
		Superstructure	Damage: - Corrosion: L M S	RS						
Gate Lead	Thickness-Avg	Top - Mid - Low - Blm - (9.5mm)	-							
	Corrosion	U/S-Bottom L M S	G							
	Damage-Rivet	Cornet-L 3.5 Corner-R 1	G							
	Thickness-Avg	Bottom Flange - , Bottom Web - (18.1mm)	-							
	Distortion	Vertical Truss (L=4.5, Bottom Bent)	RS							
	Thickness-Avg	L-Bottom - , R-Bottom - (11.1mm)	C							
	Remodeling	Left No Right No	↑							
	Distortion	Left - Right -								
	Thickness-Avg	Flange - mm (10.3), Web - mm (9.4)								
	Corrosion	L M S								
	Remodeling	Left No Right No								
	Distortion	Left Heavy Ab. Right Heavy Ab.								
	Others	No Function								
	Missing	Left 2 Right 0								
	Diameter-Roller	Average 152.1 mm								
	Distortion	Left - Right -								
	Left	Lost								
	Bottom	Lost								
	Right	Lost								
	Inclination	Top Level Difference 10 mm	↓							
	Leakage	L M S	C							
	Sill									
	Side Seal	Abrasion-Max Left: - mm, Right: - mm	RS							
	Roller Truck	Abrasion-Max Left: - mm, Right: - mm	RL							
	Roller Guard	Missing Left 0 Right 1	N							
		Defect Left 0 Right 0	N							
	Sill Beam	Abrasion L M S	-							
	Concrete	Damage-Left L M S	-							
		Damage-Right L M S	-							
		Damage-Bottom L M S	-							

Remarks: Judgement = N: Totally Replace, C: Partly Replace, RL: Large Repair, RM: Medium Repair, RS: Small Repair, G: No Repair, -: No Data.

() shows design dimension.