

High Level Masonry Project  
Tactile safety inspection of high-level fabric

REPORT  
URQUHART CASTLE  
PIC323



October 2022



HISTORIC  
ENVIRONMENT  
SCOTLAND

ÀRAINNEACHD  
EACHDRAIDHEIL  
ALBA

## CONTROL SHEET

### Document Control

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### Version Control

Version	Date	Status	Prepared by	Amendments
V0001	27/10/2022	Draft		First draft
V0002	30/11/2022	Approved		inal draft
V0400	30/11/2022	Approved		Reviewed&Approved

Template version: PICxxx-T1C-HLF-REP-YYYYMMDD-X-V0400-Report

# High-Level Tactile Inspection: Report - Introduction



<b>PIC ID # ↓</b>	PIC323	<b>Site name</b>	Urquhart Castle		
<b>Inspection start</b>	30/05/2022	<b>Inspection end</b>	18/07/2022	<b>Submission</b>	30/11/2022
<b>Lead inspector</b>	[REDACTED]				
<b>Other inspectors</b>	[REDACTED]				

## Introduction:

The Inspection Team assessed 14 out of 15 zones covering the whole monument and visitor centre, using a range of high level access equipment including rope access, spider MEWP, alloy tower and ladders. Mats were used to protect the ground while accessing the moat and during the inspection of the foot bridge leading to the gatehouse.

## HLF Inspection Risk Matrix:

HES-T1C-HLF-RAS-X-X-V0300-RiskMatrix

Consequence \ Probability		1	2	3	4	5
		No injury	Minor injury	Moderate injury	Major injury	Fatal or life-altering injury
5	Fabric fall almost certain	5	10	15	20	25
4	Fabric fall highly likely	4	8	12	16	20
3	Fabric fall likely	3	6	9	12	15
2	Fabric fall unlikely	2	4	6	8	10
1	Fabric fall highly unlikely	1	2	3	4	5

RISK RATING	RISK SCORE RANGE
High	15 - 25
Medium	10 - 14
Low	1 - 9

## Re-inspection frequency: (in years)

[REDACTED]



		Annual Visitor Numbers				
		up to 5 k	5-20 k	20 - 100 k	100k - 2m	over 2 m
Identified Risk Rating	Low	5 years	5 years	5 years	4 years	4 years
	Medium	3 years	3 years	2.5 years	2 years	2 years
	High	1 year	1 year	1 year	1 year	0.5 year

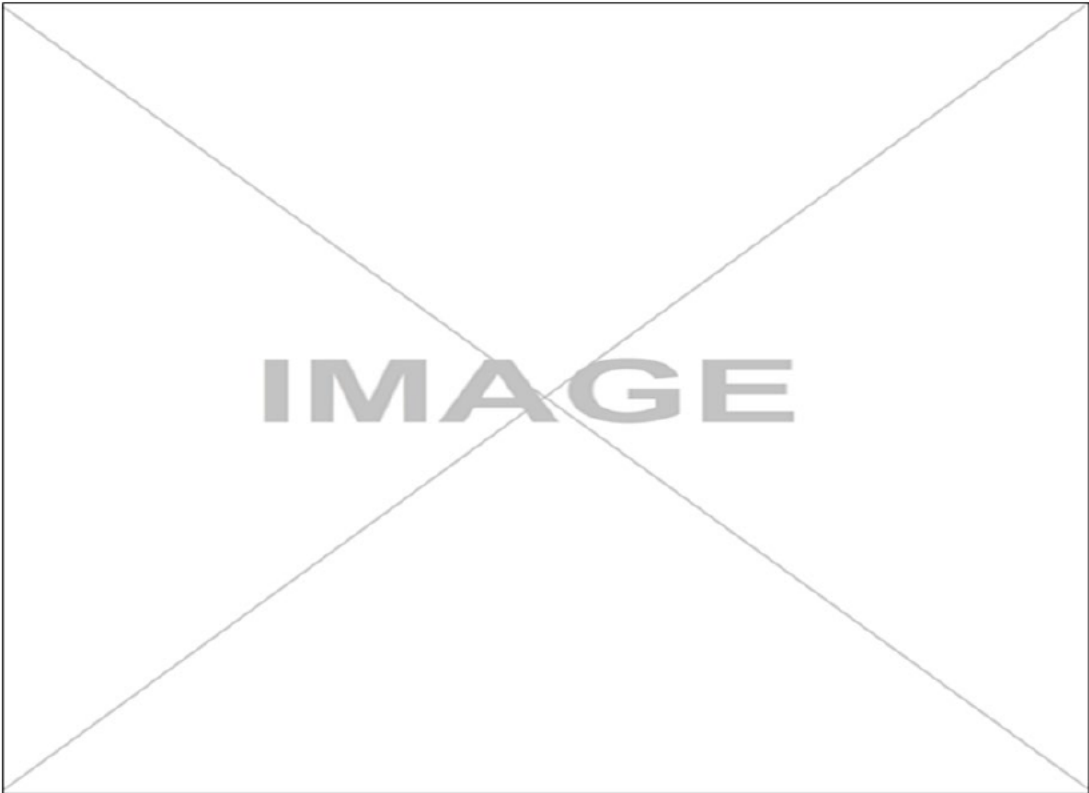
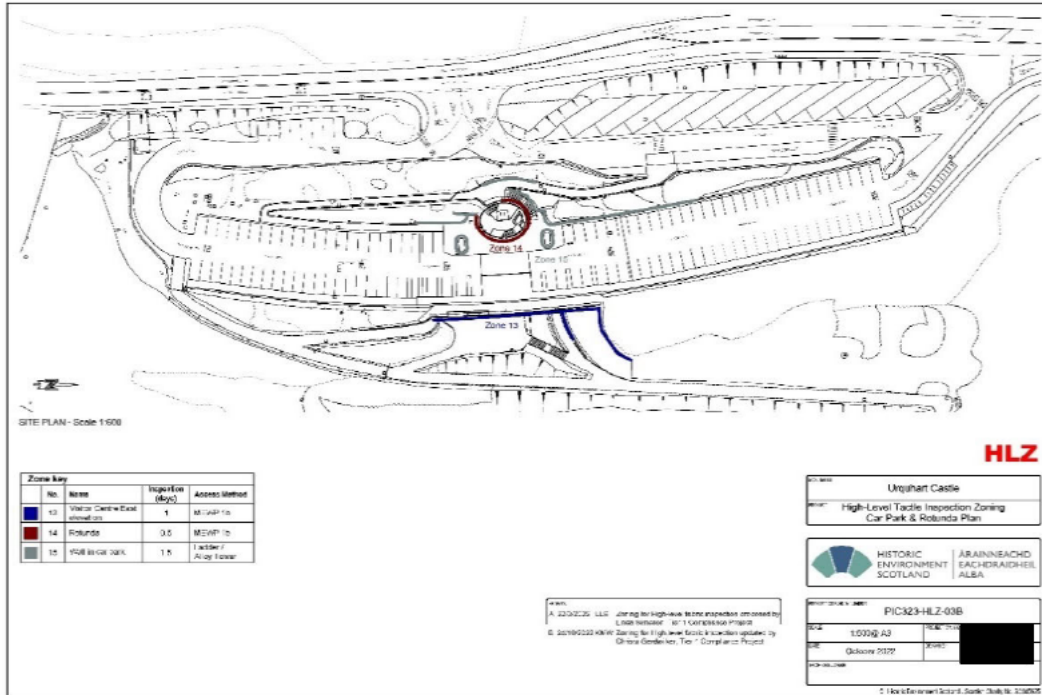
Link to 3D model:

HL Zones:

Zone:	Colour:	Zone Name:
1		Bridge Piers
2		Gate House
3		Outer Curtain Wall Gate House to Tower
4		Inner Curtain Wall Gate House to Tower
5		Grant Tower
6		Outer Curtain Wall Tower to West Gate
7		Apartment
8		Great Hall and Kitchen
9		Water Gate
10		Curtain Wall Smithy to East Motte
11		Curtain Wall Motte
12		Motte and Upper Bailey
13		Visitor Centre East Elevation
14		Rotunda
15		Wall in car park







# High-Level Tactile Inspection: Report - Summary dashboard



PIC ID#	PIC323	Site name	Urquhart Castle	
Submission	30/11/2022	Number of zones	15	
Select zone of which data should be displayed ↓	All zones	Number of observations	85	

## Identified Risk



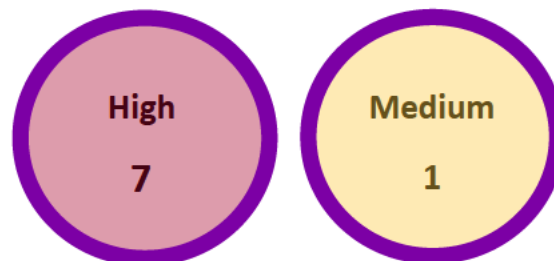
## Residual Risk

After Inspection Action



## Residual Risk

Mitigated with applied Access Restriction in place



## Inspection Action:

Class V Report = Fabric detached during tactile inspection	Access Restriction = Risk of fabric falling and causing harm			Monitor Observation / Plan Repairs = No immediate action
	Full site, notifiable	Partial site, notifiable	Partial site, not notifiable	
35	0	3	5	42

Inspection types:	Tactile	85	Visual	0
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## Key comments:

### KEY FINDINGS

Most of the OBS identified during the inspection fall into the low risk category. A number of medium and high risk loose wall head stones were identified during the inspection and communicated to the DA and MCU. These stones were re-bedded by the MCU under Section 17 during or soon after the inspection. The repairs



are not reflected in this report which records the findings of the inspection only. The wall of the Smithy/Old tower could not be inspected with the available access methods at the time of inspection and is classed as a potential high risk. The remainder of Zone 10 is essentially inaccessible above a steep and heavily vegetated incline.

### **PREDOMINANT RISKS:**

The local sandstone is prone to minor scaling and delamination. Mortar decay resulted in fragmentation and loosening of some pinnings. Due to the relative low height of the walls, most risks were scored as low with high risk loose wall head stones being removed or subsequently repaired by the MCU under section 17.

# High-Level Tactile Inspection: Report - Access Scope



PIC ID #	PIC323	Site name	Urquhart Castle
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## Access methods: Select all methods used to conduction inspection ↓

MEWP	Yes	Design Scaffold		Alloy Tower Scaffold	Yes
Rope Access	Yes	Steeplejack		Ladder	Yes
Ground	Yes	Binoculars / Photo		UAV	
Other method		If yes, details:			
Ground protection / tracking required:					Yes
External Contractor appointed for access requirments:					Yes

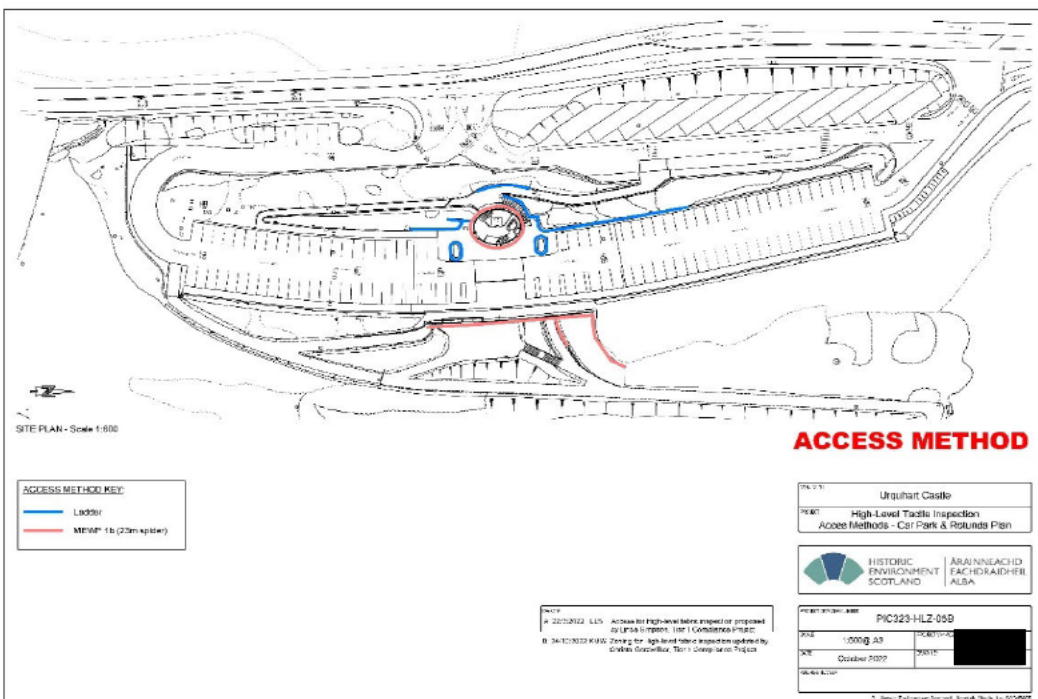
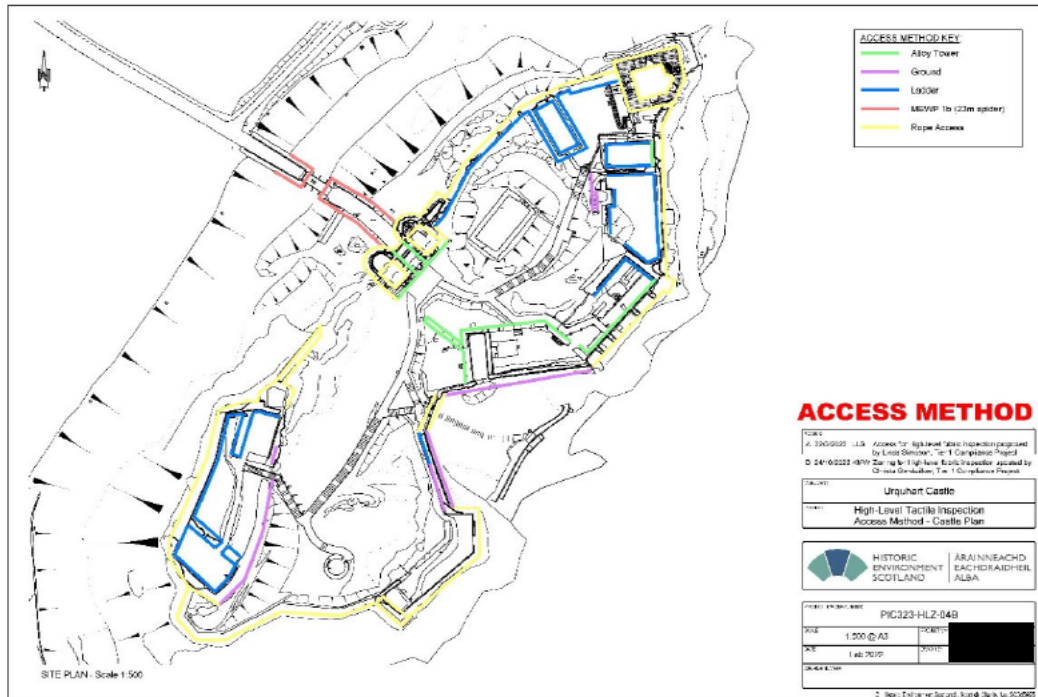
## Inspection info:

<b>Limitations of inspection:</b>	<p>The inspection was carried out in two phases during the first week of June (Grant Tower) and the second half of July. It was possible to inspect the Visitor Centre by MEWP and this was also used to inspect the bridge and piers (zone 1). Rope access was required for most of the curtain wall and motte and bailey. De-vegetation was also carried out by the rope team as requested by the MCU. The alloy tower was used to inspect the gatehouse archway while ladders were used to inspect all other areas, including the port cullis. Inspections of visitor routes were undertaken before opening to reduce the need for site closures ie. the visitor centre and gatehouse and access equipment (MEWP and alloy tower) was moved around the site before opening. Nonetheless, some visitors gained unauthorised access prior to opening by reaching the site by boat and had to be warned about the risks on site.</p>
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<b>Areas not inspected:</b>	<p>The Smithy (remains of old tower) and zone 10 could not be inspected. Zone 10 is essentially inaccessible while the remains of the tower have been barriered.</p>
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Click on link below image to open drawing in PDF viewer:

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**INTERACTIVE PDF**  
Click on label to open  
linked Excel OBS form

**KEY**

- Low level (at least 1.0m) High Level Zone 03 (at least 1.0m)
- Low level (at least 1.0m) High Level Zone 04 (at least 1.0m)
- High Level Zone 03 (at least 1.0m)
- High Level Zone 04 (at least 1.0m)
- High Level Zone 05 (at least 1.0m)
- High Level Zone 06 (at least 1.0m)

**202101** Date of inspection: 20th Feb 2021. Inspector: [Redacted] (PIC323-HLR-Z03-04)

**Notes:** This is a location of risk where a condition is present and a safety critical element. A condition is a photo representation of the risk at risk.

**HIGH LEVEL FABRIC TACTILE INSPECTION**  
3006-2022 to 18070322

**SITE PLAN 1:70**

**IDENTIFIED RISK**

**KEY:** PIC323 Urquhart Castle  
High Level Fabric Tactile Inspection  
Report Ref: 3006-2022-0304

**CLIENT:** HISTORIC SCOTLAND  
**AREA INSPECTED:** UNCORROBORATED  
**DATE:** 20/02/2021

**PROJECT REF:** PIC323-HLR-Z03-04

**DATE:** 20/02/2021  
**REPORT NO:** [Redacted]

**ISSUE:** [Redacted]

[Redacted]

[PIC323-HLR-Z03 04](#)

**INTERACTIVE PDF**  
Click on label to open  
linked Excel OBS form

**KEY**

- Low level (at least 1.0m) High Level Zone 03 (at least 1.0m)
- Low level (at least 1.0m) High Level Zone 04 (at least 1.0m)
- High Level Zone 03 (at least 1.0m)
- High Level Zone 04 (at least 1.0m)
- High Level Zone 05 (at least 1.0m)
- High Level Zone 06 (at least 1.0m)

**202101** Date of inspection: 20th Feb 2021. Inspector: [Redacted] (PIC323-HLR-Z05-06)

**Notes:** This is a location of risk where a condition is present and a safety critical element. A condition is a photo representation of the risk at risk.

**HIGH LEVEL FABRIC TACTILE INSPECTION**  
3006-2022 to 18070322

**SITE PLAN 1:70**

**IDENTIFIED RISK**

**KEY:** PIC323 Urquhart Castle  
High Level Fabric Tactile Inspection  
Report Ref: 3006-2022-0506

**CLIENT:** HISTORIC SCOTLAND  
**AREA INSPECTED:** UNCORROBORATED  
**DATE:** 20/02/2021

**PROJECT REF:** PIC323-HLR-Z05-06

**DATE:** 20/02/2021  
**REPORT NO:** [Redacted]

**ISSUE:** [Redacted]

[Redacted]

[PIC323-HLR-Z05 06](#)

Click on link below image to open Interactive PDF in PDF viewer. In PDF viewer, the drawing is an interactive PDF, click on the labels to open the relevant OBS form for further information.







**INTERACTIVE PDF**  
Click on label to open relevant OBS form

**High-Level Zone 11**  
Impairment Code - Corrosion (R11000) - South Wall Extension

**High-Level Zone 12**  
Impairment Code - Moisture and Mason Decay - Outer Wall East Extension

**High-Level Zone 12**  
Impairment Code - Moisture and Mason Decay - Middle Wall Section

**High-Level Zone 12**  
Impairment Code - Moisture and Mason Decay - Middle Wall Section

**Legend**

- Green: Low level of risk - Minor deterioration (e.g. Peeling Paint)
- Yellow: Moderate level of risk - Significant deterioration (e.g. Cracking, Spalling)
- Orange: High level of risk - Severe deterioration (e.g. Structural damage)
- Red: Critical level of risk - Immediate action required (e.g. Collapse risk)

**Notes**

1. This report is for information only. It is not intended to be used for legal purposes or as a basis for insurance claims.

2. The client is responsible for the safety of the site.

**HIGH-LEVEL FABRIC TACTILE INSPECTION**  
18/09/2022 to 19/09/2022

**SITE PLAN 1/250**

**IDENTIFIED RISK**

**RISK** High level of risk - Severe deterioration (Impairment Code - R11000)

**LOCATION** URQUHART CASTLE, SCOTLAND

**AREA INSPECTED** EAST WALL

**PROJECT REF** PIC323-HLR-Z11 12

**DATE** 18/09/2022

**BY** [Redacted]

**FOR** [Redacted]

**SCALE** 1:100

[PIC323-HLR-Z11 12](#)

**INTERACTIVE PDF**  
Click on label to open relevant OBS form

**High-Level Zone 13**  
Impairment Code - Water Damage (R12000)

**High-Level Zone 14**  
Impairment Code - Rot/Insects

**High-Level Zone 15**  
Impairment Code - Rot/Insects (R12000)

**Legend**

- Green: Low level of risk - Minor deterioration (e.g. Peeling Paint)
- Yellow: Moderate level of risk - Significant deterioration (e.g. Cracking, Spalling)
- Orange: High level of risk - Severe deterioration (e.g. Structural damage)
- Red: Critical level of risk - Immediate action required (e.g. Collapse risk)

**Notes**

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**HIGH-LEVEL FABRIC TACTILE INSPECTION**  
20/06/2022 to 26/07/2022

**SITE PLAN 1/250**

**IDENTIFIED RISK**

**RISK** High level of risk - Severe deterioration (Impairment Code - R12000)

**LOCATION** URQUHART CASTLE, SCOTLAND

**AREA INSPECTED** EAST WALL

**PROJECT REF** PIC323-HLR-Z13 14 15

**DATE** 20/06/2022

**BY** [Redacted]

**FOR** [Redacted]

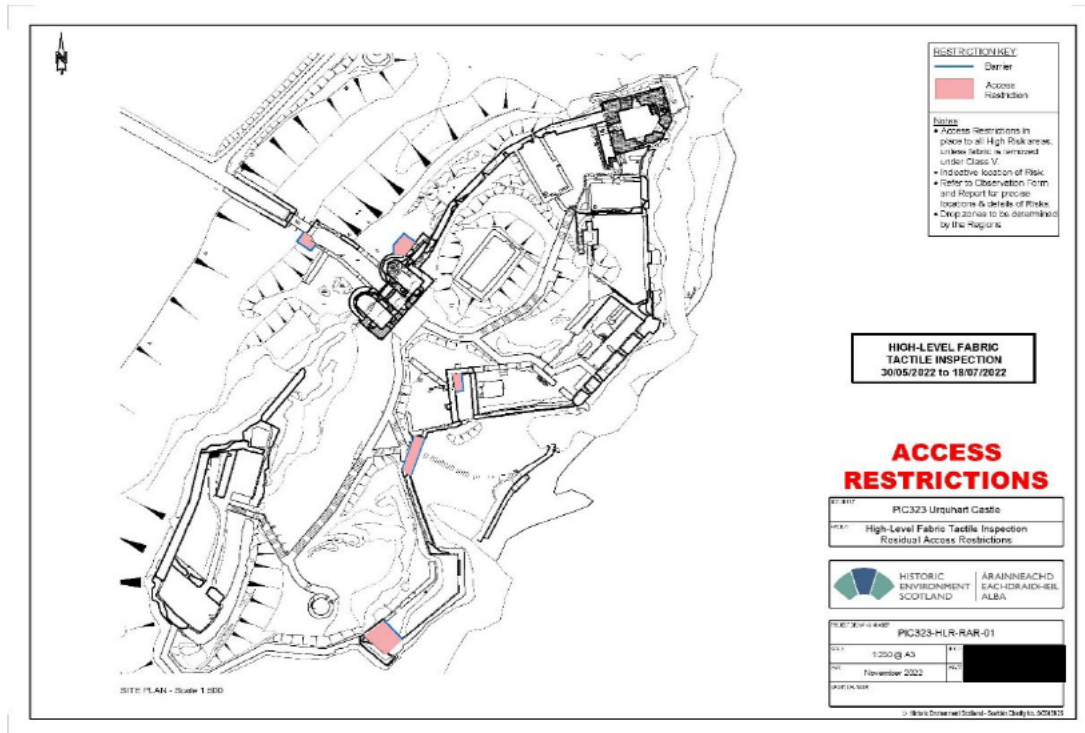
**SCALE** 1:100

[PIC323-HLR-Z13 14 15](#)

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Click on link below image to open drawing in PDF viewer:



[PIC323-HLR-RAR-01](#)

