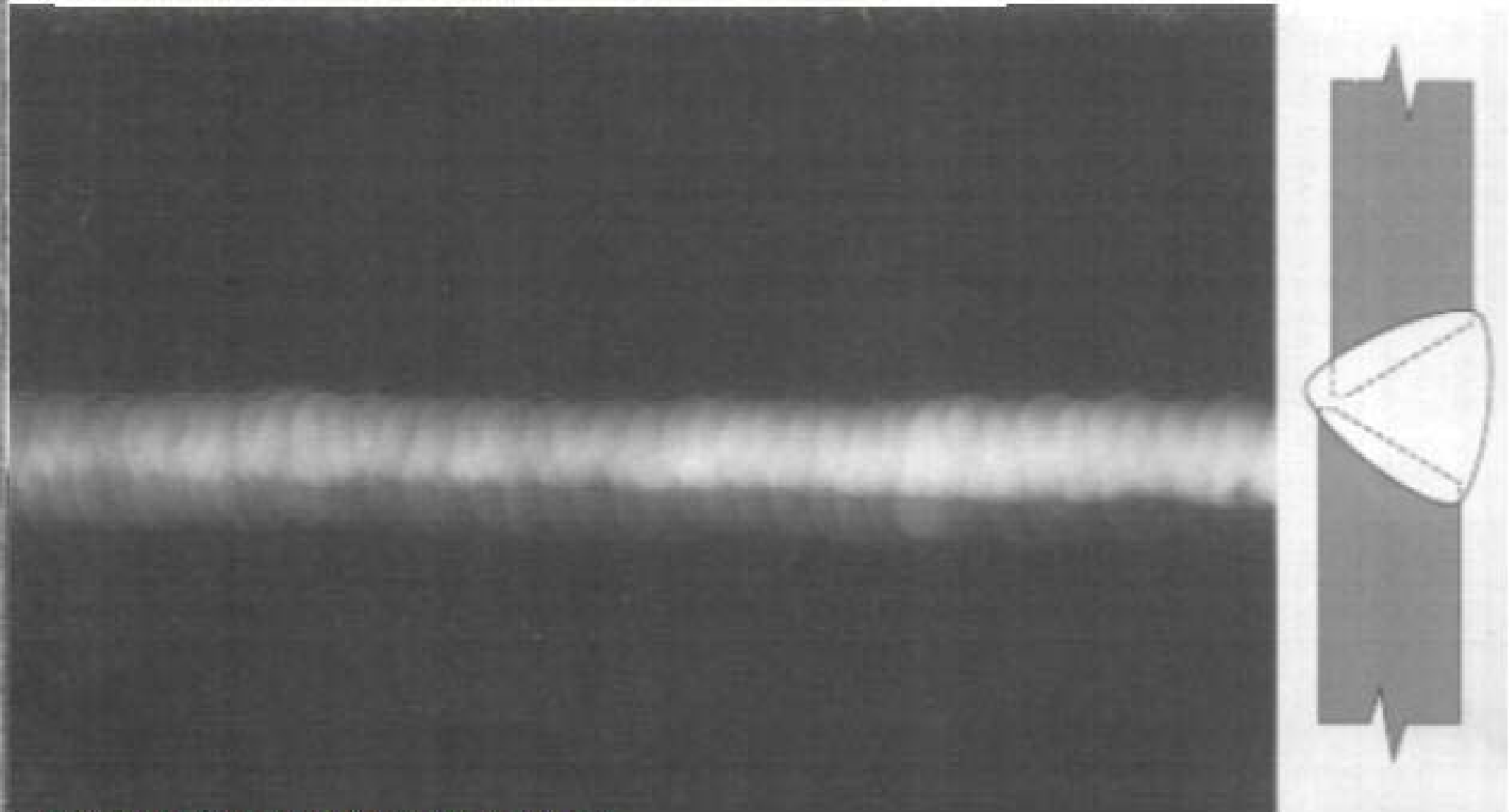


1- OFFSET or MISMATCH (Hi - LO) :

A misalignment of the pieces to be welded

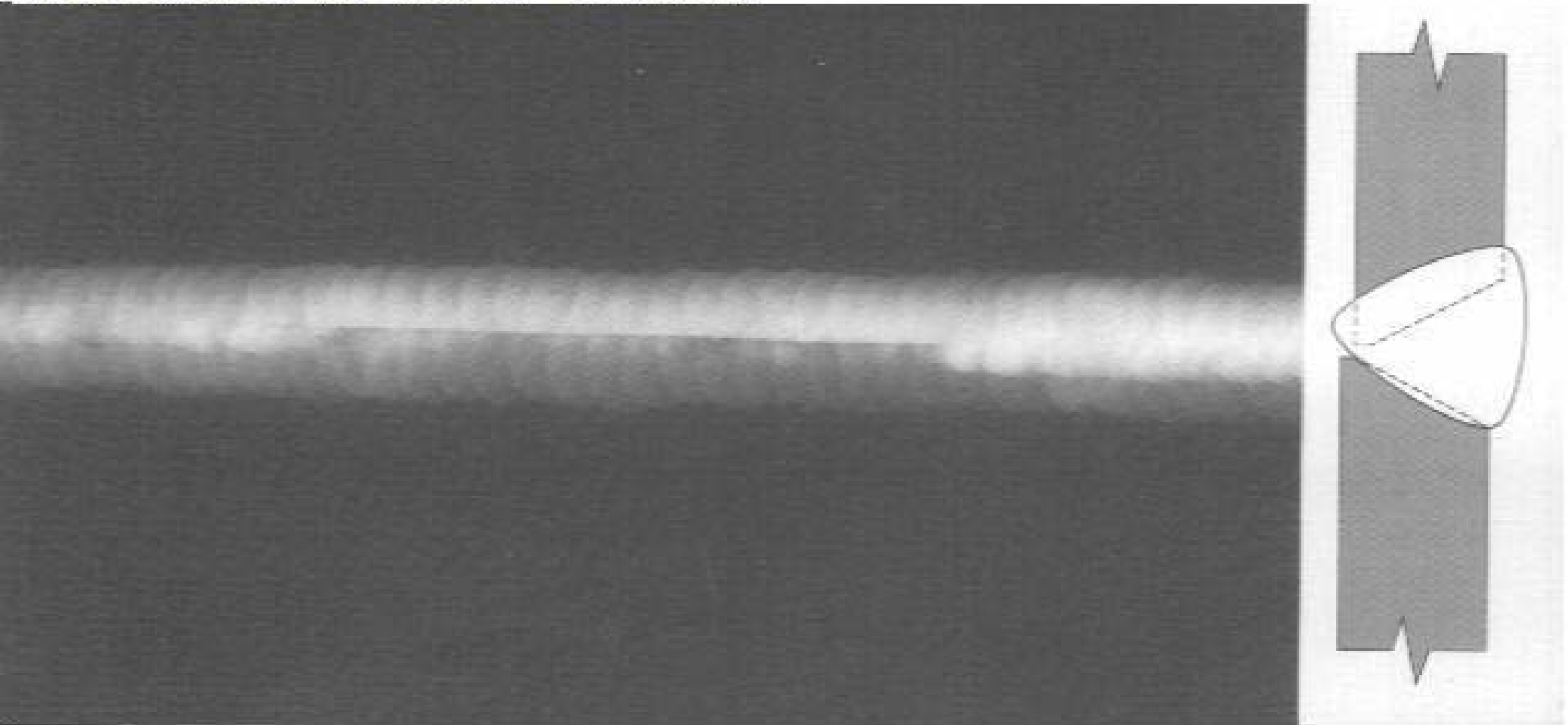


RADIOGRAPHIC IMAGE :

An abrupt change in film density across the width of the weld image.

2- OFFSET or MISMATCH with LACK of PENETRATION (L O P):

A misalignment of the pieces to be welded and insufficient filling of the bottom of the weld or "root area"

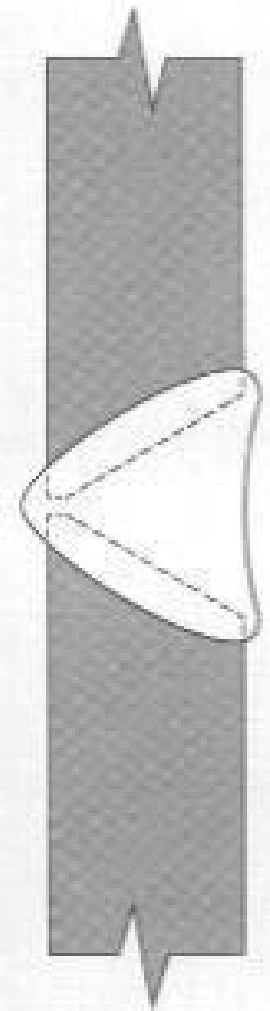
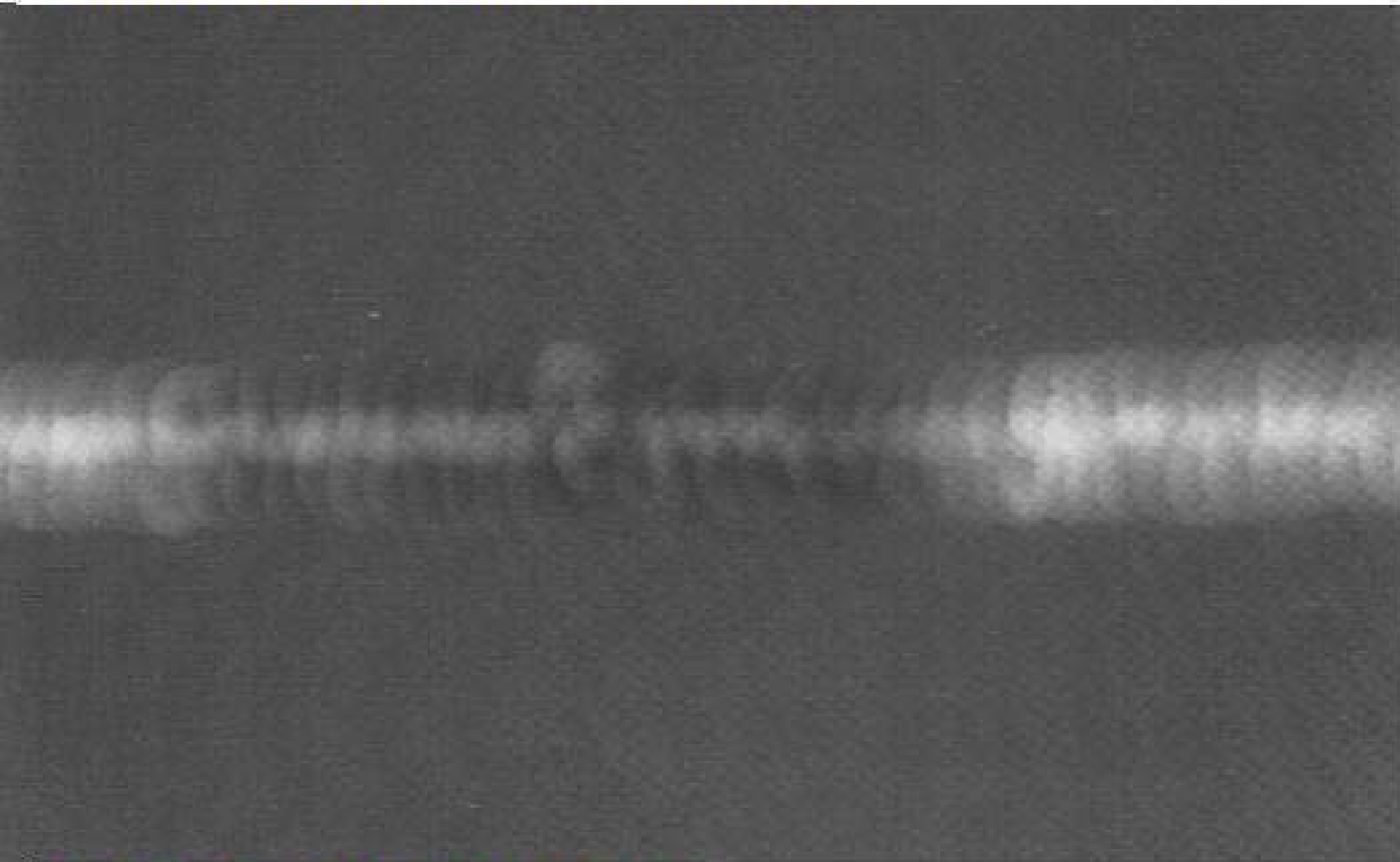


RADIOGRAPHIC IMAGE :

An abrupt density change across the width of the weld image with a straight longitudinal darker density line at the center of the width of the weld image along the edge of the density change.

3-EXTERNAL CONCAVITY or INSUFFICIENT FILL :

A depression in the top of the weld, or cover pass, indicating a thinner than normal section thickness.

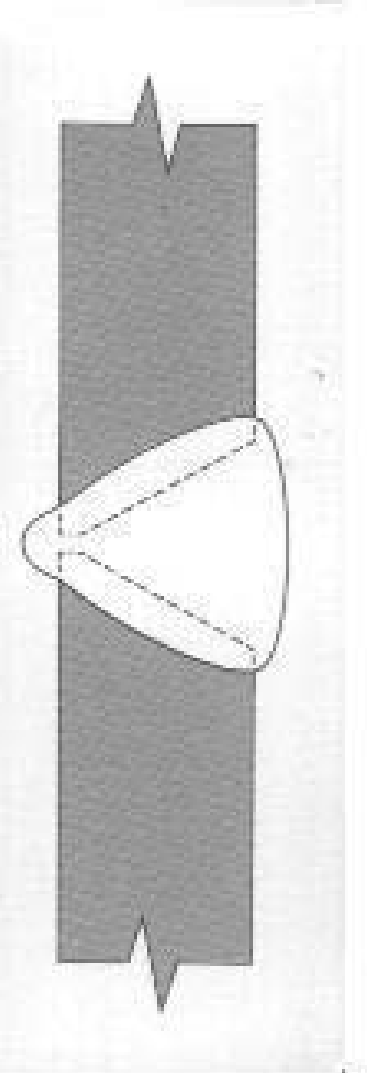
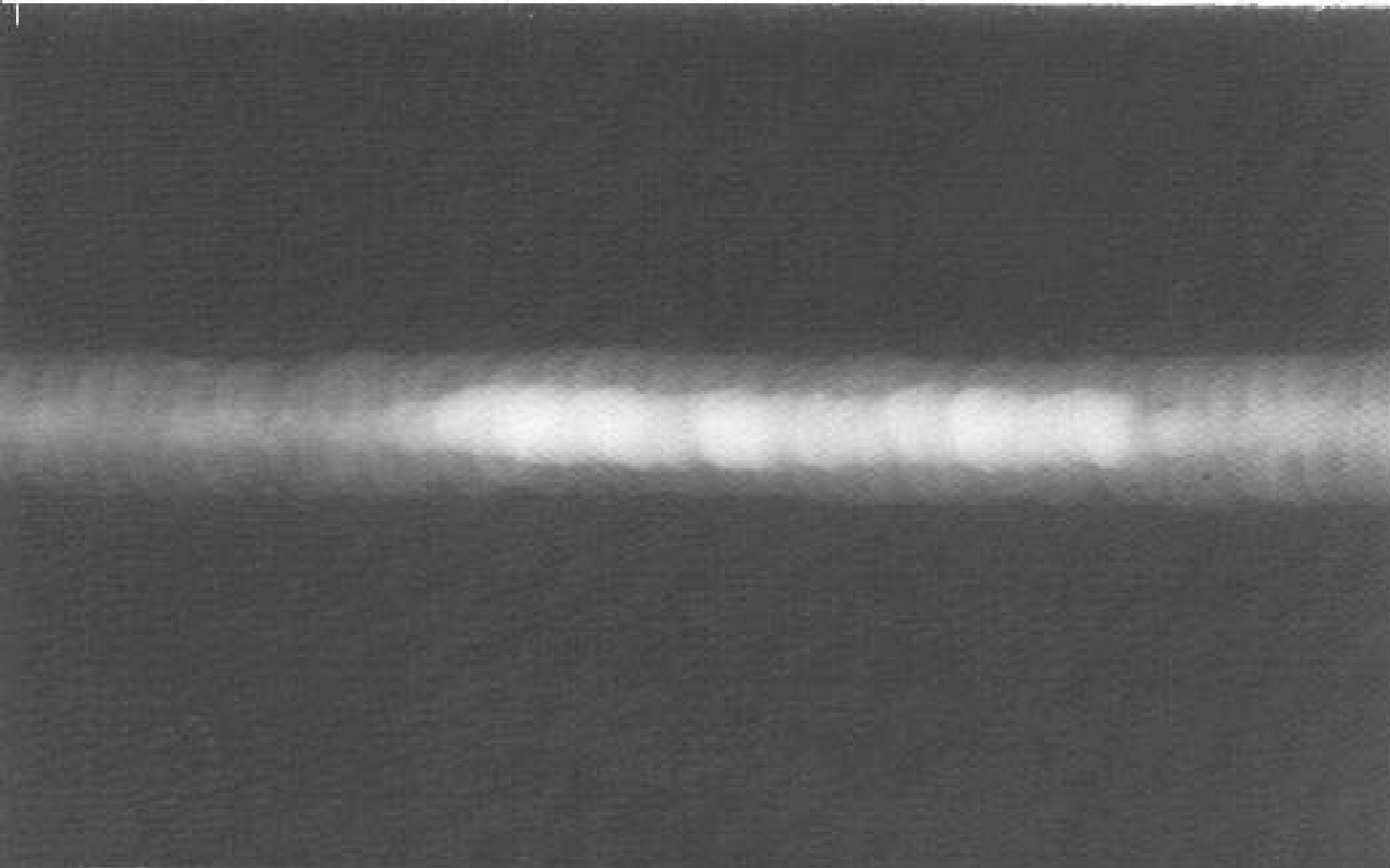


RADIOGRAPHIC IMAGE :

A weld density darker than the density of the pieces being welded and extending across the full width of the weld image.

4-EXCESSIVE PENETRATION (Icicles, Drop - Thru) :

Extra metal at the bottom (root) of the weld.

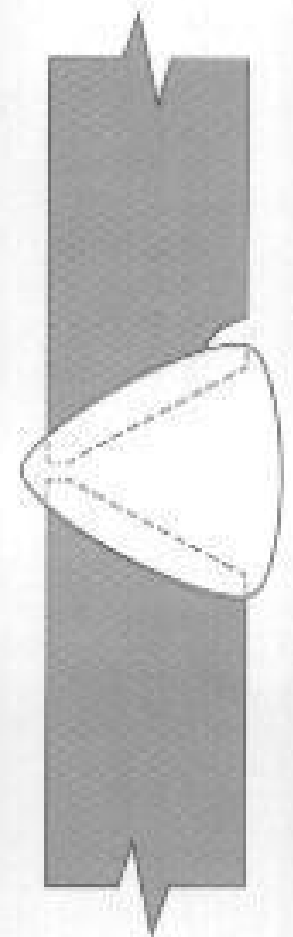
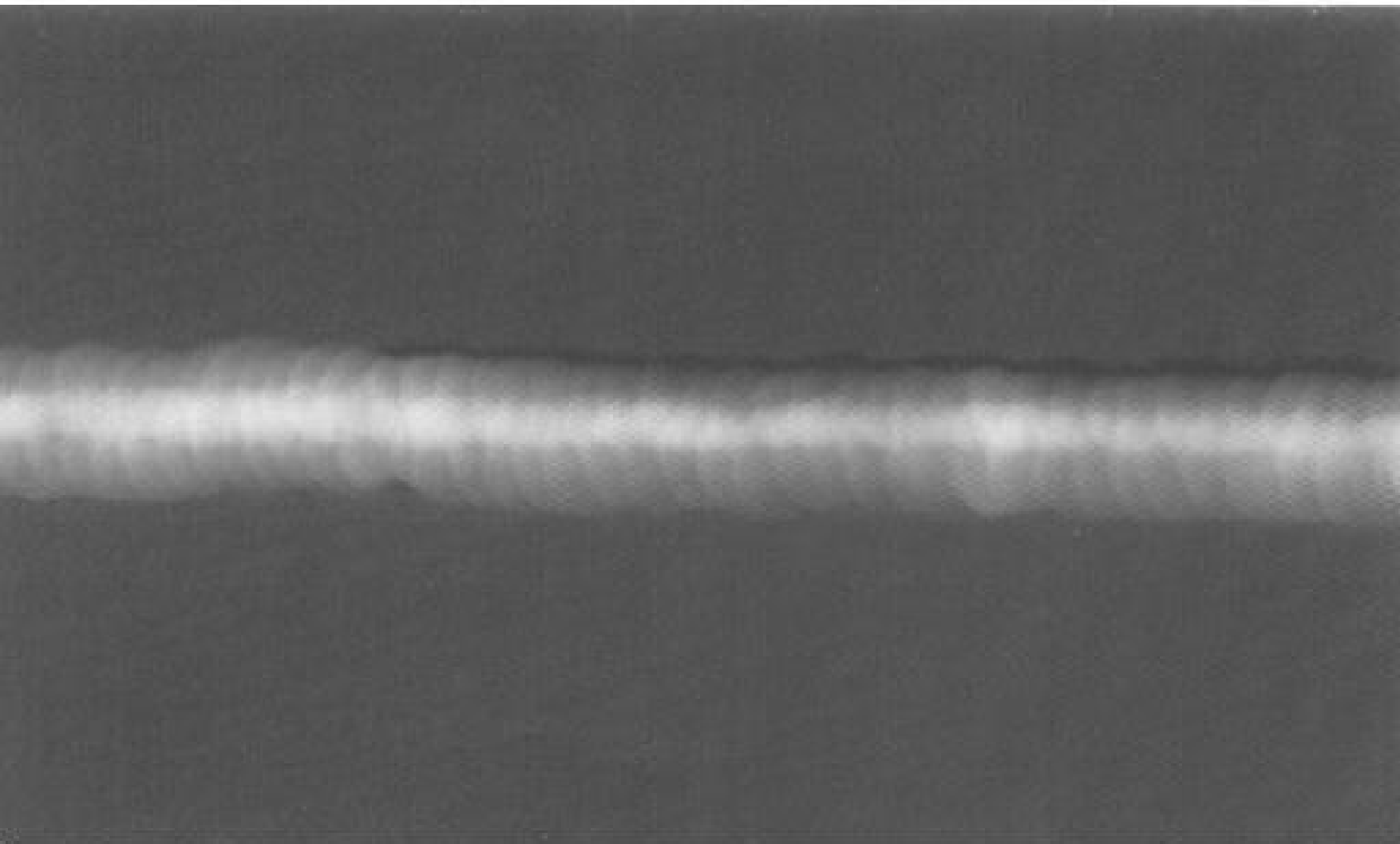


RADIOGRAPHIC IMAGE :

A lighter density in the center of the width of the weld image, either extended along the weld or in isolated circular "Drops".

5-EXTERNAL UNDERCUT:

A gouging out of the piece to be welded, alongside the edge of the top or "external" surface of the weld.

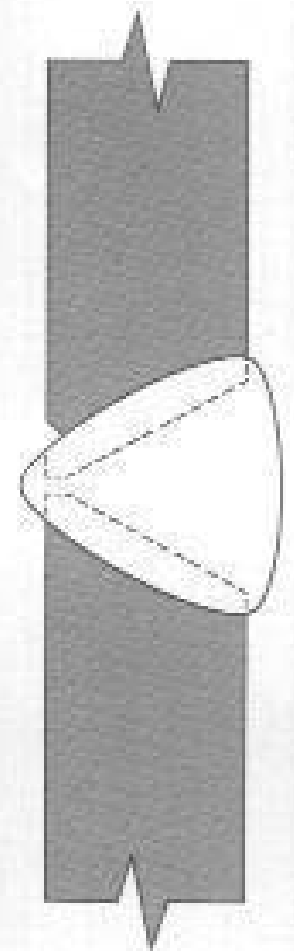
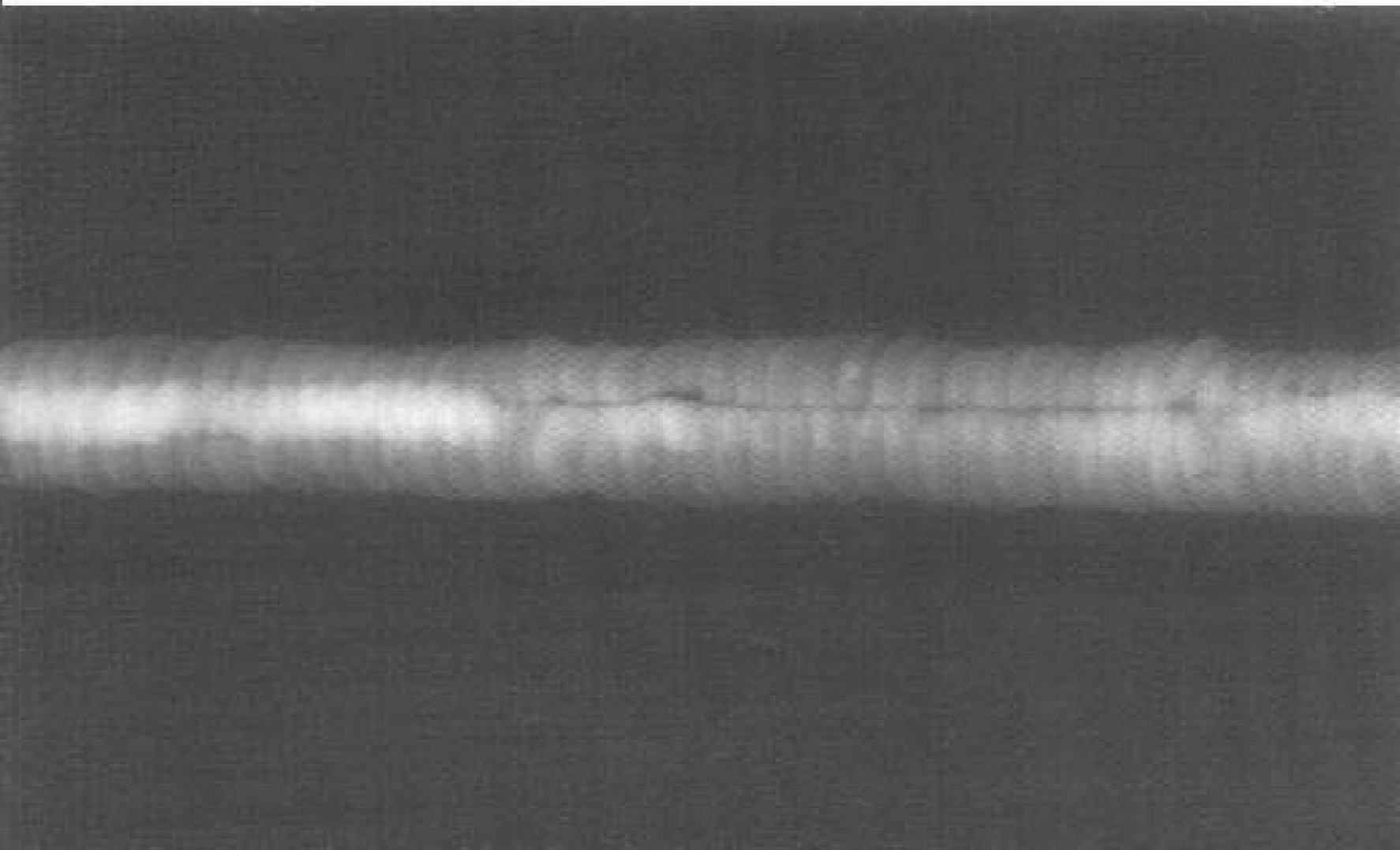


RADIOGRAPHIC IMAGE:

An irregular darker density along the edge of the weld image. The density will always be darker than the density of the pieces being welded

6- INTERNAL (Root) UNDERCUT:

A gouging out of the parent metal , alongside the edge of the bottom or "internal" surface of the weld.

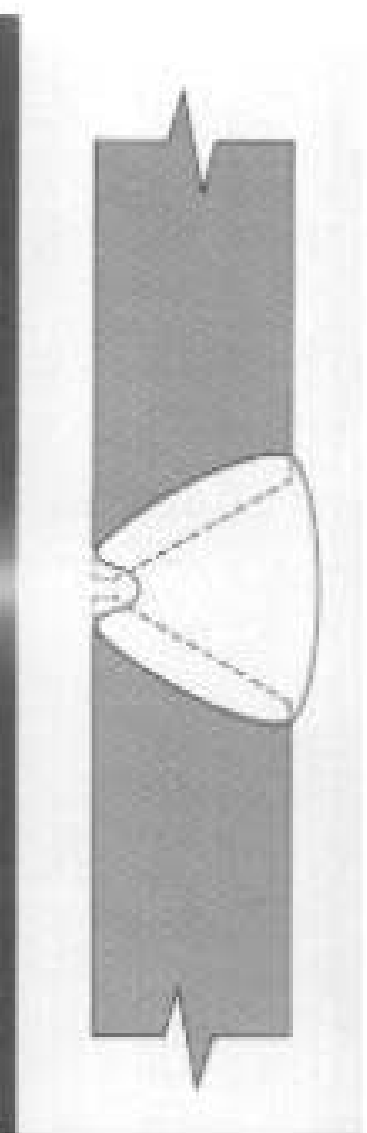
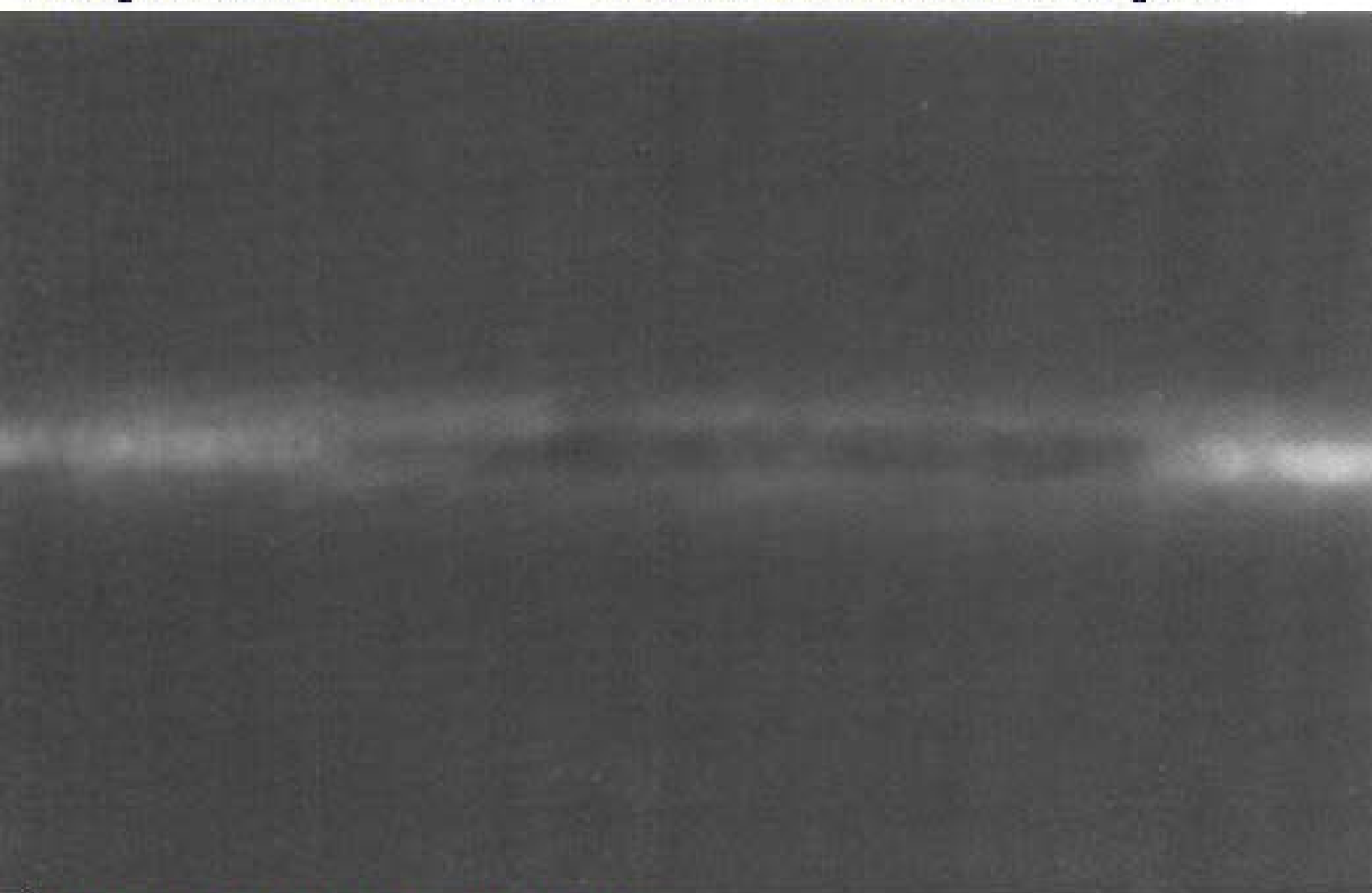


RADIOGRAPHIC IMAGE:

An irregular darker density near the center of the width of the weld image and along the edge of the root

7- INTERNAL CONCAVITY (Suck Back) :

A depression in the center of the surface of the root pass.

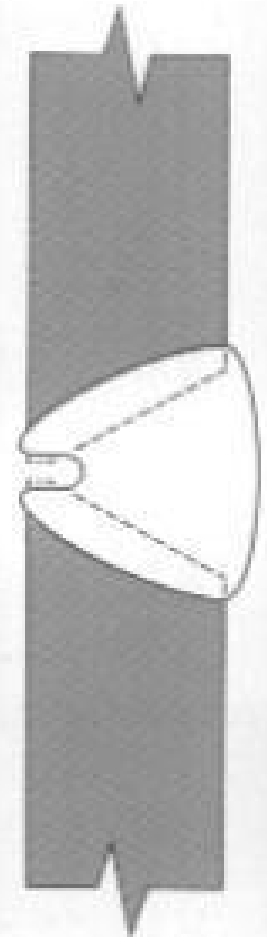
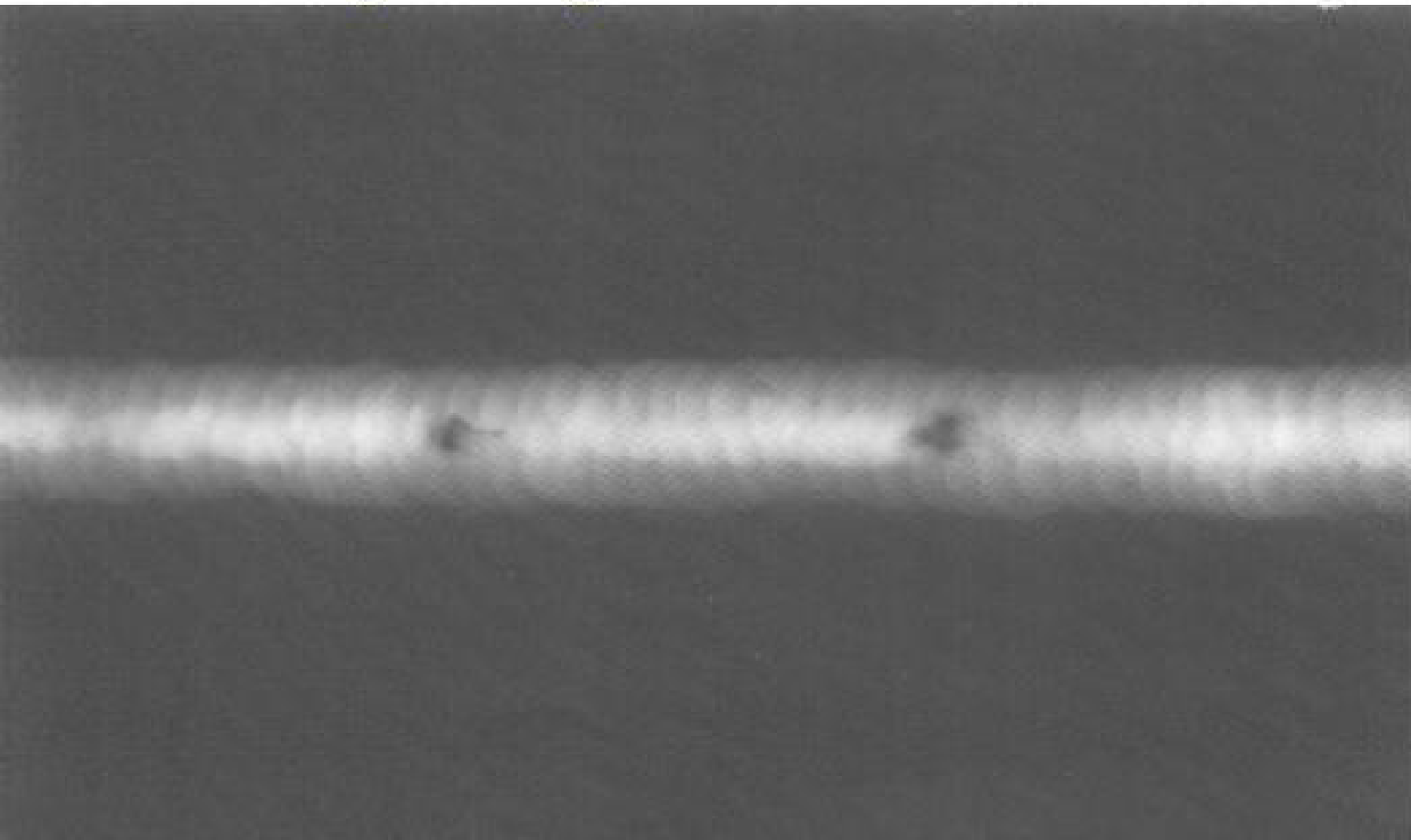


RADIOGRAPHIC IMAGE:

An elongated irregular darker density with fuzzy edges, in the center of the width of the weld image.

8- BURN THROUGH :

A severe depression or a crater - type hole at the bottom of the weld but usually not elongated.

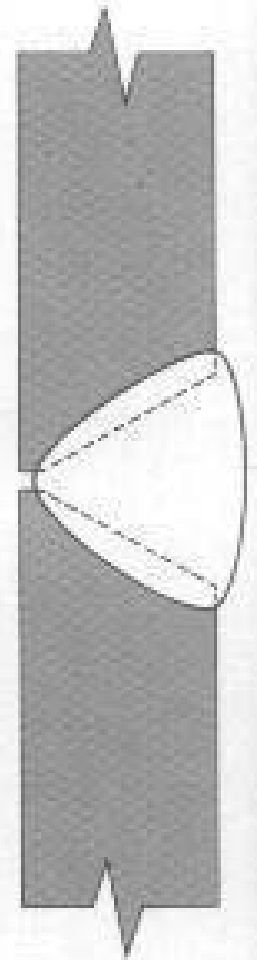
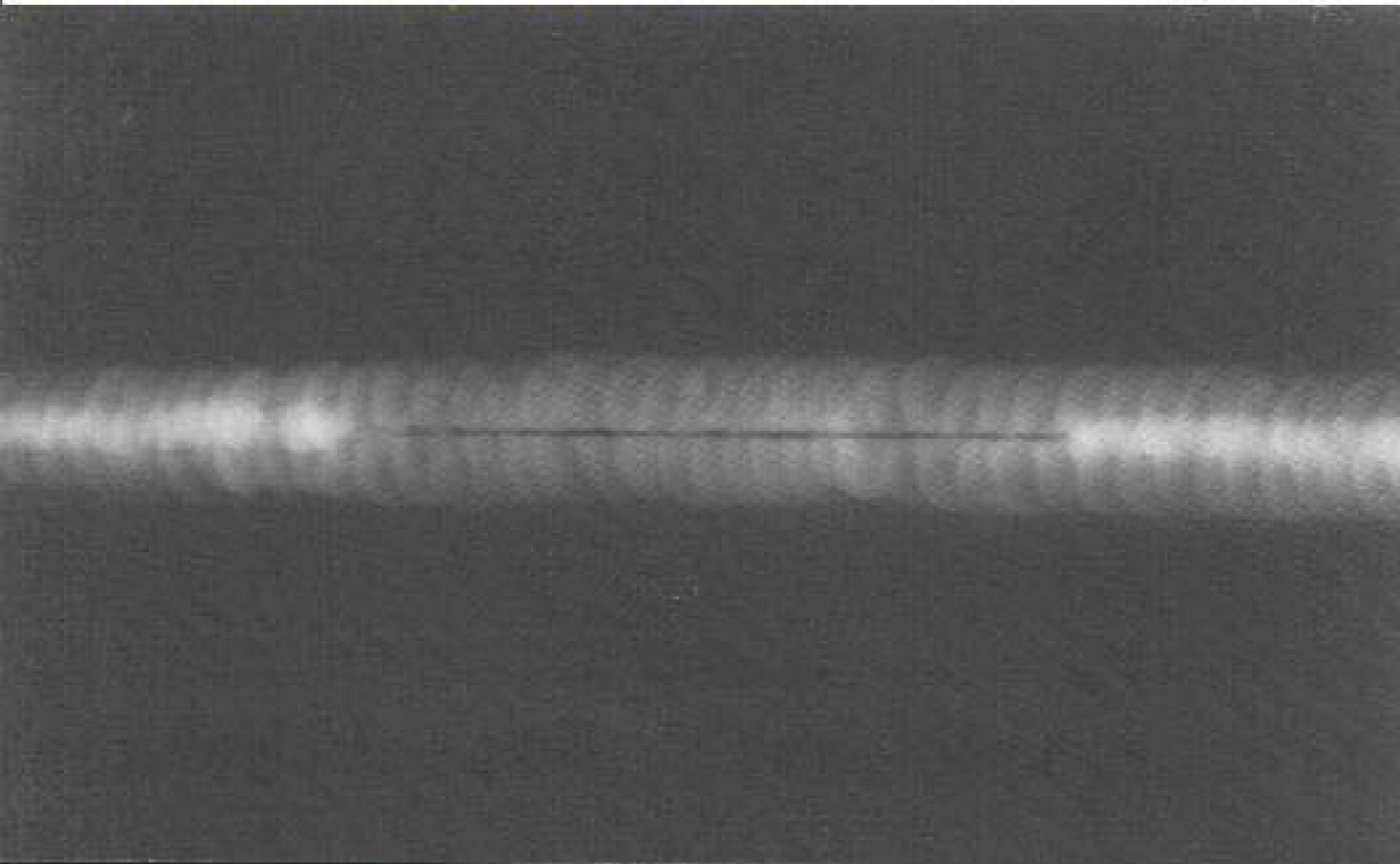


RADIOGRAPHIC IMAGE :

A localized darker density with fuzzy edges in the center of the width of the weld image. It may be wider than the width of the root pass image.

9-INCOMPLETE or LACK OF PENETRATION (LOP) :

The edges of the pieces have not been welded together, usually at the bottom of single V-groove welds

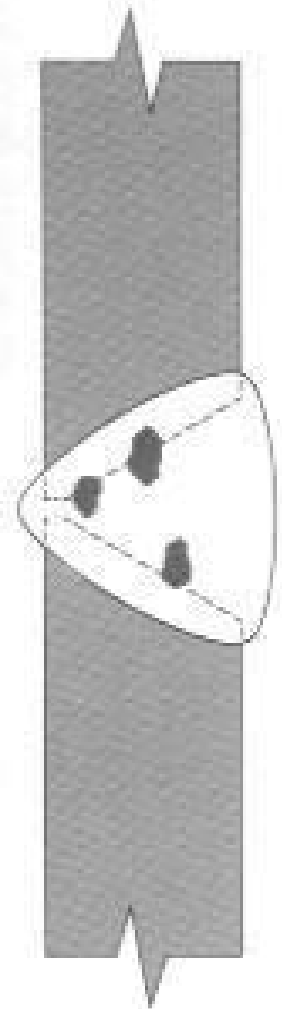
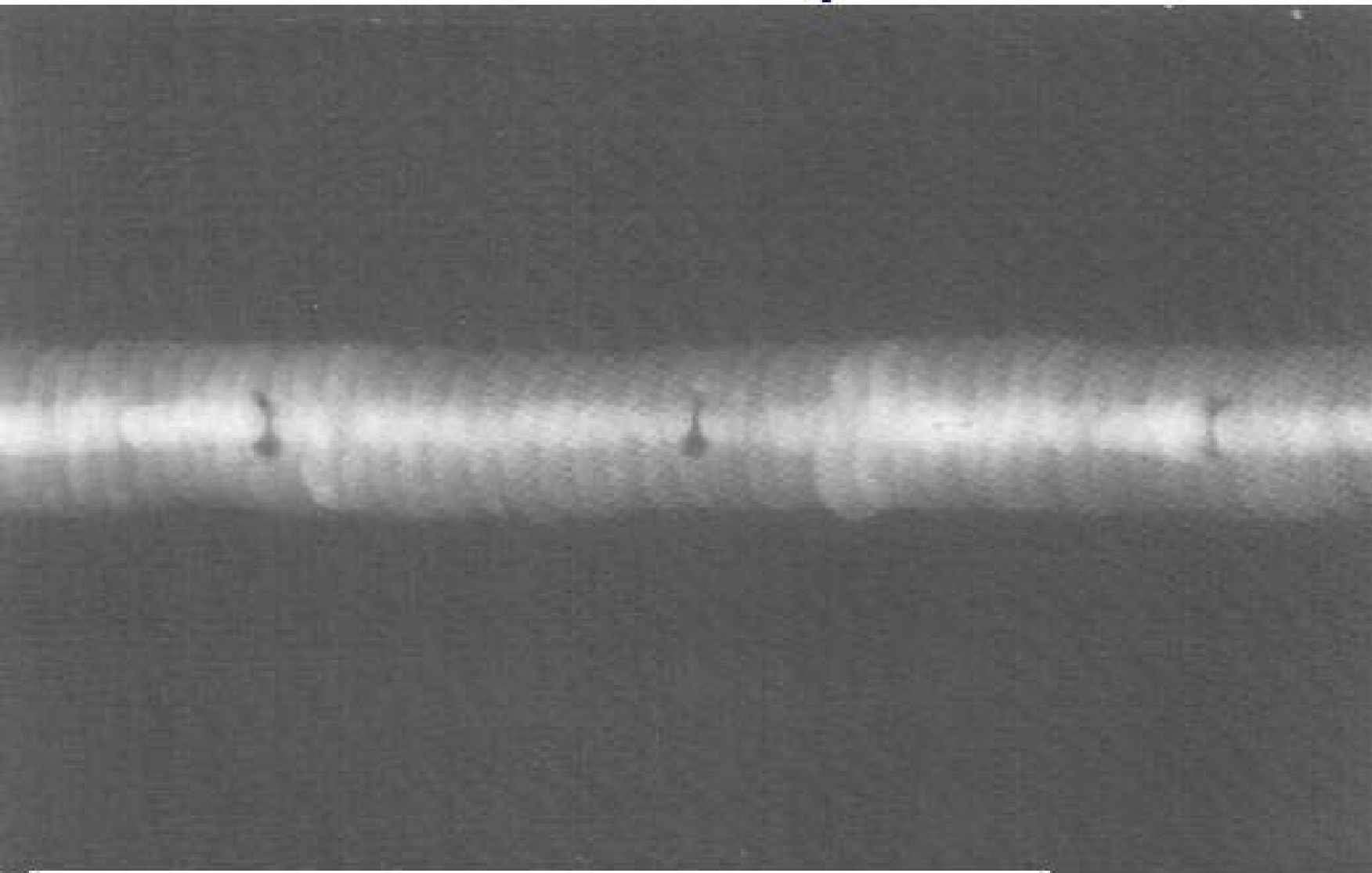


RADIOGRAPHIC IMAGE :

A darker density band, with very straight edges, in the center of the width of the weld image.

10-INTERPASS SLAG INCLUSIONS :

Usually non - metallic impurities that solidified on the weld surface and were not removed between weld passes.

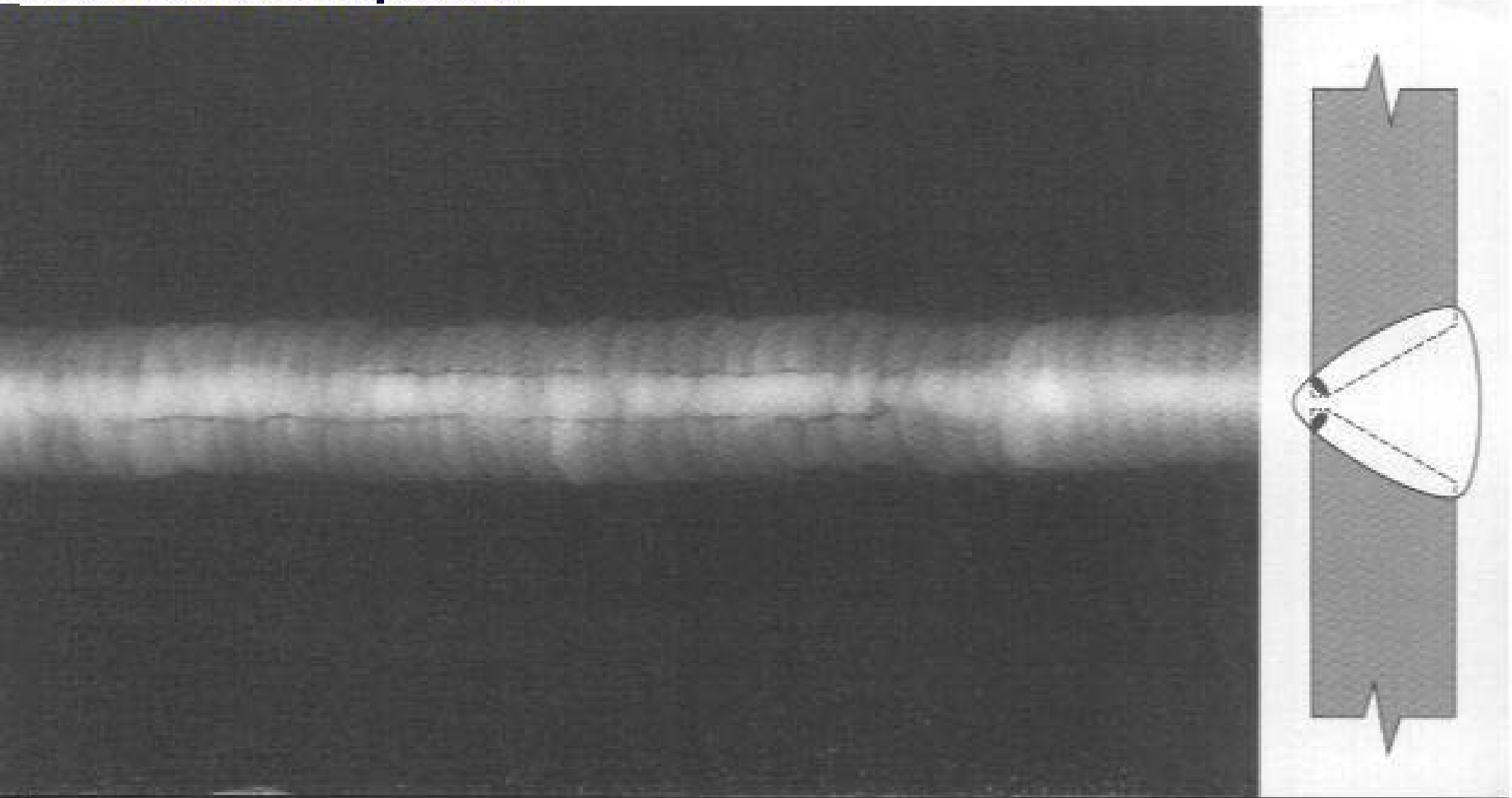


RADIOGRAPHIC IMAGE:

An irregularly - shaped darker density spot, usually slightly elongated and randomly spaced.

11- ELONGATED SLAG LINES (WAGON TRACK):

Impurities that solidify on the surface after welding and were not removed between passes.

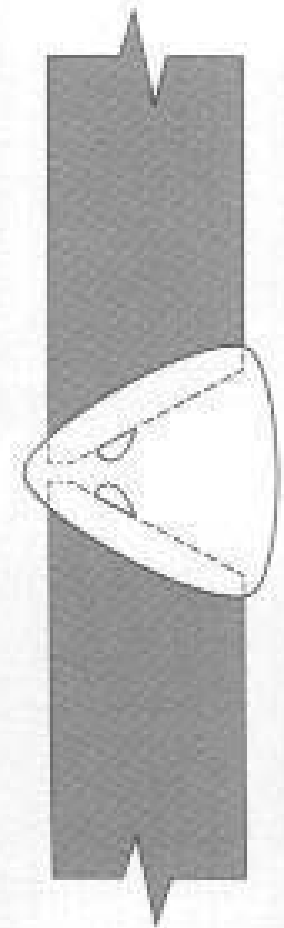
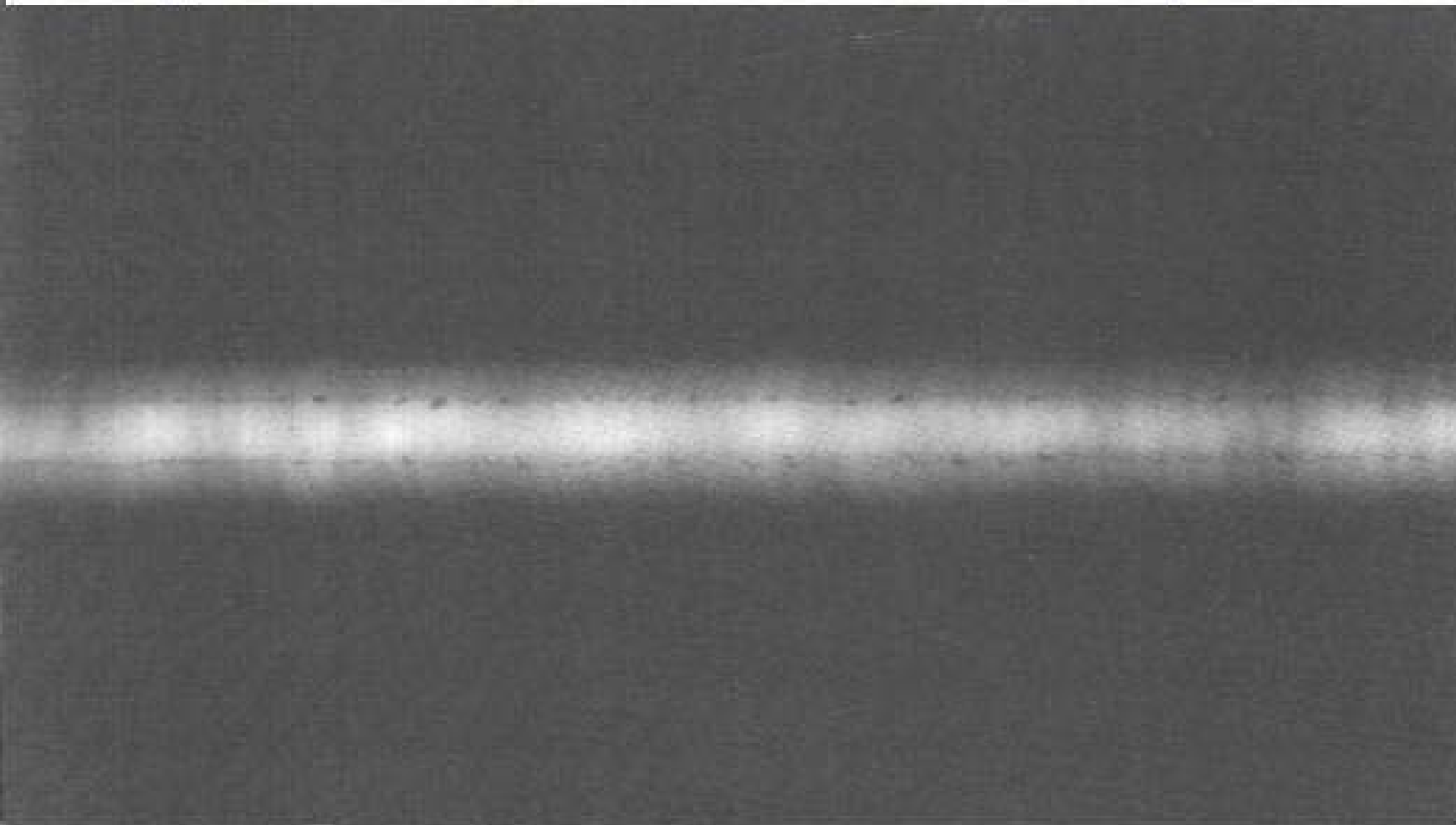


RADIOGRAPHIC IMAGE:

Elongated, parallel or single darker density lines, irregular in width and slightly winding in the lengthwise direction.

12- LACK OF SIDE WALL FUSION (LOF) :

Elongated voids between the weld beads and the joint surface

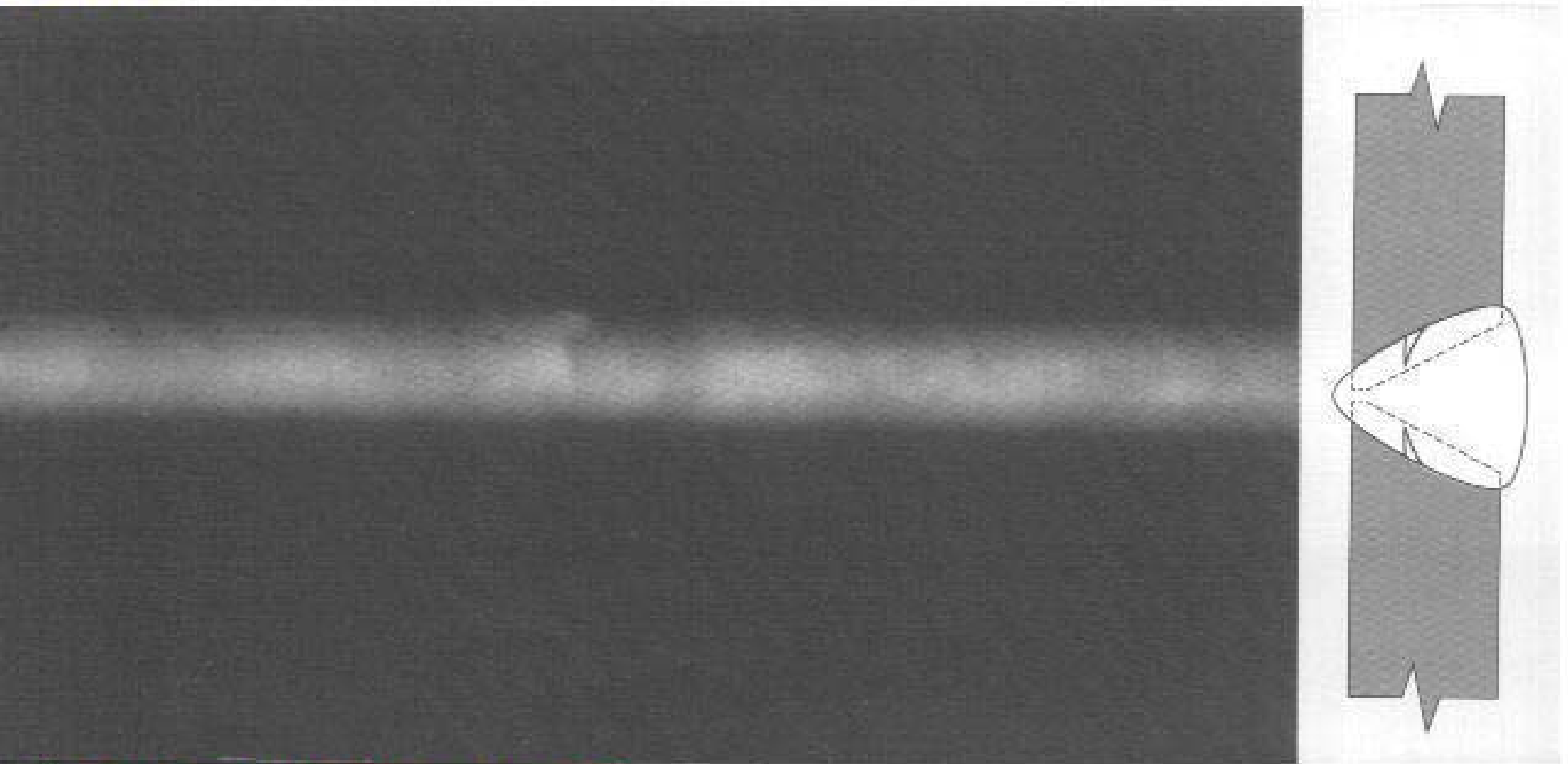


RADIOGRAPHIC IMAGE :

Elongated parallel, or single, darker density lines sometimes with darker density spots dispersed along the LOF lines which are very straight in the lengthwise direction and not winding like elongated slag lines.

13- INTERPASS COLD LAP :

Lack of fusion areas along the top surface and edge of lower passes.

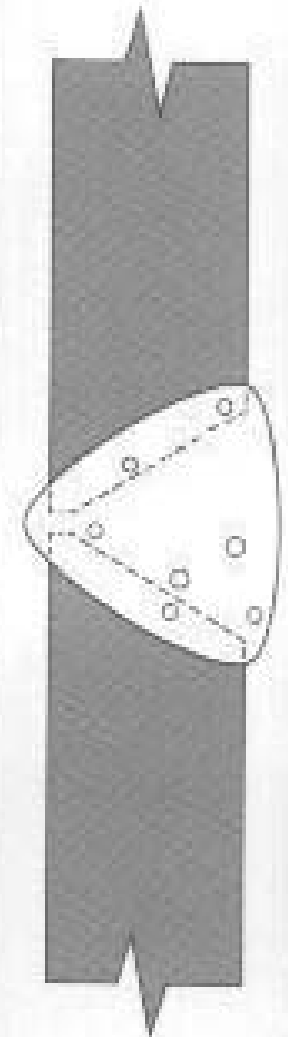
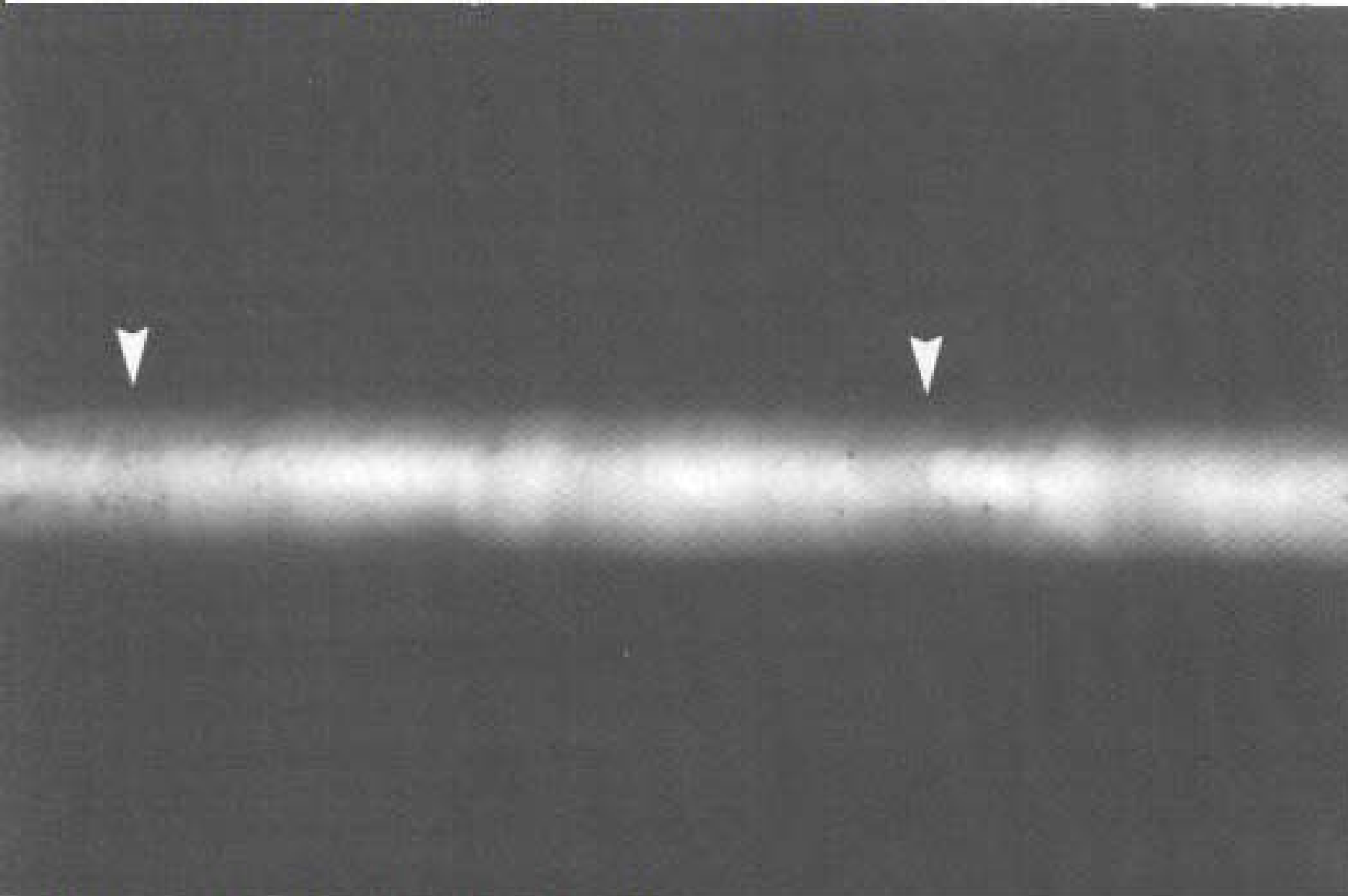


RADIOGRAPHIC IMAGE:

Small spots of darker densities, some with slightly elongated tails, aligned in the welding direction and not in the center of the width of the weld image.

14- SCATTERED POROSITY:

Rounded voids random in size and location.

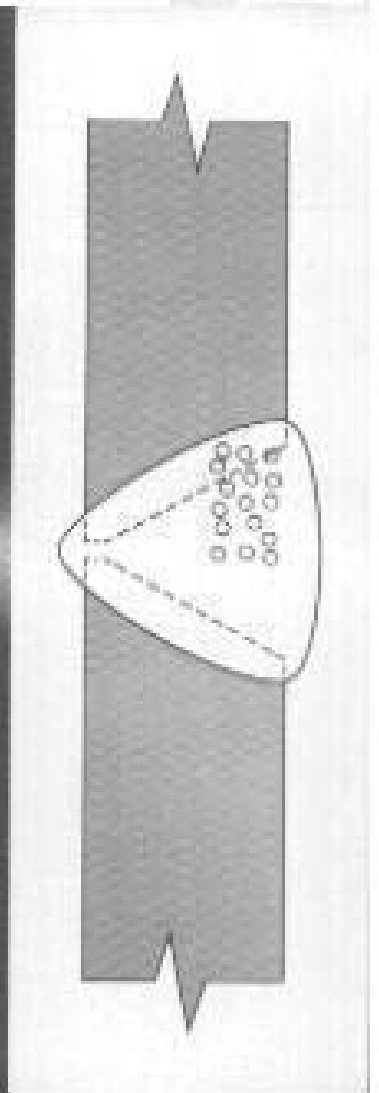
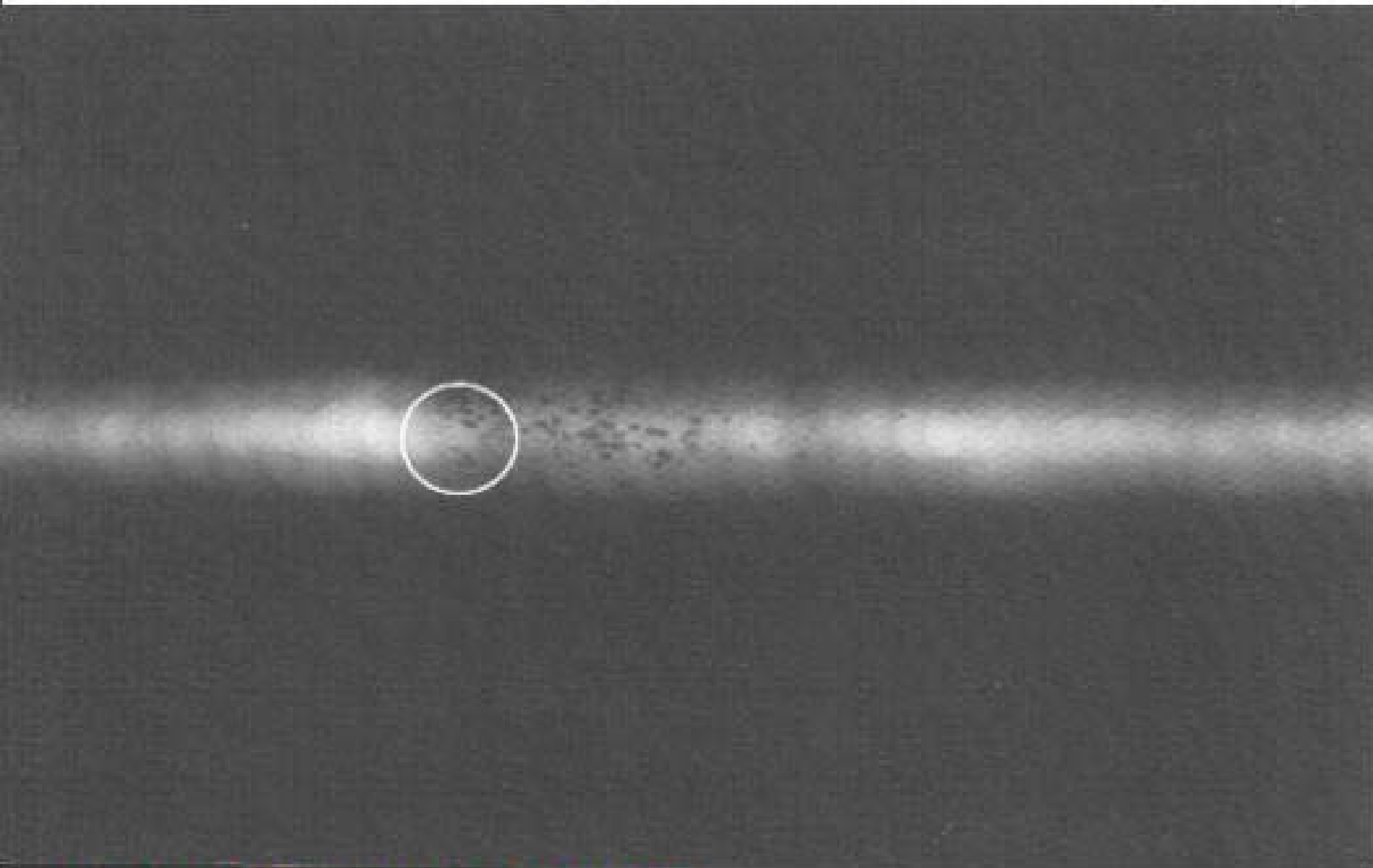


RADIOGRAPHIC IMAGE:

Rounded spots of darker densities random in size and location.

15- CLUSTER POROSITY :

Rounded or slightly elongared voids grouped together.

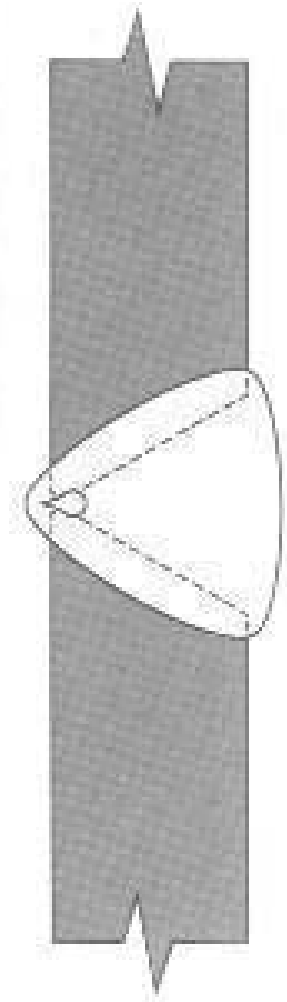
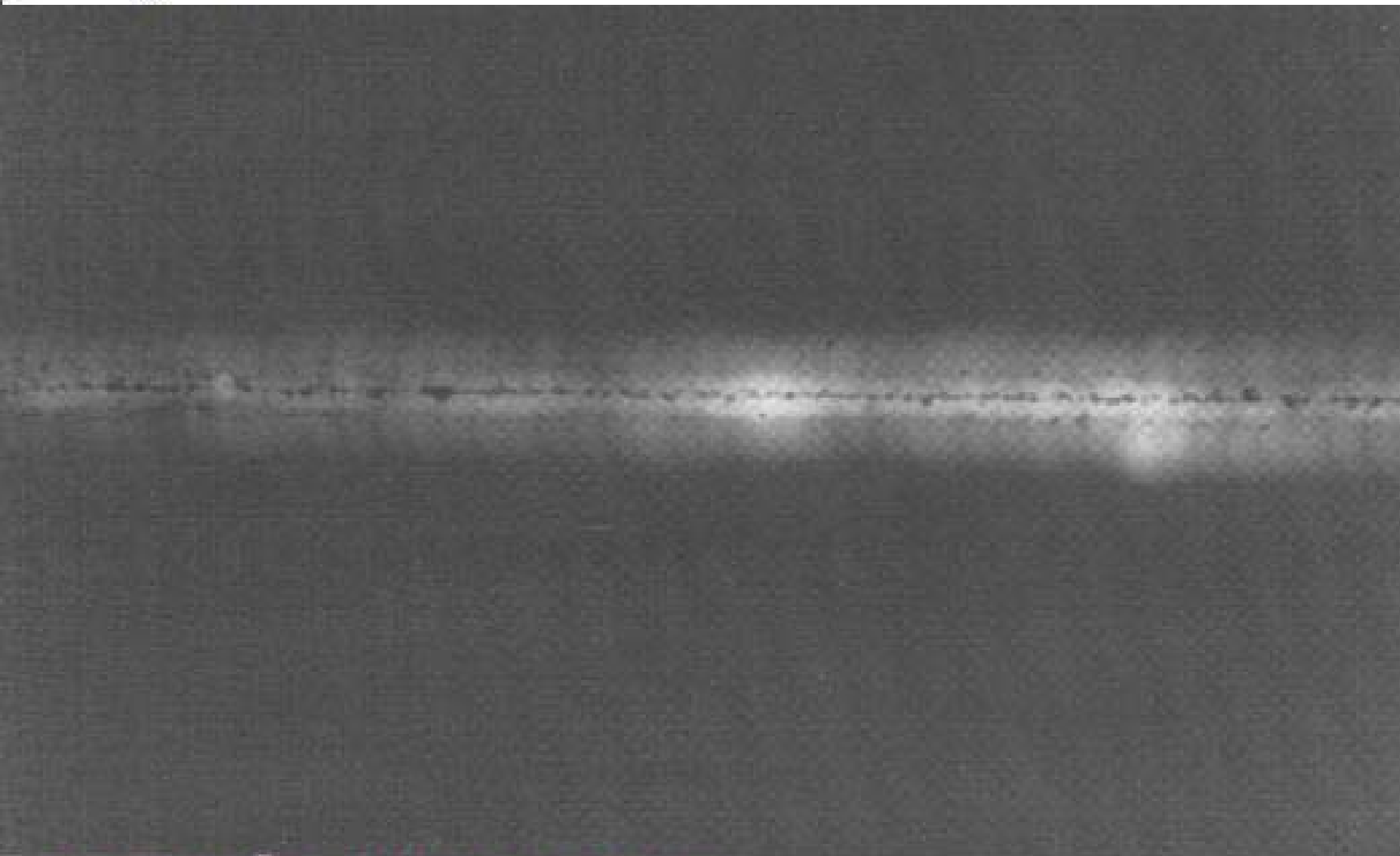


RADIOGRAPHIC IMAGE :

Rounded or slightly elongated darker density spots in clusters with the cluster randomly spaced.

16- ROOT ALIGNED POROSITY:

Rounded and elongated voids in the bottom of the weld aligned along the weld centerline.

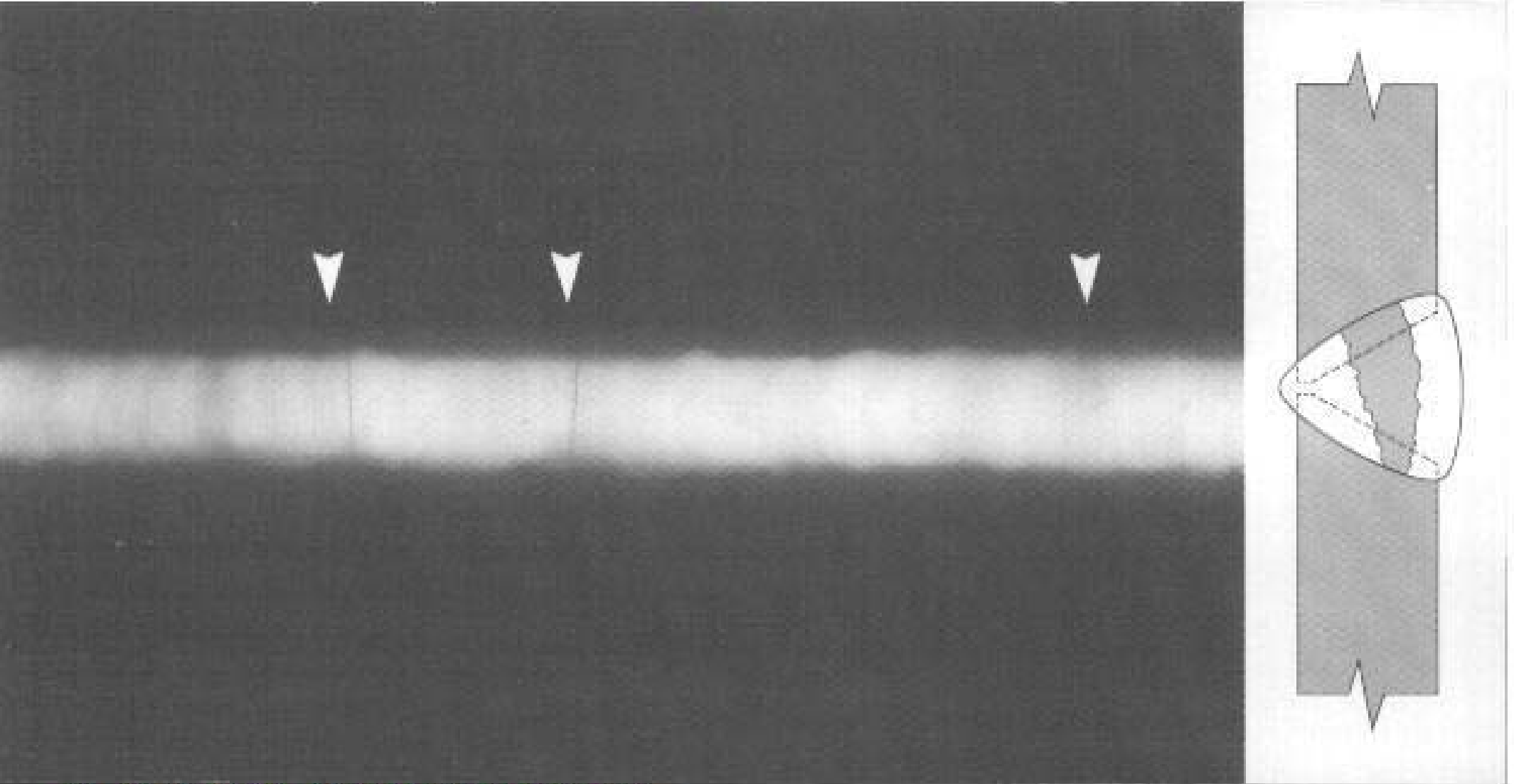


RADIOGRAPHIC IMAGE:

Rounded and elongated darker density spots, that may be connected in a straight line in the center of the width of the weld image.

17- TRANSVERSE CRACK :

A fracture in the weld metal running across the weld.

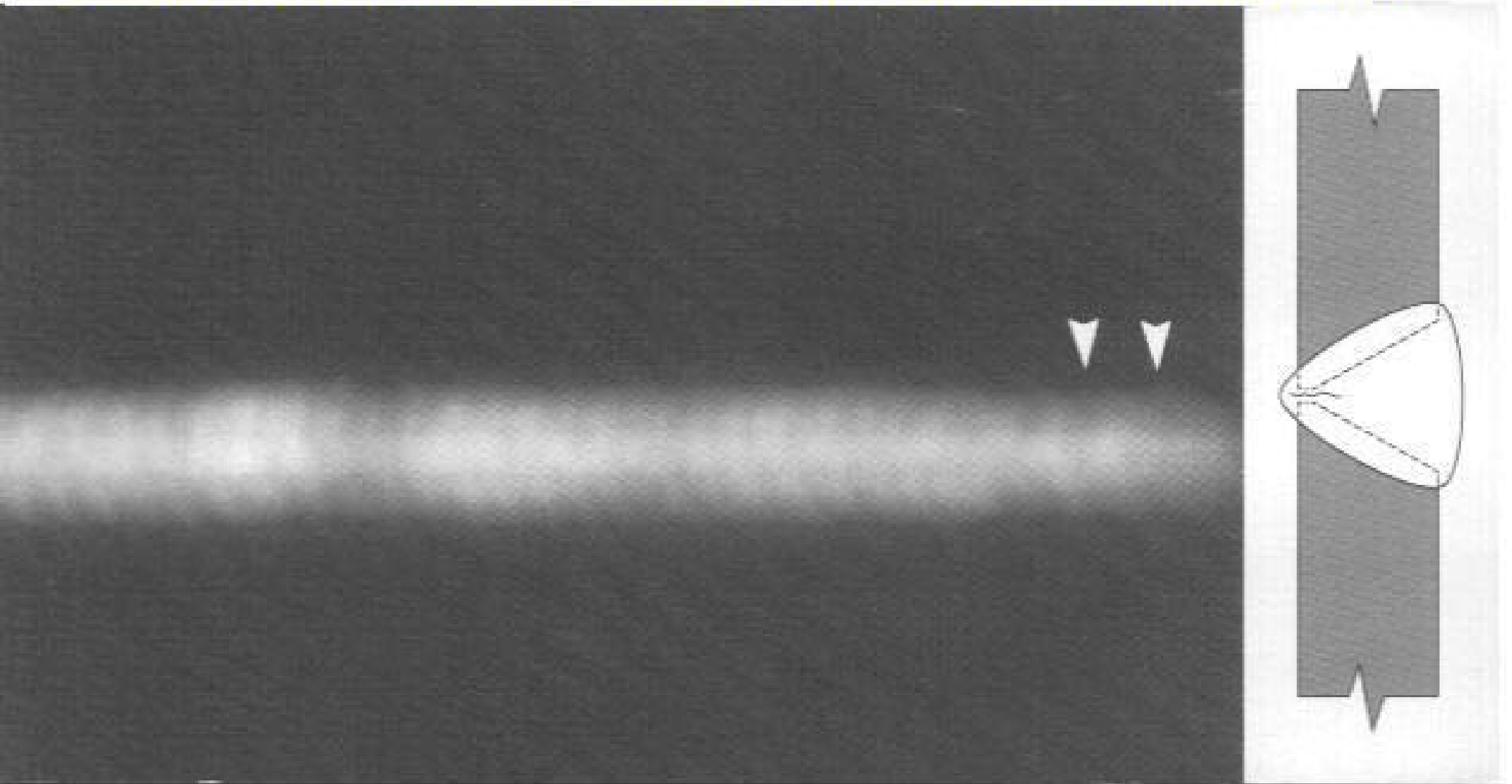


RADIOGRAPHIC IMAGE :

Feathery, twisting line of darker density running across the width of the weld image.

18- LONGITUDINAL CRACK :

A fracture in the weld metal running lengthwise in the welding direction.

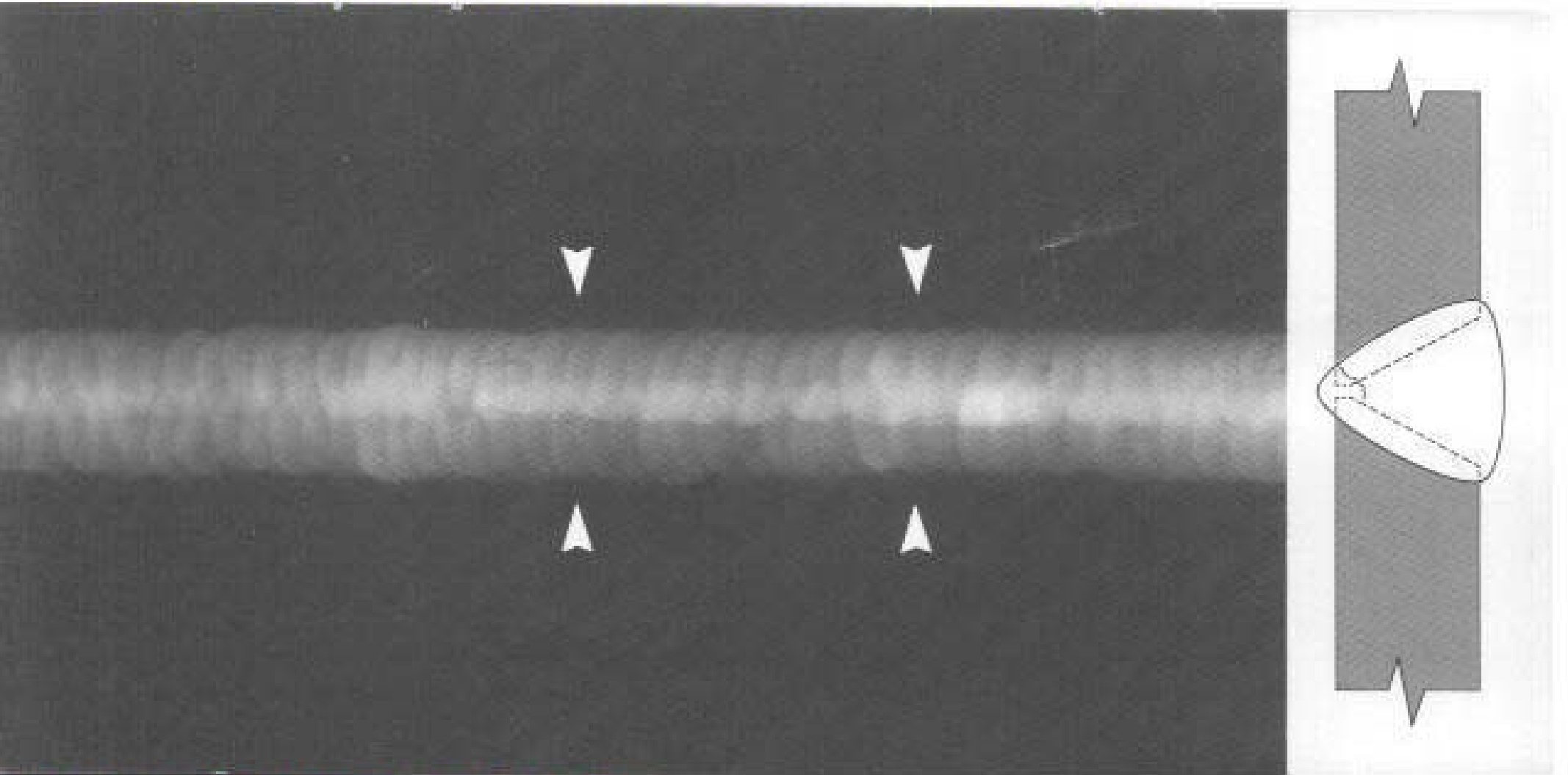


RADIOGRAPHIC IMAGE :

Feathery, twisting lines of darker density running lengthwise along the weld at any location in the width of weld image.

19- LONGITUDINAL ROOT CRACK:

A fracture in the weld metal at the edge of the root pass.

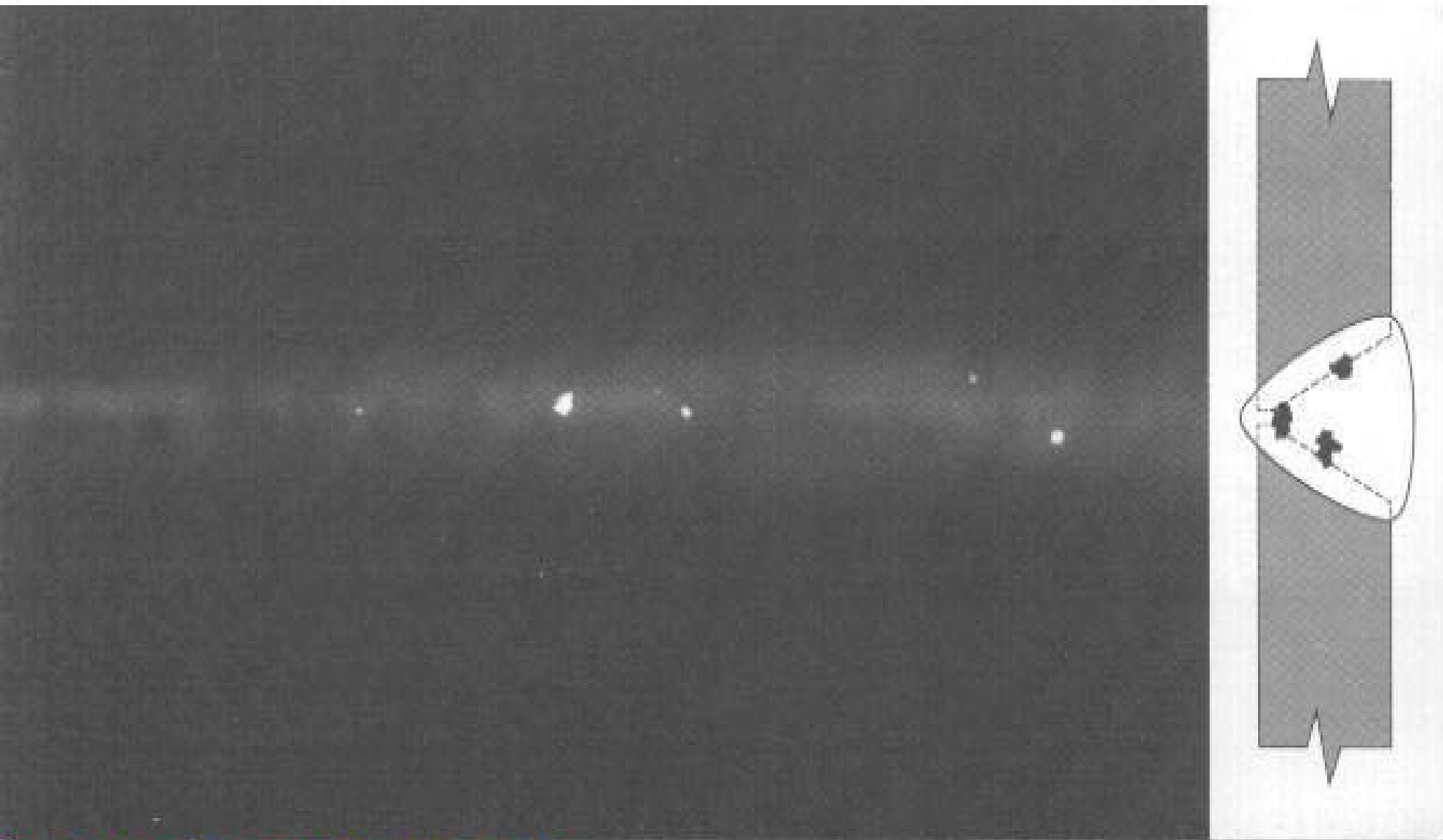


RADIOGRAPHIC IMAGE:

Feathery, twisting lines of darker density along the edge of the image of the root pass. The "twisting" feature helps to distinguish the root crack from incomplete root penetration.

20- TUNGSTEN INCLUSIONS:

Random bits of tungsten fused into but not melted into the weld metal.



RADIOGRAPHIC IMAGE:

Irregularly shaped lower density spots randomly located in the weld image.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21												18 19 20 21 22 23 24 25 26 27 28 29 30 31																						
Submerged arc Metal-arc Gas metal-arc Gas tungsten-arc Electroslag Electrodeless Other												No defects Porosity Worm holes (fishes) Of any shape in any direction Slag lines Welding faults Faults from bad chipping Faults or other local changes Cracking or fracture Lack of fusion Intermetallic inclusions Slag inclusions Fusion defects Undercut Damage to welds																						
BUTT												Downward Horizontal-vertical Vertical Overhead				TYPE OF DISCONTINUITY																		
WELD TYPE												Weld position																						
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL																																		
INTERNATIONAL INSTITUTE OF WELDING Commission V																																		
WELDING PROCESS MATERIAL THICKNESS 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31																																		
Steel > 100 mm 61—100 mm 31—60 mm 11—30 mm < 10 mm 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31																																		
No. 1 IIW 1952 ICS Sweden 10 MM																																		
Issued by EUROTEST, International Scientific Association Brussels - Belgium																																		
RADIOGRAPHIC METHODS																																		
SCREENS										RADIOGRAPHY										GAMMAGRAPHY														
No screens Lead screens Ac. D. screens M.S. screens 5-150 kV 150-250 kV																																		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				



NO. 1

Black

Blue

Green

Brown

Red

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

1																2															
3																4															
5																6															
7																8															
9																10															
11																12															
13																14															
15																16															
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87																88															
89																90															
91																92															
93																94															
95																96															
97																98															
99																100															

WELD TYPE

Weld position

TYPE OF DISCONTINUITY

TRC V10

No. 2 IIW
 1952 TC5 Sweden

10 MM

RADIOGRAPHIC METHODS

SCREENS

RADIOGRAPHY

GAMMAGRAPHY

DEGREE

Black

Blue

Green

Brown

Red

Issued by

EUROTEST, International Scientific Association Brussels - Belgium

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

																	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
																	Au	Ab	Ba	Bb	Bc	Bd	Be	Bf	C	D	Ea	Ed	F	K	
																	Porosity	Worm holes (Pinholes)	Of any shape, in any direction	Slag lines	Welding faults	Faults from slag chipping	Faults of other kind	Faults of other kind	Loss of fusion	Intermetallic penetration	Cracks, cracks	Traps, cracks	Undercut	Residual cavity	
																	Slag inclusions														
																	TYPE OF DISCONTINUITY														
																	COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL														
																	INTERNATIONAL INSTITUTE OF WELDING Commission V														
																															
																	No. 3														
																	DEGREE Black Blue Green Brown Red														
																	This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.														
																	No. 3 IIW 1952 TC5 Sweden 20 MM														
																	issued by EUROTEST, International Scientific Association Brussels - Belgium														
																	RADIOGRAPHIC METHOD SCREENS RADIOGRAPHY GAMMAGRAPHY														
																	No screen Local screens Al _K O _K screens Al _K L _K screens 2-150 kV 150-250 kV														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	

[illegible]

																	18	19	20	21	22	23	24	25	26	27	28	29	30	31																								
BUTT																	Downhand		Horizontal-vertical		Vertical		Overhead		No defects		Porosity		Weld metal (Pipes)		Of any shape, in any direction		Slag lines		Prising faults		Falls from root chipping		Falls at toe		Falls at base		Lack of fusion		Intermittent penetration		Slag cracks		Transverse cracks		Undercut		Discontinuity	
WELD TYPE																	Weld position				TYPE OF DISCONTINUITY																																	
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL																																																						
INTERNATIONAL INSTITUTE OF WELDING Commission V																																																						
No. 5 IIW 1952 TCS Sweden 15 MM																																																						
Issued by																																																						
EUROTEST, International Scientific Association Brussels - Belgium																																																						
RADIOGRAPHIC METHODS																																																						
SCREENS				RADIOGRAPHY													GAMMAGRAPHY																																					
No screens																																																						
Lead screens																																																						
H. D. screens																																																						
H. L. screens																																																						
< 150 kV																																																						
150-250 kV																																																						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																								



No. 5

Black
Blue
Green
Brown
Red

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

WELD TYPE																	Weld position																	TYPE OF DISCONTINUITY																
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL																	INTERNATIONAL INSTITUTE OF WELDING Commission V																																	
No. 7 IIW TC5 Netherlands																	27 MM																	NO. 7 DEGREE Black Blue Green Brown Red																
RADIOGRAPHIC METHODS																	This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.																																	
SCREENS RADIOGRAPHY GAMMAGRAPHY																																																		
No screens Lead screens Al ₂ O ₃ screens Al ₂ O ₃ screens 2150 kV 150-250 kV																																																		

WELD TYPE		Weld position		TYPE OF DISCONTINUITY	
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL					
INTERNATIONAL INSTITUTE OF WELDING Commission V					
No. 8 1952 TC5 Netherlands 11 MM					
Issued by EUROTEST, International Scientific Association Brussels - Belgium					
RADIOGRAPHIC METHODS		RADIOGRAPHY		GAMMAGRAPHY	
SCREENS		RADIOGRAPHY		GAMMAGRAPHY	
No screens Lead screens H. D. screens H. D. screens 5-100 kV 150-250 kV		No screens Lead screens H. D. screens H. D. screens 5-100 kV 150-250 kV		No screens Lead screens H. D. screens H. D. screens 5-100 kV 150-250 kV	

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



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RADIOGRAPHIC METHODS

SCREENS

RADIOGRAPHY

GAMMAGRAPHY

No screens

Lead screens

K₂O screens

K₂S₂O₈ screens

3150 kV

250-300 kV

No. 9

Black

Blue

Green

Brown

Red

This collection is used as a reference standard for welds but is based on comparison of radiographs as regards the nature and amount of the defects shown.



WELD TYPE		Weld position		TYPE OF DISCONTINUITY	
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL		INTERNATIONAL INSTITUTE OF WELDING Commission V		No. 11	
					
No. 11 IIW 1952 TC5 Sweden		25 MM		This collection is used as acceptance standard for welds but is basic for comparison of radiographs as regards the nature and amount of the defects shown.	
RADIOGRAPHIC METHODS		EUROTEST, International Scientific Association Brussels - Belgium		No. 11 IIW 1952 TC5 Sweden	
SCREENS		RADIOGRAPHY		GAMMAGRAPHY	
No screens Lead screens H. D. screens H. J. screens 2-100 kV 150-200 kV		No screens Lead screens H. D. screens H. J. screens 2-100 kV 150-200 kV		No screens Lead screens H. D. screens H. J. screens 2-100 kV 150-200 kV	

WELD TYPE		Weld position		TYPE OF DISCONTINUITY	
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL		INTERNATIONAL INSTITUTE OF WELDING Commission V			
No. 13 1952		IIW TC5		Sweden	
15 MM					
EUROTEST; International Scientific Association - Brussels - Belgium					
RADIOGRAPHIC METHODS					
SCREENS		RADIOGRAPHY		GAMMAGRAPHY	
No screens		≤ 120 kV			
Lead screens		140-250 kV			
Al _K O _K screens					
Al _K L _K screens					

WELD TYPE														Weld position		TYPE OF DISCONTINUITY													
BUTT																													
WELD TYPE														Weld position		TYPE OF DISCONTINUITY													
BUTT																													
No. 16 1952 IIW TC5 Sweden 25 MM																													
Issued by EUROTEST, International Scientific Association Brussels - Belgium																													
RADIOGRAPHIC METHODS SCREENS RADIOGRAPHY GAMMAGRAPHY																													
No screens Lead screens M. D. screens M. E. screens 5-100 kV 100-250 kV																													



No. 16

Black
Blue
Green
Brown
Red

This collection is not an acceptance standard for welds but a base for comparison of radiographs as regards the nature and amount of the defects shown.

[illegible]

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



No. 18 IIW
1952 TC6 Sweden

10 MM

Issued by

EUROTEST, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS RADIOGRAPHY GAMMAGRAPHY

No screen
Lead screen
Fl. G. screen
Fl. F. screen
≤ 150 kV
150-250 kV



No. 18

No.

Black	10
Blue	9
Green	8
Brown	7
Red	6

This collection is not an acceptance standard for welds, but a basis for comparison of radiographs as regards the nature and extent of the defects shown.

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



NO. 19



No. 19 II W
1952 TC 5 Netherlands

8 MM

Issued by

EURDET, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS

RADIOGRAPHY

GAMMAGRAPHY

No screens
Lead screens
Al_K Q 20 mm
Al_K Q 20 mm
5 100 kV
100-250 kV

This collection is not an acceptance standard for welds but is here for comparison of radiographs as regards the nature and amount of the defects shown.

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



No. 21



No. 21
1952
IIW
TC5
Sweden

10MM

Issued by

EUROTEST, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS

RADIOGRAPHY

GAMMAGRAPHY

No screens
Lead screens
P. O. screens
A. Z. screens
2-100 kV.
100-250 kV.

Black
Blue
Green
Brown
Red

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.



100

This infection is not an acceptance standard for wells and it does not have a comparison of photographs as regards the nature and amount of the infective element.

[illegible]

[illegible]

WELDING PROCESS

MATERIAL

THICKNESS

RADIOGRAPHIC METHODS

SCREENS

RADIOGRAPHY

GAMMAGRAPHY

Butt
V
U

Downward
Horizontal
Vertical
Overhead

No defects

Partially
C
B
A
Weld metal
(Pipes)
Of any shape,
in any direction
Slag lines
Slag inclusions
Welding spatters
Fascia from
slag chipping
Fascia of other
slag change
Fascia of fusion
Line of fusion
Accidental
Penetration
Long cracks
Transverse
Cracks
Surface cracks

TYPE OF DISCONTINUITY

Weld type

Weld position

TYPE OF DISCONTINUITY

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL INTERNATIONAL INSTITUTE OF WELDING Commission V



No. 26

Black
Blue
Green
Brown
Red

This collection is not an acceptance standard for welds but a book for comparison of radiographs as regards the nature and amount of the defects shown.

No. 26 IIW 1952 TCS Sweden

10 MM

EUROTEST, International Scientific Association Brussels - Belgium

21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
BUTT Square V X U J										Downhand Horizontal-vertical Vertical Overhead										No defects Porosity Worm holes (Pipes) Of any shape in any direction Slag lines Weaving faults Faults from bad chipping Faults or cracks made during Faults at joints Lack of fusion Incomplete penetration Long cracks Transverse cracks Undercut Reinforcing cracks																					
WELD TYPE										Weld position										TYPE OF DISCONTINUITY																					
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL																																									
INTERNATIONAL INSTITUTE OF WELDING Commission V																																									
429 No. 27 IIW 1952 TC5 Netherlands 11 MM M																																									
issued by: EUROTEST, International Scientific Association Brussels - Belgium																																									
RADIOGRAPHIC METHODS																																									
SCREENS										RADIOGRAPHY										GAMMAGRAPHY																					
No screens Lead screens Al ₂ O ₃ screens Al ₂ screens 150 kV 150-200 kV																																									
21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21



No. 27

DIPPER	Black
	Blue
	Green
	Brown
	Red

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL INTERNATIONAL INSTITUTE OF WELDING Commission V



NO. 28



No. 28 IIW
1992 TCS Sweden

10 MM

Issued by:

EUROTEST, International Scientific Association, Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS RADIOGRAPHY GAMMAGRAPHY

15.0 mm
10.0 mm
7.5 mm
5.0 mm

2.25 kV
120-200 kV

Black
Blue
Green
Brown
Red

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.



No. 29



1999

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

WELD TYPE		Weld position:		TYPE OF DISCONTINUITY	
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL					
INTERNATIONAL INSTITUTE OF WELDING Commission V					
					
No. 30 1952		IIW TC 5		Netherlands	
DIN		8mm			
EURGTEST, International Scientific Association Brussels - Belgium					
RADIOGRAPHIC METHODS					
SCREENS	RADIOGRAPHY	GAMMAGRAPHY			
No screens					
Lead screens					
A. D. screens					
M. S. screens					
	± 150 kV				
	150-200 kV				

This collection is not an acceptance standard for welds, but a basis for comparison of radiographs at various times during the maturing and removal of the defects shown.

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



No. 33



DEGREE	Black	C
	Blue	C
	Green	C
	Brown	C
	Red	C

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

EUROTEST, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS RADIOGRAPHY GAMMAGRAPHY

No screen
Lead screen
Al_K O_K screen
Al_K L_K screen
≤ 150 kV
150-220 kV

No. 33 IIW
1952 ICS Sweden

15 MM

1-12												13-24												25-36											
1 2 3 4 5 6 7 8 9 10 11 12												13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32												33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100											
Butt 1 2 3 4 5 6 7 8 9 10 11 12												Overhead Horizontal-vertical Vertical Overhead 1 2 3 4 5 6 7 8 9 10 11 12												No defects 1 2 3 4 5 6 7 8 9 10 11 12											
WELD TYPE												Weld position												TYPE OF DISCONTINUITY											
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL INTERNATIONAL INSTITUTE OF WELDING Commission V																																			
EX DR 150 B0ANGSB No. 34 IIW 1952 TCS Netherlands DTN 6 MM																																			
Issued by EUROTEST, International Scientific Association Brussels - Belgium																																			
RADIOGRAPHIC METHODS SCREENS RADIOGRAPHY GAMMAGRAPHY																																			
No screens Lead screens H. 25 screens H. 25 screens 5-150 kV 150-250 kV																																			
1-12												13-24												25-36											



No. 34

DEGREE	Black	0.1
	Blue	0.2
	Green	0.3
	Brown	0.4
	Red	0.5

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
1. Square butt 2. V butt 3. U butt 4. J butt 5. D butt BUTT												Descent and ascent Horizontal- vertical Vertical Overhead No details		18. Porosity 19. Worm holes (Pipes) 20. Of any shape, in any direction 21. Slag inclusions 22. Missing faults 23. Faults from bad chipping 24. Faults at weld 25. Faults at change of direction 26. Lack of fusion 27. Cratering 28. Burn-through 29. Long cracks 30. Transverse 31. Undercut 32. Discharge cracks																	
WELD TYPE												Weld position		TYPE OF DISCONTINUITY																	
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL																															
INTERNATIONAL INSTITUTE OF WELDING Commission V																															
MATERIAL: Steel THICKNESS: > 100 mm 60-100 mm 35-60 mm 15-30 mm 5-15 mm WELDING PROCESS: Submerged arc Electrode: H08Mn2Si																															
796												No. 36 IIW 1952 TC5 Netherlands												81							
DTN												SMM																			
Issued by: EUROTEST, International Scientific Association Brussels - Belgium																															
RADIOGRAPHIC METHODS																															
SCREENS				RADIOGRAPHY								GAMMAGRAPHY																			
No screen				100-150 kV																											
Lead screen				150-200 kV																											
H.D. screen																															
H.S. screen																															



No. 36

Block	
Blue	
Green	
Brown	
Red	

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

[illegible]

WELD TYPE														Weld position				TYPE OF DISCONTINUITY												
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL														INTERNATIONAL INSTITUTE OF WELDING Commission V																
														No. 39																
														1952																
														TC5																
														Sweden																
Issued by: EUROTEST, International Scientific Association Brussels - Belgium														This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.																
RADIOGRAPHIC METHODS																														
SCREENS				RADIOGRAPHY				GAMMAGRAPHY																						
No screens																														
Lead screens																														
Al. Q. screens																														
Al. P. screens																														
50-100 kV																														
150-250 kV																														

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

[illegible]

[illegible]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
WELD TYPE																	Weld position		TYPE OF DISCONTINUITY											
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL																	INTERNATIONAL INSTITUTE OF WELDING Commission V													
No. 44 IIW 1952 TC5 Sweden 10MM																	No. 44 Black Blue Green Brown Red													
																	DEGREE Black Blue Green Brown Red													
																	This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.													
																	issued by EUROTEST, International Scientific Association Brussels - Belgium													
																	RADIOGRAPHIC METHODS SCREENS RADIOGRAPHY GAMMAGRAPHY													
No screens Lead screens A. D. screens A. S. screens 5-150 kV 150-350 kV																														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31



No. 44

No. 44 IIW 1952 TC5 Sweden

10MM

issued by

EUROTEST, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS

RADIOGRAPHY

GAMMAGRAPHY

No screens

Lead screens

A. D. screens

A. S. screens

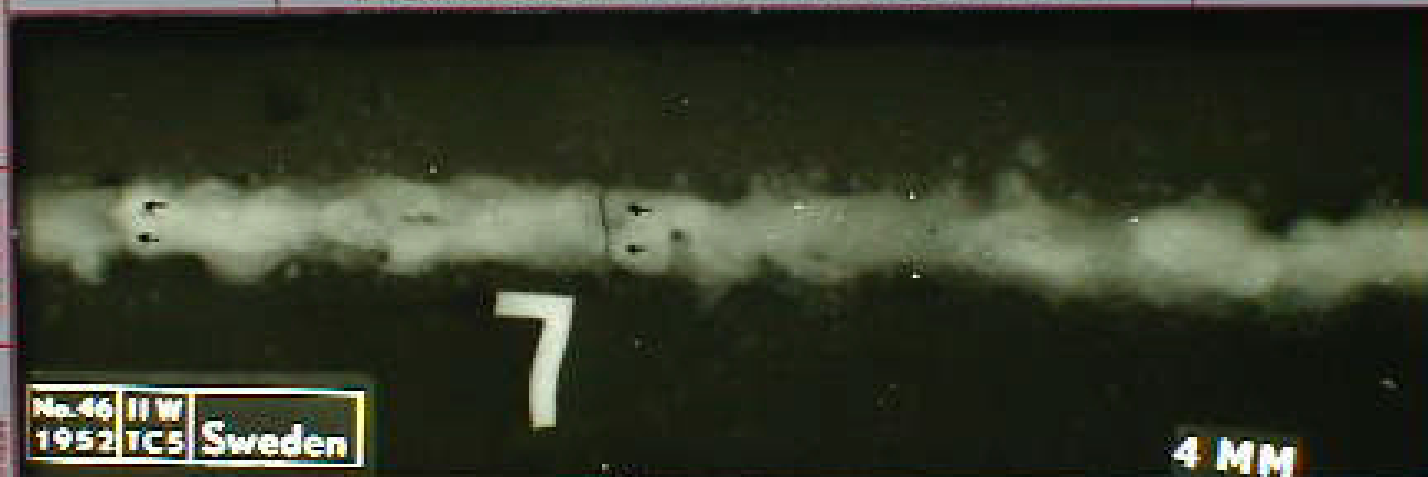
5-150 kV

150-350 kV

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



No. 46 IIW 1952 TCS Sweden

4 MM

Issued by

EUROTEST, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS RADIOGRAPHY GAMMAGRAPHY

No screens
Lead screens
H. D. screens
H. D. screens
≤ 100 kV
100-250 kV



No. 46

Block
Blue
Green
Brown
Red

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

		COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL																 No. 47	
		INTERNATIONAL INSTITUTE OF WELDING Commission V																	
																		DEGREE Black Blue Green Brown Red	
		No 47 11W 1952 TC 5 SWEDEN																10 MM	
		issued by: EUROTEST, International Scientific Association Brussels - Belgium																This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.	
		RADIOGRAPHIC METHODS SCREENS RADIOGRAPHY GAMMAGRAPHY																	
		No screens Lead screens H. O. screens H. F. screens ≤ 150 kV 150-200 kV																	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																																																																																																		
WELD TYPE															Weld position		TYPE OF DISCONTINUITY																																																																																																															
BUTT															No defects		Porosity														Slag inclusions														Acid of fusion														Intermetallic penetration														Long cracks														Transverse cracks														Undercut														Discontinuity													
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL																																																																																																																																
INTERNATIONAL INSTITUTE OF WELDING Commission V																																																																																																																																
5 331 V 8 No. 48 IIW 1952 TC5 Sweden 8 MM TR																																																																																																																																
EUROTEST, International Scientific Association Brussels - Belgium																																																																																																																																
RADIOGRAPHIC METHODS																																																																																																																																
SCREENS				RADIOGRAPHY								GAMMAGRAPHY																																																																																																																				
No screens				50-100 kV																																																																																																																												
Lead screens				150-250 kV																																																																																																																												
N. G. screens																																																																																																																																
N. S. screens																																																																																																																																

[illegible]

WELD TYPE		Weld position		TYPE OF DISCONTINUITY	
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL					
INTERNATIONAL INSTITUTE OF WELDING Commission V					
					
No. 51 1953		IIW TC5		France	
16 MM					
EUROTEST, International Scientific Association Brussels - Belgium					
RADIOGRAPHIC METHODS					
SCREENING	RADIOGRAPHY	GAMMAGRAPHY			
No screen	100-250 kV				
Lead screen					
N. D. screen					
N. E. screen					

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



No. 52 IIW
1955 TC 5 Japan

12 MM

Issued by:

EUROTEST, International Scientific Association, Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS RADIOGRAPHY GAMMAGRAPHY

Al_K X-rays
CuK_α X-rays
FeK_α X-rays
FeL_α X-rays
57Co K_α
137Cs K_α



No. 52

Black
Blue
Green
Brown
Red

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



Issued by

EURGTEST, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS RADIOGRAPHY GAMMAGRAPHY

No screens
Lead screens
P. D. screens
P. S. screens
5-10 kV
100-300 kV



No. 53

Back
Blue
Green
Brown
Red

This collection is not an acceptance standard for welds but it serves for comparison of radiographs as regards the nature and amount of the defects shown.

WELD TYPE		Weld position		TYPE OF DISCONTINUITY	
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL					
INTERNATIONAL INSTITUTE OF WELDING Commission V					
					
No. 54 1953 IIW TC 5 France 25 MM					
WELDING PROCESS MATERIAL THICKNESS SCREENS RADIOGRAPHY GAMMAGRAPHY					
Block Blue Green Brown Red No. 54 1953 IIW TC 5 France 25 MM					
WELDING PROCESS MATERIAL THICKNESS SCREENS RADIOGRAPHY GAMMAGRAPHY					
WELDING PROCESS MATERIAL THICKNESS SCREENS RADIOGRAPHY GAMMAGRAPHY					

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



NO. 55



DEGREE	
Black	10
Blue	9
Green	8
Brown	7
Red	6

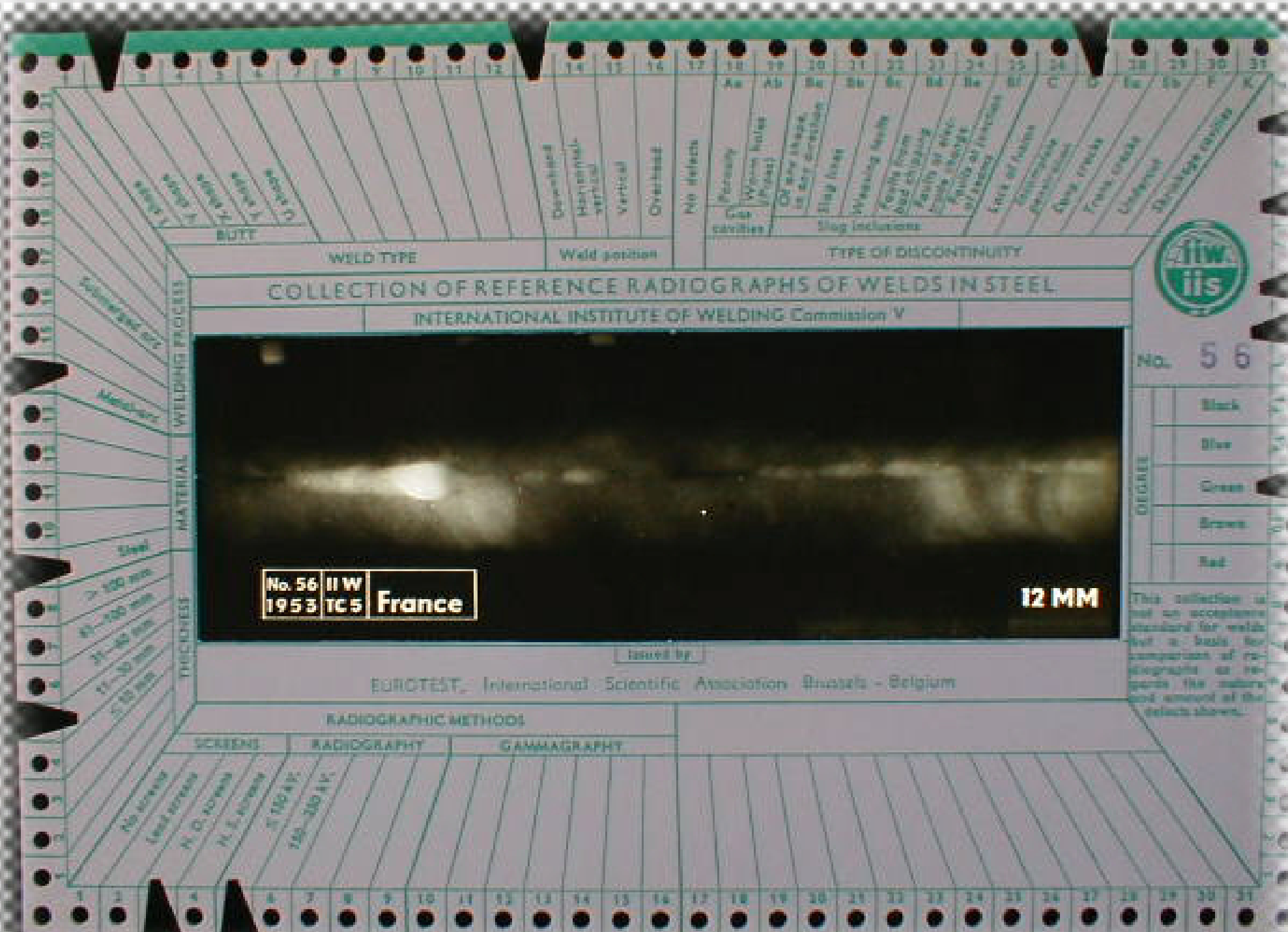
This collection is set an acceptance standard for welds but is also for comparison of radiographs as regards the nature and amount of the defects shown.

EUROTEST, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS RADIOGRAPHY GAMMAGRAPHY

For screens
For films
M. D. films
M. E. films
21-100 kV
250-230 kV



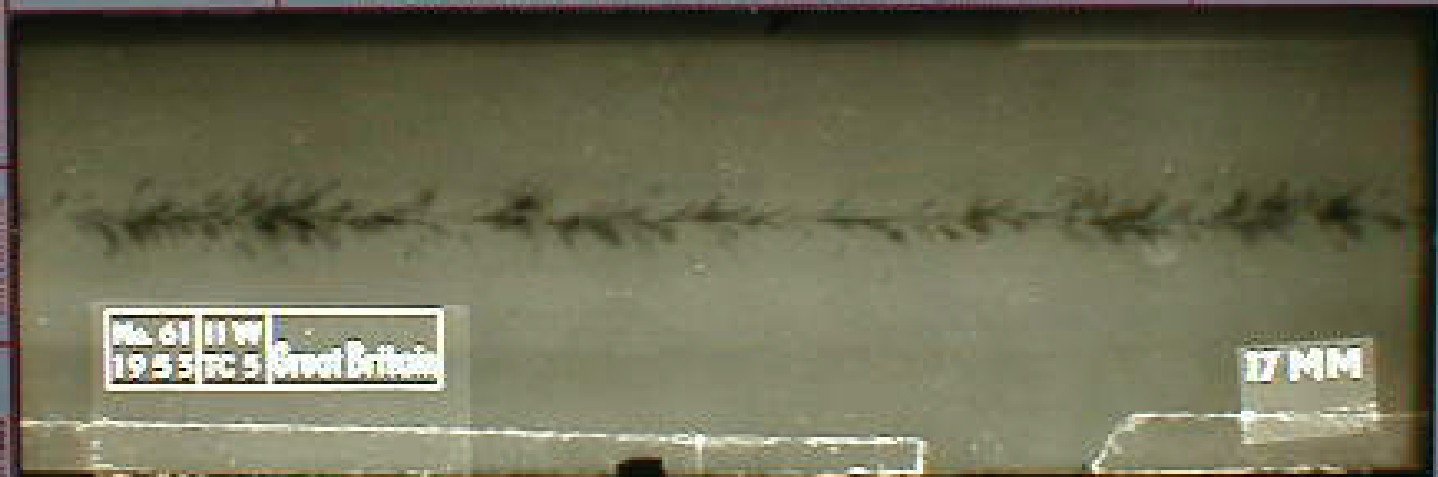
[illegible]

		WELD TYPE		Weld position		TYPE OF DISCONTINUITY	
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL		INTERNATIONAL INSTITUTE OF WELDING Commission V					
No. 60 IIW 1953 TC 5 Great Britain		25MM					
EUROTEST, International Scientific Association Brussels - Belgium							
RADIOGRAPHIC METHODS							
SCREENS		RADIOGRAPHY		GAMMAGRAPHY			
No screens							
Good screens							
No. 2, screens							
No. 3, screens							
No. 4, screens							
No. 5, screens							
No. 6, screens							
No. 7, screens							
No. 8, screens							
No. 9, screens							
No. 10, screens							
No. 11, screens							
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No. 26, screens							
No. 27, screens							
No. 28, screens							
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No. 30, screens							
No. 31, screens							
No. 32, screens							
No. 33, screens							
No. 34, screens							
No. 35, screens							
No. 36, screens							
No. 37, screens							
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No. 39, screens							
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No. 41, screens							
No. 42, screens							
No. 43, screens							
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No. 45, screens							
No. 46, screens							
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No. 48, screens							
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No. 50, screens							
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No. 55, screens							
No. 56, screens							
No. 57, screens							
No. 58, screens							
No. 59, screens							
No. 60, screens							
No. 61, screens							
No. 62, screens							
No. 63, screens							
No. 64, screens							
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No. 68, screens							
No. 69, screens							
No. 70, screens							
No. 71, screens							
No. 72, screens							
No. 73, screens							
No. 74, screens							
No. 75, screens							
No. 76, screens							
No. 77, screens							
No. 78, screens							
No. 79, screens							
No. 80, screens</							

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL INTERNATIONAL INSTITUTE OF WELDING Commission V



No. 61



DENSITY	Black	10
	Blue	9
	Green	8
	Brown	7
	Red	6

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

Issued by: EIROTEST, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS	
SCREENS	RADIOGRAPHY
No screens	
Lead screens	
H. D. screens	
H. S. screens	
≤ 100 kV.	
150-250 kV.	

GAMMAGRAPHY

WELDING PROCESS

MATERIAL

THICKNESS

BUTT

WELD TYPE

Weld position

TYPE OF DISCONTINUITY

Vertical

Horizontal

Overhead

Downward

Horizontal

Vertical

Overhead

Downward

Horizontal

Vertical

Overhead

Downward

Horizontal

Vertical

Overhead

Downward

Horizontal

Vertical

Overhead

Downward

Horizontal

Vertical

Overhead

Downward

Horizontal

Vertical

Overhead

Downward

Horizontal

Vertical

Steel

> 100 mm

61-100 mm

31-60 mm

11-30 mm

≤ 10 mm

Steel

> 100 mm

61-100 mm

31-60 mm

11-30 mm

≤ 10 mm

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
BUTT 1 V groove 2 U groove 3 J groove 4 V groove 5 U groove												Downward Horizontal-vertical Vertical Overhead		No defects Porosity Worm holes (pipes) Of any shape, in any direction slag inclusions slag lines Weaving badly Folds from bad chipping Faults at edge Spore change Faults at junction Lack of fusion Incomplete penetrations Gas, cracks Transverse Undercut Shrinkage cracks																
WELD TYPE												Weld position		TYPE OF DISCONTINUITY																
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL INTERNATIONAL INSTITUTE OF WELDING Commission V																														
No. 65 IIW 1953 TC 5 Netherlands 10 MM																														
issued by: EURGTEST, International Scientific Association Brussels - Belgium																														
RADIOGRAPHIC METHODS																														
SCREENS				RADIOGRAPHY								GAMMAGRAPHY																		
No screen				H.D. Minimax																										
Lead screen				H.T. screen																										
				5-150 kV																										
				150-250 kV																										



No. 63

DEGREE	Black	20
	Blue	25
	Green	30
	Brown	35
	Red	40

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.



No. 6 2

DECOR	Black	0
	Blue	2
	Green	1
	Brown	5
	Red	4

This collection is not an acceptance standard for welds but a basis for acceptance of radiographs as regards the nature and amount of the defects shown.

		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
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COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



No. 67

Black
Blue
Green
Brown
Red

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.



No. 67 IIW
1954 TCS Italy

20 mm

Issued by

EUROTEST, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENING RADIOGRAPHY GAMMAGRAPHY

No screen
Lead screen
H.D. screens
H.L. screens
≤ 150 kV
150-250 kV

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100																														
WELD TYPE BUTT Weld position Downhand Horizontal-vertical Vertical Overhead																TYPE OF DISCONTINUITY Porosity Worm holes (pipes) Gas cavities Of any shape, in any direction Flag lines Welding faults Faults from bad chipping Faults at edge of weld Faults at junction of welds Lack of fusion Accidental discontinuities Deep cracks Trans cracks Undercut Surrounding cavities														
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL INTERNATIONAL INSTITUTE OF WELDING Commission V																														
WELDING PROCESS Submerged arc Metal-arc MATERIAL Steel THICKNESS > 100 mm 61-100 mm 21-60 mm 11-20 mm < 10 mm  DEGREE Black Blue Green Brown Red																														
No. 68 IIW 1954 TC5 Japan 12 MM																														
Issued by EURTEST, International Scientific Association Brussels - Belgium																														
RADIOGRAPHIC METHODS SCREENS FLUOROSCOPES ALUMINUM PLASTIC 2-150 kV. 150-250 kV. RADIOGRAPHY GAMMAGRAPHY																														
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31																														

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
BUTT 1. single 2. single 3. single 4. single 5. single 6. single 7. single 8. single 9. single 10. single 11. single 12. single 13. single 14. single 15. single 16. single 17. single 18. single 19. single 20. single 21. single 22. single 23. single 24. single 25. single 26. single 27. single 28. single 29. single 30. single 31. single																	Downhand Horizontal- vertical Vertical Overhead No defects														
WELD TYPE																	Weld position														
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL INTERNATIONAL INSTITUTE OF WELDING Commission V																															
No. 69 IIW 19 54 TC 5 Great Britain 3880 12 MM																															
issued by EUROTEST, International Scientific Association Brussels - Belgium																															
RADIOGRAPHIC METHODS																															
SCREENS								RADIOGRAPHY								GAMMAGRAPHY															
No screen																															
Lead screen																															
H. D. screen																															
A. Z. screen																															
≥ 150 kV																															
150-250 kV																															

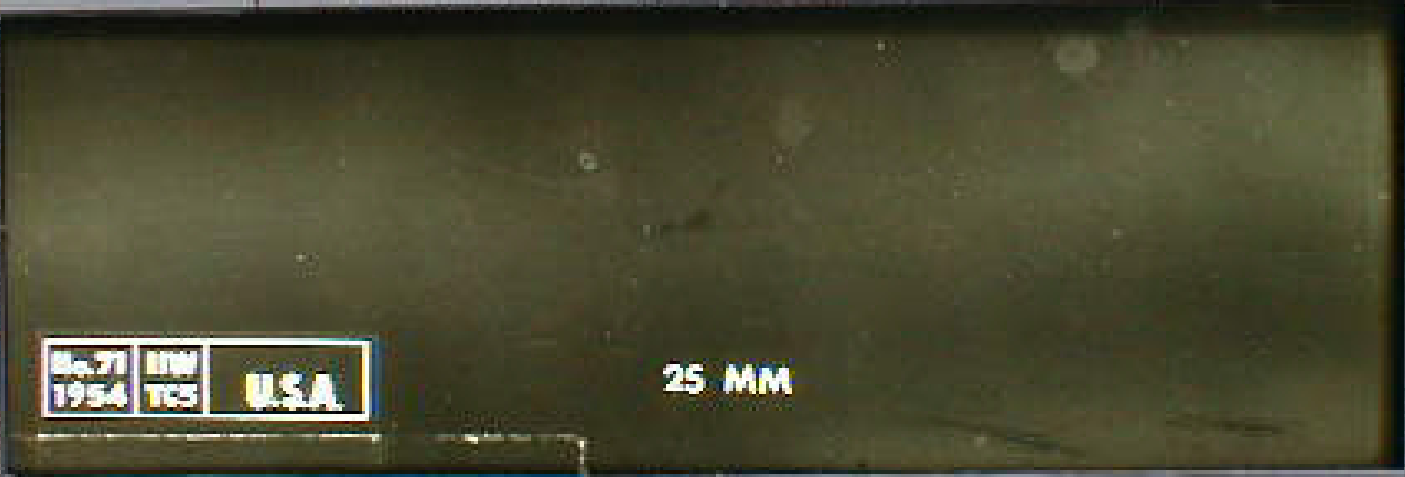


No. 69

Block
Blue
Green
Brown
Red

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
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		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25													

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31										
1/8" gap 1/4" gap 1/2" gap 3/4" gap 1" gap BUTT												Downhand Horizontal-vertical Vertical Overhead				No. defects Porosity Worm holes (Pipes) Of any shape in any direction Slag lines Welding faults Faults from bad chipping Faults or cracks made or other faults of slag inclusions Lack of fusion Incomplete penetration Burn-through Frame cracks Undercut Cracks in cavities																								
WELD TYPE																Weld position															TYPE OF DISCONTINUITY									
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL INTERNATIONAL INSTITUTE OF WELDING Commission V																																								
Submerged arc Air carbon arc Metal-arc Steel > 100 mm 61-100 mm 51-60 mm 41-50 mm 31-40 mm 21-30 mm 11-20 mm												WELDING PROCESS MATERIAL THICKNESS																												
No. 71 1954 I.I.W. T.C.S. U.S.A.												25 MM												No. 71 Black Blue Green Brown Red																
Issued by EURGTEST, International Scientific Association Brussels - Belgium																																								
RADIOGRAPHIC METHODS																																								
SCREENS				RADIOGRAPHY								GAMMACRAPHY																												
No screens Lead screens H.D. screens H.L. screens 3 150 kV. 150-250 kV.																																								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31										



This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

WELD-TYPE

Weld position

TYPE OF DISCONTINUITY

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



No. 74

Block

Blue

Green

Brown

Red

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

No. 74
1954
IIW
TC5
Netherlands

20 mm

Issued by:

EUROTEST, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS

RADIOGRAPHY

GAMMAGRAPHY

No. screens

Lead screens

H. D. screens

H. E. screens

> 150 kV.

150-250 kV.

This collection is not an exhaustive standard for welds, but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



No. 77 IIW TC5 Italy

20 MM

Issued by

EURQTEST, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS

RADIOGRAPHY

GAMMAGRAPHY

No screen
Lead screen
A. D. 20 mm
R. A. screen
5 120 kV.
100-200 kV.



No. 77

DEGREE

Black

Blue

Green

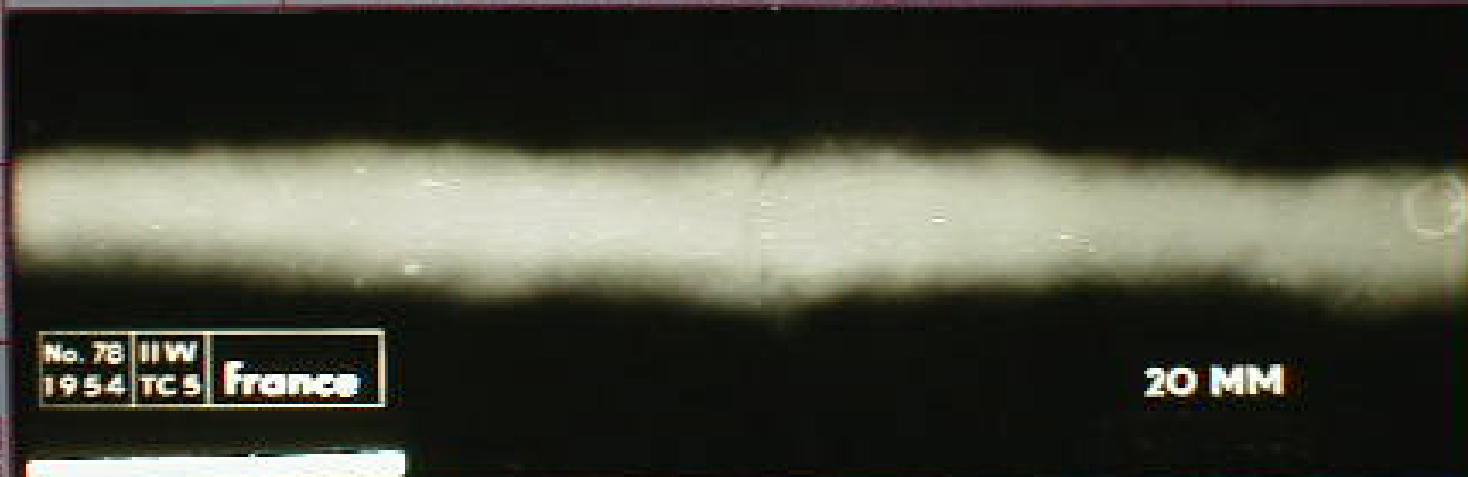
Brown

Red

This collection is not an acceptance standard for welds but it leads for comparison of radiographs as regards the nature and amount of the defects shown.

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



No. 78 IIW
1954 TC 5 France

20 MM

Issued by:

EUROTEST, International Scientific Association Brussels - Belgium

RADIOGRAPHIC METHODS

SCREENS

RADIOGRAPHY

GAMMAGRAPHY



NO. 78

Black

Blue

Green

Brown

Red

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

[illegible]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
BUTT V-groove X-groove U-groove J-groove														Downhand Horizontal-vertical Vertical Overhead				No defects Porosity Worm holes Cracks Of any shape, in any direction Slag lines Slag inclusions Rolling faults Folds from lead chipping Folds at weld Folds at change of teams Lack of fusion Accompanying deformations Splice cracks Transverse Longitudinal Sluggish tearing												
WELD TYPE														Weld position				TYPE OF DISCONTINUITY												
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL																														
INTERNATIONAL INSTITUTE OF WELDING Commission V																														
																														
No. 80 II W TC 5 Sweden 12 MM																														
Issued by																														
EUROTEST, International Scientific Association Brussels - Belgium																														
RADIOGRAPHIC METHODS																														
SCREENS No screens Lead screens H. D. screens H. S. screens 5-150 kV. 150-250 kV.																														
RADIOGRAPHY GAMMAGRAPHY																														
No. 80 II W TC 5 Sweden 12 MM																														



No. 80

DEGREE
 Black
 Blue
 Green
 Brown
 Red

This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.

		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
WELD TYPE	Weld position	Butt 1 slope 1 slope 2 slope 1 slope 2 slope																Downward Horizontal-vertical Vertical Overhead														
		No defects																Porosity Worm holes (pipes) Of any shape in any direction slag inclusions slag lines Welding faults Faults from slag chipping Faults at ends Faults at change of section Faults at joints Lack of fusion Accompanying deformations Burnt edges True cracks Undercuts Zoned-edge cracks														
COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL																																
INTERNATIONAL INSTITUTE OF WELDING Commission V																																
No. 81 1942 II W TC 3 Netherlands See Voyer No. 82, 83 12 MM																																
Issued by: EUROTEST, International Scientific Association Brussels - Belgium																																
RADIOGRAPHIC METHODS SCREENS No screen Lead screen M. D. screen M. J. screen 5120 KV. 150-200 KV. RADIOGRAPHY GAMMAGRAPHY																																
DEGREE Black Blue Green Brown Red																																
This collection is not an acceptance standard for welds but a basis for comparison of radiographs as regards the nature and amount of the defects shown.																																

DENSITY STRIP

Before a radiograph is examined for weld defects, it should be checked in order to ensure that the technique used has given the required photographic density.

The photographic density can be described as the blackness of the image on the film.

It is related to the light transmission of the film by the formula $D = \log_{10} \frac{I_0}{I_x}$, where I_0 is the incident light intensity and I_x is the intensity of the transmitted light. Thus a film having a density of 1.0 transmits one-tenth of the incident light.

The density strip mounted in this card shows seven different film densities: 1.2, 1.5, 1.8, 2.1, 2.4, 2.7 and 3.0, each step having an accuracy of 1.5 %. By comparing the density of a radiograph with the density strip, a rough idea of the actual photographic density may be obtained.

COLLECTION OF REFERENCE RADIOGRAPHS OF WELDS IN STEEL

INTERNATIONAL INSTITUTE OF WELDING Commission V



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No. 86

Documents IIW IIS 425-73 and IIW IIS 492-75 on recommended practice, for the radiographic inspection of welds in steel plates, resp. steel pipes specify minimum requirements for photographic density. The exposure conditions should be such that the density of the radiograph of the sound weld metal in the area under examination, including fog density is:

for steel plates: not less than 2.0

for steel pipes: not less than 1.5 for technique A

not less than 2.0 for technique B