

Technical News Bulletin

May 1994

TG 3" QUICK-CHANGE PLUNGER MECHANISM AND CARTRIDGE

1. Introduction

A new Quick-Change Cartridge has been designed as a replacement for Cartridge 62-3015 used in conjunction with the TG 3" Quick-Change Plunger Mechanism. This new cartridge permits the use of plungers and thimbles provided with a heavy-duty flange. It improves thimble and plunger service life and reduces the risk of parts failure. In addition to the new cartridge design, the plunger mechanism was subject to design changes.

2. Quick-Change Cartridge 62-3025-1

The new cartridge (**Fig. 1**) includes several design features such as:

- Cap with centering collar to locate in a matching recess in the upper plunger mechanism cylinder. This ensures proper alignment of the cap and covering ring relative to the thimble piston and provides uniform, 0.75 mm circumferencial play between the thimble and covering ring.
- Solid, single piece thimble piston/extension design to prevent the extension from separating from the piston.
- Single piece spring retainer which is attached to the piston by three retaining screws. This prevents the spring retainer from becoming loose and the possibility of becoming damaged.
- New plunger adapter and split ring provided for larger and more rugged plunger flange.
- Redesigned thimble interlock for increased thimble diameter and more rugged flange.

3. Mold Design

Slight mold design modifications of the thimble and plunger attachment result due to the above mentioned improvements and the requirement for more durable thimbles and plungers as well as greater thimble float.

Refer to the attached Data Sheets 62-C-6568 — 62-C-6572 (Data Sheets are provided for reference. If required, please request original drawing copies from your EMHART Representative.

Existing thimbles and plungers cannot be used with or modified for the new QCC 62-3025-1.

The application range of the Quick-Change Cartridge remains the same.

4. Quick-Change Plunger Mechanism 62-3012-9

The newly designed Quick-Change Cartridge 62-3025 required modification of the Plunger Mechanism. This opportunity was taken for additional improvements.

- The tops of the upper cylinder bores have been recessed to accommodate the centering collar of the cap of cartridge 62-3025.
- An additional piston lock pin has been added to the bearing retaining disks which are located between the upper and the lower cylinders. These two spring-loaded lock pins effectively block piston turning when tightening or loosening the adapter. Mounting screws 5/16 – 18 NC are now used for the bearing retaining disks instead of 1/4 - 20 NC.
- Passages for the separate vacuum supply and the thimble-UP operating air have been eliminated from both the upper and the lower cylinders.

Existing plunger mechanisms can be modified to accept the new Quick-Change Cartridge 62-3025 according to the *attached drawing 62-C-6556, Alteration of Upper Cylinder TG 3"*.

Quick-Change Cartridges 62-3015 can be used on the new or modified plunger mechanism without any alterations.

5. Plunger Positioner 62-3014

Use of the Plunger Positioner 62-3014 on the new Plunger Mechanism 62-3012 Gr. 9, or on Plunger Mechanisms altered according to drawing 62-C-6556, requires modification of the positioner cap. The locating collar of the cap must be provided with an adapter ring, Emhart Part no. 62-6589, to coincide with the recess diameter in the upper cylinder bore of the Plunger Mechanism.

6. Availability

The new Quick-Change Cartridge 62-3025-1 is now available and replaces the Quick-Change Cartridge 62-3015 which is no longer included in our manufacturing program. Spare parts for the Quick-Change Cartridge 62-3015 Gr. 10 will be supplied until the end of 1998. To permit the use of existing mold equipment, complete assemblies of the Quick-Change Cartridge 62-3015 Gr. 10 can be supplied on special request, but not after the end of 1995.

Plunger Mechanism 62-3012 Gr. 9 replaces model 62-3012 Gr. 7 which has been discontinued. This applies also to the individual parts used solely for Gr. 7 which are for spare parts orders, substituted by the equivalent parts of Gr. 9. These parts, which are listed in the table below, require no or only limited modification for installation in the Gr. 7 mechanism.

New Part 62-3012 Gr.9	Discont.'d Part 62-3012 Gr.7	Description
62-6573	62-6509*	Cylinder, upper
62-6574	62-6119	Cylinder, lower
62-6575	62-2875	Piston & Rod
62-6576*	62-2906	Disk, Bearing Retaining
62-6577	62-6233	Bearing, Piston & Rod
1700-361	1700-366	O-Ring for Part no. 62-6577, Bearing
2640-350	2640-190	Screw for Part no. 62-6576, Disk

Note:* If Bearing Retaining Disk, Part no. 62-6576, is used together with Upper Cylinder, Part no. 62-6509, the tapped holes in cylinder must be enlarged to accept the 5/16 - 18 NC x 1" Hex. Soc. Head Cap Screws, Part no. 2640-350.

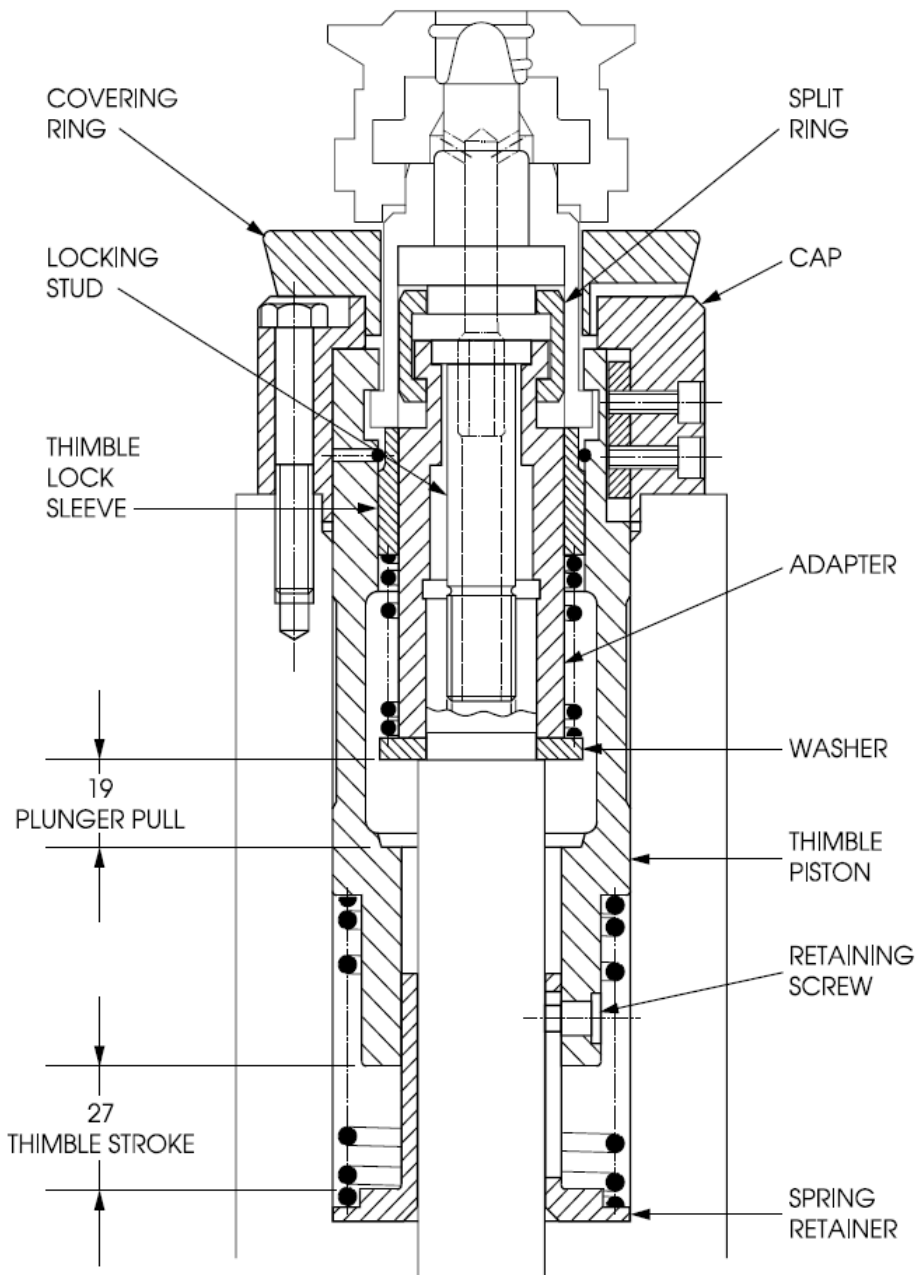
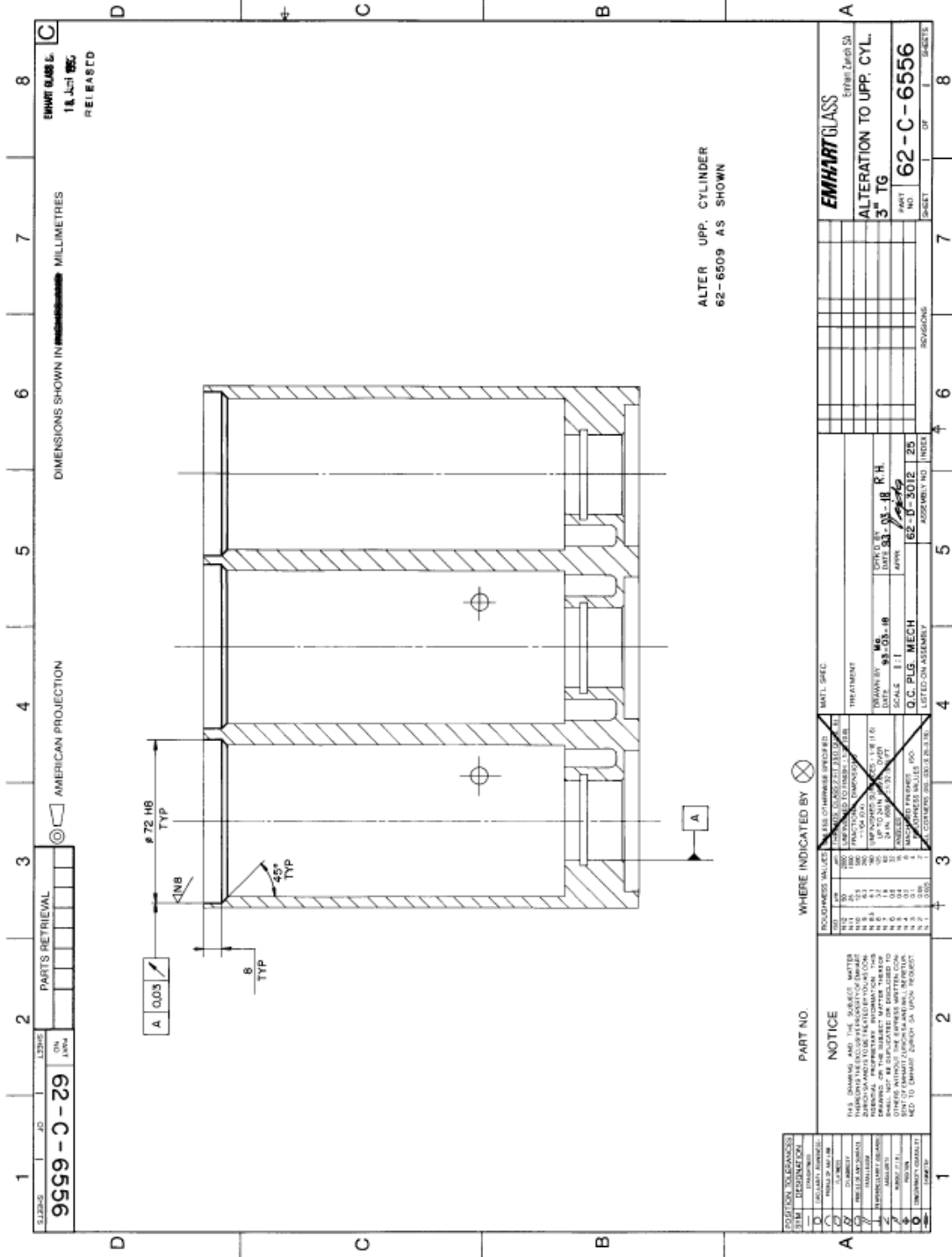


Fig.1: TG 3" Quick-Change Cartridge 62-3025



ALTER UP. CYLINDER
62-6509 AS SHOWN

EMHART GLASS L.
18. JUNE 1955
RELEASED

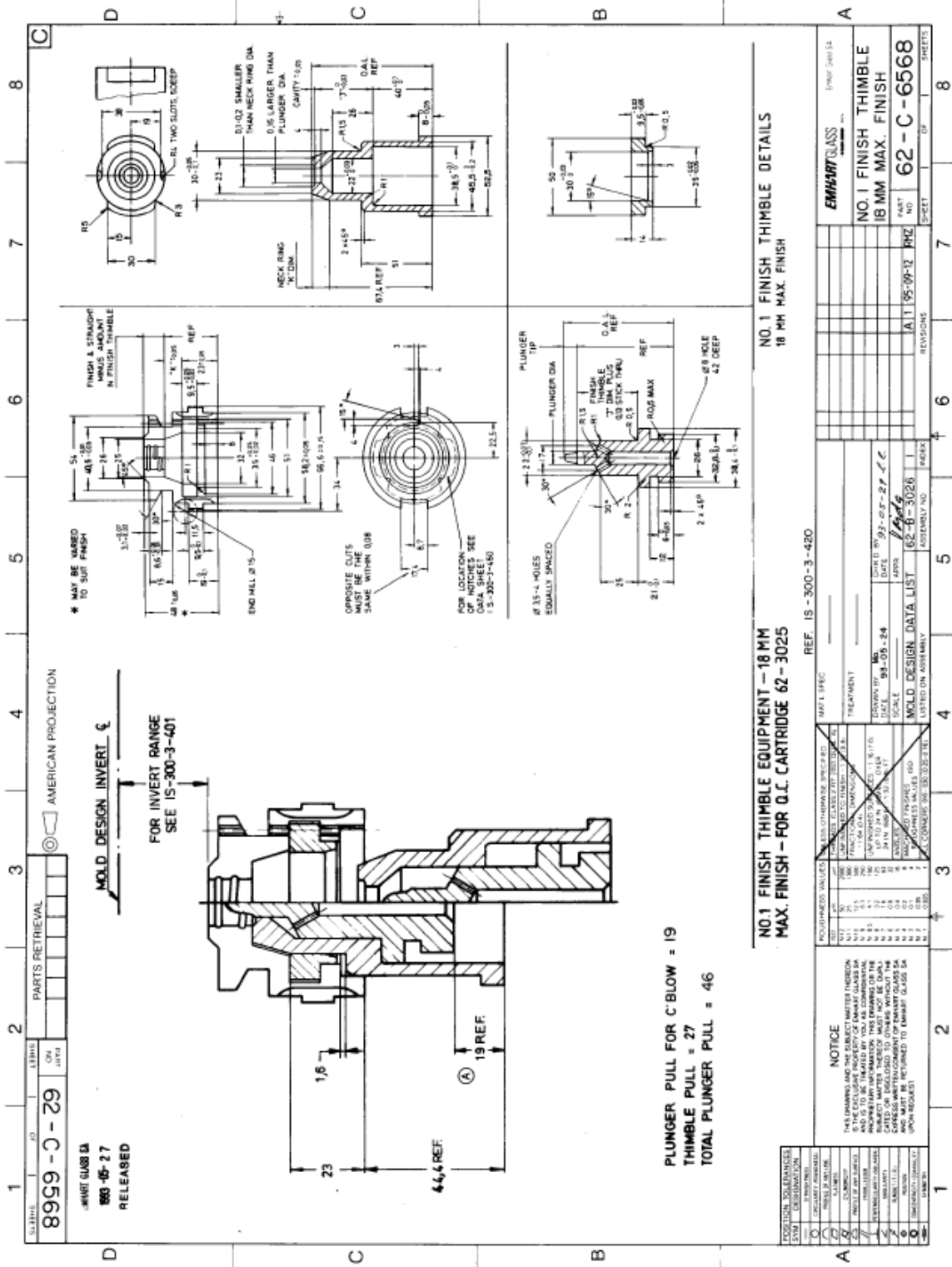
DIMENSIONS SHOWN IN MILLIMETRES

AMERICAN PROJECTION

PARTS RETRIEVAL

9599 - C - 29

REVOLUTION	TOLERANCES	PART NO.	WHERE INDICATED BY	TREATMENT	DATE	BY	APPROV.	SCALE	ASSEMBLY NO.	INDEX
1	±0.05	9599 - C - 29	⊗	TEMPERED TO STRENGTHEN	18. JUN 55	J. H. R.	J. H. R.	1:1	62 - 6509	25
2	±0.05		⊗	TEMPERED TO STRENGTHEN						
3	±0.05		⊗	TEMPERED TO STRENGTHEN						
4	±0.05		⊗	TEMPERED TO STRENGTHEN						
5	±0.05		⊗	TEMPERED TO STRENGTHEN						
6	±0.05		⊗	TEMPERED TO STRENGTHEN						
7	±0.05		⊗	TEMPERED TO STRENGTHEN						
8	±0.05		⊗	TEMPERED TO STRENGTHEN						
<p>EMHART GLASS ALTERATION TO UP. CYL. 3" TG</p> <p>PART NO. 62 - C - 6556 DRAWING NO. 62 - 6509 DATE 18 JUN 55</p> <p>SCALE 1:1 D.C. PLS. MECH. LISTED ON ASSEMBLY</p>										



8959 - C - 29
EMHART GLASS SA
663 45-27
RELEASED

AMERICAN PROJECTION
MOLD DESIGN INVERT ξ
FOR INVERT RANGE
SEE IS-300-3-401

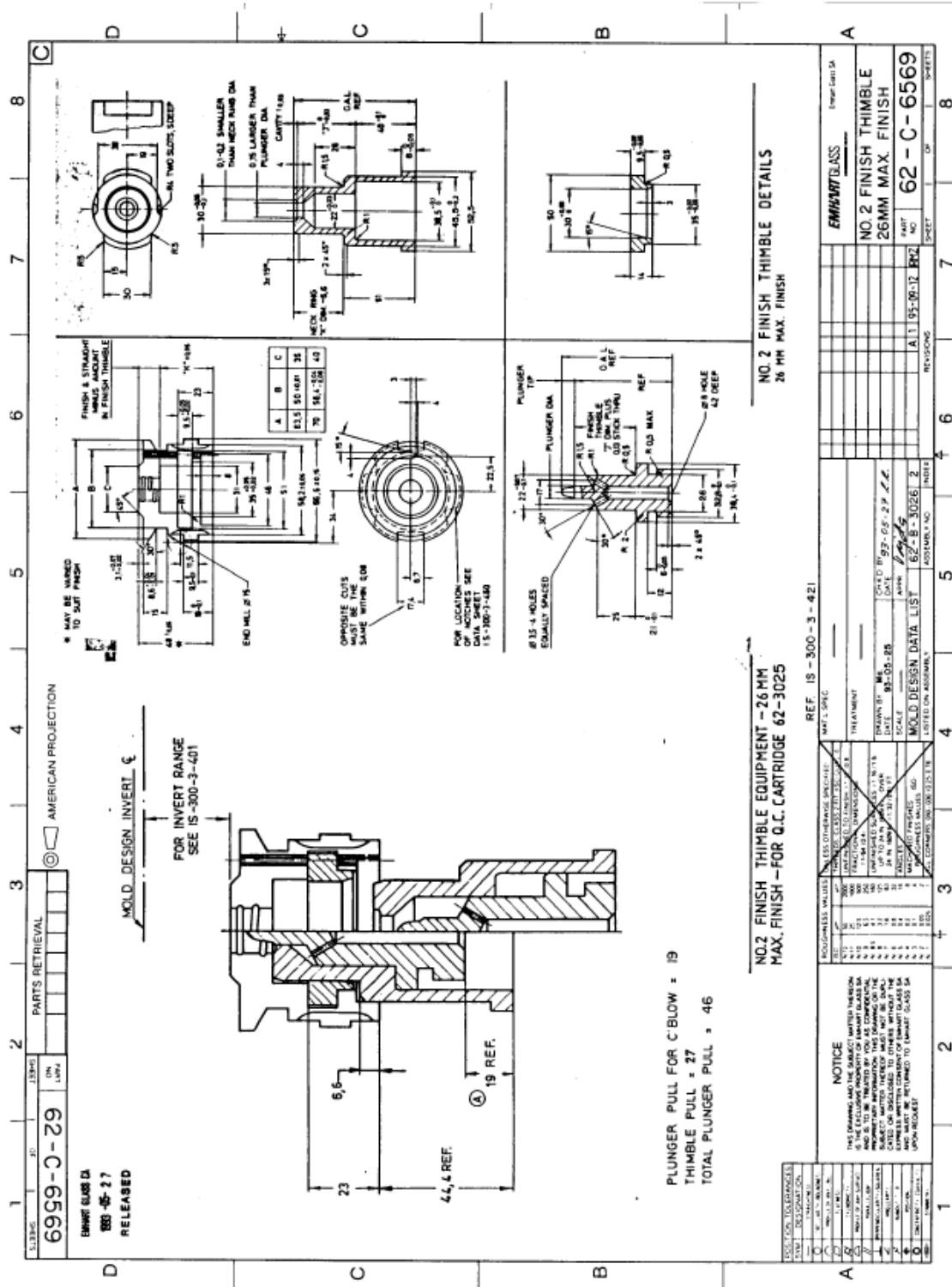
PLUNGER PULL FOR C-BLOW = 19
THIMBLE PULL = 27
TOTAL PLUNGER PULL = 46

NO. 1 FINISH THIMBLE EQUIPMENT - 18 MM
MAX. FINISH - FOR Q.C. CARTRIDGE 62 - 3025

EXCEPTION	SYMBOL	DESCRIPTION
1	1	AS SHOWN
2	2	AS SHOWN
3	3	AS SHOWN
4	4	AS SHOWN
5	5	AS SHOWN
6	6	AS SHOWN
7	7	AS SHOWN
8	8	AS SHOWN

NOTICE	THIS DRAWING AND THE SUBJECT MATTER THEREON AND IS TO BE TREATED BY YOU AS CONFIDENTIAL AND NOT TO BE DISCLOSED TO OTHERS WITHOUT THE WRITTEN CONSENT OF BUCHER EMHART GLASS SA. THIS DRAWING IS THE PROPERTY OF BUCHER EMHART GLASS SA AND MUST BE RETURNED TO BUCHER EMHART GLASS SA UPON REQUEST.
POUND-PAGES (VALUES)	1 1/2
NET WEIGHT (VALUES)	1.1
GROSS WEIGHT (VALUES)	1.1
NET VOLUME (VALUES)	1.1
GROSS VOLUME (VALUES)	1.1
NET SURFACE AREA (VALUES)	1.1
GROSS SURFACE AREA (VALUES)	1.1
NET MASS (VALUES)	1.1
GROSS MASS (VALUES)	1.1
NET LENGTH (VALUES)	1.1
GROSS LENGTH (VALUES)	1.1
NET WIDTH (VALUES)	1.1
GROSS WIDTH (VALUES)	1.1
NET HEIGHT (VALUES)	1.1
GROSS HEIGHT (VALUES)	1.1
NET DIAMETER (VALUES)	1.1
GROSS DIAMETER (VALUES)	1.1
NET RADIUS (VALUES)	1.1
GROSS RADIUS (VALUES)	1.1
NET THICKNESS (VALUES)	1.1
GROSS THICKNESS (VALUES)	1.1
NET AREA (VALUES)	1.1
GROSS AREA (VALUES)	1.1
NET PERIMETER (VALUES)	1.1
GROSS PERIMETER (VALUES)	1.1
NET SURFACE AREA (VALUES)	1.1
GROSS SURFACE AREA (VALUES)	1.1
NET VOLUME (VALUES)	1.1
GROSS VOLUME (VALUES)	1.1
NET MASS (VALUES)	1.1
GROSS MASS (VALUES)	1.1
NET LENGTH (VALUES)	1.1
GROSS LENGTH (VALUES)	1.1
NET WIDTH (VALUES)	1.1
GROSS WIDTH (VALUES)	1.1
NET HEIGHT (VALUES)	1.1
GROSS HEIGHT (VALUES)	1.1
NET DIAMETER (VALUES)	1.1
GROSS DIAMETER (VALUES)	1.1
NET RADIUS (VALUES)	1.1
GROSS RADIUS (VALUES)	1.1
NET THICKNESS (VALUES)	1.1
GROSS THICKNESS (VALUES)	1.1
NET AREA (VALUES)	1.1
GROSS AREA (VALUES)	1.1
NET PERIMETER (VALUES)	1.1
GROSS PERIMETER (VALUES)	1.1

EMHART GLASS	EMHART GLASS
NO. 1 FINISH THIMBLE	NO. 1 FINISH THIMBLE
18 MM MAX. FINISH	18 MM MAX. FINISH
62 - C - 6568	62 - C - 6568
A 1 95-09-12	A 1 95-09-12
PHZ	PHZ
62 - B - 3026	62 - B - 3026
ASSEMBLY INC.	ASSEMBLY INC.

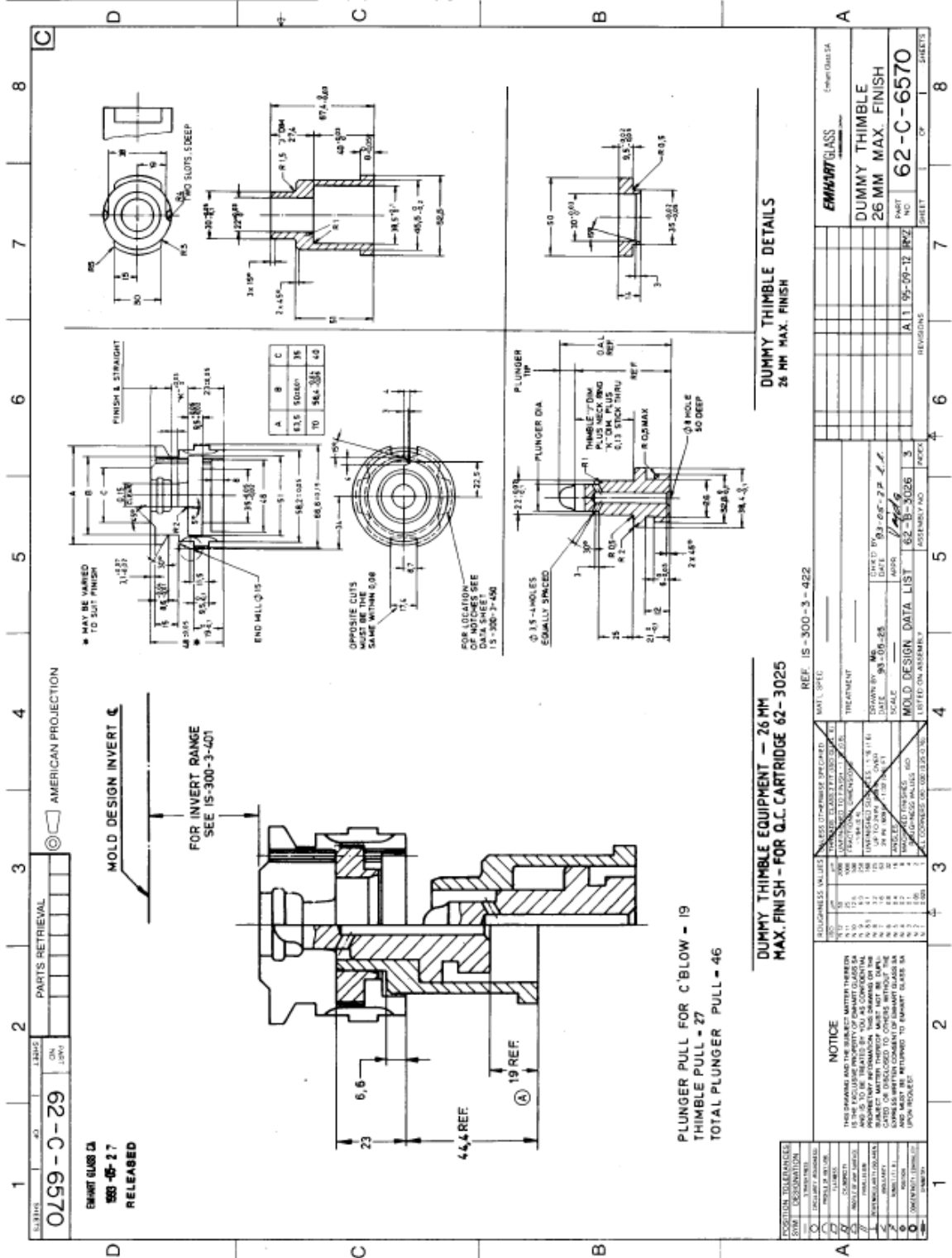


NO. 2 FINISH THIMBLE EQUIPMENT - 26 MM
MAX. FINISH - FOR O.C. CARTRIDGE 62-3025

PLUNGER PULL FOR C'BLOW = 19
THIMBLE PULL = 27
TOTAL PLUNGER PULL = 46

SPECIFICATION TOLERANCES		FINISHES		MATERIALS		OTHER	
LINE	DESCRIPTION	FINISH	FINISH	DESCRIPTION	FINISH	DESCRIPTION	FINISH
1	PLUNGER	NO. 2	NO. 2	EMHART GLASS	EMHART GLASS	EMHART GLASS	EMHART GLASS
2	THIMBLE	NO. 2	NO. 2	EMHART GLASS	EMHART GLASS	EMHART GLASS	EMHART GLASS
3	PLUNGER	NO. 2	NO. 2	EMHART GLASS	EMHART GLASS	EMHART GLASS	EMHART GLASS
4	THIMBLE	NO. 2	NO. 2	EMHART GLASS	EMHART GLASS	EMHART GLASS	EMHART GLASS
5	PLUNGER	NO. 2	NO. 2	EMHART GLASS	EMHART GLASS	EMHART GLASS	EMHART GLASS
6	THIMBLE	NO. 2	NO. 2	EMHART GLASS	EMHART GLASS	EMHART GLASS	EMHART GLASS
7	PLUNGER	NO. 2	NO. 2	EMHART GLASS	EMHART GLASS	EMHART GLASS	EMHART GLASS
8	THIMBLE	NO. 2	NO. 2	EMHART GLASS	EMHART GLASS	EMHART GLASS	EMHART GLASS

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DUMMY THIMBLE DETAILS
26 MM MAX. FINISH

DUMMY THIMBLE EQUIPMENT - 26 MM
MAX. FINISH - FOR G.C. CARTRIDGE 62-3025

REF: IS-300-3-422

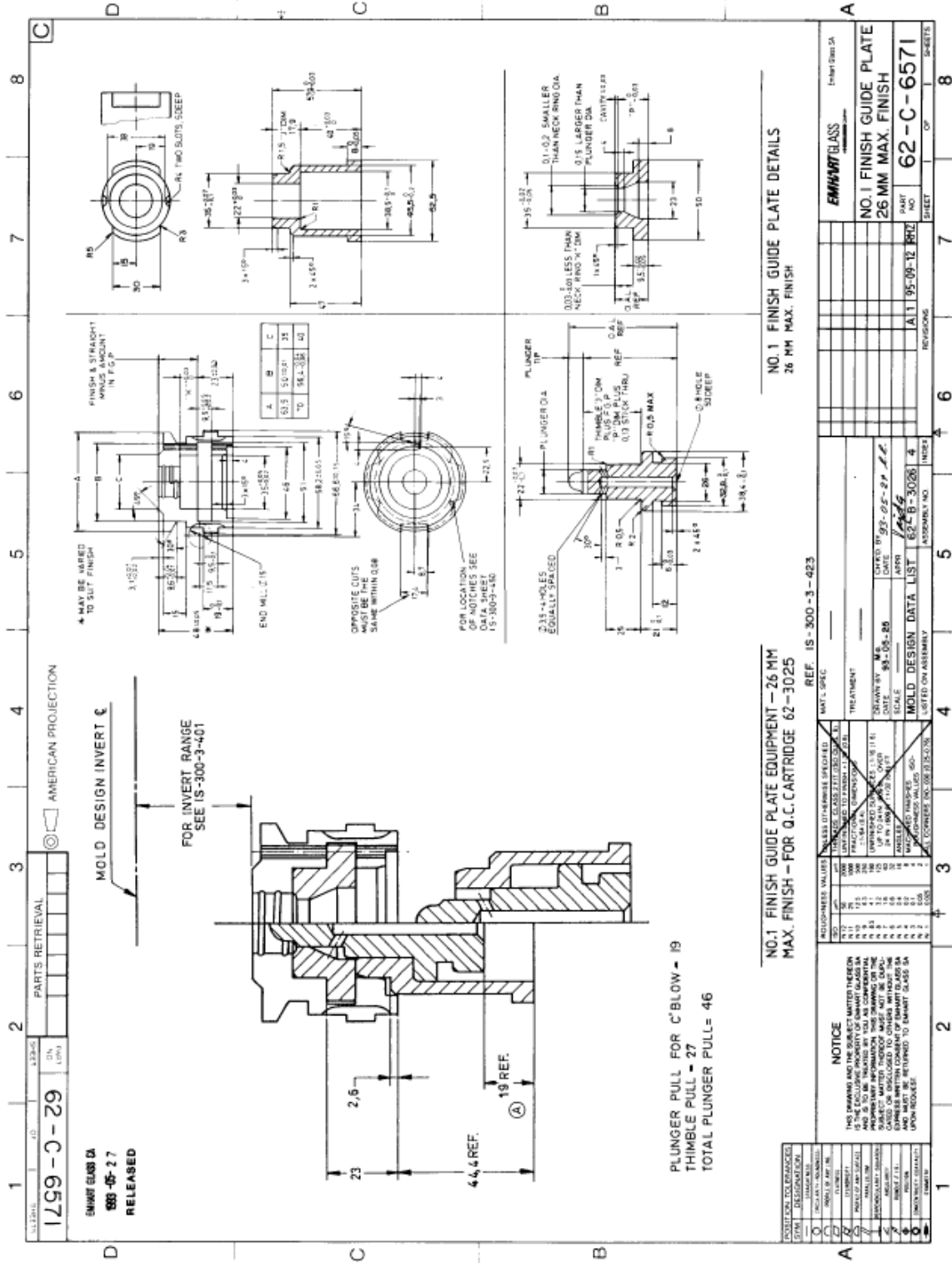
PROPERTY	VALUE	UNIT
ROUGHNESS VALUE	0.8	µm
FINISH	STRAIGHT	
TREATMENT	ANNEAL	
TEMPERATURE	550 ± 10	°C
TIME	120	min
ATMOSPHERE	OXIDIZING	
TEMPERATURE	550 ± 10	°C
TIME	120	min
ATMOSPHERE	OXIDIZING	
TEMPERATURE	550 ± 10	°C
TIME	120	min
ATMOSPHERE	OXIDIZING	

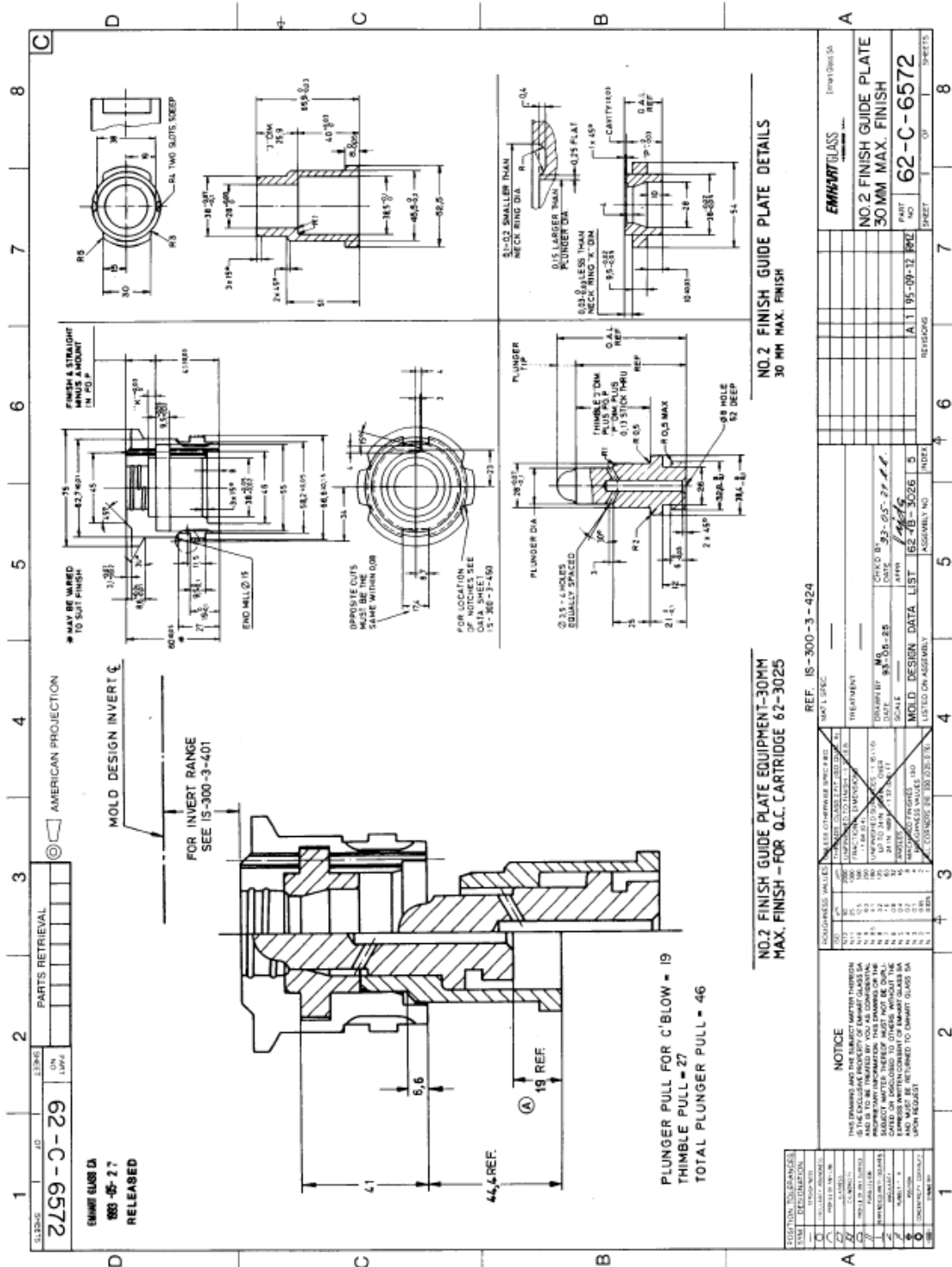
PROPERTY	VALUE	UNIT
ROUGHNESS VALUE	0.8	µm
FINISH	STRAIGHT	
TREATMENT	ANNEAL	
TEMPERATURE	550 ± 10	°C
TIME	120	min
ATMOSPHERE	OXIDIZING	
TEMPERATURE	550 ± 10	°C
TIME	120	min
ATMOSPHERE	OXIDIZING	
TEMPERATURE	550 ± 10	°C
TIME	120	min
ATMOSPHERE	OXIDIZING	

PROPERTY	VALUE	UNIT
ROUGHNESS VALUE	0.8	µm
FINISH	STRAIGHT	
TREATMENT	ANNEAL	
TEMPERATURE	550 ± 10	°C
TIME	120	min
ATMOSPHERE	OXIDIZING	
TEMPERATURE	550 ± 10	°C
TIME	120	min
ATMOSPHERE	OXIDIZING	
TEMPERATURE	550 ± 10	°C
TIME	120	min
ATMOSPHERE	OXIDIZING	

PROPERTY	VALUE	UNIT
ROUGHNESS VALUE	0.8	µm
FINISH	STRAIGHT	
TREATMENT	ANNEAL	
TEMPERATURE	550 ± 10	°C
TIME	120	min
ATMOSPHERE	OXIDIZING	
TEMPERATURE	550 ± 10	°C
TIME	120	min
ATMOSPHERE	OXIDIZING	
TEMPERATURE	550 ± 10	°C
TIME	120	min
ATMOSPHERE	OXIDIZING	

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ITEM	DESCRIPTION	QUANTITY	UNIT
1	NO. 2 FINISH GUIDE PLATE	1	EA
2	PLUNGER	1	EA
3	THIMBLE	1	EA
4	SPRING	1	EA
5	SCREW	1	EA
6	WASHER	1	EA
7	LOCKWASHER	1	EA
8	CONTRACTOR'S DRAWING	1	EA

PROPERTY VALUE	UNIT	TEST METHOD
1	MPA	ASTM A 108
2	MPA	ASTM A 108
3	MPA	ASTM A 108
4	MPA	ASTM A 108
5	MPA	ASTM A 108
6	MPA	ASTM A 108
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26	MPA	ASTM A 108
27	MPA	ASTM A 108
28	MPA	ASTM A 108
29	MPA	ASTM A 108
30	MPA	ASTM A 108

PROPERTY VALUE	UNIT	TEST METHOD
1	MPA	ASTM A 108
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4	MPA	ASTM A 108
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PROPERTY VALUE	UNIT	TEST METHOD
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29	MPA	ASTM A 108
30	MPA	ASTM A 108

PROPERTY VALUE	UNIT	TEST METHOD
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30	MPA	ASTM A 108