

Notes:


All dimensions shown on this drawing are for reference only

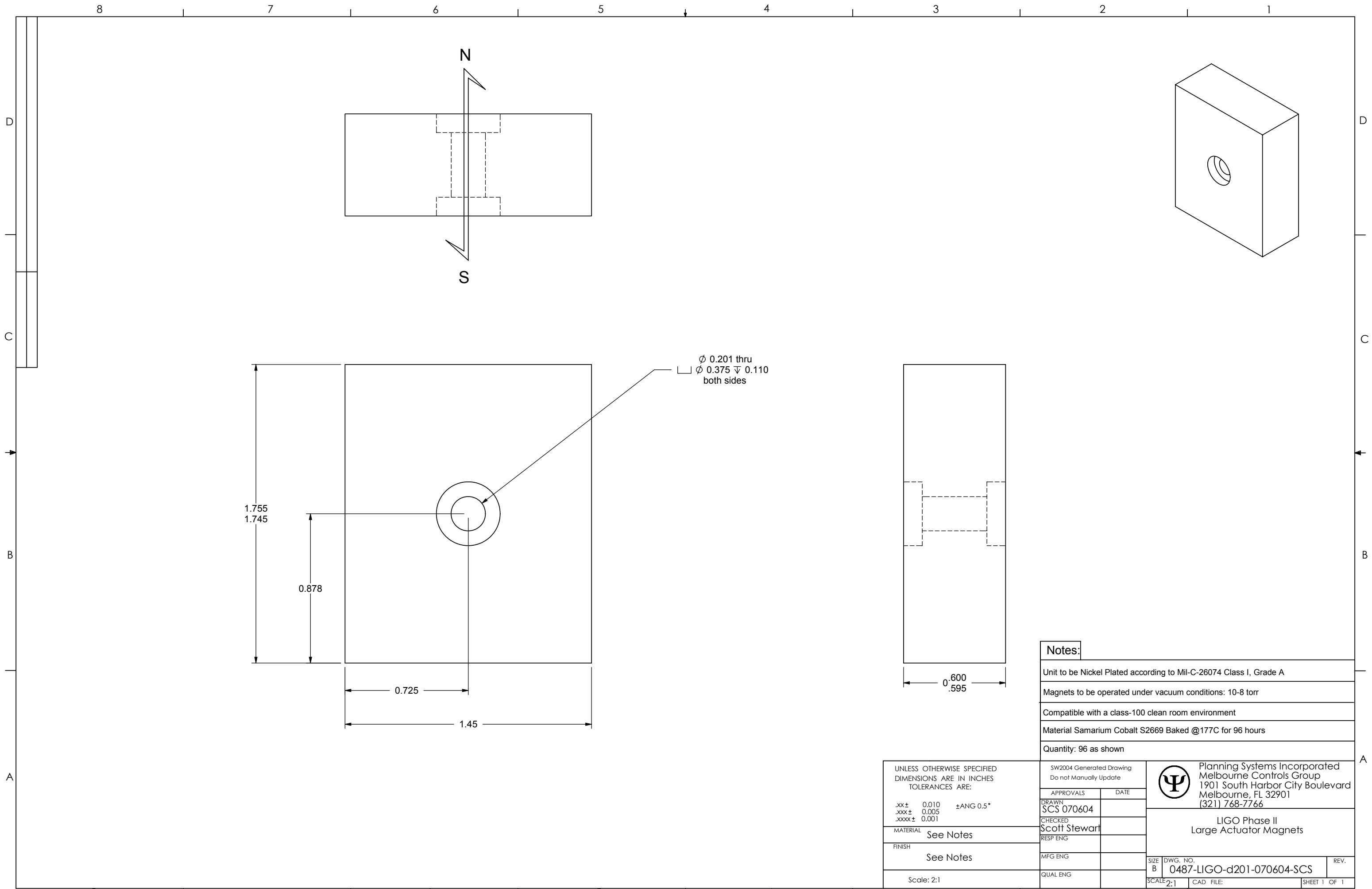
Assembly to be Nickel Plated according to Mil-Spec 26074, Class I, Grade A, 0.000 penetration, 0.001 buildup; DIMENSIONS SHOWN ARE AFTER PLATING

All surfaces to be $\sqrt{32}$ finish or better

Material (all): CR 1018 Steel (supplied)


Quantity: 6 as shown

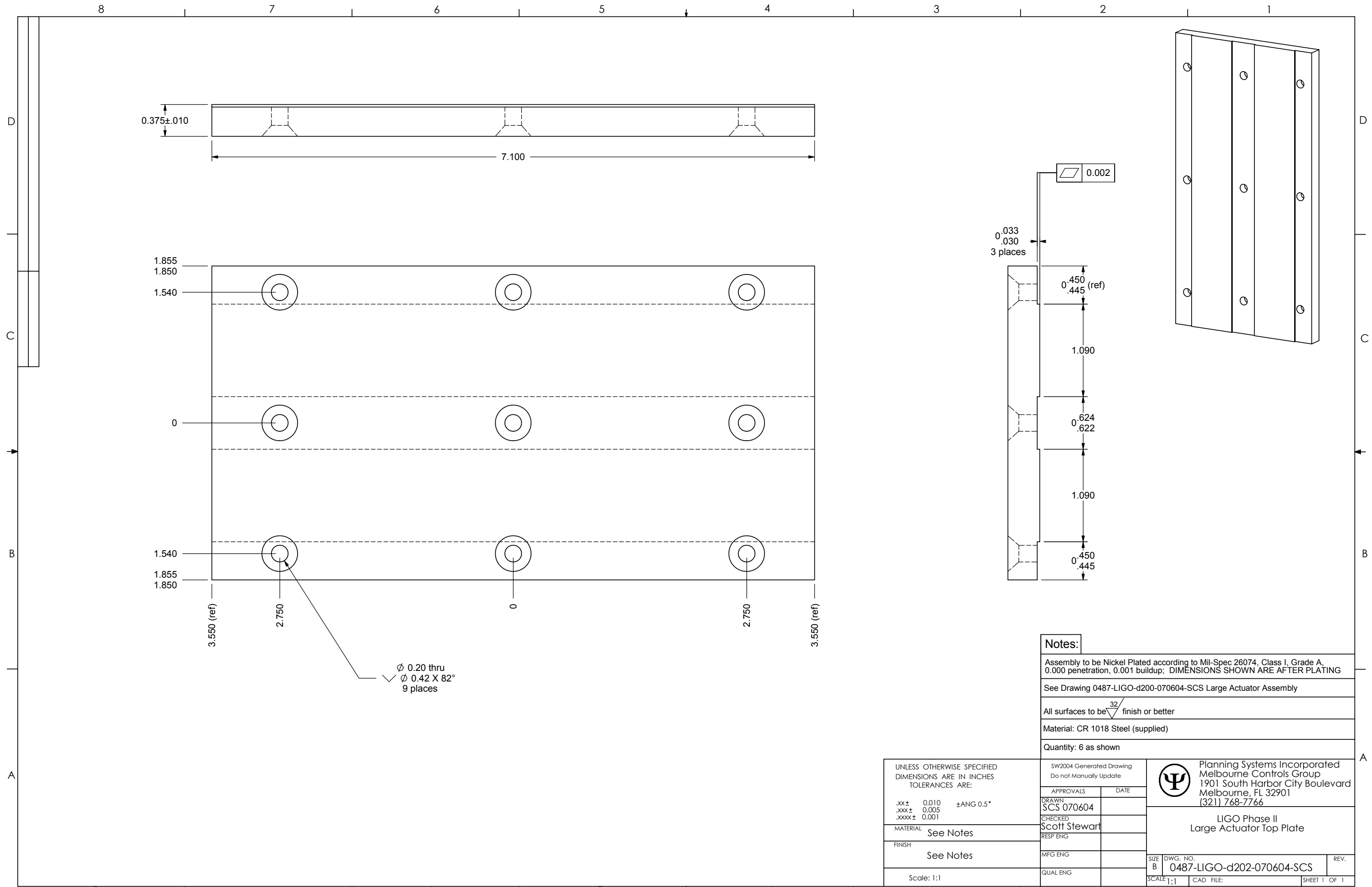
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		SW2004 Generated Drawing Do not Manually Update		 Planning Systems Incorporated Melbourne Controls Group 1901 South Harbor City Boulevard Melbourne, FL 32901 (321) 768-7766
.xx ± 0.010	±ANG 0.5°	APPROVALS	DATE	
.xxx ± 0.005		DRAWN		LIGO Phase II Large Actuator Assembly
.xxxx ± 0.001		CHECKED		
MATERIAL	See Notes	RESP ENG		
FINISH	See Notes	MFG ENG		
Scale: 1:2		QUAL ENG		SIZE DWG. NO. B 0487-LIGO-d200-070604-SCS REV.
		SCALE 1:2 CAD FILE:		SHEET 1 OF 1



ϕ 0.201 thru
 ϕ 0.375 ∇ 0.110
 both sides

- Notes:**
- Unit to be Nickel Plated according to Mil-C-26074 Class I, Grade A
 - Magnets to be operated under vacuum conditions: 10-8 torr
 - Compatible with a class-100 clean room environment
 - Material Samarium Cobalt S2669 Baked @177C for 96 hours
 - Quantity: 96 as shown

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.xx ± 0.010	±ANG 0.5°	APPROVALS	DATE	
.xxx ± 0.005		DRAWN		LIGO Phase II Large Actuator Magnets
.xxxx ± 0.001		CHECKED		
MATERIAL See Notes		RESP ENG		
FINISH See Notes		MFG ENG		
Scale: 2:1		QUAL ENG		SIZE DWG. NO. REV. B 0487-LIGO-d201-070604-SCS
		SCALE: 2:1 CAD FILE: SHEET 1 OF 1		



0.375±.010

7.100

1.855

1.850

1.540

0

1.540

1.855

1.850

3.550 (ref)

2.750

0

2.750

3.550 (ref)

∅ 0.20 thru
∅ 0.42 X 82°
9 places

0.033
0.030
3 places

0.002

0.450 (ref)
0.445

1.090

0.624
0.622

1.090

0.450
0.445

Notes:


Assembly to be Nickel Plated according to Mil-Spec 26074, Class I, Grade A, 0.000 penetration, 0.001 buildup; DIMENSIONS SHOWN ARE AFTER PLATING

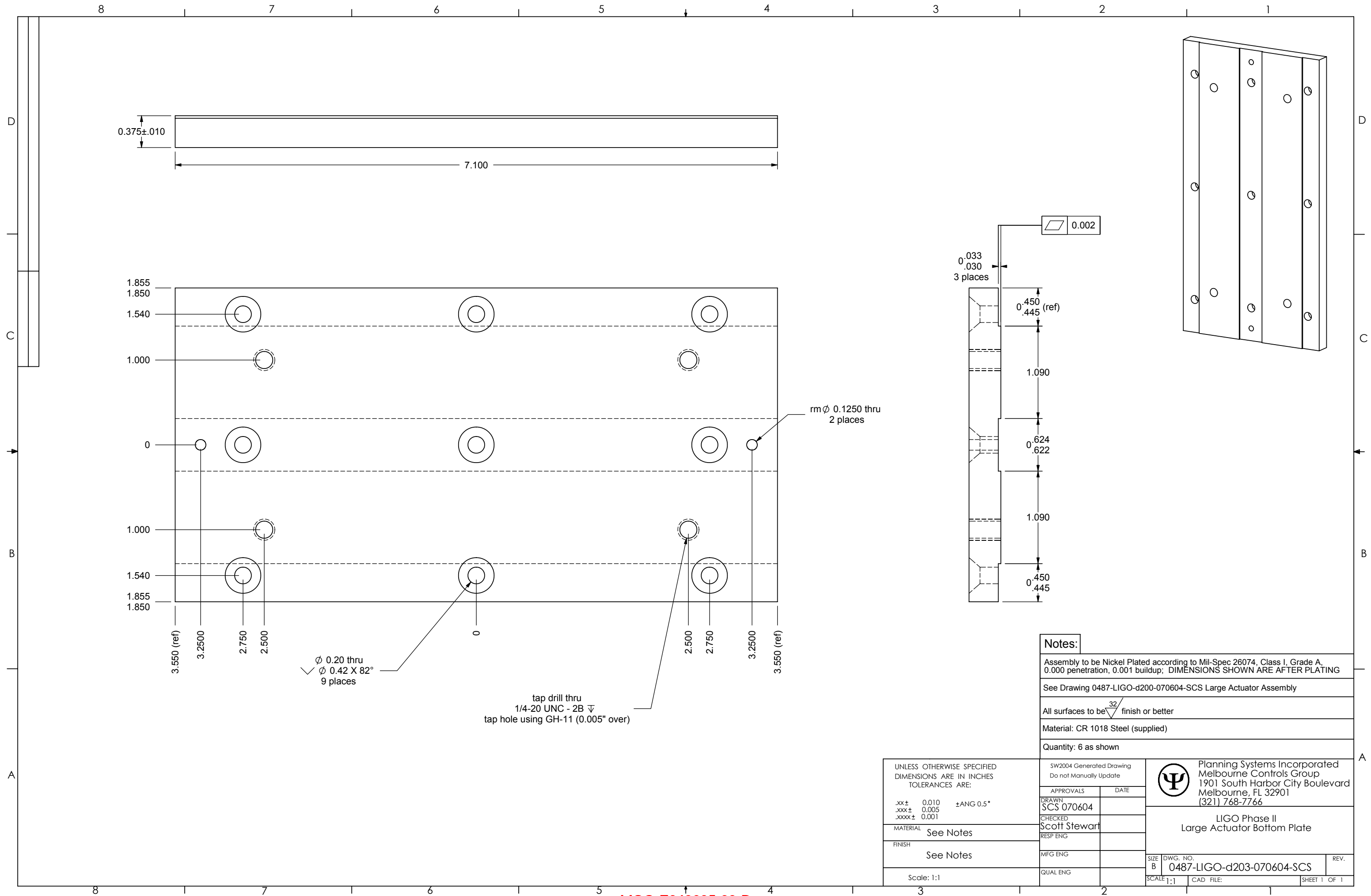
See Drawing 0487-LIGO-d200-070604-SCS Large Actuator Assembly

All surfaces to be $\sqrt{32}$ finish or better

Material: CR 1018 Steel (supplied)

Quantity: 6 as shown

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		SW2004 Generated Drawing Do not Manually Update		 Planning Systems Incorporated Melbourne Controls Group 1901 South Harbor City Boulevard Melbourne, FL 32901 (321) 768-7766
.xx ± 0.010	±ANG 0.5°	APPROVALS	DATE	
.xxx ± 0.005		DRAWN		LIGO Phase II Large Actuator Top Plate
.xxxx ± 0.001		CHECKED		
MATERIAL	See Notes	RESP ENG		
FINISH	See Notes	MFG ENG		
Scale: 1:1		QUAL ENG		SIZE DWG. NO. B 0487-LIGO-d202-070604-SCS
		SCALE 1:1 CAD FILE:		REV.
				SHEET 1 OF 1



0.375±.010
7.100

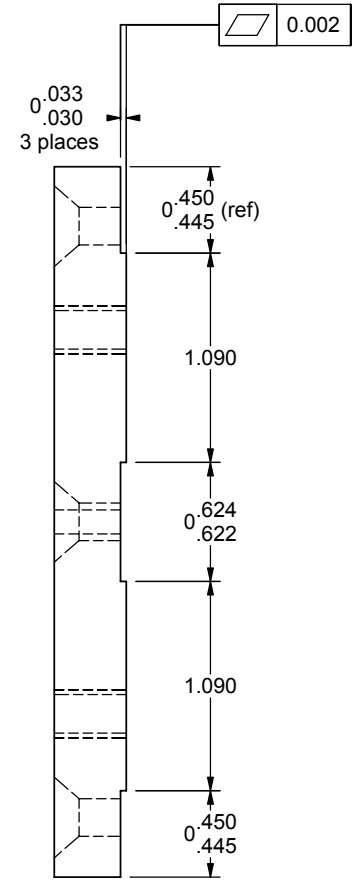
1.855
1.850
1.540
1.000
0
1.000
1.540
1.855
1.850

3.550 (ref)
3.2500
2.750
2.500
0
2.500
2.750
3.2500
3.550 (ref)

∅ 0.20 thru
∅ 0.42 X 82°
9 places

tap drill thru
1/4-20 UNC - 2B ∇
tap hole using GH-11 (0.005" over)

rm ∅ 0.1250 thru
2 places



Notes:


Assembly to be Nickel Plated according to Mil-Spec 26074, Class I, Grade A, 0.000 penetration, 0.001 buildup; DIMENSIONS SHOWN ARE AFTER PLATING

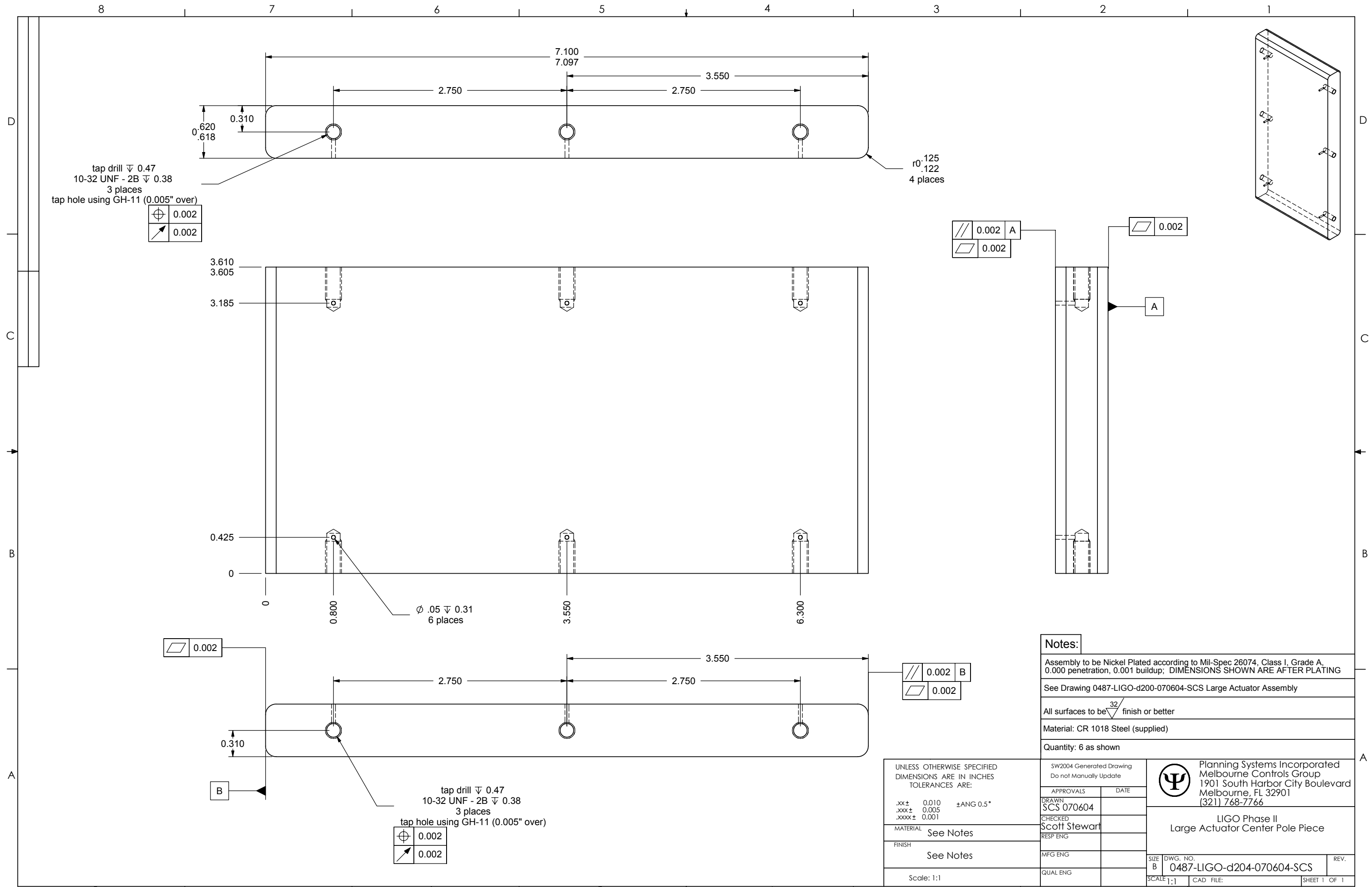
See Drawing 0487-LIGO-d200-070604-SCS Large Actuator Assembly

All surfaces to be $\sqrt{32}$ finish or better

Material: CR 1018 Steel (supplied)

Quantity: 6 as shown

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		SW2004 Generated Drawing Do not Manually Update		 Planning Systems Incorporated Melbourne Controls Group 1901 South Harbor City Boulevard Melbourne, FL 32901 (321) 768-7766
.xx ± 0.010	±ANG 0.5°	APPROVALS	DATE	
.xxx ± 0.005		SCS 070604		LIGO Phase II Large Actuator Bottom Plate
.xxxx ± 0.001		CHECKED Scott Stewart		
MATERIAL See Notes		RESP ENG		
FINISH See Notes		MFG ENG		
Scale: 1:1		QUAL ENG		SIZE DWG. NO. B 0487-LIGO-d203-070604-SCS
				SCALE 1:1 CAD FILE: SHEET 1 OF 1



Notes:

Assembly to be Nickel Plated according to Mil-Spec 26074, Class I, Grade A, 0.000 penetration, 0.001 buildup; DIMENSIONS SHOWN ARE AFTER PLATING

See Drawing 0487-LIGO-d200-070604-SCS Large Actuator Assembly

All surfaces to be $\sqrt{32}$ finish or better

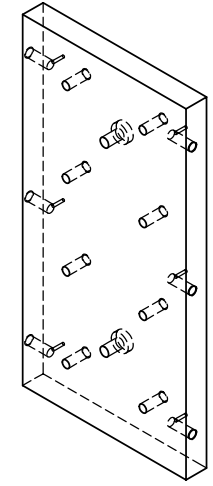
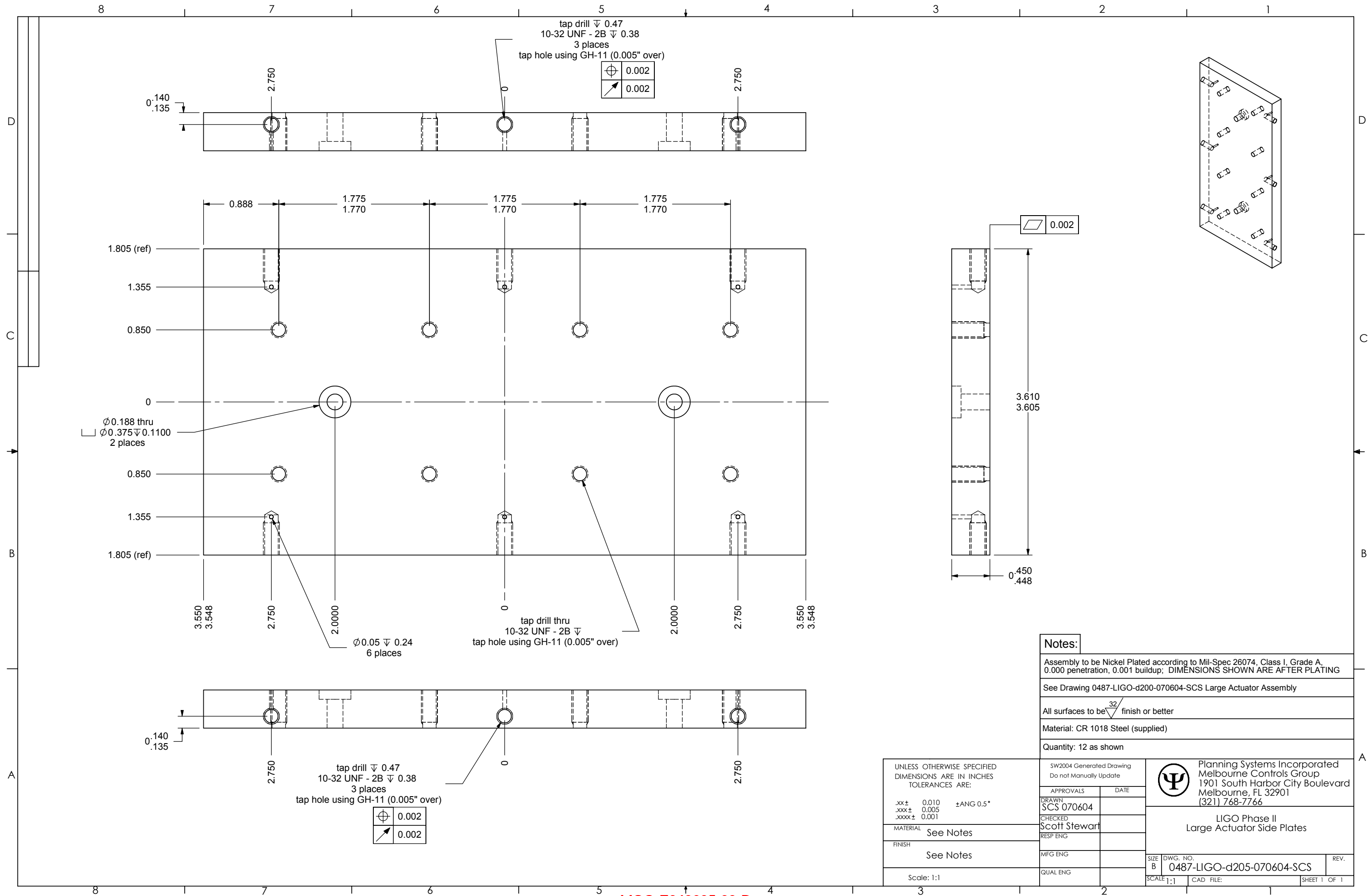
Material: CR 1018 Steel (supplied)

Quantity: 6 as shown

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:	
.xx ± 0.010	±ANG 0.5°
.xxx ± 0.005	
.xxxx ± 0.001	
MATERIAL	See Notes
FINISH	See Notes
Scale: 1:1	

SW2004 Generated Drawing Do not Manually Update	
APPROVALS	DATE
DRAWN SCS 070604	
CHECKED Scott Stewart	
RESP ENG	
MFG ENG	
QUAL ENG	

	Planning Systems Incorporated Melbourne Controls Group 1901 South Harbor City Boulevard Melbourne, FL 32901 (321) 768-7766	
	LIGO Phase II Large Actuator Center Pole Piece	
SIZE B	DWG. NO. 0487-LIGO-d204-070604-SCS	REV.
SCALE 1:1	CAD FILE:	SHEET 1 OF 1



Notes:


Assembly to be Nickel Plated according to Mil-Spec 26074, Class I, Grade A, 0.000 penetration, 0.001 buildup; DIMENSIONS SHOWN ARE AFTER PLATING

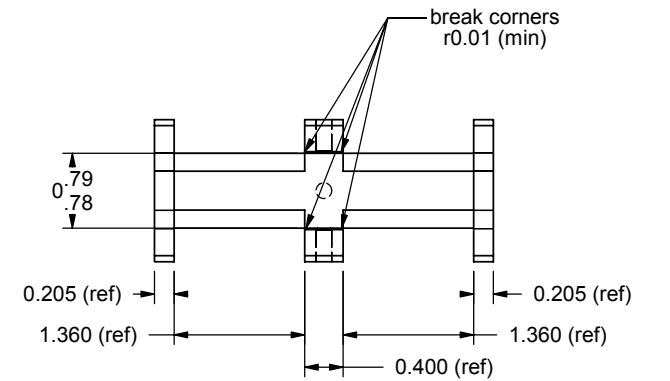
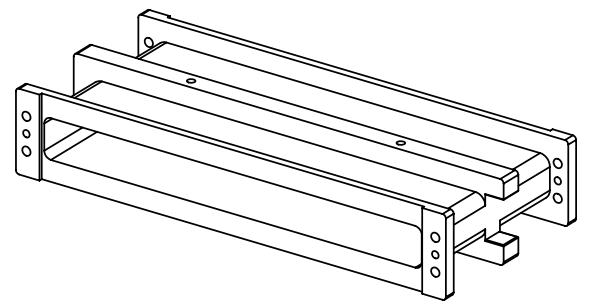
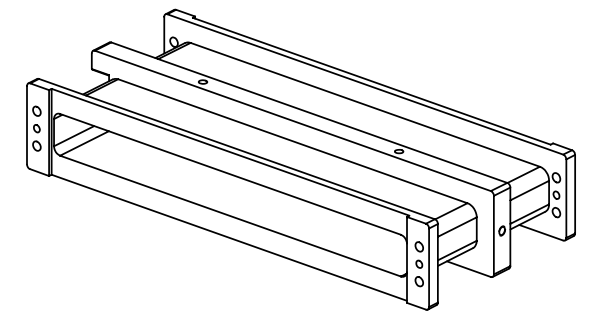
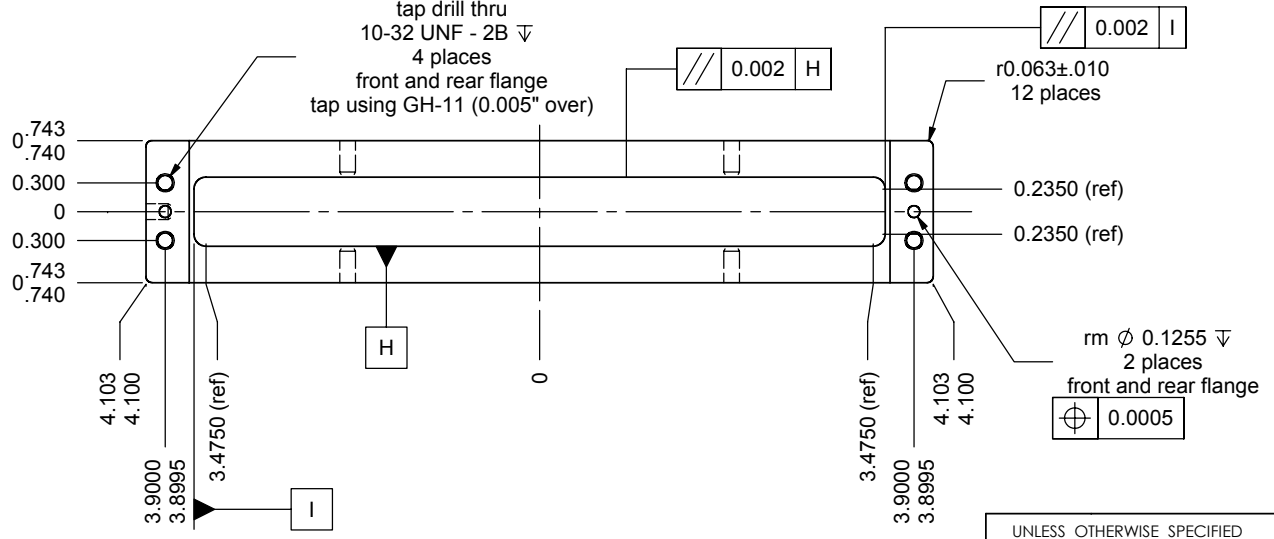
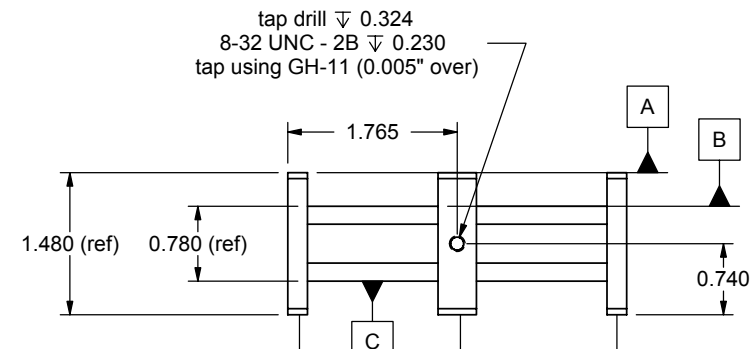
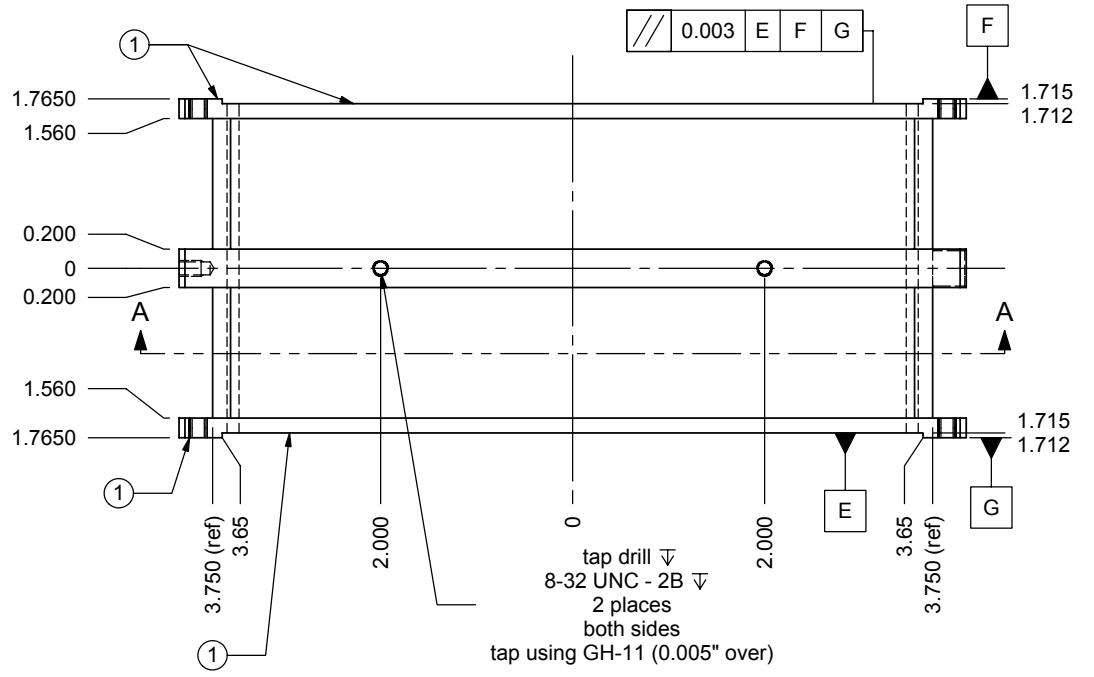
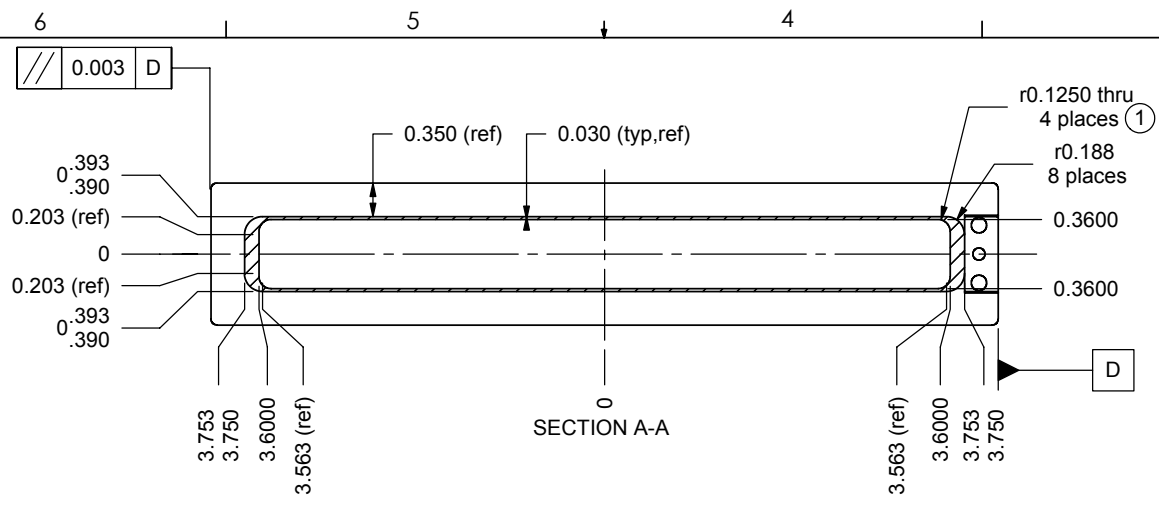
See Drawing 0487-LIGO-d200-070604-SCS Large Actuator Assembly

All surfaces to be ∇ 32 finish or better

Material: CR 1018 Steel (supplied)

Quantity: 12 as shown

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: .xx ± 0.010 ±ANG 0.5° .xxx ± 0.005 .xxxx ± 0.001	SW2004 Generated Drawing Do not Manually Update		 Planning Systems Incorporated Melbourne Controls Group 1901 South Harbor City Boulevard Melbourne, FL 32901 (321) 768-7766
	APPROVALS	DATE	
	DRAWN SCS 070604		
	CHECKED Scott Stewart		
MATERIAL See Notes	RESP ENG		LIGO Phase II Large Actuator Side Plates
FINISH See Notes	MFG ENG		
Scale: 1:1	QUAL ENG		
	SIZE B	DWG. NO. 0487-LIGO-d205-070604-SCS	REV.
	SCALE 1:1	CAD FILE:	SHEET 1 OF 1



Notes:

Treatment: Sulfuric Acid Anodize Clear


All surfaces to be $\sqrt{32}$ finish or better

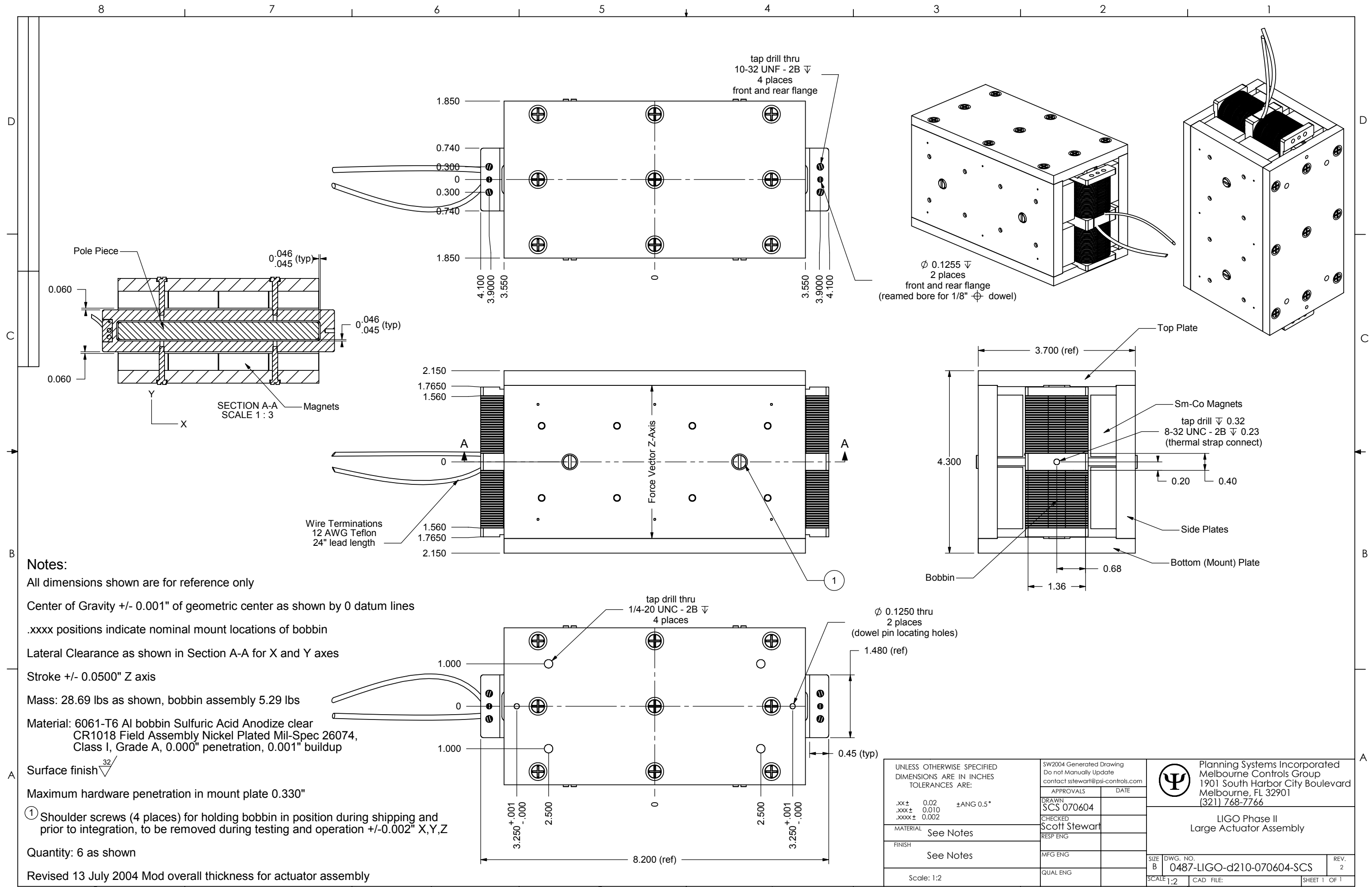
Faces denoted by ① shall be finished machined after anodizing

Material: 6061-T6 Aluminum

Quantity: 6 as shown


Revised 13 July 2004 Mod overall thickness for actuator assembly

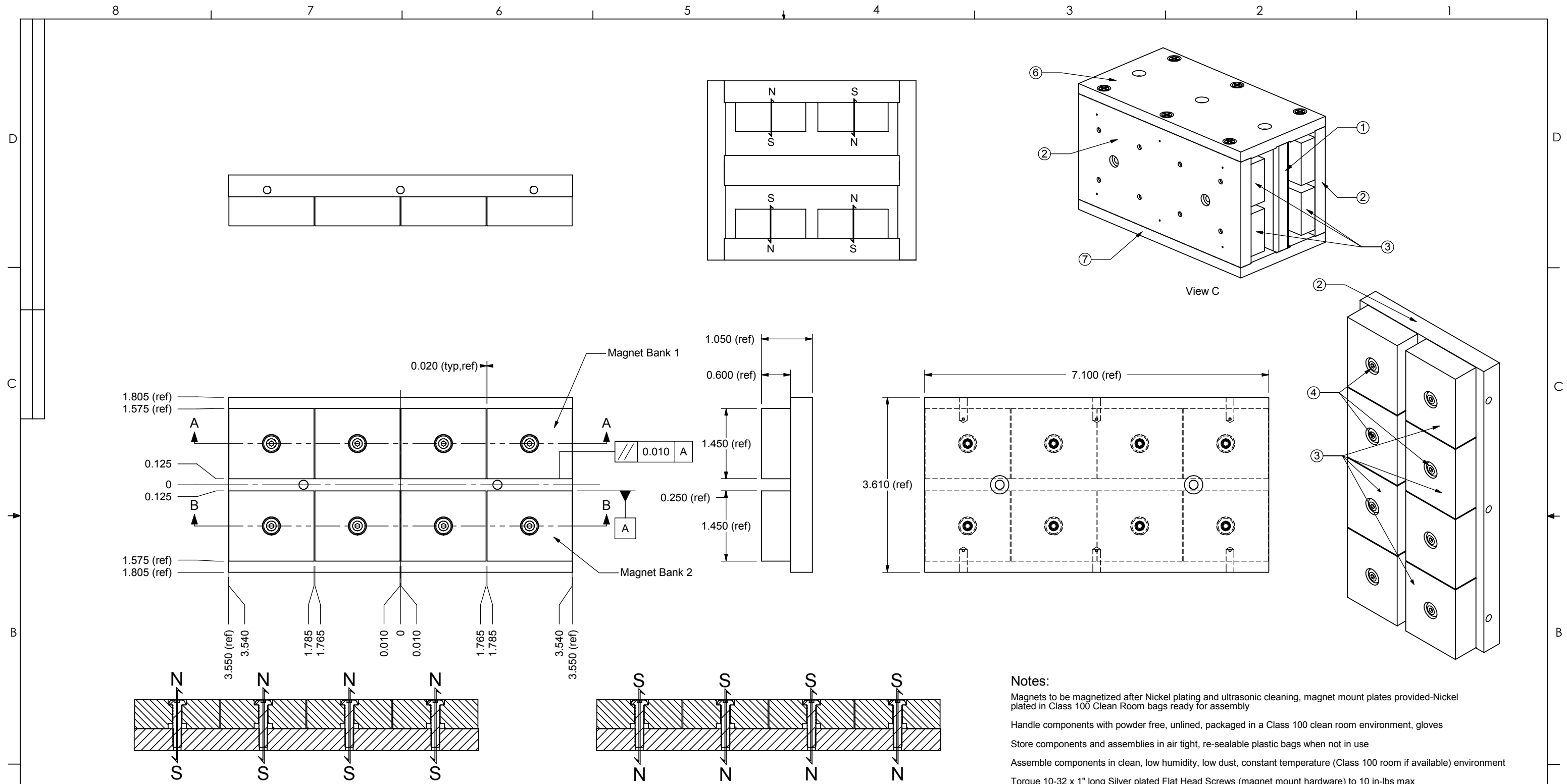
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		SW2004 Generated Drawing Do not Manually Update		 Planning Systems Incorporated Melbourne Controls Group 1901 South Harbor City Boulevard Melbourne, FL 32901 (321) 768-7766
.xx ± 0.010 ±ANG 0.5°	.xxx ± 0.005	APPROVALS	DATE	
.xxxx ± 0.001		DRAWN		LIGO Phase II Large Actuator Bobbin
MATERIAL	See Notes	CHECKED		
FINISH	See Notes	RESP ENG		
Scale: 1:2		MFG ENG		
		QUAL ENG		SIZE DWG. NO. B 0487-LIGO-d206-070604-SCS
				REV. 1 SCALE 1:2 CAD FILE: SHEET 1 OF 1



Notes:
 All dimensions shown are for reference only
 Center of Gravity +/- 0.001" of geometric center as shown by 0 datum lines
 .xxxx positions indicate nominal mount locations of bobbin
 Lateral Clearance as shown in Section A-A for X and Y axes
 Stroke +/- 0.0500" Z axis
 Mass: 28.69 lbs as shown, bobbin assembly 5.29 lbs
 Material: 6061-T6 Al bobbin Sulfuric Acid Anodize clear
 CR1018 Field Assembly Nickel Plated Mil-Spec 26074,
 Class I, Grade A, 0.000" penetration, 0.001" buildup

Surface finish $\sqrt{32}$
 Maximum hardware penetration in mount plate 0.330"
 ① Shoulder screws (4 places) for holding bobbin in position during shipping and prior to integration, to be removed during testing and operation +/-0.002" X,Y,Z
 Quantity: 6 as shown
 Revised 13 July 2004 Mod overall thickness for actuator assembly

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		SW2004 Generated Drawing Do not Manually Update contact: sstewart@psi-controls.com		 Planning Systems Incorporated Melbourne Controls Group 1901 South Harbor City Boulevard Melbourne, FL 32901 (321) 768-7766
.xx ± 0.02	± ANG 0.5°	APPROVALS	DATE	
.xxx ± 0.010		DRAWN		LIGO Phase II Large Actuator Assembly
.xxxx ± 0.002		CHECKED		
		SCOTT STEWART		
		RESP ENG		
MATERIAL	See Notes	MFG ENG		SIZE DWG. NO.
FINISH	See Notes	QUAL ENG		B 0487-LIGO-d210-070604-SCS
	Scale: 1:2			REV. 2
				SCALE 1:2 CAD FILE: SHEET 1 OF 1



Notes:

- Magnets to be magnetized after Nickel plating and ultrasonic cleaning, magnet mount plates provided-Nickel plated in Class 100 Clean Room bags ready for assembly
- Handle components with powder free, unlined, packaged in a Class 100 clean room environment, gloves
- Store components and assemblies in air tight, re-sealable plastic bags when not in use
- Assemble components in clean, low humidity, low dust, constant temperature (Class 100 room if available) environment
- Torque 10-32 x 1" long Silver plated Flat Head Screws (magnet mount hardware) to 10 in-lbs max
- Extreme care must be taken during handling and assembly to avoid chipping of magnets and Nickel plating
- Material: CR 1018 Steel, Magnets SmCo S2669
- Quantity: 12 plate and magnet assemblies as shown, 6 actuators
- Temporarily assemble units as shown in View C for shipping (Top/Bottom plates and hardware provided)

Item Number	Part Description	Notes	Quantity
1	LA Center Pole Piece		1
2	LA Side Plates		2
3	LA Magnets		16
4	10-32 x 7/8" Long Button Head	UC Components Part # BU-1014-NA	16
5	LA Top Plate		1
6	10-32 x 5/8 long Flat Head	UC Components Part # F-1010-NA	18
7	LA Bottom Plate		1

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.xx ± 0.020	±ANG 0.5°	APPROVALS	DATE	
.xxx ± 0.010		SCS 070604		LIGO Phase II Large Actuator MCE Assembly
.xxxx ± 0.005		CHECKED		
MATERIAL	See Notes	RESP ENG		
FINISH	See Notes	MFG ENG		
Scale: 1:2		QUAL ENG		SIZE DWG. NO. B 0487-LIGO-d212-070604-SCS
				SCALE 1:2 CAD FILE: SHEET 1 OF 1