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Find the *Applied Robotics QS-200NP-MP* at our website: *Click HERE*

Applied Robotics™
Solutions in reach

*Quick*STOP™

Collision Sensors

USER'S GUIDE 95010 Rev 00

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APPLIED ROBOTICS INCORPORATED
GLENVILLE, NEW YORK
***Quick*STOP**
ROBOTIC COLLISION SENSOR

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The following are trademarks of Applied Robotics Inc.:
*Quick*STOP
APPLIED ROBOTICS, INCORPORATED
XChange

This product is covered by the following patents:

U.S. Patent No. 5,086,901
JP Patent No. 2024848
KR Patent No. 213399
TW Patent No. 057136

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1. PRECAUTIONS



DANGER NOTICE
Indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.



CAUTION NOTICE
Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.



WARNING NOTICE
Indicates a potentially hazardous situation which, if not avoided, will or could result in minor or moderate injury; also used where the risk applies to only property damages.

IGNORING INFORMATION ABOUT POTENTIAL HAZARDS CAN LEAD TO SERIOUS HARM TO PERSONNEL AND/OR DAMAGE TO THE EQUIPMENT, AND MAY RESULT IN THE NULLIFICATION OF THE MANUFACTURERS' EQUIPMENT WARRANTY.

HEED ALL PRECAUTION NOTICES

2. *QUICK*STOP OPERATING PRINCIPLE

A pneumatically sealed, Pressurized Chamber is used to provide collision protection for robot and tooling. When a collision occurs, the seal instantly opens resulting in an immediate loss of pneumatic pressure in the chamber. The Quickstop unit acts as the valve that releases the pressurized air, as the stop signal is generated. The pressure loss is sensed by a pressure switch that can be wired into your robot emergency stop circuit or other stop circuit. The switch is an aircraft type "MICRO" switch UL and CSA listed at 7 amps - 250 VAC.

By varying the pneumatic pressure in the chamber, the overload threshold can be easily adjusted to suit your particular requirements. By using a variable pressure programmable regulator your robot controller can dynamically change the pressure. All *Quick*STOP Units provide collision compliance in all axes including unwanted deflection directly into the faceplate of the robot. The **only** motion that will not break the seal is a purely tensile axial force with absolutely no other loading on the *Quick*STOP Unit
All *Quick*STOP models include rotary compliance: rotation about the "Z" axis. The larger size units are supplied with a Rotation Limiting Stop installed. This stop may be removed if additional rotational compliance is desired.

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3. INSTALLATION OF QS7 - QS7500 / QS-AWFP & QS-AWSD

PLEASE REVIEW THESE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING YOUR *Quick*STOP Unit.

WARNING

KEEP OUT OF THE ROBOT WORK ENVELOPE WHEN DRIVE POWER IS ON

3.1. Mount to robot

CAUTION

THE TOOLING SURFACE THAT MATES WITH THE BOTTOM OF THE QUICKSTOP SHOULD BE MACHINED FLAT WITHIN .001" (.025MM). BOLTING AN UNEVEN SURFACE TO THE BOTTOM OF THE QUICKSTOP MAY DISTORT THE HOUSING AND CAUSE AN AUDIBLE LEAK.

NOTE: Applied Robotics recommends mounting model QS-7 inverted as shown in drawing listed below.

If your *Quick*STOP Robot-Side Adaptor Plate has been pre-drilled:

1. **Mount** it with the appropriate hardware.

If not

2. **Machine** the Adaptor Interface Plate to match your robot faceplate mounting requirements.

3. **Mount** the Adaptor Interface Plate to your robot.

NOTE: For models QS800, QS1500, QS3000, QS4500 and QS7500, proceed to Step 5. Pressurizing the larger units is not necessary because of the strength and rigidity of the internal spring.

4. **Attach** the Quickstop unit to the adapter interface plate by using the six (6) socket head cap screws provided. All screws must be installed and evenly tightened per below table.

UNIT	MEASUREMENTS		UNIT	MEASUREMENTS	
	in-lb	Nm		in-lb	Nm
QS7	4	0,5	QS200	16	1,8
QS25A	4	0,5	QS400	30	3,4
QS50	4	0,5	QS800	133	15,0
QS100	12	1,4	QS1500	133	15,0
QSAW	16	1.80	QS3000	265	29,9

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5. Temporarily **pressurize** the *Quick*STOP unit to hold the central flanged stem portion rigid.
   a) **Apply** pneumatic pressure at 3-6 bars (40 - 87 PSIG) to one of the two input pneumatic ports marked "M5" and "10-32" located on the unit. Plug the unused port with the plug supplied.
   b) **Plug** the unused port with the supplied brass plug
   c) With pneumatic pressure applied, **align** the white colored "alignment mark" on the outside of the unit body with the "alignment mark" located on the flange shaft. This will seal the unit, pressurize the chamber and hold the stem flange rigid in the sealed position.

6. **Mount** the *Quick*STOP Unit onto the Adaptor Interface Plate by.
   a) **Fitting** the *Quick*STOP Unit flange to the Adaptor Interface Plate
   b) **Placing** the two-piece clamp ring around the plate and flange.
   c) Evenly **tighten** the clamp ring screws according to your model number.

7. **Attach** your tooling to the bottom surface of the *Quick*STOP Unit by using any of the counterbored through-holes provided for socket head cap screws.



DO NOT DRILL AND TAP THE TOP PLATE OF THE QUICKSTOP UNIT. ANY HOLES WHICH BREAK TROUGH TO THE PNEUMATIC CHAMBER WILL CAUSE LOSS OF PRESSURE AND DAMAGE TO INTERNAL COMPONENTS.

8. **Plumb** a clean, dry permanent pneumatic supply line to one of the two ports on the body of the *Quick*STOP Unit. Plug the unused port with the brass or steel plug included. The pneumatic supply for the *Quick*STOP should not be interrupted when the robot, robot cell power or pneumatic supply is turned off. Using an uninterruptable pneumatic supply will insure that the *Quick*STOP Unit will not "nuisance release" when the robot or cell is shut down.

UNIT	PORT(S)
QS-7	M3 tapped port
QS-25A	M5 or 10-32 tapped ports
QS-50	
QS-100	
QS-200	
QS-400	

UNIT	PORT(S)
QS-800	¼ NPT or ¼ BSPT ports
QS-1500	
QS3000	3/8 NPT or 3/8 BSPT ports
QS4500	
QS7500	

A variable pressure source is recommended to allow flexibility of the break-away threshold point. To adjust the pneumatic pressure you can use:

- A single air regulator
  OR
- A solenoid valve and two regulators (this creates a simple two-pressure supply. For reference, see drawing 93501-C1083A in the Drawings section)
  OR
- An electro/pneumatic relay converter valve -- this unit accepts a digital 6-bit electrical signal to vary pressure output.

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9. Wire the *Quick*STOP electrical lead in series with the Robot Emergency Stop Circuit or other "stop" circuit. *Quick*STOP contains a pressure switch that is held closed when the pneumatic chamber is pressurized, but opens when pneumatic pressure in the unit is lost. The lead is wired to the normally open (NO) contacts of the internal switch. These are pin numbers 1(brown) & 4 (black) on T3S, T3M and T4L type connectors and pin numbers 1 & 2 (on the "D" subminiature connector (-MP version units)).

10. On QuickSTOP units sizeQS-800 and larger a T4 switch is used. These switches can either be wired NO (Normally open) or NC (Normally closed) *(shown on drawing 0007-C75A in drawing section of this manual.)* Remember these states as described before the QuickSTOP unit is pressurized. When the unit is pressurized the states will reverse.

NOTE: Older QS-800 and larger units used a T3L switch. To convert to the standard T4L switch, use retrofit kit 0101-C33A, Kit, Cable & Switch T4L

See the Outline Drawings in the Informational Drawings Section for more mounting detail.

If existing holes can not be used, an Adaptor Interface Plate should be fabricated. It should contain your *Quick*STOP mounting hole pattern and your tooling mounting hole pattern.

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3.2. Mounting of torch (only QS-AWFP & QS-AWSD)

3.2.1. Flat Plate *Quick*STOP (QS-AWFP):

1. **Machine** the Torch Holder Mounting Plate to match your torch bracket requirements.
2. **Mount** the Torch Holder Mounting Plate to the torch bracket using appropriate hardware.
3. **Fit** the *Quick*STOP Unit flange to the Torch Holder Mounting Plate.
4. **Place** the two (2) piece clamp ring around the plate & flange.
5. Evenly **tighten** the clamp ring screws to 180 Nm (16 in lb).
6. **Plumb** a permanent pneumatic supply line to one of the two ports on the body of the *Quick*STOP Unit.
7. **Plug** the unused port with the supplied brass or steel plug.
8. **Plumb** the pneumatic lines to the *Quick*STOP so that they filter debris and moisture in the system. A **coalescing** filter is preferred. The pneumatic supply for the *Quick*STOP should not be interrupted when the robot, robot cell power or pneumatic supply is turned off. Using an uninterruptable pneumatic supply will insure that the *Quick*STOP Unit will not "nuisance release" when the robot or cell is shut down.

A variable pressure source is recommended to allow flexibility of the break-away threshold point. To adjust the pneumatic pressure you can use:

- A single air regulator
  OR
- A solenoid valve and two regulators (this creates a simple two-pressure supply, For reference, see drawing 93501-C1083A in the drawings section)
  OR
- An electro/pneumatic relay converter valve -- this unit accepts a digital 6-bit electrical signal to vary pressure output.

See drawing number 93501-C1083A in the Informational Drawings Section.

9. **Wire** the *Quick*STOP electrical lead in series with the Robot Emergency Stop Circuit or other "stop" circuit. *Quick*STOP contains a pressure switch that opens when the pneumatic pressure in the chamber falls to nearly zero. The lead is wired to the normally open (NO) contacts of a snap acting aircraft type "MICRO" switch. The switch contacts are held closed when the pneumatic chamber is pressurized. Wire colors brown and black are wired to the normally open switch contacts.

See drawing number 95500-C1027A for models QS-AWFP and QS-AWSD in the Informational Drawings Section.

3.2.2. Stem Mount *Quick*STOP (QS-AWSD):

1. **Mount** the torch bracket to the *Quick*STOP stem with appropriate hardware.
2. **Proceed** to Section 3.2.1 Steps 6-9.

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4. INITIAL TESTS FOR PROPER SWITCH OPERATION

NOTE: The UL recognized rating for this switch is 42.4 VDC max. , 3 amps max.



KEEP OUT OF THE ROBOT WORK ENVELOPE WHEN DRIVE POWER IS ON

1. **Turn off** the pneumatic supply to the *Quick*STOP unit. The *Quick*STOP pneumatic chamber should not be pressurized. In this state, the internal pressure switch will be open and the "Stop" circuit that the QuickSTOP is wired to should be interrupted. Verify that the *Quick*STOP interrupts the "Stop" circuit it is wired to. All other system "Stop" switches or devices must be "closed".

2. **Apply** pneumatic pressure to the unit at approximately 1 bar (14 PSIG) (use a higher pressure if the initial moment applied by your tooling is too great to allow sealing). Manually align the "alignment marks" to cause the unit to seal. This will allow the pneumatic chamber to pressurize and the *Quick*STOP will become rigid. At this time the internal pressure switch will be closed. Verify that all other "Stop" devices are closed.

3. **Apply** system power. While heeding the **WARNING** above, trip the Unit by applying a moment or torque to the Unit or to your tooling. When the *Quick*STOP releases, your "Stop" circuit should immediately be interrupted.

4. **Manually reset** the Unit. When the Unit becomes rigid and no escaping air can be heard, the "Stop" circuit will be closed once again.

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5. GUIDE TO OPERATIONS

Operate the *Quick*STOP at a pressure level as low as possible without having the normal movements of the robot trip the *Quick*STOP.

NOTE: The optimum pressure for operation depends on many factors. These factors can change as the robot moves through its programmed sequence. It is not possible to recommend pressure settings. Factors that must be considered:

- Robot acceleration values
- Mass of tooling
- Distance of the tool center of gravity from the *Quick*STOP interface point
- Offset from the *Quick*STOP axial centerline
- Direction of the applied forces

A variable pressure source is preferred to allow for adjustment of the trip threshold to match the changing "normal" force conditions which occur as the robot moves. If only one set pressure is utilized, the pressure will have to be set to resist the maximum "normal" force encountered during programmed robot movement. This pressure may be so high that the force required to trip the *Quick*STOP in a "collision" situation may cause damage to your tooling. Since the type of robot and the durability (strength) of the tooling determines how much of an abnormal force can be tolerated before damage occurs, it is difficult to predict the conditions for which a single pressure source would be satisfactory.

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6. IN CASE OF DIFFICULTY

If you require assistance, contact our Applications Engineers in our Technical Support Departments at :

USA	Main Office :	**+ 1 518 384-1000**
USA	Michigan Office :	**+ 1 248 358 3677**
Europe	Belgium Office :	**+ 32 65 80 38 41**

In normal use, *Quick*STOP's internal parts will not need replacement or adjustment. If internal parts are damaged due to an extreme collision occurrence, we recommend that you return the unit to Applied Robotics for inspection, repair and adjustment, since special tools and fixtures are required to insure correct set-up.

7. MAINTENANCE

No user maintenance is required.

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8. ENGINEERING DATA

		QS-7	QS-25A	QS-50	QS-100	QS-AWFP/SD	QS-200	QS-400	QS-800	QS-1500	QS-3000	QS-4500	QS-7500
Compliance angle		± 5°	± 5°	± 5°	± 5°	± 5°	± 5°	± 5°	± 5°	± 5°	± 5°	±4°	±4°
Axial Compliance (z+)	Mm	1.38	3.40	4.30	4.50	4.50	5.20	6.60	9.30	10.80	14.30	10.68	12.68
	in	0.054	0.134	0.169	0.177	0.177	0.205	0.265	0.366	0.425	0.563	0.420	0.499
Rotary Compliance		no limit	no limit	no limit	no limit	no limit	no limit	no limit	± 25°	± 25°	± 25°	±25°	±25°
Operating Pressure		1.0 – 6.0 bar (14.5 – 87 psig)							1.4 – 6.0 bar (20 – 87 psig)				
Mz Moment trip point (continuously variable via air pressure):	N-m	.28-1.5	1.0-6.4	2.2-14.0	5.3-30.4	7.5-45.2	7.5-45.2	11.8-84.6	53-255	87-371	153-478	345-1185	1007-2098
	in-lb	2.5-13.5	9-56	19-124	47-270	66-400	66-400	104-749	427-2250	784-3284	1353-4232	3315-10490	8919-18568
Mx & My Moment trip point (continuously variable via air pressure):	N-m	.31-1.5	1.0-6.4	2.6-11.8	4.1-20.3	3.62-32.43	5.9-32.4	11.3-63.9	36-158	82-291	105-414	220-614	472-1049
	in-lb	2.7-13.2	9 - 56	23-104	36-180	32-287	52-287	100-566	292-1400	727-2573	924-3664	1950-5433	4181-9289
Z-axis Compression force (continuously variable via air pressure):	Kg												
	Lb	5 - 30	15 - 92	25 - 150	40 - 238	73 - 340	53 - 320	91 - 523	210 - 960	312 - 1448	724 - 2745	931 - 2952	1771 - 4629
Repeatability:	Mm	± 0.013		± 0.025						± 0.038			
at tool mounting surfaces X and Y	In	± 0.0005		± 0.001						± 0.0015			
Repeatability:	Mm	± 0.013											
at tool mounting surface Z	In	± 0.0005											
Repeatability:	rad. (10^{-3})	± 0.489	± 0.419	± 0.419	± 0.419	± 0.68	± 0.419	± 0.419	± 0.500				
rotational	deg.	± 0.028	± 0.024	± 0.024	± 0.024	± 0.039	± 0.024	± 0.024	± 0.029				
Mass	Kg	.11	.26	.29	.45	0.86/0.75	.68	1.3	3.72	5.5	12.2	12.8	16.8
	Lb	.24	.56	.65	.99	1.89/1.67	1.5	2.9	8.2	12	27	28	37
Center of Mass	Mm	11	18.6	20.3	21.6	25,7	25.7	32.6	46.8	54.6	66.0	66.0	73
(from robot adaptor interface plate)	In	.43	.73	.80	.85	1,01	1.01	1.29	1.84	2.15	2.60	2.60	2.875
Average response time	Ms	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 18	< 18	< 18	< 18	< 18
Operating temperature		Min. 0° C (32° F) Max. 70° C (158° F)				Min. 0° C (32° F) Max. 100° C (212° F)							
Switch Description		High reliability aircraft snap acting type. UL/CSA rated at 3 amps, 120 VAC.											
UL Recognized Rating		Average mechanical life - 7 million cycles. - 42.4 VDC Max. - 3 amps Max.											
Switch Cable 5m weld flash protected		No	No	No	No	Yes	No	No	No	No	No	No	No
Dust protection		Standard foam collar supplied				Metal Screen	Standard foam collar supplied						Screen collar supplied
Welding Flash Protection						Metal Screen	Optional high-temperature skirt kit available						

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9. INFORMATIONAL DRAWINGS

- The drawings in this section can assist with installation, use and identification of replacement part numbers for *Quick*STOP.
- Outline/Replacement Part drawings for each of the *Quick*STOP Models are included.
- A wiring diagram for *Quick*STOP Switch Assembly is provided.
- When ordering replacement parts, locate the Outline/Replacement Parts Drawing for your *Quick*STOP model. Use that drawing to identify the Applied Robotics Part Number (not the item number) for the part(s) you need.
- Each *Quick*STOP Part has a unique Applied Robotics part number associated with it. Where practical, the part number is permanently marked on the part to aid in its identification.

The following drawings are included in this User's Guide.

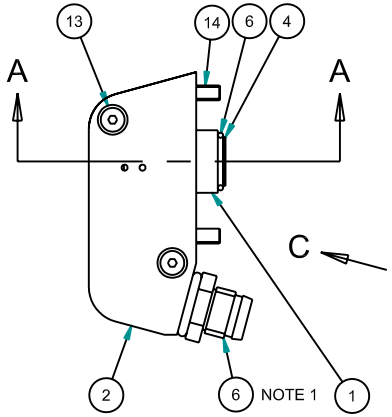
DRAWING NUMBER	DESCRIPTION
99500-C1013A	Electrical Schematic - QuickSTOP Wiring Diagram for T3M Switches QS 7
95500-C1027A	Electrical Schematic - QuickSTOP Wiring Diagram for T3S Switches QS-25A through QS-400
0007- C75A	Electrical Schematic - QuickSTOP switch wiring diagram for T4L Switches QS-800 thru QS-7500
91502-C1027A	Electrical Schematic - QuickSTOP Wiring Diagram for Modular Plug Switches QS 25A through QS 400
93501-C1083A	QuickSTOP Air Pressure Control System
99500-C1030A	Plate, Adaptor, QS 7
99503-C1036A	Plate, Adaptor, QS-7IBP
92503-B1043A	Plate, Adaptor, QS 25A
90511-B1023A	Plate, Adaptor, QS 50
90510-C1002A	Plate, Adaptor, QS 100
90510-B1029A	Plate, Adaptor, QS 200
90511-B1033A	Plate, Adaptor, QS 400
90510-C1059A	Plate, Adaptor, QS 800 LR
90510-C1083A	Plate, Adaptor, QS 1500 LR
90502-D1085A	Plate, Adaptor, QS 3000/4500/7500
99503-C1008A	Outline/Replacement Parts Drawing, QS-7INP-T3M
94501-D1037A	Outline/Replacement Parts Drawing, QS-25ANP-T3
94501-D1038A	Outline/Replacement Parts Drawing, QS-50NP-T3
94501-D1068A	Outline/Replacement Parts Drawing, QS-100NP-T3
94501-D1069A	Outline/Replacement Parts Drawing, QS-200NP-T3
94501-D1070A	Outline/Replacement Parts Drawing, QS-400NP-T3
91501-D1095A	Outline/Replacement Parts Drawing, QS-800LRNP-T4
91501-D1096A	Outline/Replacement Parts Drawing, QS-1500LRNP-T4
90503-D1016A	Outline/Replacement Parts Drawing, QS 3000 LRNP-T4
95500-D1048A	Outline/Replacement Parts Drawing, QS-4500LRNP-T4
97502-D1039A	Outline/Replacement Parts Drawing, QS-7500LRNP-T4

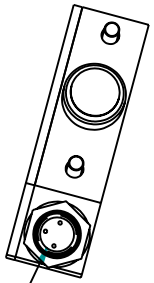
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DRAWING NUMBER	DESCRIPTION
92503-D1082A	Outline/Replacement Parts Drawing, QS-25ANP-MP
91501-D1091A	Outline/Replacement Parts Drawing, QS-50NP-MP
91501-D1092A	Outline/Replacement Parts Drawing, QS-100NP-MP
91501-D1093A	Outline/Replacement Parts Drawing, QS-200NP-MP
91501-D1094A	Outline/Replacement Parts Drawing, QS-400NP-MP
92500-D1006A	QuickSTOP Collision Sensor Model QS-AWSDNP
94502-D1047A	QuickSTOP Collision Sensor Model QS-AWFPNP
95601-C1057A	Torch Mounting information for QS-AWSD
96501-C1079A	Torch Mounting information for QS-AWFP

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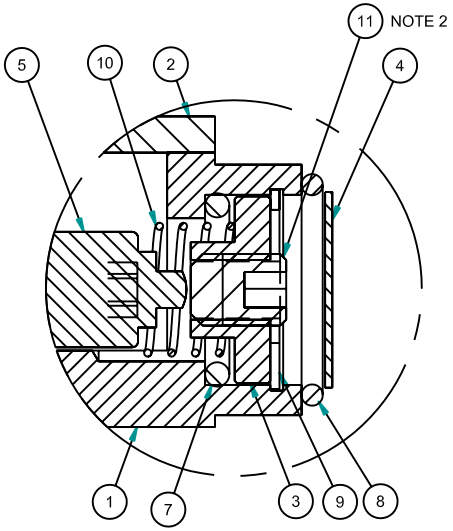
REVISIONS					
REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	CHANGED TITLE FROM QS-10 TO QS-7, ADDED VIEW C	JV	TM	04/07/99	JFID-3NCT9B
02	ITEM #8 0604-P99N WAS 90502-P1035	PS	TD	06/21/06	ASMH-6NHTFC



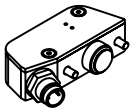


PIN ORIENTATION

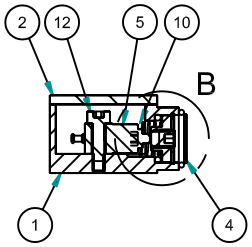
VIEW C



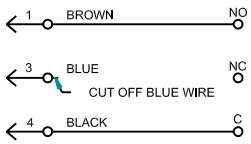
DETAIL B
8:1



NOTES:
1. APPLY LOCTITE 271 ARI #86005-P1304.
2. APPLY LOCTITE 290 ARI #93501-P1084.



SECTION A-A



WIRING DIAGRAM

ITEM	QTY	ARI PART NO.	DESCRIPTION
14	2	48007	SCR., SOC HD CAP M2.5 X 6
13	2	48153	SCR, FLAT HD SOC CAP
12	2	48003	SCR, SOC HD CAP M2 X 8
11	1	90501-P1091	SCR, SOC SET
10	1	96509-P1011	SPRING
9	1	90502-P1032	RING, SNAP
8	1	0604-P99N	O-RING, .312 ID X .035
7	1	96504-P1026	O-RING, .239 ID X .04
6	1	93505-P1013	CONNECTOR, 3 PIN
5	1	89505-P1003	SWITCH, QUICKSTOP
4	1	91504-B1065	SCREEN
3	1	90502-B1029	PLUNGER
2	1	99500-C1015	PLATE, SWITCH COVER
1	1	99500-D1014	HOUSING, SWITCH

BILL OF MATERIALS

PRINT DATE
21/06/2006

APPROX. MODEL WEIGHT 0,1 lbm

THIRD ANGLE PROJECTION

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ± .25
.XX = ± .12
ANGLES = ± 1/2
SURFACE FINISH = 1.6

MAT'L:

SURFACE TREATMENT:

DR	J VALLELUNGA 01-12-99
CHK	
ENG	J VALLELUNGA 01-12-99
MFG	
ISSUED	
QC	

SCALE: IX

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

Applied Robotics, Inc.
648 Saratoga Rd.
Glenville, NY 12302
Tel. (518) 384-1000
Fax. (518 384-1200

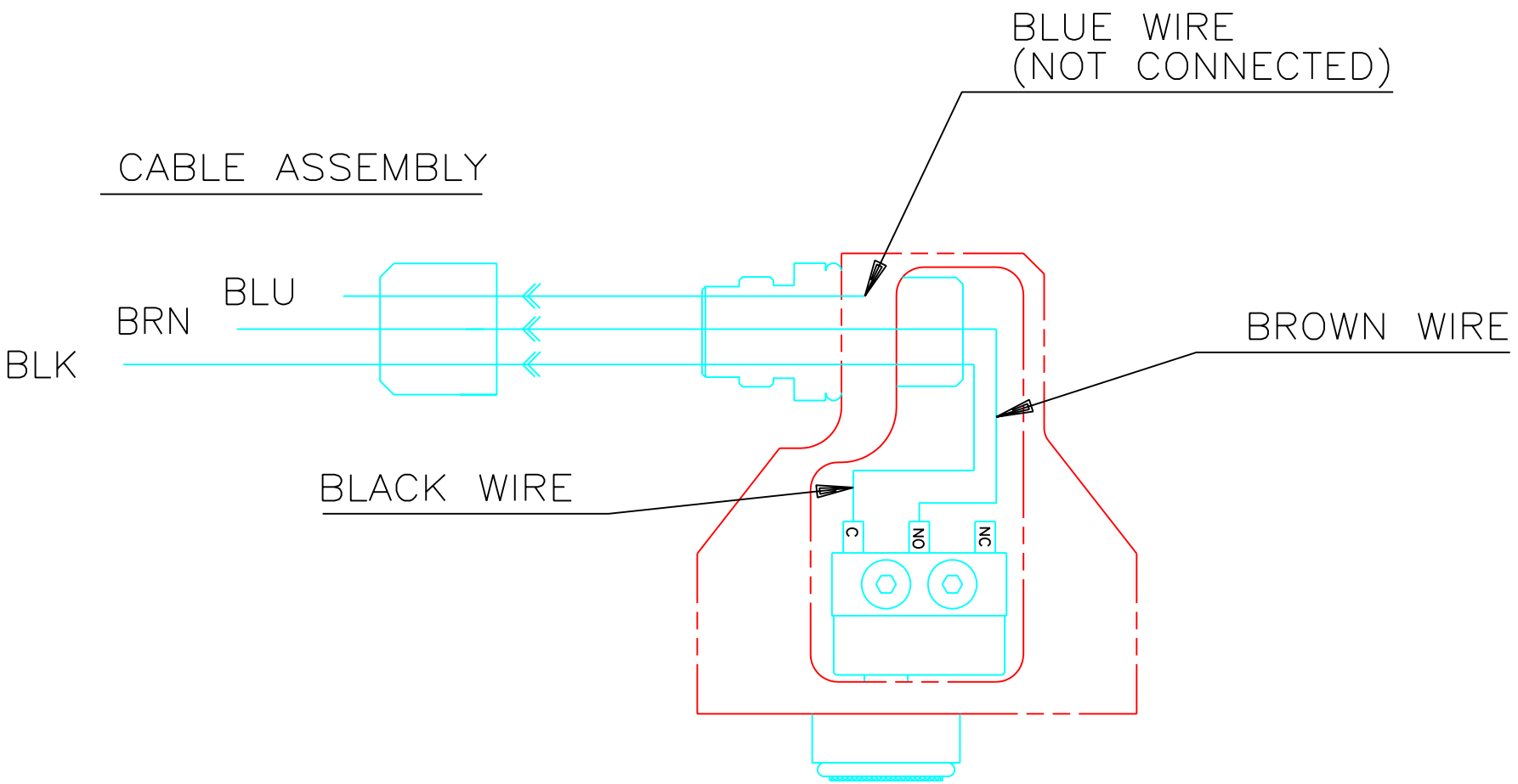
TITLE

QSSA-T3M

3D ISO 9001 REGISTERED

SIZE C | 99500-C1013A | 02

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QUICKSTOP SWITCH ASSEMBLY

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ISO 9001 REGISTERED

METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓

MAT'L:

SURFACE TREATMENT:

ITEM	QTY	ARI PART NO.	DESCRIPTION

DR KK 1/24/95
CHK
ENG
MFG
QC
ISSUED

SCALE: 2x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

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648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

TITLE
ELECTRICAL SCHEMATIC
T3 SWITCHES
QS25A – QS400

SIZE C

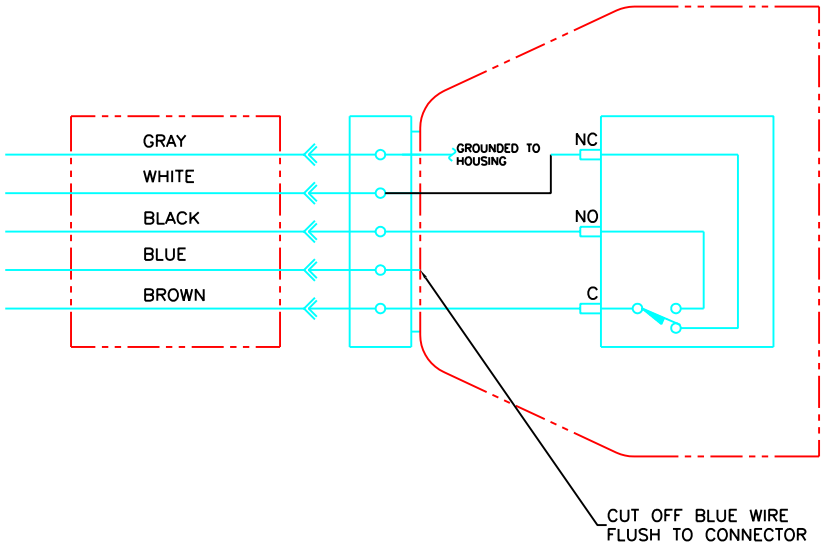
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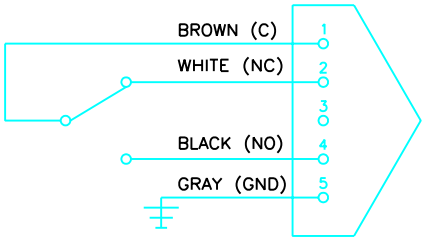
REV 02

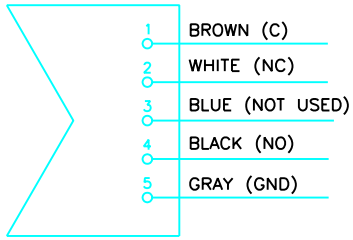
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CABLE ASSEMBLY

QUICKSTOP SWITCH ASSEMBLY







APPROVED FOR PRODUCTION

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ISO 9001 REGISTERED

METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = 1.6

MAT'L:

SURFACE TREATMENT:

ITEM	QTY	ARI PART NO.	DESCRIPTION

DR P.SLAVINSKI 12/06/00
CHK J.ECKER 12/06/00
ENG D.ANTHONY 12/06/00
MFG DS 12/06/00
QC DP 12/06/00
ISSUED

SCALE: NONE

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

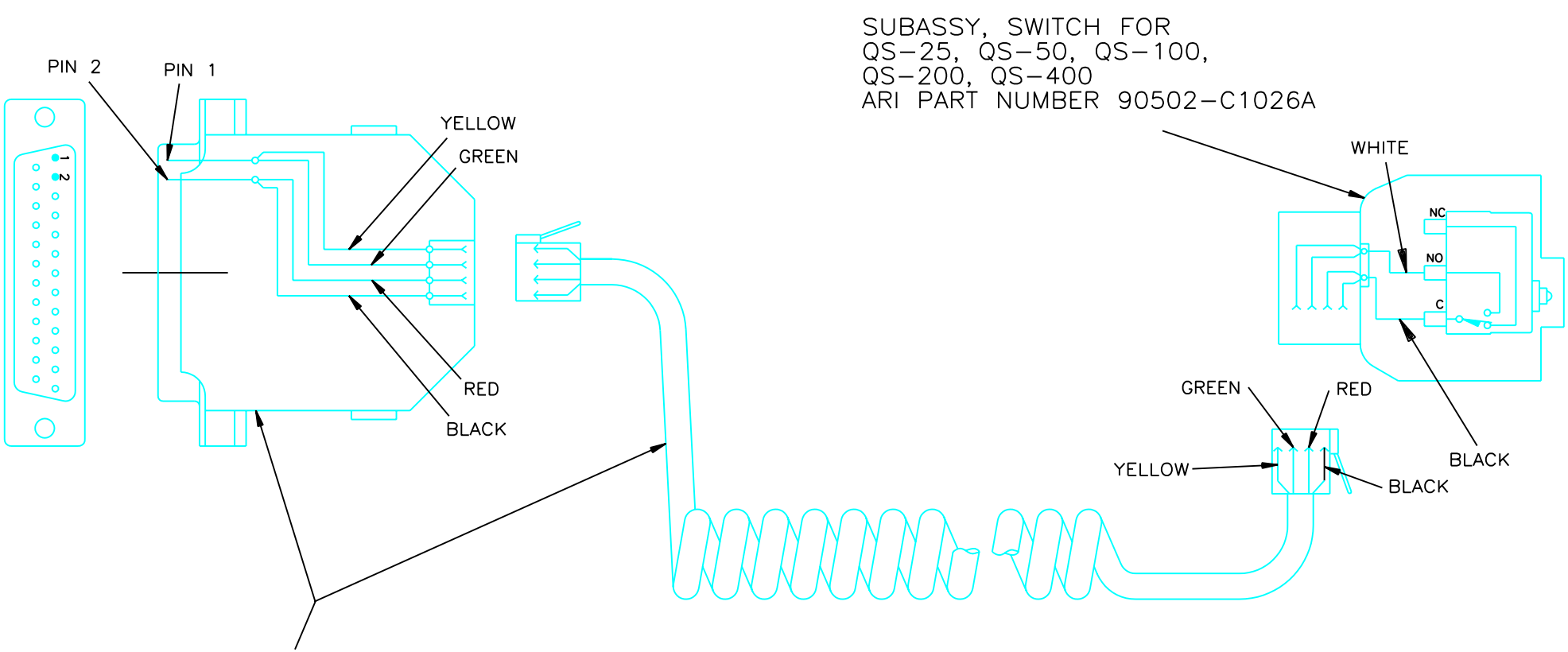
Applied Robotics
Solutions in reach
Applied Robotics, Inc.
648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

TITLE

ELECTRICAL SCHEMATIC
QSSA-T4L
WIRING DIAGRAM
QS-800 THRU QS-7500

SIZE	DRAWING NUMBER	REV
C	0007-C75A	03

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓

MAT'L:

SURFACE TREATMENT:

ITEM	QTY	ARI PART NO.	DESCRIPTION

DR JE 4/8/91
CHK
ENG
MFG
QC
ISSUED

SCALE: 1x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

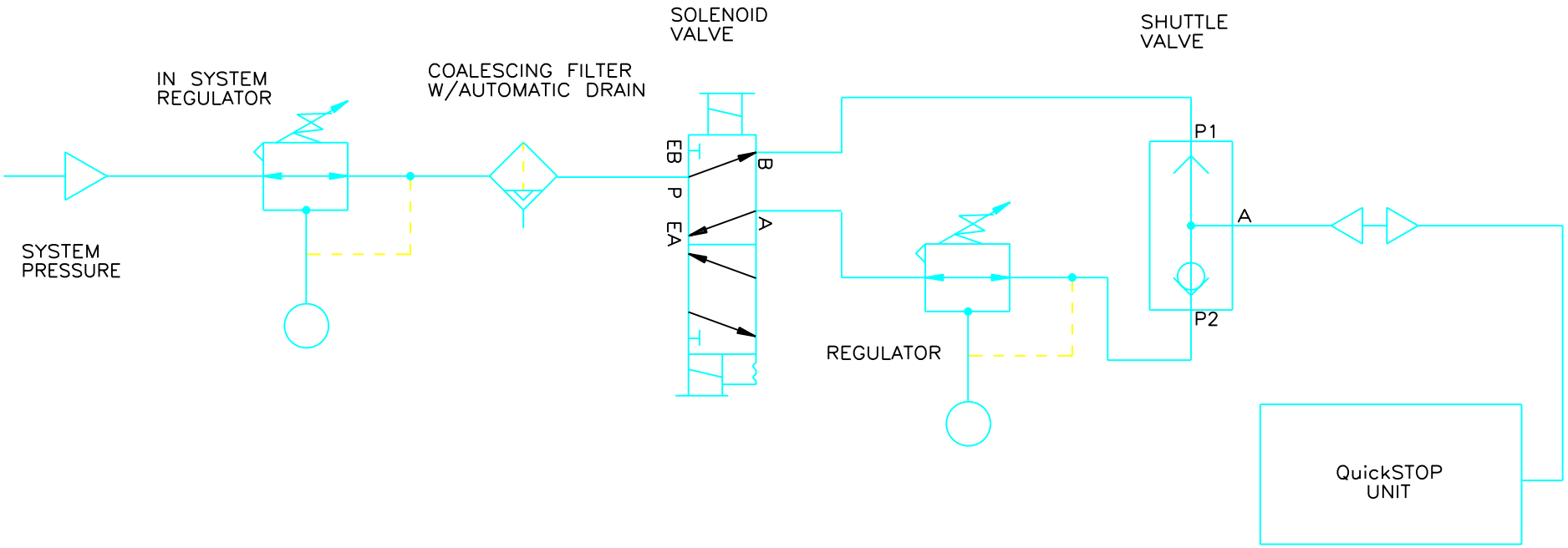
Applied Robotics
Solutions in reach
Applied Robotics, Inc.
648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

TITLE

ELECTRICAL SCHEMATIC QUICKSTOP WIRING DIAGRAM QS-25 THRU QS-400

SIZE	DRAWING NUMBER	REV
C	91502C1027A	03

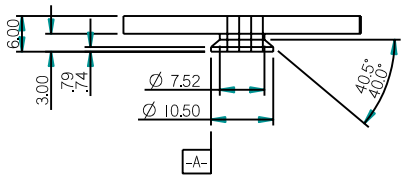
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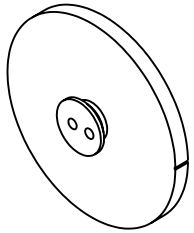


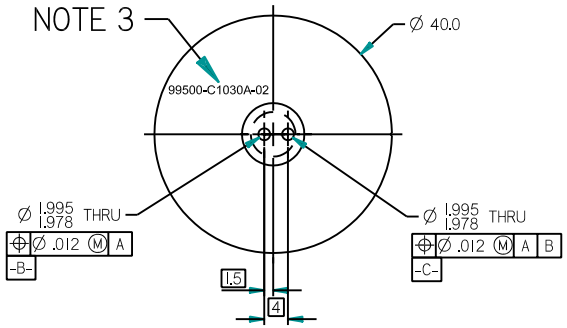
THIRD ANGLE PROJECTION	METRIC	ITEM | QTY | ARI PART NO. | DESCRIPTION		
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ISO 9001 REGISTERED	SURFACE TREATMENT:	DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982	SIZE C	DRAWING NUMBER 93501C1083A REV 03

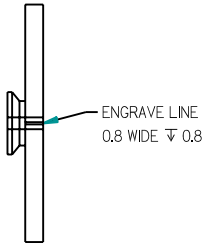
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REVISIONS					
REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	DELETED DIA 5.94/5.92 BOSS, ADDED 1x DIA 1.995/1.978 HOLE. DRAWING TITLE WAS QS-10	JV	TM	04/05/99	JFID-3NCT9B
02	SURFACE TREATMENT WAS POLY-LUBE	PS	TD	09/09/03	ASMH-5PX2H7









NOTES:
1. BREAK ALL SHARP EDGES .13mm - .38mm.
2. MACHINE AS DIMENSIONED DO NOT COMPENSATE FOR SURFACE TREATMENT.
3. PERMANENTLY MARK PART NO. (INC. REV. NO.) FOLLOWED BY SUPPLIER ID MARKING USING 1.5mm HIGH CHARACTERS. FILE SMOOTH ANY RAISED MATERIAL.
4. SUPPLIER TO HANDLE ALL SURFACE TREATMENTS. ARI TO SPECIFY PLATING FACILITY FOR FLASH TEFLON IMPREGNATED HARDCOATING.
5. FLASH TEFLON IMPREGNATED HARDCOAT, .0007/.0009 IN. NO MASKING REQUIRED.

APPROVED FOR PRODUCTION

PRINT DATE 9/09/2003

APPROX. MODEL WEIGHT 0,023 lbm

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ± .25
.XX = ± .12
ANGLES = ± 1/2
SURFACE FINISH = 1.6

MATL: ALUM 6061-T6

SURFACE TREATMENT: NOTES 4 & 5

3D ISO 9001 REGISTERED

BILL OF MATERIALS

DR	J VALLELUNGA 1/18/99
CHK	J.E. 1/18/99
ENG	J VALLELUNGA 1/18/99
MFG	A.P. 1/21/99
ISSUED	J.E. 1/21/99
QC	D.P 1/21/99

SCALE: 2X

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

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Glenville, NY 12302
Tel. (518) 384-1000
Fax. (518 384-1200

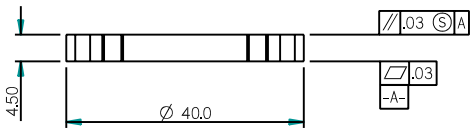
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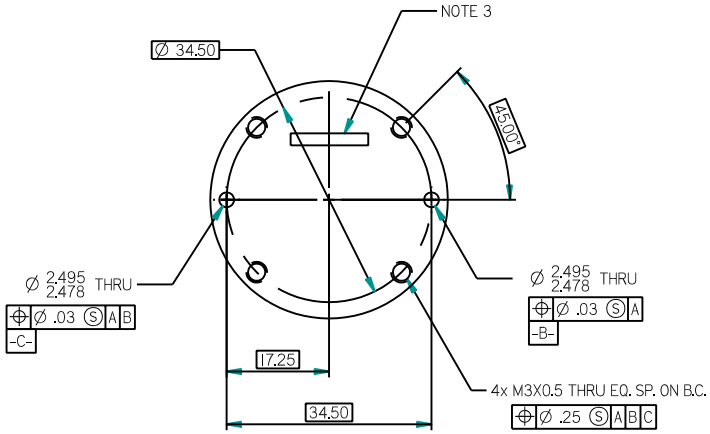
ADAPTER PLATE
QS-7

SIZE C | 99500-C1030A | 02

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REVISIONS					
REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.





NOTES:
1. BREAK ALL SHARP EDGES .13mm - .38mm.
2. MACHINE AS DIMENSIONED DO NOT COMPENSATE FOR SURFACE TREATMENT.
3. PERMANENTLY MARK PART NO. (INC. REV. NO.) FOLLOWED BY SUPPLIER ID MARKING USING 1.5mm HIGH CHARACTERS. FILE SMOOTH ANY RAISED MATERIAL.
4. SUPPLIER TO HANDLE ALL SURFACE TREATMENTS. ARI TO SPECIFY PLATING FACILITY FOR FLASH TEFLON IMPREGNATED HARDCOATING.
5. FLASH TEFLON IMPREGNATED HARDCOAT, .0007/.0009 IN. NO MASKING REQUIRED.

APPROX. MODEL WEIGHT 0,0 lbm

PRINT DATE
3/02/2004

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ± .25
.XX = ± .12
ANGLES = ± 1/2
SURFACE FINISH = 1.6

MATL:
ALUM 6061-T6

SURFACE TREATMENT:
NOTES 4 & 5

3D ISO 9001 REGISTERED

BILL OF MATERIALS

DR	J VALLELUNGA	4/19/99
CHK	JE	4/22/99
ENG	J VALLELUNGA	4/19/99
MFG	AP	4/22/99
ISSUED	JE	4/26/99
QC	DP	4/26/99

SCALE: IX

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

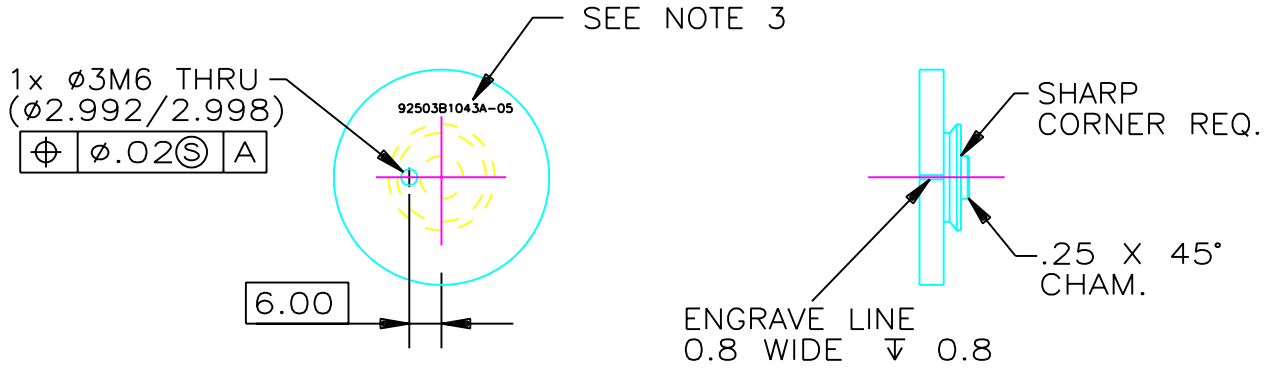
Applied Robotics, Inc.
648 Saratoga Rd.
Glenville, NY 12302
Tel. (518) 384-1000
Fax. (518 384-1200

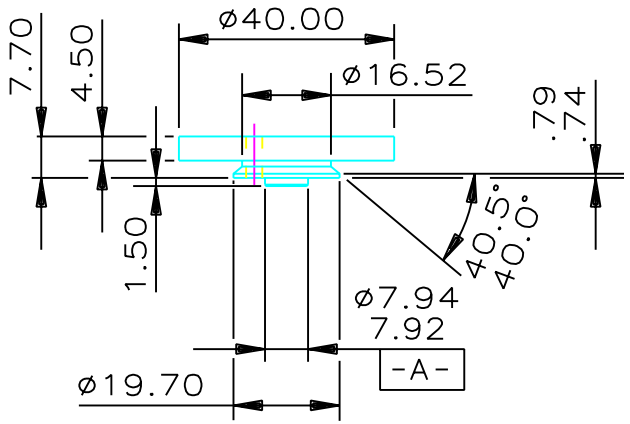
TITLE

ADAPTER PLATE
QS-7

SIZE C | 99503-C1036A | 00

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NOTES:
1) BREAK ALL SHARP EDGES .13mm–.38mm
2) MACHINE AS DIMENSIONED DO NOT COMPENSATE FOR SURFACE TREATMENT.
3) PERMANENTLY MARK PART NO. (INC. REV. NO) FOLLOWED BY SUPPLIER ID MARKING USING 1.5mm HIGH CHARACTERS. FILE SMOOTH ANY RAISED MAT'L.
4) SUPPLIER TO HANDLE ALL SURFACE TREATMENTS. ARI TO SPECIFY PLATING FACILITY FOR FLASH TEFLON IMPREGNATED HARDCOATING.
5) FLASH TEFLON IMPREGNATED HARDCOAT, .0007/.0009 IN. NO MASKING REQUIRED.
6) MAKE FROM 0306–C56N

APPROVED FOR PRODUCTION

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ISO 9001 REGISTERED

METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ± .25
.XX = ± .12
ANGLES = ± 1/2
SURFACE FINISH = 1.6

MAT'L:
ALUM 6061–T6

SURFACE TREATMENT:
NONE

ITEM	QTY	ARI PART NO.	DESCRIPTION

DR JE 8/19/92
CHK CA 8/19/92
ENG TJP 8/19/92
MFG
QC
ISSUED C.A. 08/19/92

SCALE: 1x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M–1982

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Glenville, NY 12302
Tel.(518)384–1000
Fax.(518)384–1200

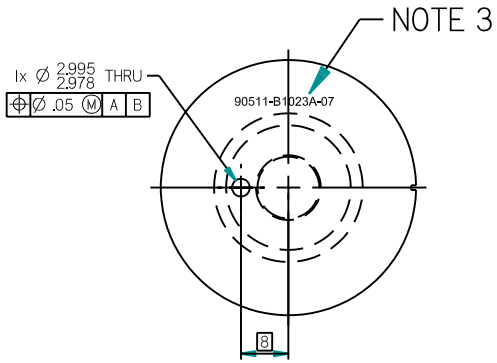
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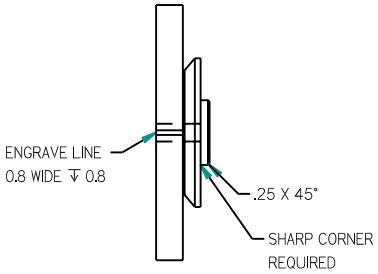
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QS–25A

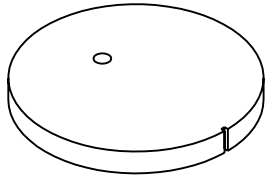
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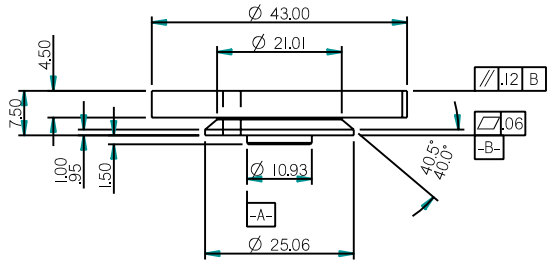
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REVISIONS					
REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	1.00/0.95 WAS 1.00	JE	JE	3/16/91	N/A
02	CHANGED ADDRESS	AM	JE	11/2/94	N/A
03	VERIFIED LAYERS AND DIMENSIONS	KK	JE	1/19/95	N/A
04	CHANGED TITLE BLOCK	ALM	CA	4/14/95	N/A
05	DELETED LAYER KEY, ADDED NOTICE	ALM	JE	1/16/96	N/A
06	SURFACE TREATMENT WAS POLY-LUBE	PS	TD	09/10/03	ASMH-5PX2H7
07	PARALLELISM .12 TO B WAS TO A (WRONG SURFACE)	PS	TD	09/08/04	KR0K-64LGSJ









NOTES:
1. BREAK ALL SHARP EDGES .13mm - .38mm.
2. MACHINE AS DIMENSIONED DO NOT COMPENSATE FOR SURFACE TREATMENT.
3. PERMANENTLY MARK PART NO. (INC. REV. NO.) FOLLOWED BY SUPPLIER ID MARKING USING 1.5mm HIGH CHARACTERS. FILE SMOOTH ANY RAISED MATERIAL.
4. SUPPLIER TO HANDLE ALL SURFACE TREATMENTS. ARI TO SPECIFY PLATING FACILITY FOR FLASH TEFLON IMPREGNATED HARDCOATING.
5. FLASH TEFLON IMPREGNATED HARDCOAT, .0007/.0009 IN. NO MASKING REQUIRED.
6. MAKE FROM 0306-C57A.

APPROXIMATE MODEL WEIGHT 0,047 lbm

APPROVED FOR PRODUCTION

PRINT DATE 8/09/2004

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ± .25
.XX = ± .12
ANGLES = ± 1/2
SURFACE FINISH = 1.6

MATL: ALUM 6061-T6

SURFACE TREATMENT: NONE

BILL OF MATERIALS

DR	JMS 12/13/89
CHK	C.A. 01/14/90
ENG	TJP 01/14/90
MFG	
ISSUED	C.A. 01/14/90
QC	

SCALE: 2X

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

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Glenville, NY 12302
Tel. (518) 384-1000
Fax. (518 384-1200

TITLE

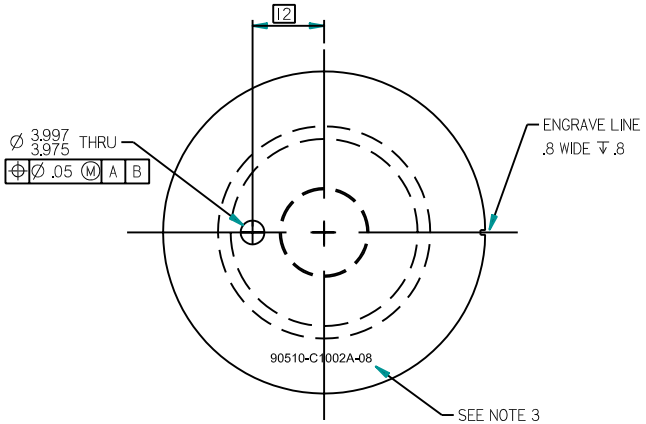
PLATE, ADAPTOR
QS-50

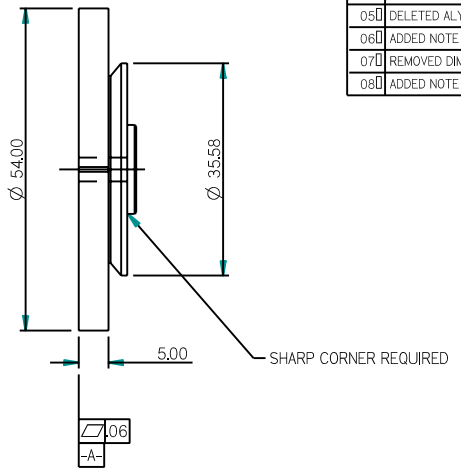
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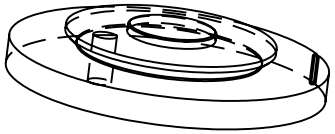
SIZE C | 90511-B1023A | 07

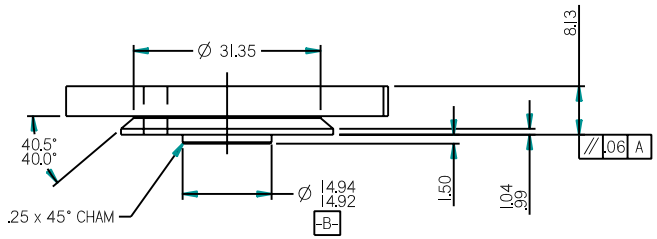
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REVISIONS					
REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	DIM 1.04/0.99 WAS 1.04	REN	CA	3/8/91	N/A
02	CHANGED ADDRESS	AM	JE	11/02/94	N/A
03	VERIFIED LAYERS AND DIMS, ADDED NEW PROPRIETARY NOTE	KK	JE	1/19/95	N/A
04	CHANGED TITLE BLOCK	ALM	JE	1/19/95	N/A
05	DELETED ALYER KEY, ADDED NOTICE	ALM	JE	1/8/96	N/A
06	ADDED NOTE 6	ALM	JE	1/23/96	N/A
07	REMOVED DIM DIA 15.00d8	MW	JE	12/14/98	MWHE-42YMF6
08	ADDED NOTE 5, UPDATED GDT	TD	PS	06/27/03	PSLI-5NVHBM









NOTES:
1. BREAK ALL SHARP EDGES .13mm - .38mm.
2. MACHINE AS DIMENSIONED DO NOT COMPENSATE FOR SURFACE TREATMENT.
3. PERMANENTLY MARK PART NO. (INC. REV. NO.) FOLLOWED BY SUPPLIER ID MARKING USING 1.5mm HIGH CHARACTERS. FILE SMOOTH ANY RAISED MATERIAL.
4. SUPPLIER TO HANDLE ALL SURFACE TREATMENTS. ARI TO SPECIFY PLATING FACILITY FOR FLASH TEFLON IMPREGNATED HARDCOATING.
5. FLASH TEFLON IMPREGNATED HARDCOAT, .0007/.0009 IN. NO MASKING REQUIRED.
6. MAKE FROM 0306-C58A

APPROVED FOR PRODUCTION

PRINT DATE 16/02/2004

APPROX. MODEL WEIGHT 0,086 lbm

THIRD ANGLE PROJECTION

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ± .25
.XX = ± .12
ANGLES = ± 1/2
SURFACE FINISH = 1.6

MATL: ALUM 6061-T6

SURFACE TREATMENT: NONE

BILL OF MATERIALS

DR	REN 11/08/90
CHK	C.ANNIS 11/08/90
ENG	TJP 11/08/90
MFG	
ISSUED	C.A. 11/08/90
QC	

SCALE: 2X

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

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Glenville, NY 12302
Tel. (518) 384-1000
Fax. (518 384-1200

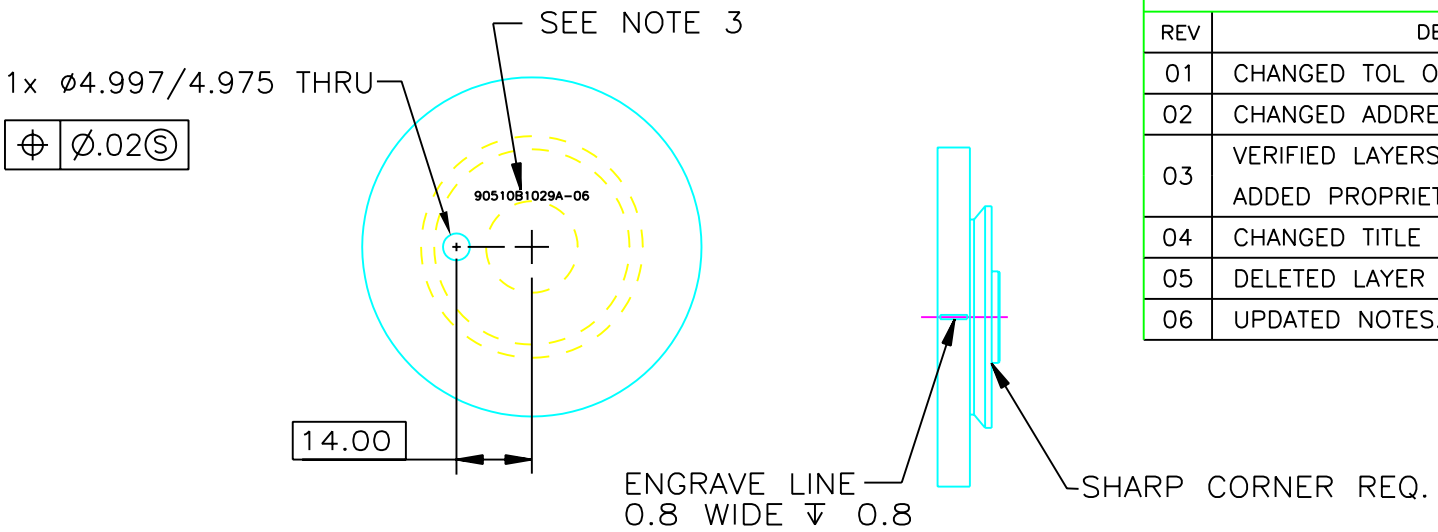
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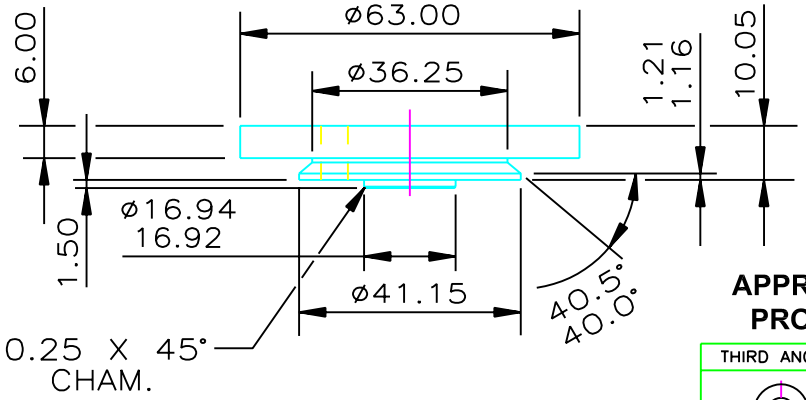
PLATE, ADAPT0R
QS-100

3D ISO 9001 REGISTERED

SIZE C | 90510-C1002A | 08

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NOTES:
1) BREAK ALL SHARP EDGES .13mm–.38mm
2) MACHINE AS DIMENSIONED DO NOT COMPENSATE FOR SURFACE TREATMENT.
3) PERMANENTLY MARK PART NO. (INC. REV. NO) FOLLOWED BY SUPPLIER ID MARKING USING 1.5mm HIGH CHARACTERS. FILE SMOOTH ANY RAISED MAT'L.
4) SUPPLIER TO HANDLE ALL SURFACE TREATMENTS. ARI TO SPECIFY PLATING FACILITY FOR FLASH TEFLON IMPREGNATED HARDCOATING.
5) FLASH TEFLON IMPREGNATED HARDCOAT, .0007/.0009 IN. NO MASKING REQUIRED.
6) MAKE FROM 0306–C59A

REVISIONS

REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	CHANGED TOL ON 1.21/1.16 DIM.	JE	CA	3/19/91	N/A
02	CHANGED ADDRESS	AM	JE	11/2/94	N/A
03	VERIFIED LAYERS AND DIMENSIONS ADDED PROPRIETARY NOTE	KK	JE	1/19/95	N/A
04	CHANGED TITLE BLOCK	ALM	CA	4/14/95	N/A
05	DELETED LAYER KEY, ADDED NOTICE	ALM	CA	1/16/96	N/A
06	UPDATED NOTES. FLASH WAS HARDCOAT.	GV	PS	2/10/03	ASMH–5JBKKT

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ISO 9001 REGISTERED

METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ± .25
.XX = ± .12
ANGLES = ± 1/2
SURFACE FINISH = 1.6

MAT'L:
ALUM 6061–T6

SURFACE TREATMENT:
NONE

ITEM	QTY	ARI PART NO.	DESCRIPTION

DR JE 11/13/90
CHK CA 12/19/90
ENG
MFG
QC
ISSUED CA 12/19/90

SCALE: 1x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M–1982

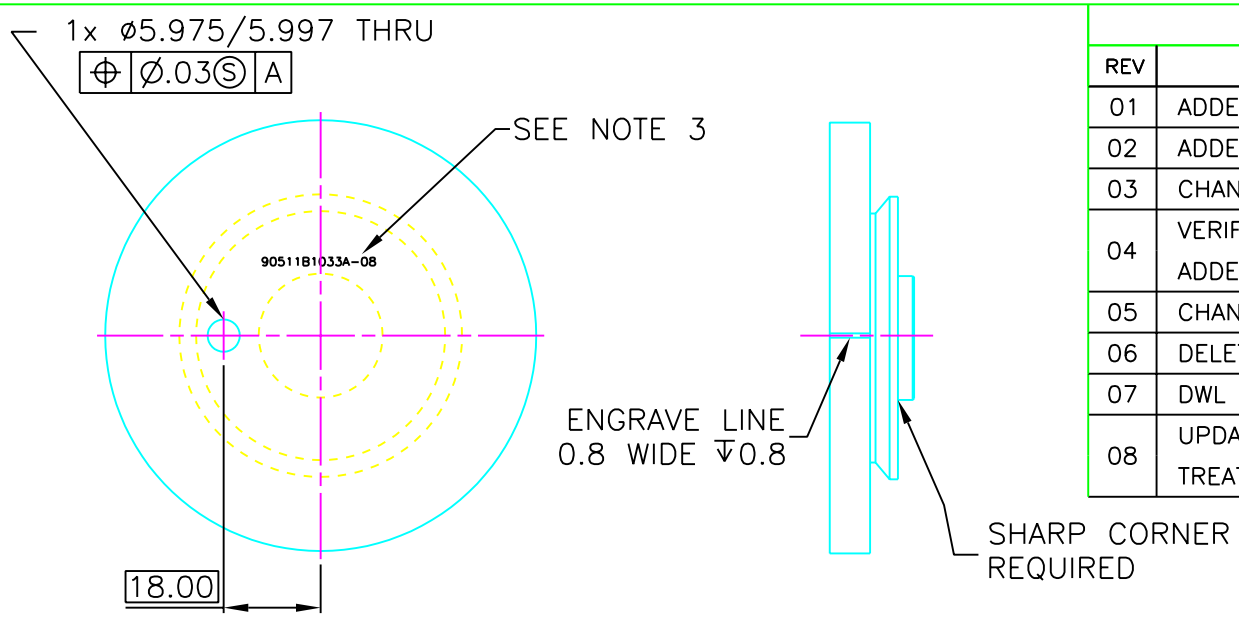
Applied Robotics, Inc.
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Fax.(518)384–1200

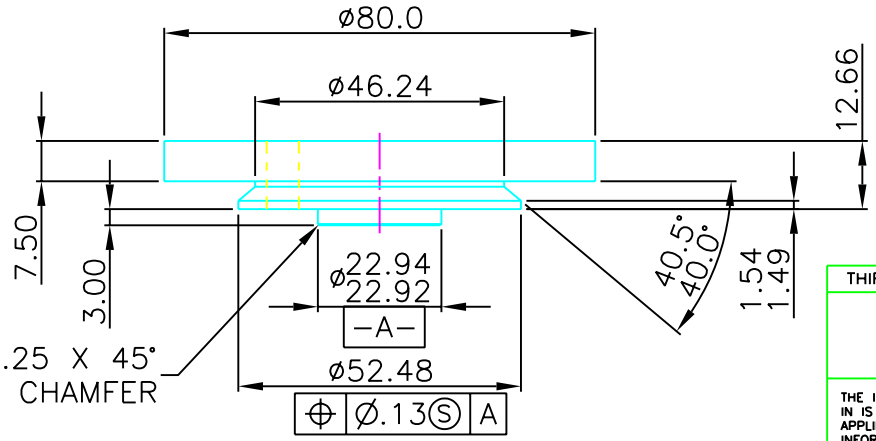
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PLATE, ADAPTOR
QS–200

SIZE	DRAWING NUMBER	REV
B	90510B1029A	06

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REVISIONS

REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	ADDED TECHDATA NOTE AND 1.54/1.49	DNG	CA	03/11/91	N/A
02	ADDED POS. TOL. AND DATUM IDENT	JE	CA	12/04/92	N/A
03	CHANGED ADDRESS	AM	CA	11/02/94	N/A
04	VERIFIED LAYERS AND DIMENSIONS ADDED NEW PROPRIETARY NOTE	KK	CA	01/19/95	N/A
05	CHANGED TITLE BLOCK	ALM	CA	04/25/95	N/A
06	DELETED LAYER KEY, ADDED NOTICE	ALM	CA	01/16/96	N/A
07	DWL ø5.975/5.997 WAS ø5.992/5.997	MW	CA	05/20/98	WZEH–3QXLPQ
08	UPDATED NOTES, CHANGED SURFACE TREATMENT FROM POLY TO FLASH	TD	JV	09/17/03	GVVG–5NKQW3

NOTES:
1) BREAK ALL SHARP EDGES .13mm–.38mm
2) MACHINE AS DIMENSIONED DO NOT COMPENSATE FOR SURFACE TREATMENT.
3) PERMANENTLY MARK PART NO. (INC. REV. NO) FOLLOWED BY SUPPLIER ID MARKING USING 1.5mm HIGH CHARACTERS. FILE SMOOTH ANY RAISED MAT'L
4) SUPPLIER TO HANDLE ALL SURFACE TREATMENTS. ARI TO SPECIFY PLATING FACILITY FOR FLASH TEFLON IMPREGNATED HARDCOATING.
5) FLASH TEFLON IMPREGNATED HARDCOAT, .0007/.0009 IN. NO MASKING REQUIRED.
6) MAKE FROM 0306–C60A

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ± .25
.XX = ± .12
ANGLES = ± 1/2
SURFACE FINISH = 1.6

MAT'L:
ALUM 6061–T6

SURFACE TREATMENT:
NONE

ITEM	QTY	ARI PART NO.	DESCRIPTION

DR JMS 12/13/90
CHK C.A. 12/24/90
ENG C.A. 12/24/90
MFG A.P. 12/24/90
QC
ISSUED C.A. 12/24/90

SCALE: 1x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M–1982

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Glenville, NY 12302
Tel.(518)384–1000
Fax.(518)384–1200

TITLE

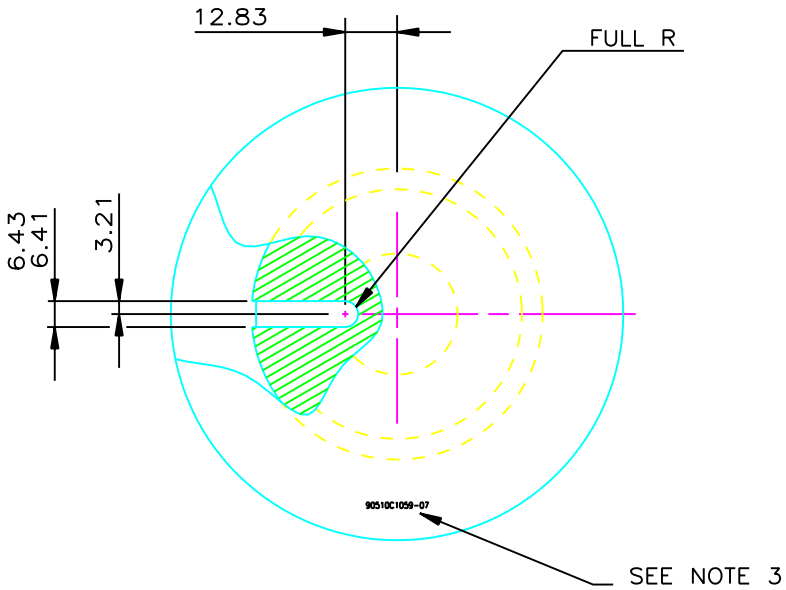
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QS–400

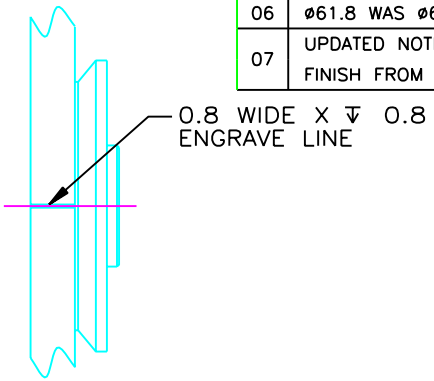
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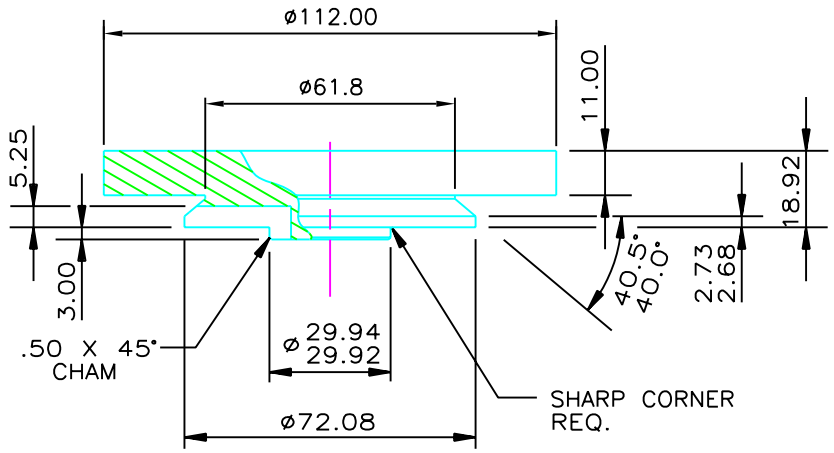
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REVISIONS

REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	DIMENSION 2.73/2.68 WAS 2.73	REN	CA	03/20/91	N/A
02	CHANGED ADDRESS	AM	JE	11/02/94	N/A
03	VERIFIED LAYERS AND DIMENSIONS ADDED NEW PROPRIETARY NOTE	KK	JE	01/19/95	N/A
04	CHANGED TITLE BLOCK	ALM	CA	04/14/95	N/A
05	DELETED LAYER KEY, ADDED NOTICE	ALM	CA	01/16/96	N/A
06	ø61.8 WAS ø61.52, ADDED NEW BORDER	DW	JE	09/20/96	N/A
07	UPDATED NOTES, CHANGED SURFACE FINISH FROM POLY TO FLASH	TD	JV	09/25/03	GVVG-5NKQW3







NOTES:
1) BREAK ALL SHARP EDGES .13mm-.38mm
2) MACHINE AS DIMENSIONED DO NOT COMPENSATE FOR SURFACE TREATMENT.
3) PERMANENTLY MARK PART NO. (INC. REV. NO) FOLLOWED BY SUPPLIER ID MARKING USING 1.5mm HIGH CHARACTERS. FILE SMOOTH ANY RAISED MAT'L.
4) SUPPLIER TO HANDLE ALL SURFACE TREATMENTS. ARI TO SPECIFY PLATING FACILITY FOR FLASH TEFLON IMPREGNATED HARDCOATING.
5) FLASH TEFLON IMPREGNATED HARDCOAT, .0007/.0009 IN. NO MASKING REQUIRED.
6) MAKE FROM 0306-D62A

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ± .25
.XX = ± .12
ANGLES = ± 1/2
SURFACE FINISH = 1.6

MAT'L:
ALUM 6061-T6

SURFACE TREATMENT:
NONE

ITEM	QTY	ARI PART NO.	DESCRIPTION

DR REN 12/28/90
CHK C.ANNIS 12/28/90
ENG
MFG
QC
ISSUED C.A. 12/28/90

SCALE: 1x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

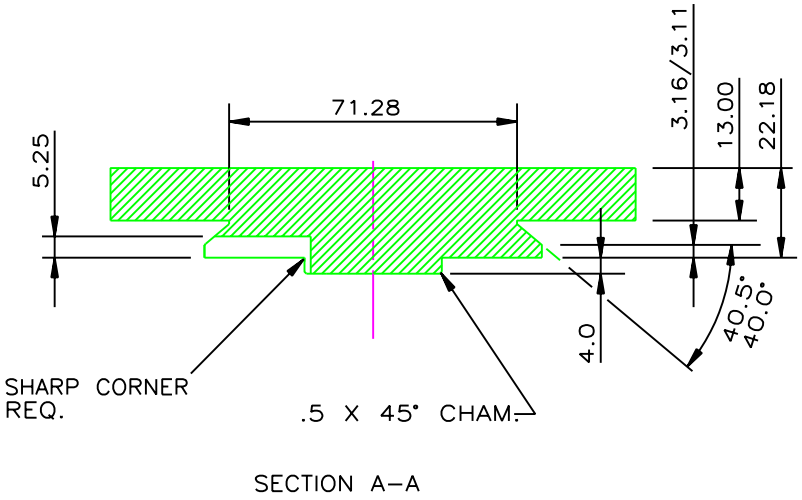
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Fax.(518)384-1200

TITLE

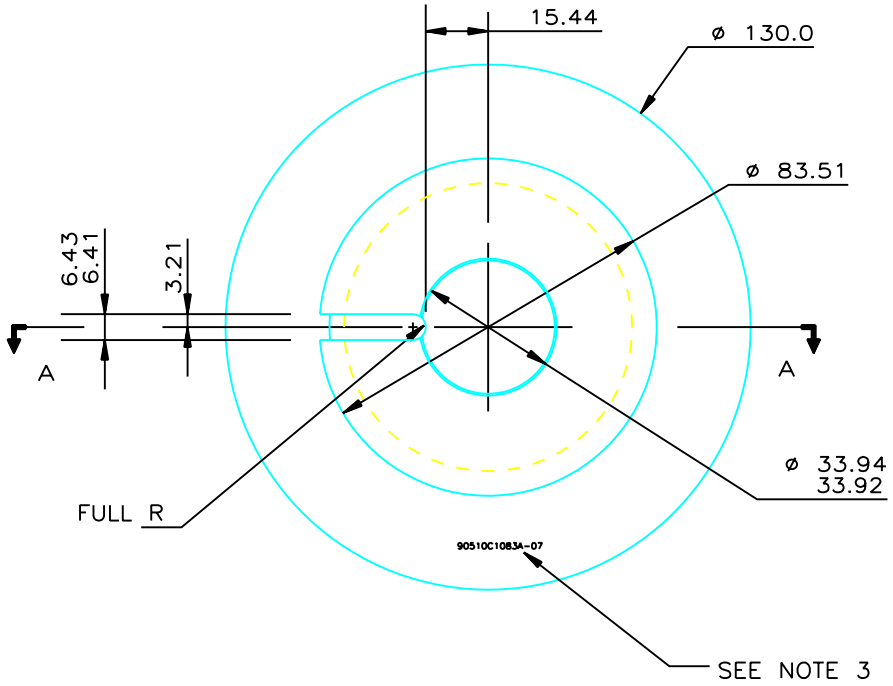
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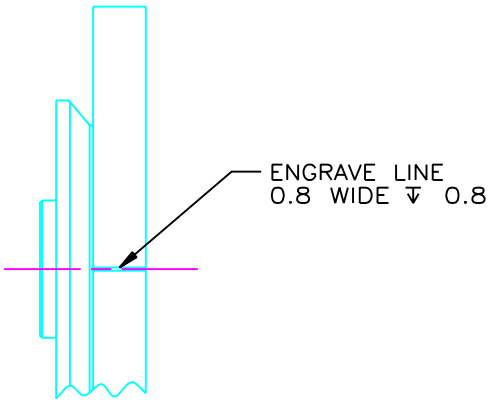
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C	90510C1059A	07

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SECTION A–A





REVISIONS

REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	DIMENSION 3.16/3.11 WAS 3.16	REN	REN	3/21/91	N/A
02	DIMENSION 6.43/6.41 WAS 6.41/6.39	AM	AM	8/1/94	N/A
03	CHANGED ADDRESS	AM	AM	11/2/94	N/A
04	VERIFIED LAYERS AND DIMENSIONS ADDED NEW PROPRIETARY NOTE	KK	JE	1/19/95	N/A
05	CHANGED TITLE BLOCK	ALM	CA	4/14/95	N/A
06	DELETED LAYER KEY, ADDED NOTICE	ALM	JE	1/16/96	N/A
07	UPDATED NOTES, CHANGED SURFACE FINISH FROM POLY TO FLASH	TD	JV	09/29/03	GVVG-5NKQW3

NOTES:
1) BREAK ALL SHARP EDGES .13mm–.38mm
2) MACHINE AS DIMENSIONED DO NOT COMPENSATE FOR SURFACE TREATMENT.
3) PERMANENTLY MARK PART NO. (INC. REV. NO) FOLLOWED BY SUPPLIER ID MARKING USING 1.5mm HIGH CHARACTERS. FILE SMOOTH ANY RAISED MAT'L.
4) SUPPLIER TO HANDLE ALL SURFACE TREATMENTS. ARI TO SPECIFY PLATING FACILITY FOR FLASH TEFLON IMPREGNATED HARDCOATING.
5) FLASH TEFLON IMPREGNATED HARDCOAT, .0007/.0009 IN. NO MASKING REQUIRED.
6) MAKE FROM 0306–D64A

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ± .25
.XX = ± .12
ANGLES = ± 1/2
SURFACE FINISH = 1.6

MAT'L: ALUM 6061-T6

SURFACE TREATMENT: NONE

ITEM	QTY	ARI PART NO.	DESCRIPTION

DR J.E. 12/6/90
CHK C.A. 1/9/90
ENG
MFG
QC
ISSUED C.A. 1/9/90

SCALE: 1x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

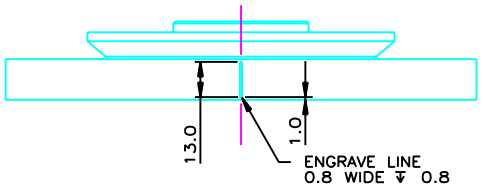
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Tel.(518)384-1000
Fax.(518)384-1200

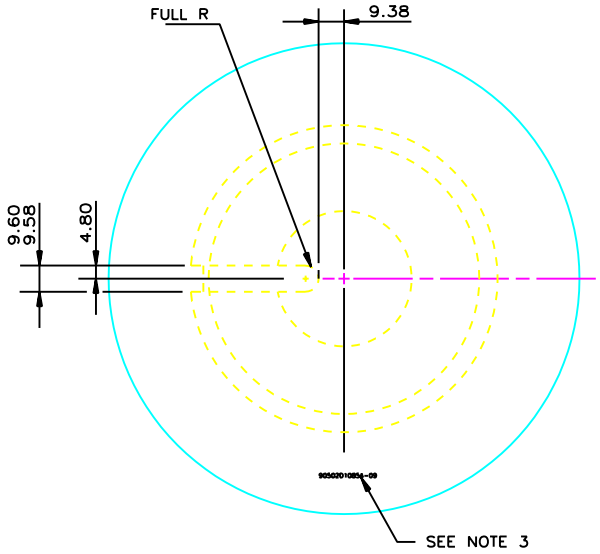
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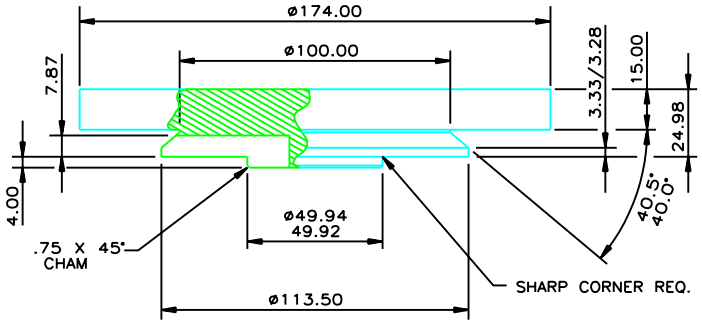
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QS-1500

SIZE	DRAWING NUMBER	REV
C	90510C1083A	07

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REVISIONS

REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	9.54/9.52 SLOT WAS A ø12M5 HOLE CHANGED NAME FROM QS-800	JE	JE	10/23/90	N/A
02	CHANGED TOL ON SLOT, ADDED NOTE	JE	CA	12/6/90	N/A
03	KEYWAY SLOT DEPTH WAS 5.50 9.38 WAS 18.63	REN	CA	12/28/90	N/A
04	CHANGED TOL ON 3.33/3.28 DIM.	JE	JE	3/22/91	N/A
05	CHANGED ADDRESS	AM	JE	11/2/94	N/A
06	VERFIED LAYERS AND DIM. ADDED PROPRIETARY NOTE	KK	JE	1/19/95	N/A
07	CHANGED TITLE BLOCK	ALM	JE	4/14/95	N/A
08	DELETED LAYER KEY, ADDED NOTICE	ALM	JE	1/16/96	N/A
09	UPDATED NOTES, CHANGED SURFACE FINISH FROM POLY TO FLASH	TD	JV	08/30/03	GVVG-5NKQW3
10	UPDATED GENERAL NOTES. VENDOR TO HANDLE SURFACE TREATMENT.	JV	NJ	1/15/04	WZEH-5V8N6D

NOTES:
1) BREAK ALL SHARP EDGES .13mm-.38mm
2) MACHINE AS DIMENSIONED DO NOT COMPENSATE FOR SURFACE TREATMENT
5) PERMANENTLY MARK PART NO. (INC. REV. NO.) FOLLOWED BY SUPPLIER ID MARKING USING 1.5mm HIGH CHARACTERS. FILE SMOOTH ANY RAISED MATERIAL.
6) SUPPLIER TO HANDLE ALL SURFACE TREATMENTS. ARI TO SPECIFY PLATING FACILITY FOR FLASH TEFLON IMPREGNATED HARDCOATING.
7) FLASH TEFLON IMPREGNATED HARDCOAT .0007/.0009 IN. NO MASKING REQUIRED.

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ± .25
.XX = ± .12
ANGLES = ± 1/2
SURFACE FINISH = 1.6

MAT'L: ALUM 6061-T6

SURFACE TREATMENT: SEE NOTES 6 & 7

ITEM	QTY	ARI PART NO.	DESCRIPTION

DR PBW 5/16/90
CHK J.E. 5/29/90
ENG T.J.P 6/4/90
MFG
QC
ISSUED C.A. 6/5/90

SCALE: 1x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

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648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

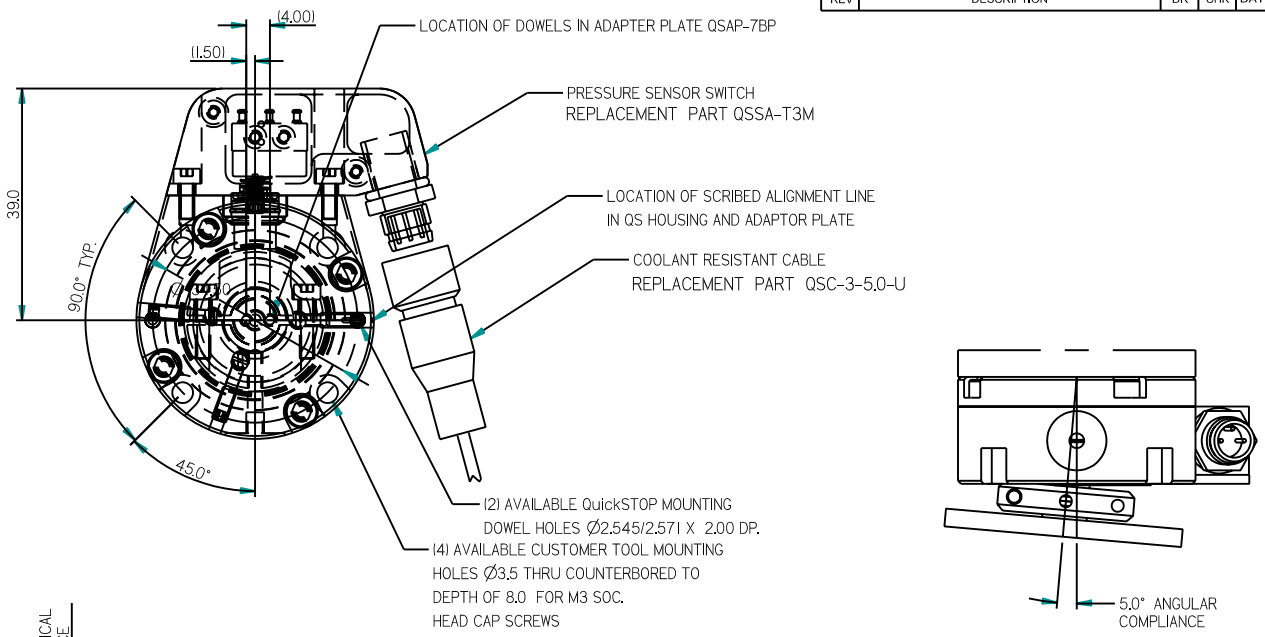
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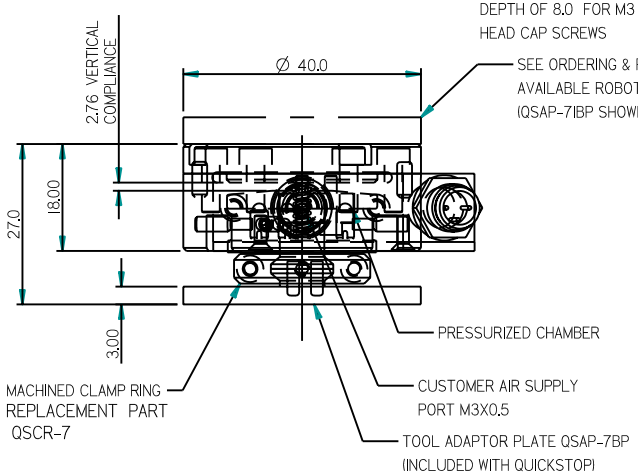
PLATE ADAPTOR
QS-3000/4500/7500

SIZE D | DRAWING NUMBER 90502D1085A | REV 10

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REVISIONS					
REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.





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DECIMAL (MILLIMETER)
.X = ± .25
.XX = ± .12
ANGLES = ± 1/2
SURFACE FINISH = 1.6

MATL:

SURFACE TREATMENT:

BILL OF MATERIALS

DR	J VALLELUNGA 4/14/99
CHK	
ENG	J VALLELUNGA 4/14/99
MFG	
ISSUED	
QC	

SCALE: 2X

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

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648 Saratoga Rd,
Glenville, NY 12302
Tel. (518) 384-1000
Fax. (518 384-1200

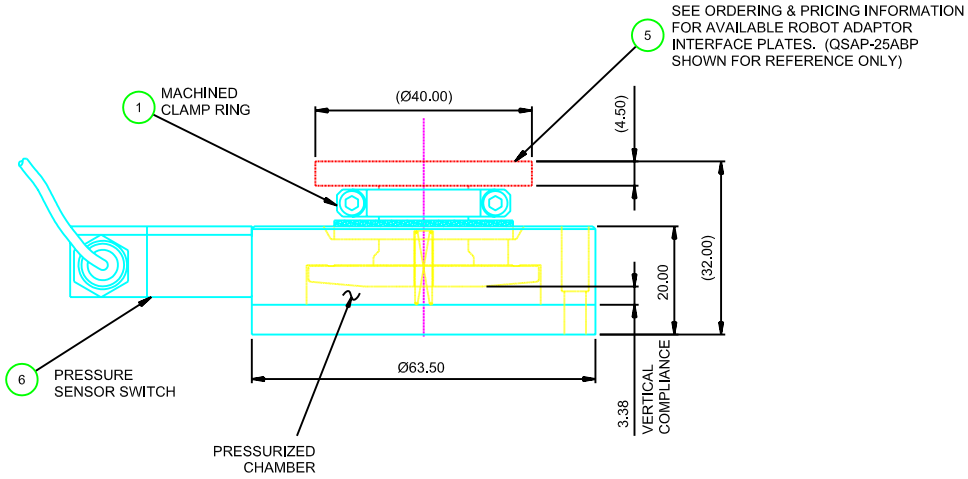
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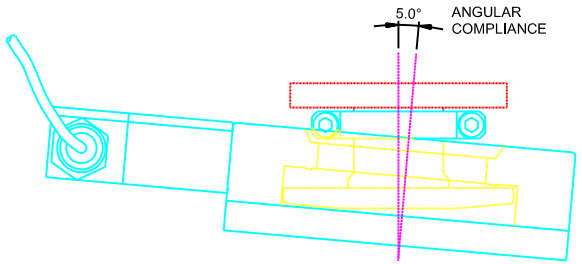
QUICKSTOP
ROBOTIC COLLISION
SENSOR
QS-7INP-T3M

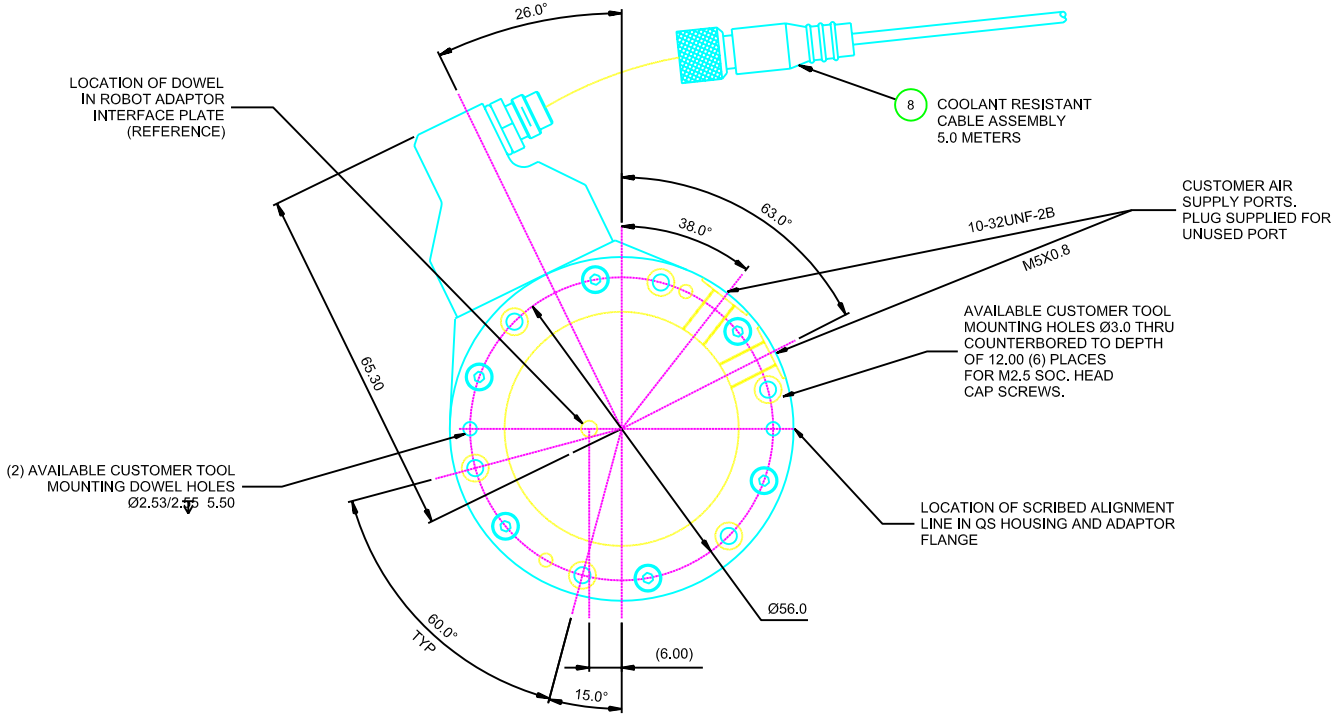
3D ISO 9001 REGISTERED

SIZE C | 99503C1008A | 00

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REPLACEMENT PARTS LIST			
SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING			
8	1	93505-C1067A	QSC-3-5.0-U
6	1	94502-C1020A	QSSA-T3S
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-B1035A	QSCR-25A
ITEM	QTY	ARI PART NO.	DESCRIPTION

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DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓
MAT'L:
SURFACE TREATMENT:

DR KK 4/20/94
CHK C ANNIS 4/20/94
ENG
MFG
ISSUED 4/20/94
SCALE: 2X
DO NOT SCALE DRAWING
DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

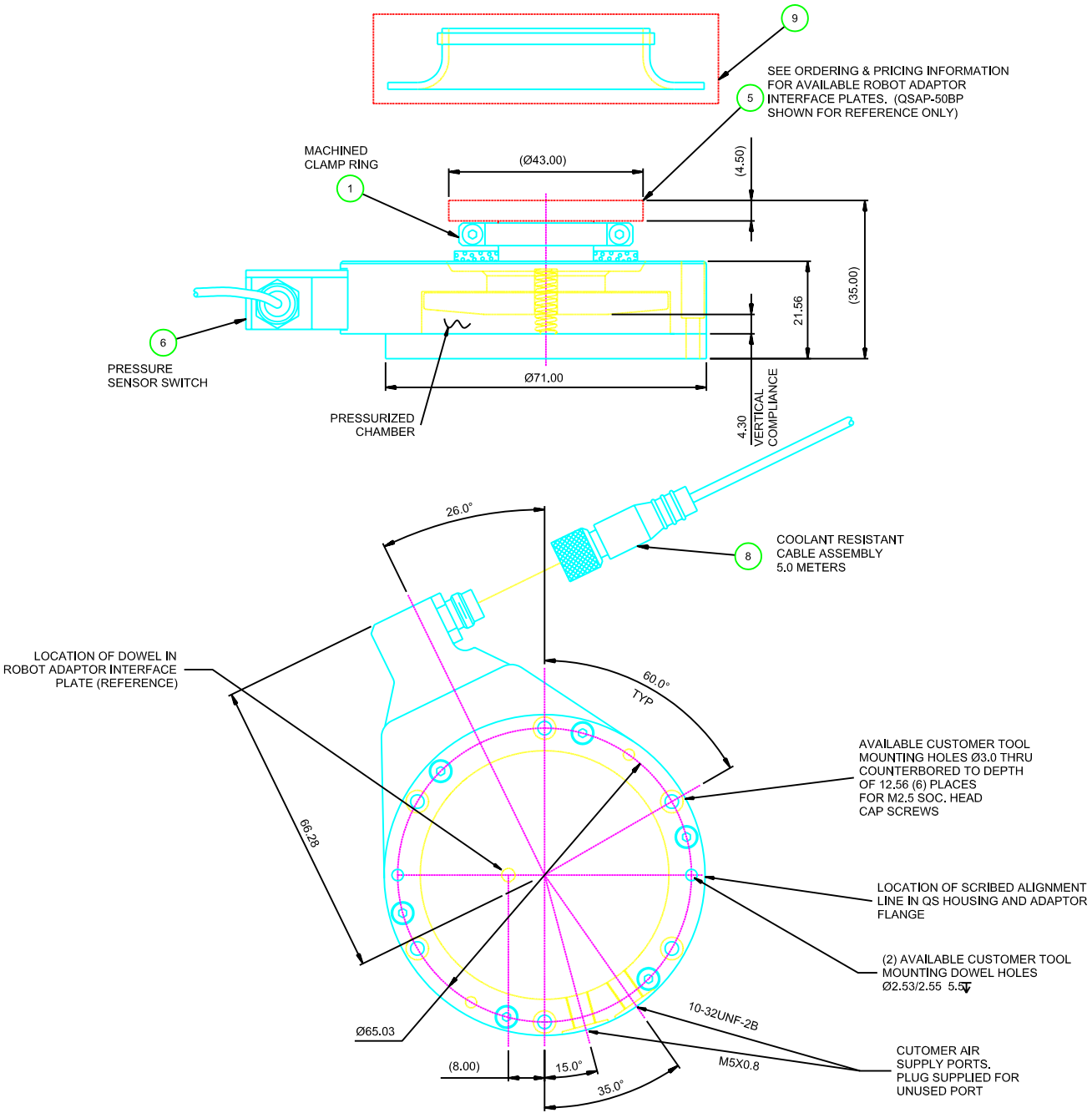
Applied Robotics, Inc.
648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

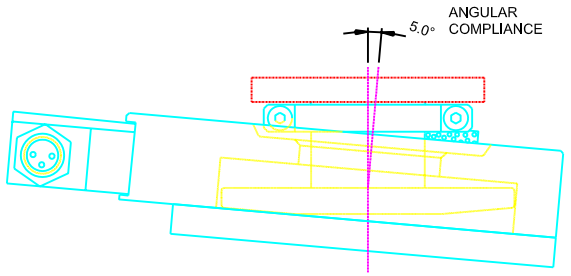
TITLE

QUICKSTOP
COLLISION SENSOR
MODEL
QS-25ANP-T3

SIZE D | DRAWING NUMBER 94501D1037A | REV 07

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REPLACEMENT PARTS LIST			
SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING			
9	1	95504-B1098A	QSB-50-CRSR
8	1	93505-C1067A	QSC-3-5.0-U
6	1	96503-C1029A	QSSA-T3SPV
6	1	94502-C1020A	QSSA-T3S
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-B1036A	QSCR-50
ITEM	QTY	ARI PART NO.	DESCRIPTION

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DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = 1.6

MATL:

SURFACE TREATMENT:

DR K.KNAPP 04/21/94
CHK C.ANNIS 04/21/94
ENG
MFG
QC
ISSUED C.ANNIS 04/21/94

SCALE: 2x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

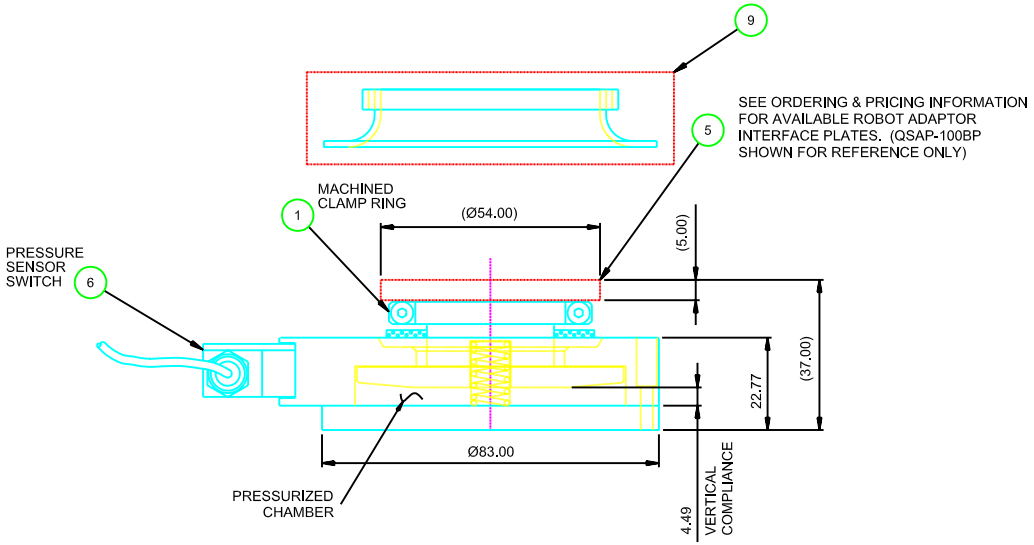
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648 Saratoga Rd.
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Tel.(518)384-1000
Fax.(518)384-1200

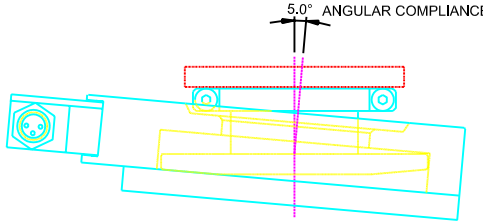
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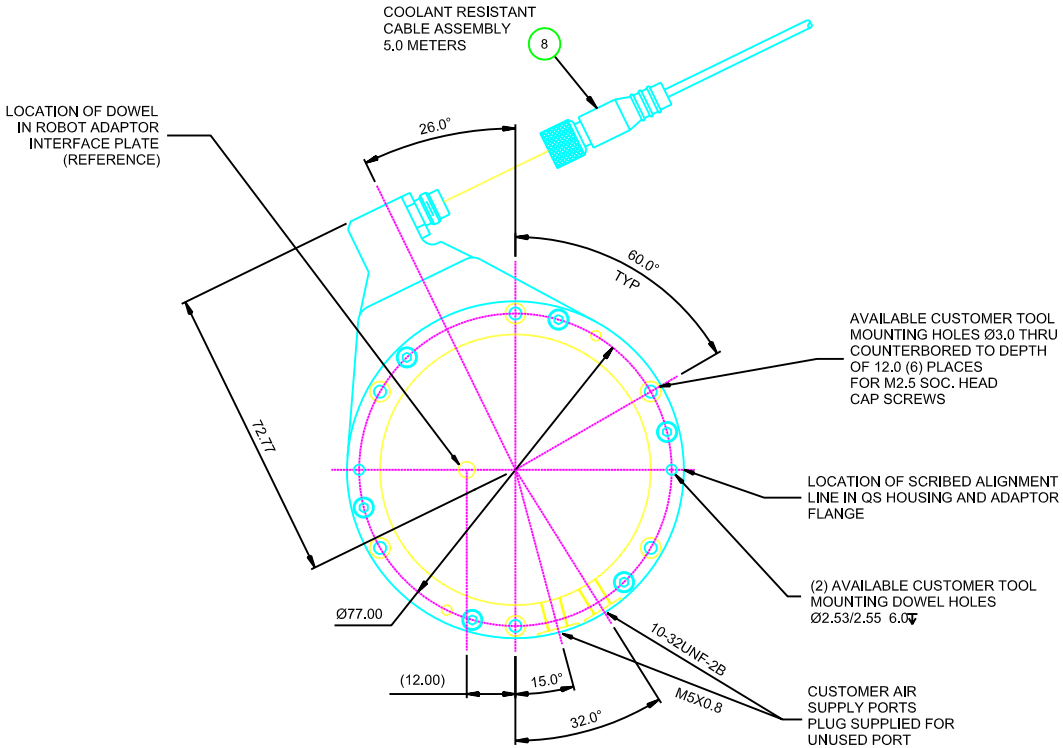
QUICKSTOP COLLISION SENSOR MODEL QS-50NP-T3

SIZE	DRAWING NUMBER	REV
D	94501D1038A	08

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REPLACEMENT PARTS LIST

SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING

ITEM	QTY	ARI PART NO.	DESCRIPTION
9	1	96507-B1015A	QSB-100-CRSR
9	1	94502-B1023A	QSB-100-CR
8	1	93505-C1067A	QSC-3-5.0-U
6	1	96503-C1029A	QSSA-T3SPV
6	1	94502-C1020A	QSSA-T3S
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-B1037A	QSCR-100

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DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = 1.6

MATL:

SURFACE TREATMENT:

DR	K.KNAPP 4/27/94	
CHK	C.ANNIS 4/27/94	
ENG		
MFG		
QC		
ISSUED	C.ANNIS 4/27/94	

SCALE: 1.5x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

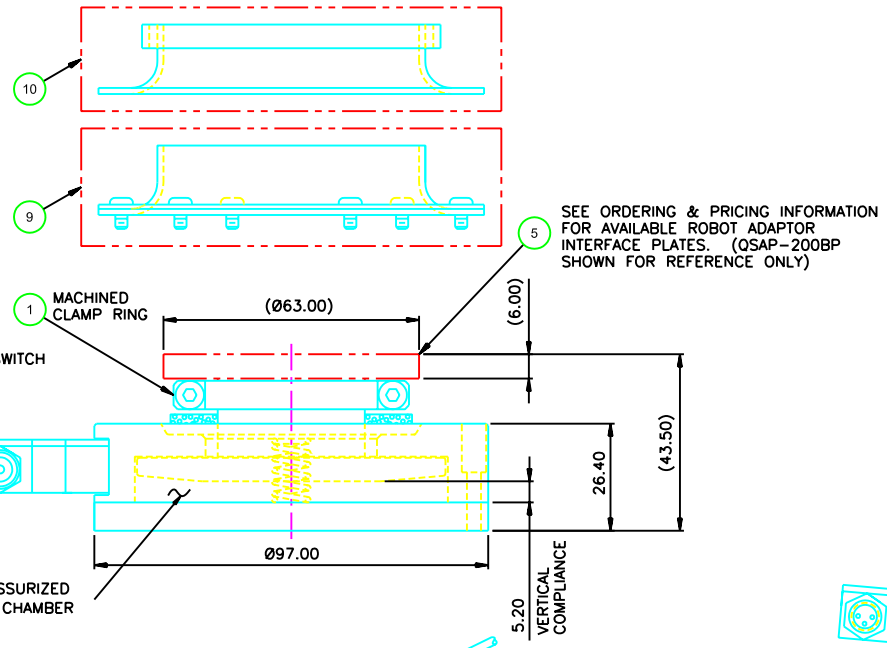
Applied Robotics, Inc.
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Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

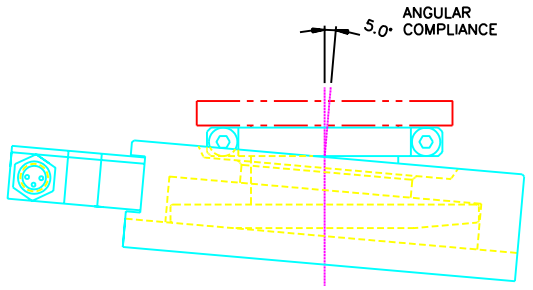
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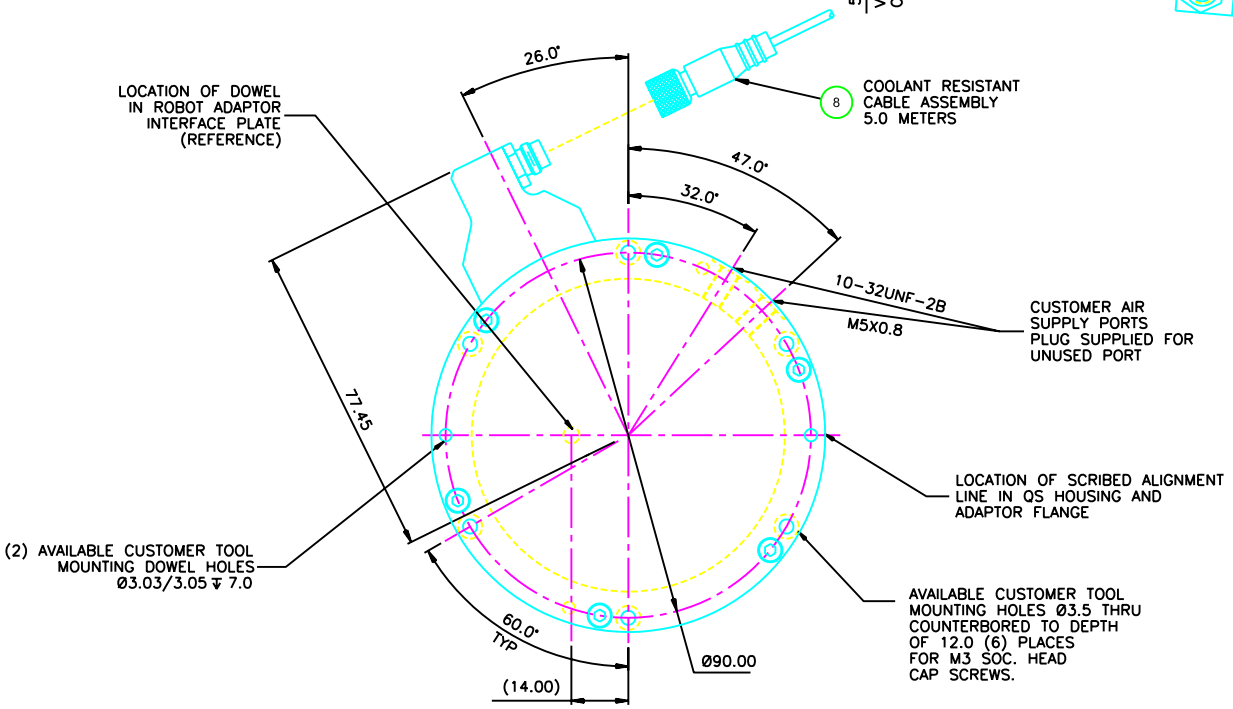
QUICKSTOP COLLISION SENSOR MODEL QS-100NP-T3

SIZE	DRAWING NUMBER	REV
D	94501D1068A	08

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REPLACEMENT PARTS LIST			
10	1	95504-C1099A	QSB-200-CRSR
10	1	94502-C1025A	QSB-200-CR
9	1	95601-C1091A	QSBK-200-CRISR
8	1	93505-C1067A	QSC-3-5.0-U
6	1	96503-C1029A	QSSA-T3SPV
6	1	94502-C1020A	QSSA-T3S
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-B1038A	QSCR-200
ITEM	QTY	ARI PART NO.	DESCRIPTION

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.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓

MAT'L:

SURFACE TREATMENT:

DR K.KNAPP 04/27/94
CHK C.ANNIS 04/27/94
ENG
MFG
QC
ISSUED C.ANNIS 04/27/94

SCALE: 1x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

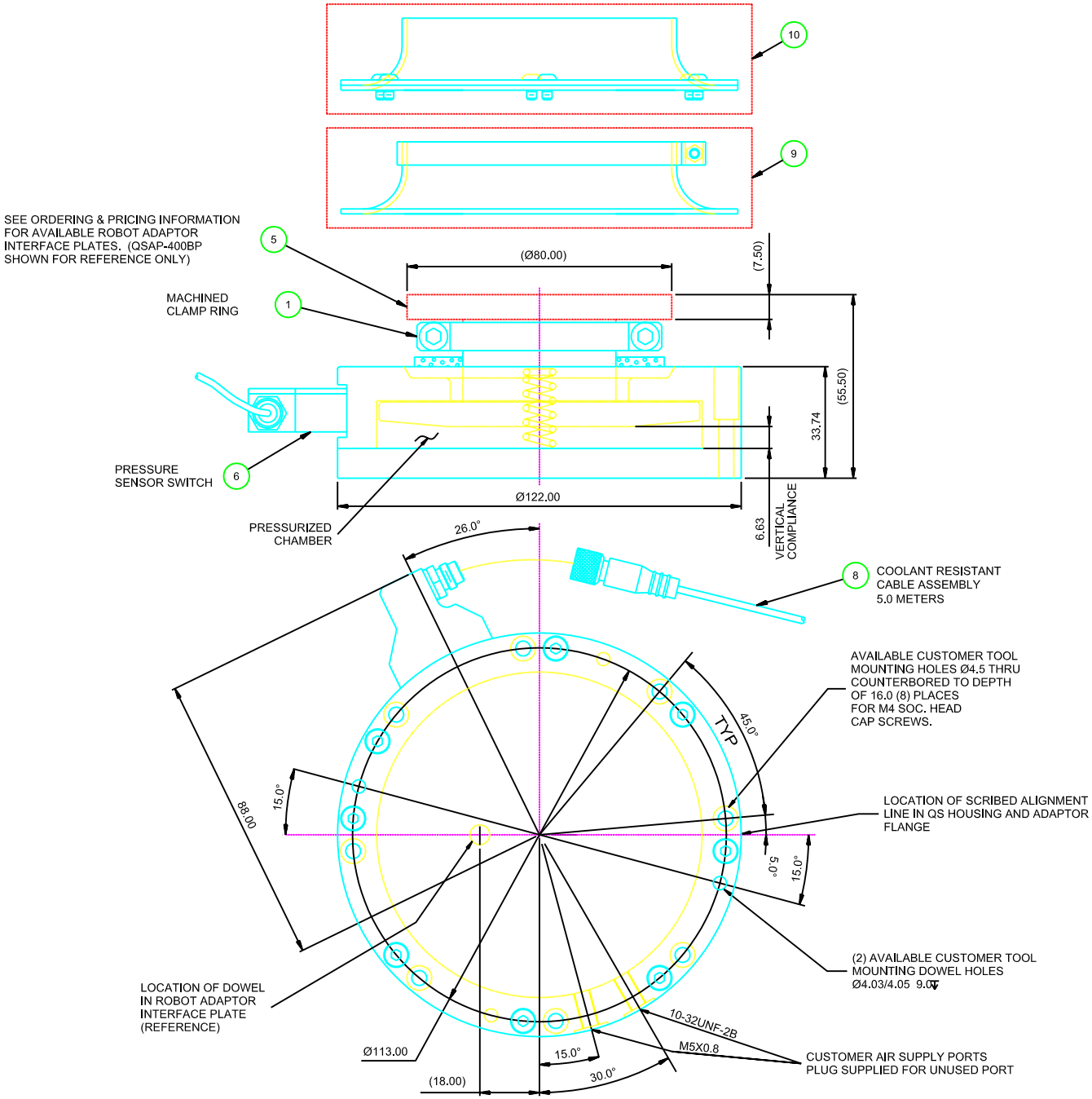
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Fax.(518)384-1200

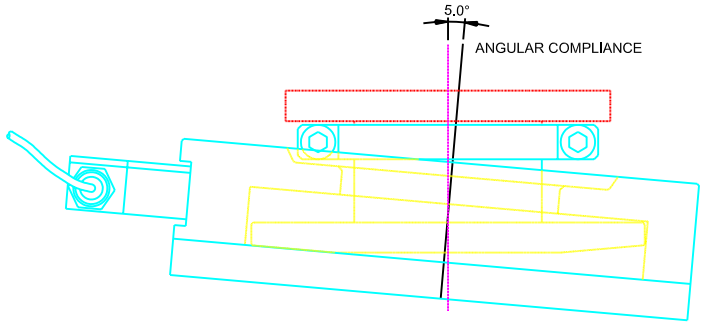
TITLE

QUICKSTOP
COLLISION SENSOR
MODEL
QS-200NP-T3

SIZE	DRAWING NUMBER	REV
D	94501D1069A	11

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REPLACEMENT PARTS LIST			
SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING			
10	1	97500-C1048A	QSBK-400-CRI
9	1	96507-C1016A	QSBK-400-CRSR
9	1	97500-C1050A	QSBK-400-CR
8	1	93505-C1067A	QSC-3-5.0-U
6	1	96503-C1029A	QSSA-T3SPV
6	1	94502-C1020A	QSSA-T3S
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-C1039A	QSCR-400
ITEM	QTY	ARI PART NO.	DESCRIPTION

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TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = 1.6✓

MATL:

SURFACE TREATMENT:

DR K.K. 04/29/94
CHK C.A. 04/29/94
ENG
MFG
QC
ISSUED C.A. 04/29/94

SCALE: 1.5x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

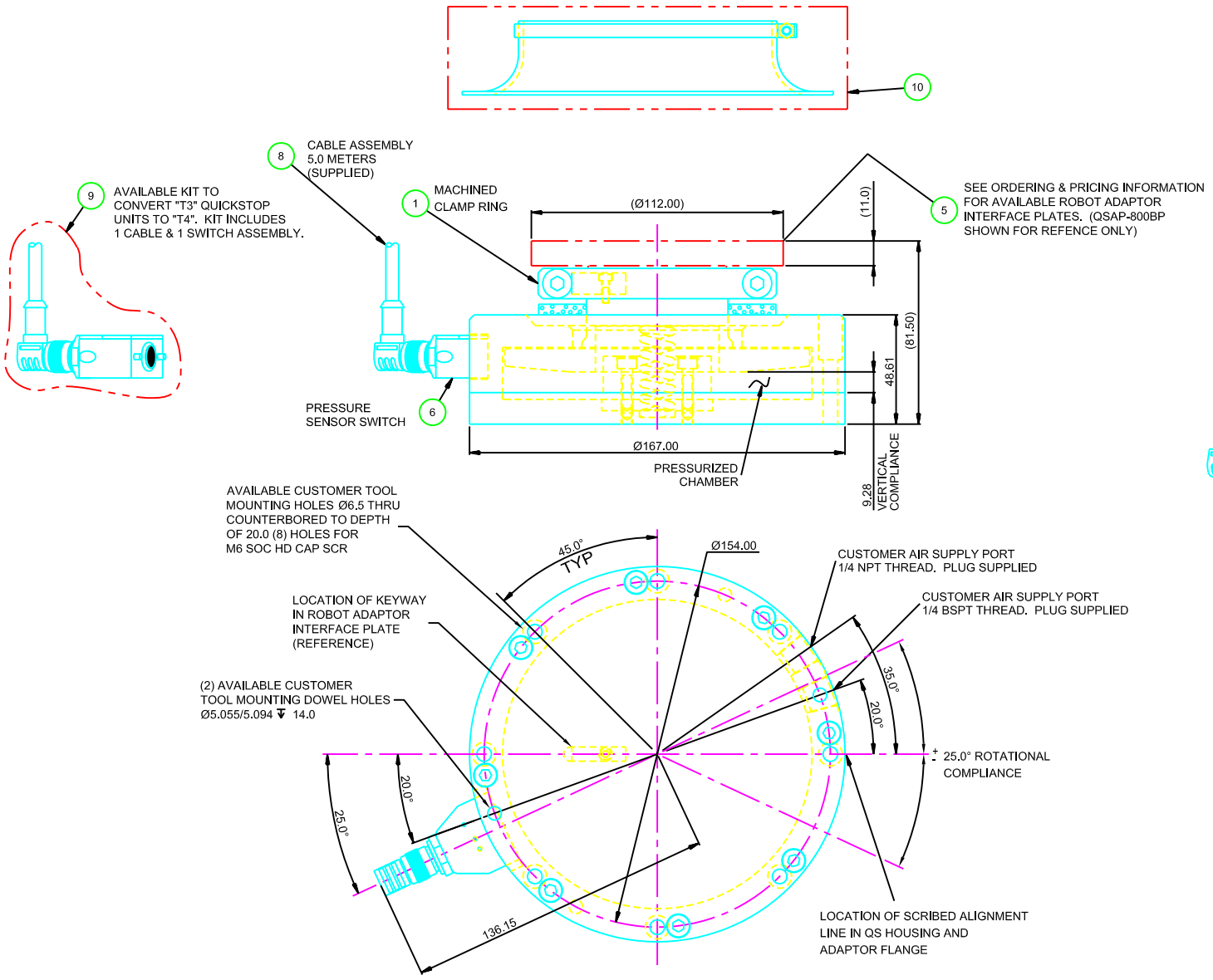
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648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

TITLE

QUICKSTOP
COLLISION SENSOR
MODEL
QS-400NP-T3

SIZE D | DRAWING NUMBER 94501D1070A | REV 09

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REPLACEMENT PARTS LIST			
SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING			
10	1	97506-C1027A	QSBK-800-CR
9	1	0101-C33A	KIT, CABLE/SWITCH "T4"
8	1	0101-C32A	QSC-4-5.0-90-U
6	1	0101-C34A	QSSA-T4LPV
6	1	0007-C76A	QSSA-T4L
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-C1040A	QSCR-800
ITEM	QTY	ARI PART NO.	DESCRIPTION

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METRIC

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DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓
MAT'L:

SURFACE TREATMENT:

DR R.E.N. 03/12/91
CHK
ENG
MFG
QC
ISSUED

SCALE: 1x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

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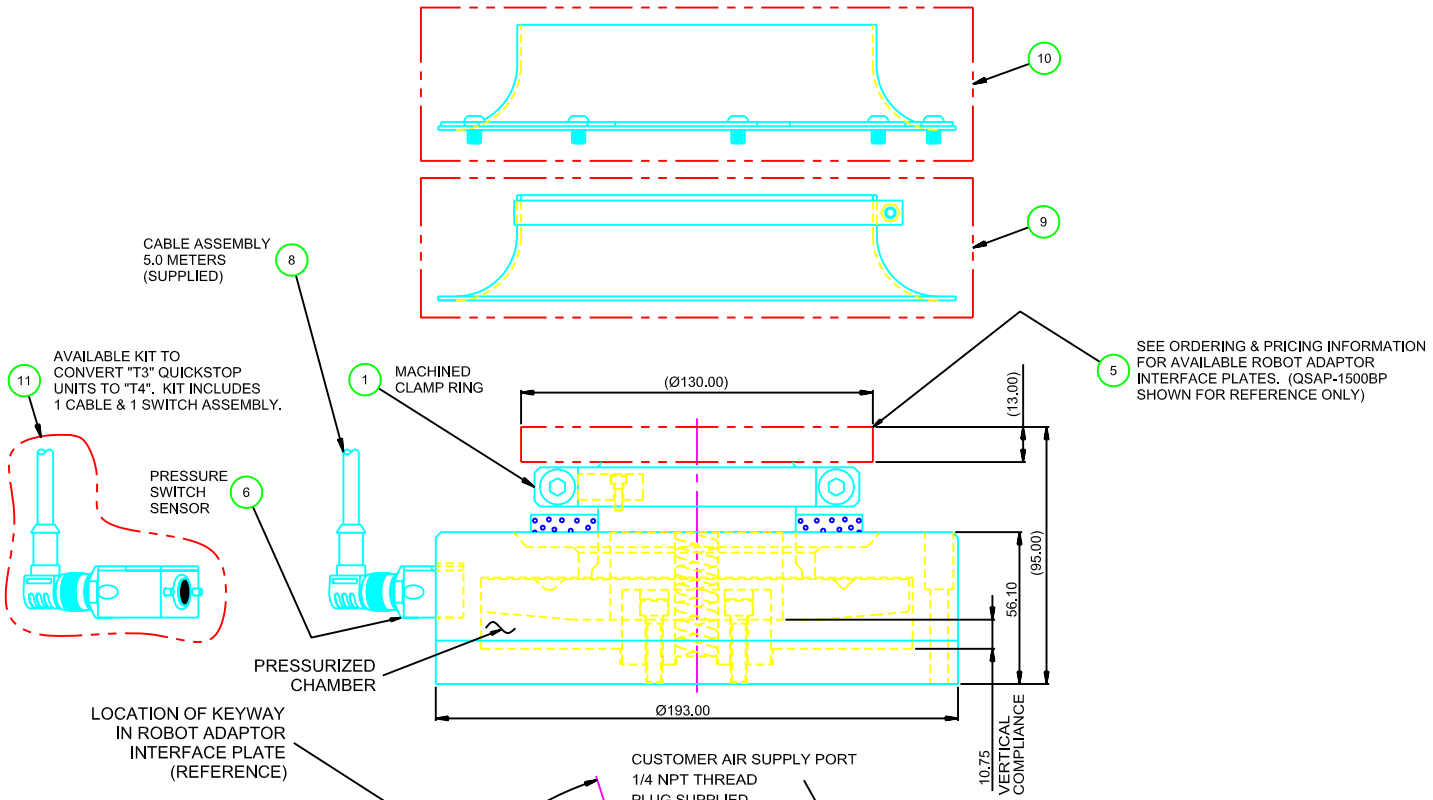
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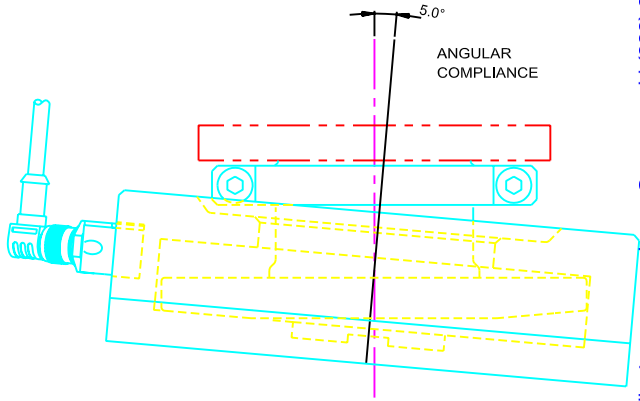
TITLE

QUICKSTOP
COLLISION SENSOR
MODEL
QS-800LRNP-T4

SIZE D | DRAWING NUMBER 91501D1095A | REV 15

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REPLACEMENT PARTS LIST

SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING

ITEM	QTY	ARI PART NO.	DESCRIPTION
11	1	0101-C33A	KIT, CABLE/SWITCH "T4"
10	1	0001-D18A	QSBK-1500-CRI
9	1	97508-C1034A	QSBK-1500-CR
8	1	0101-C32A	QSC-4-5.0-90-U
6	1	0101-C34A	QSSA-T4LPV
6	1	0007-C76A	QSSA-T4L
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-C1041A	QSCR-1500

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.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = 1.6

MATL:

SURFACE TREATMENT:

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

DR REN 03/12/91
CHK C.A. 03/12/91
ENG
MFG
QC
ISSUED C.A. 03/12/91

SCALE: 1x

DO NOT SCALE DRAWING

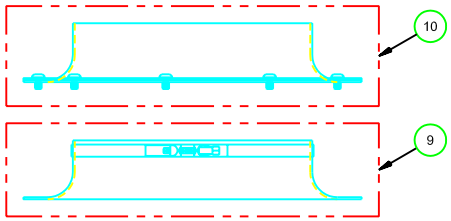
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Fax.(518)384-1200

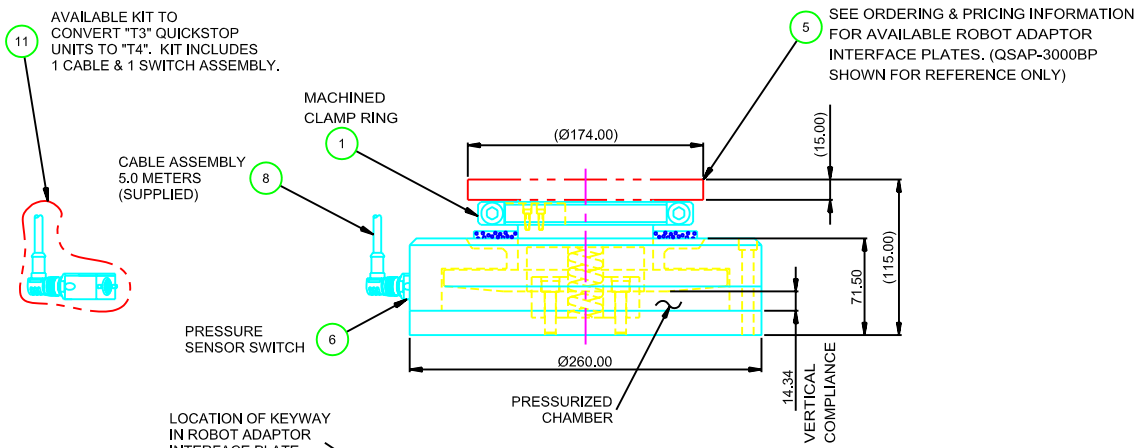
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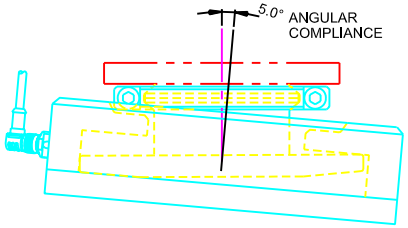
QUICKSTOP
COLLISION SENSOR
MODEL
QS-1500LRNP-T4

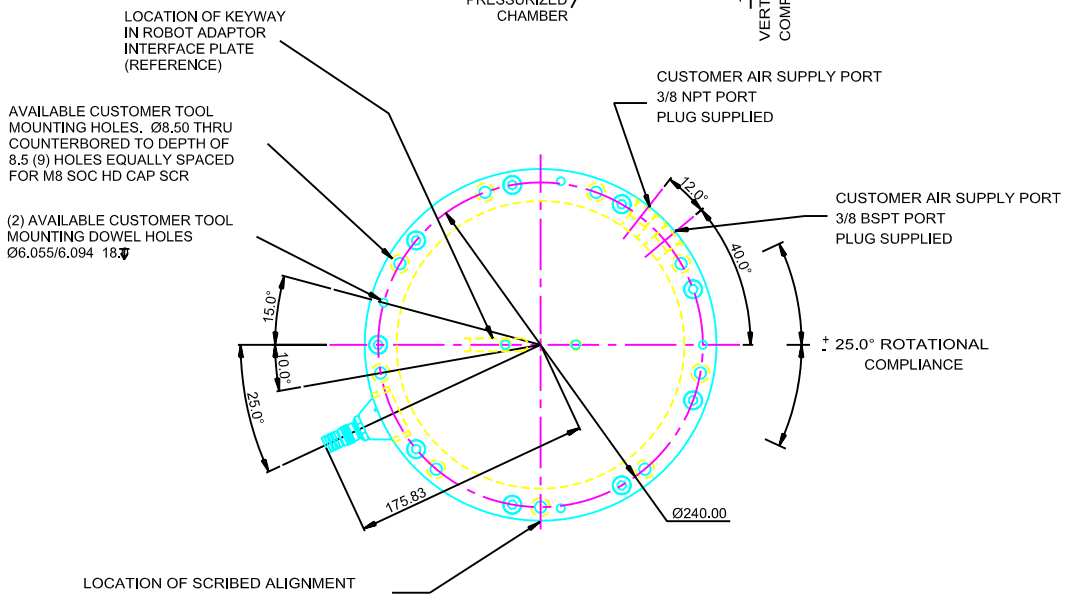
SIZE D | DRAWING NUMBER 91501D1096A | REV 16

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REPLACEMENT PARTS LIST

SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING

ITEM	QTY	ARI PART NO.	DESCRIPTION
11	1	0101-C33A	KIT, CABLE/SWITCH "T4"
10	1	96502-C1042A	QSBK-3000-CRI
9	1	93504-X1035A	QSBK-3000-CR
8	1	0101-C32A	QSC-4-5.0-90-U
6	1	0101-C34A	QSSA-T4LPV
6	1	0007-C76A	QSSA-T4L
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-C1042A	QSCR-3000

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DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓

MAT'L:

SURFACE TREATMENT:

DR PBW 05/23/90
CHK C.A. 05/23/90
ENG
MFG
QC
ISSUED C.A. 05/23/90

SCALE: 1/2x

DO NOT SCALE DRAWING

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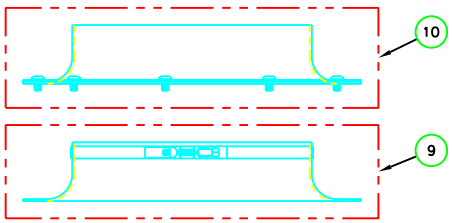
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Scotia, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

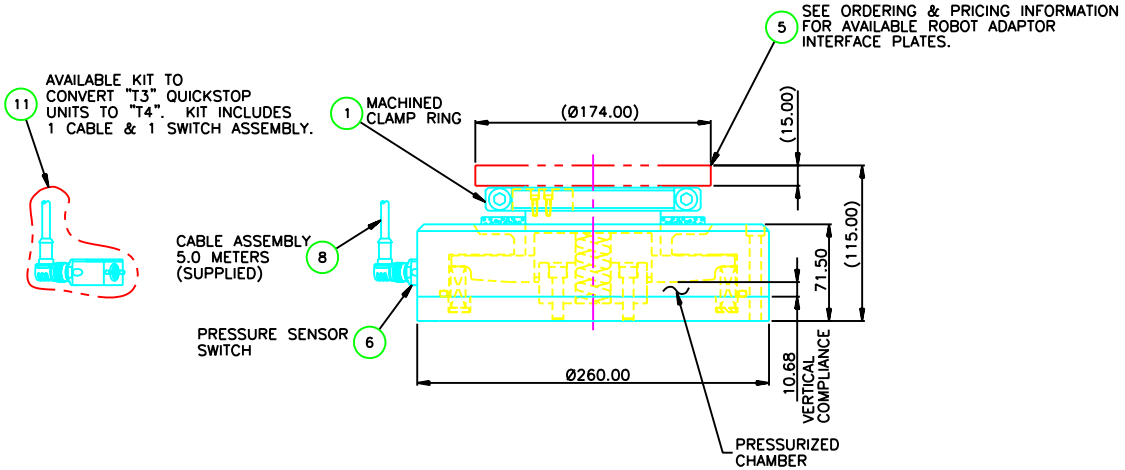
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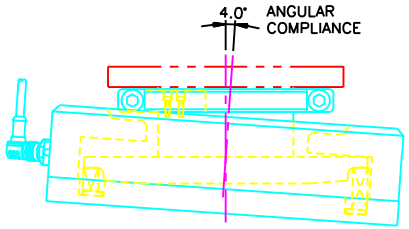
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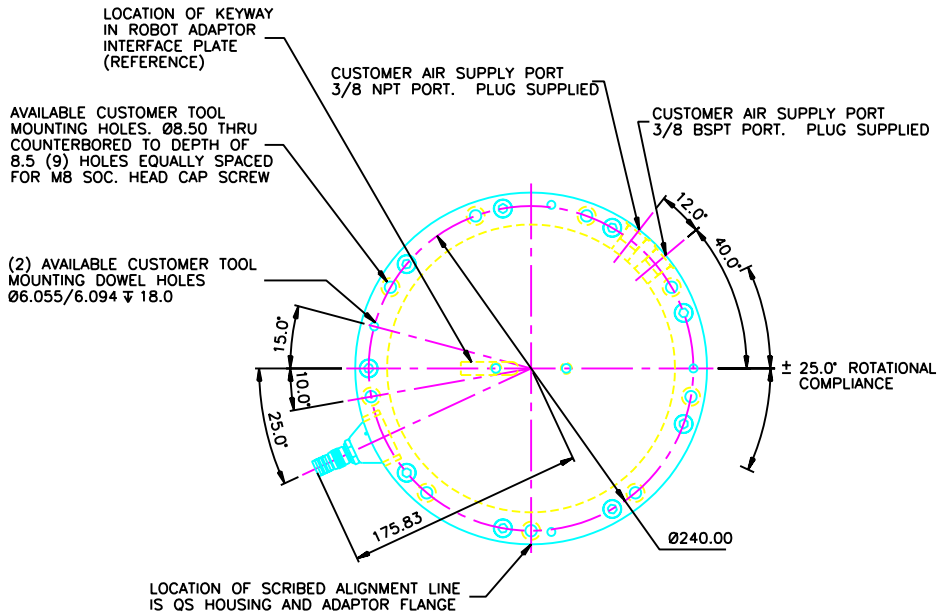
SIZE D | DRAWING NUMBER 90503D1016A | REV 20

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REPLACEMENT PARTS LIST			
11	1	0101-C33A	KIT, CABLE/SWITCH "T4"
10	1	96502-C1042A	QSBK-4500-CRI
9	1	93504-X1035A	QSBK-4500-CR
8	1	0101-C32A	QSC-4-5.0-90-U
6	1	0101-C34A	QSSA-T4LPV
6	1	0007-C76A	QSSA-T4L
5	1	SEE NOTE	PLATE, ADAPTOR
1	1	94502-C1042A	QSCR-4500
ITEM	QTY	ARI PART NO.	DESCRIPTION

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DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓

MAT'L:

SURFACE TREATMENT:

DR K.KNAPP 02/01/95
CHK C.A. 02/01/95
ENG
MFG
QC
ISSUED C.A. 02/01/95
SCALE: 1/2x
DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

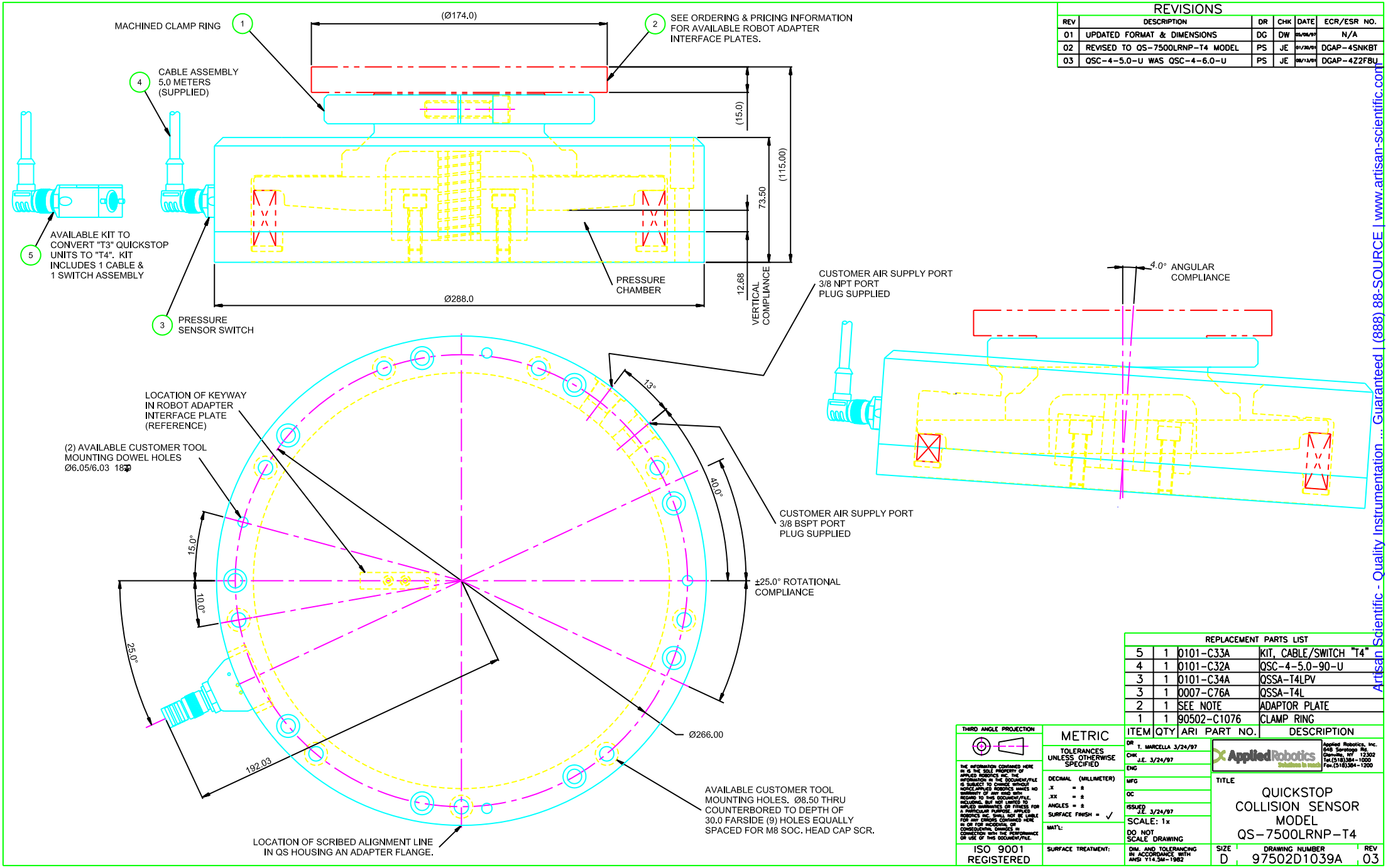
Applied Robotics, Inc.
648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

TITLE

QUICKSTOP
COLLISION SENSOR
MODEL
QS-4500LRNP-T4

SIZE D | DRAWING NUMBER 95500D1048A | REV 05

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REVISIONS

REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	UPDATED FORMAT & DIMENSIONS	DG	DW	05/06/97	N/A
02	REVISED TO QS-7500LRNP-T4 MODEL	PS	JE	01/30/01	DGAP-4SNKBT
03	QSC-4-5.0-U WAS QSC-4-6.0-U	PS	JE	08/13/01	DGAP-4Z2F8U

REPLACEMENT PARTS LIST

ITEM	QTY	ARI PART NO.	DESCRIPTION
5	1	0101-C33A	KIT, CABLE/SWITCH "T4"
4	1	0101-C32A	QSC-4-5.0-90-U
3	1	0101-C34A	QSSA-T4LPV
3	1	0007-C76A	QSSA-T4L
2	1	SEE NOTE	ADAPTOR PLATE
1	1	90502-C1076	CLAMP RING

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METRIC

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DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓
MAT'L:

SURFACE TREATMENT:

DR T. MARCELLA 3/24/97
CHK J.E. 3/24/97
ENG
MFG
QC
ISSUED J.E. 3/24/97
SCALE: 1x
DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

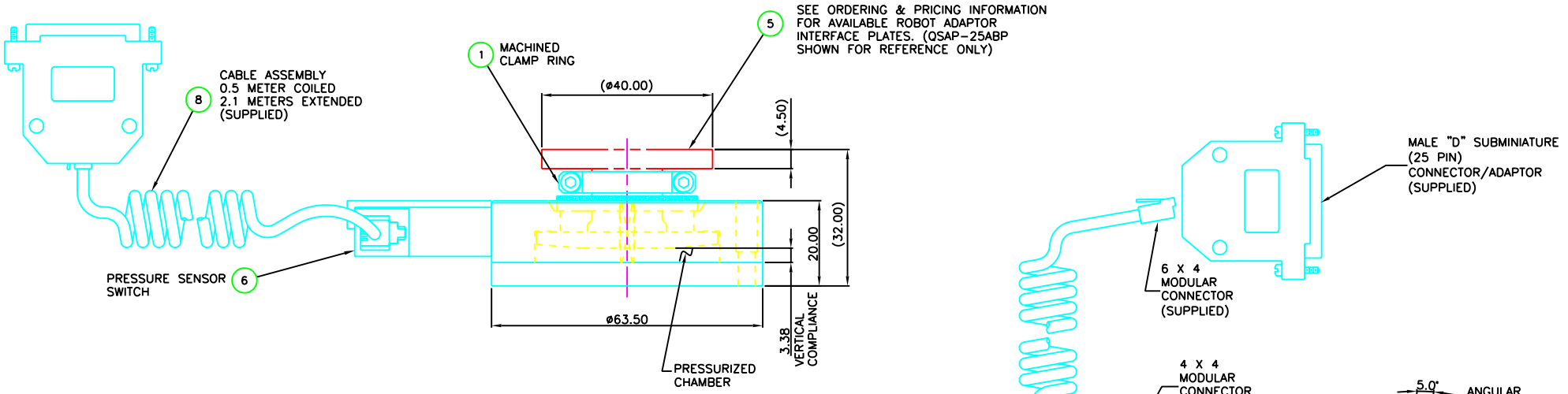
Applied Robotics, Inc.
648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

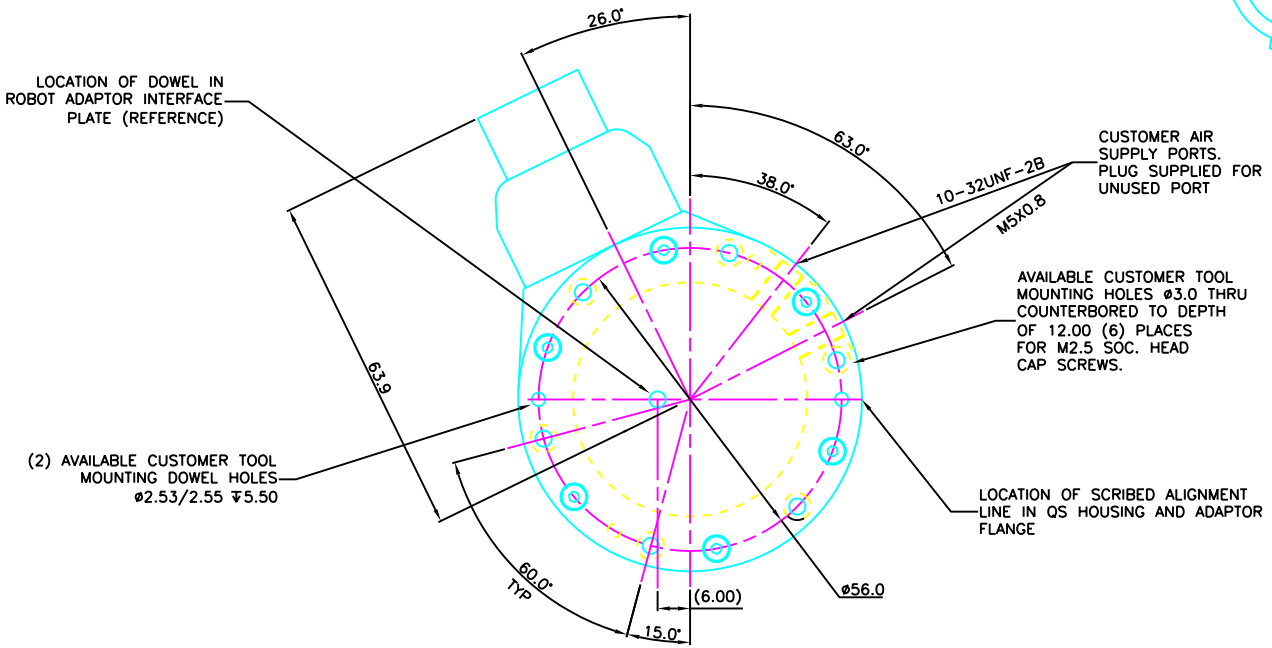
TITLE

QUICKSTOP COLLISION SENSOR MODEL QS-7500LRNP-T4

SIZE D | DRAWING NUMBER 97502D1039A | REV 03

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REPLACEMENT PARTS LIST			
SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING			
8	1	90506-C1064	QSC-4-0.6-MP
6	1	94502-C1019A	QSSA-MS
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-B1035A	QSCR-25A
ITEM	QTY	ARI PART NO.	DESCRIPTION

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DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓
MAT'L:

SURFACE TREATMENT:

DR M.MERRICK 09/18/92
CHK C.ANNIS 09/18/92
ENG
MFG
QC 09/18/92
ISSUED 2x

SCALE:
DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

ISO 9001 REGISTERED

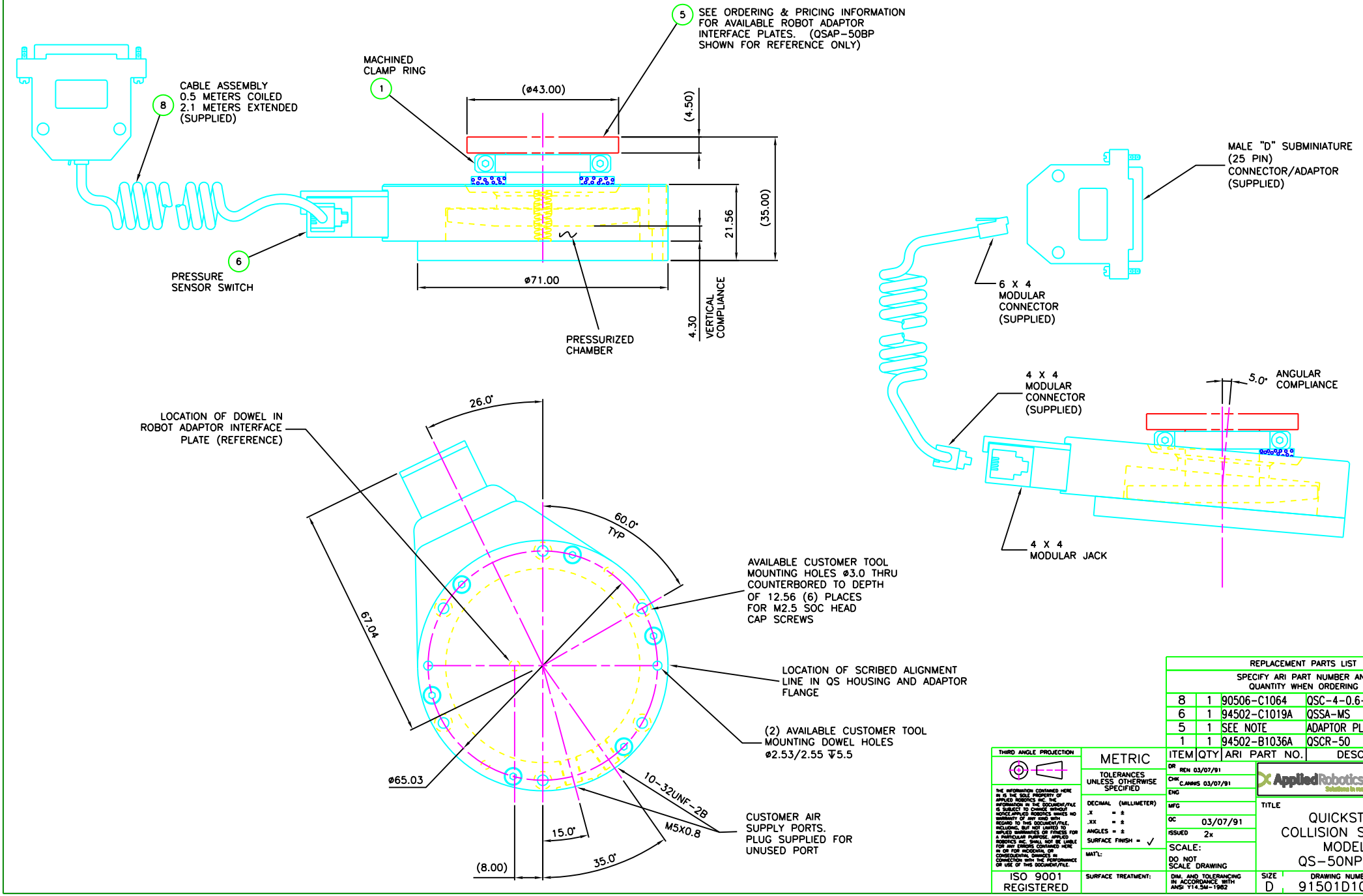
Applied Robotics, Inc.
648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

TITLE

QUICKSTOP
COLLISION SENSOR
MODEL
QS-25ANP-MP

SIZE D | DRAWING NUMBER 92503D1082A | REV 10

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REPLACEMENT PARTS LIST			
SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING			
8	1	90506-C1064	QSC-4-0.6-MP
6	1	94502-C1019A	QSSA-MS
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-B1036A	QSCR-50
ITEM	QTY	ARI PART NO.	DESCRIPTION

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DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓
MAT'L:

SURFACE TREATMENT:

DR REN 03/07/91
CHK C.ANNIS 03/07/91
ENG
MFG
QC 03/07/91
ISSUED 2x
SCALE:
DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

ISO 9001 REGISTERED

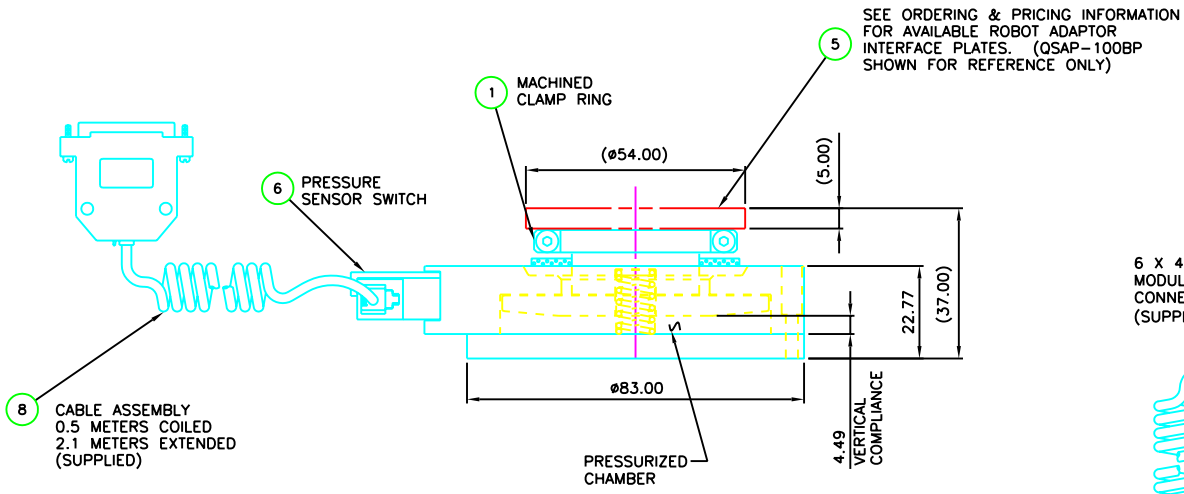
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Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

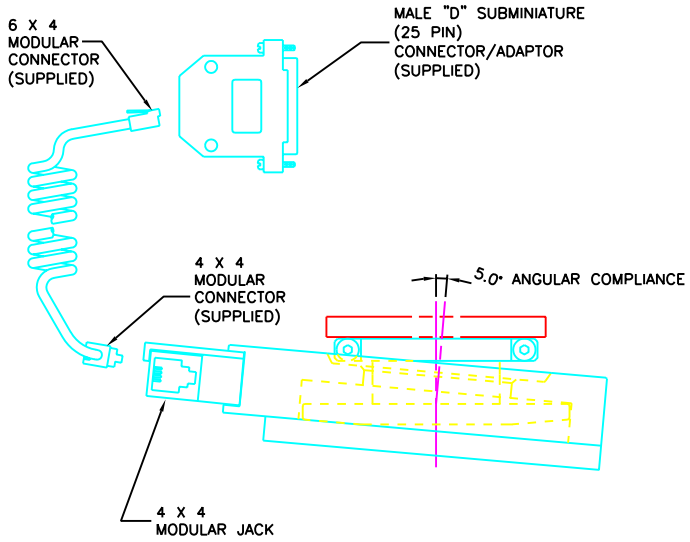
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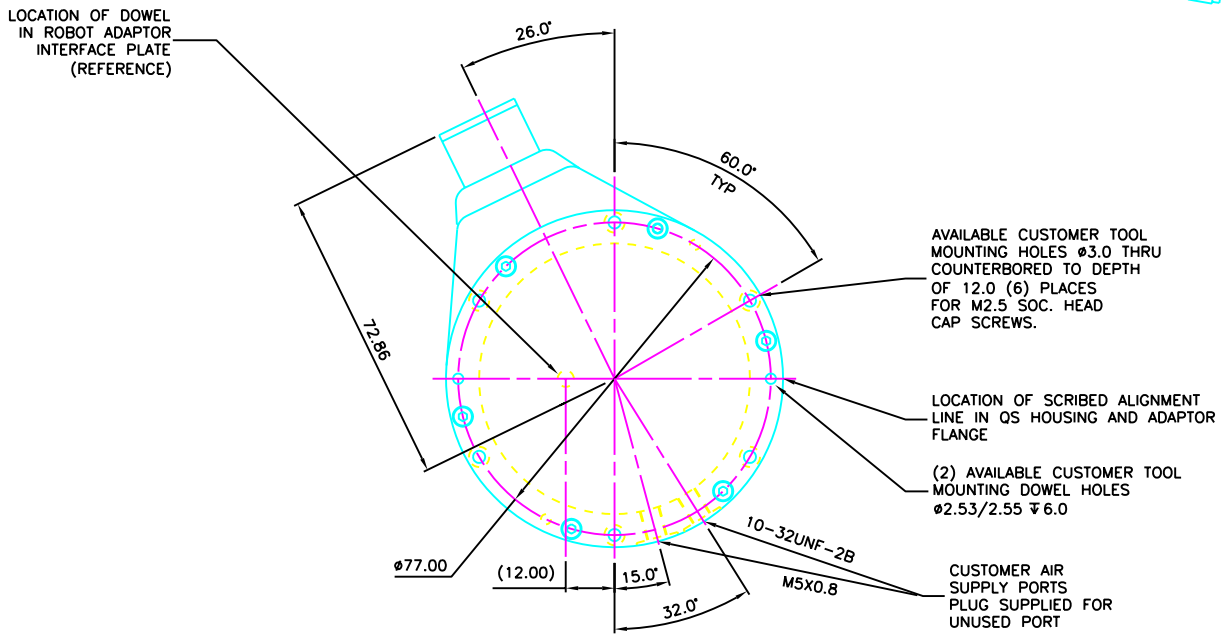
QUICKSTOP COLLISION SENSOR MODEL QS-50NP-MP

SIZE D | DRAWING NUMBER 91501D1091A | REV 11

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REPLACEMENT PARTS LIST			
SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING			
8	1	90506-C1064	QSC-4-0.6-MP
6	1	94502-C1019A	QSSA-MS
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-B1037A	QSCR-100
ITEM	QTY	ARI PART NO.	DESCRIPTION

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.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓

MAT'L:

SURFACE TREATMENT:

DR REN 3/8/91
CHK C ANNIS 3/8/91
ENG
MFG
QC 3/8/91
ISSUED 1.5X

SCALE:

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

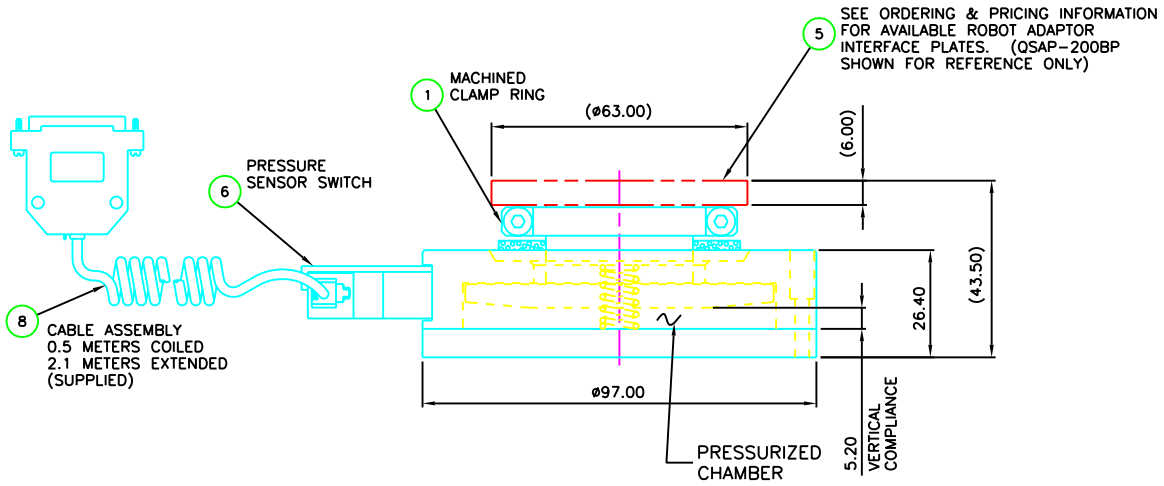
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648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

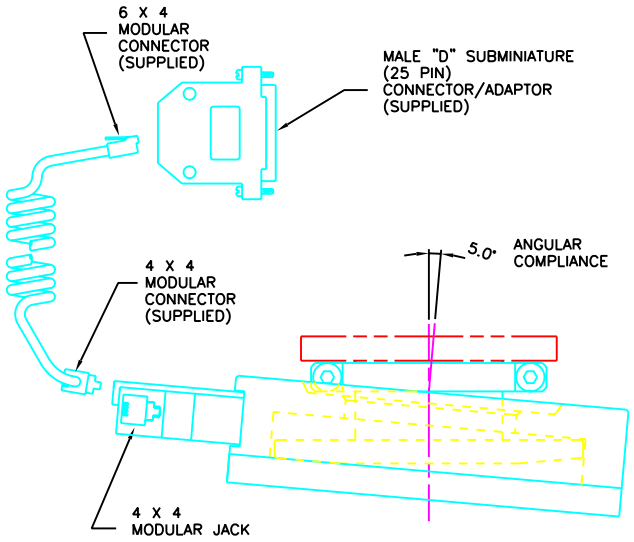
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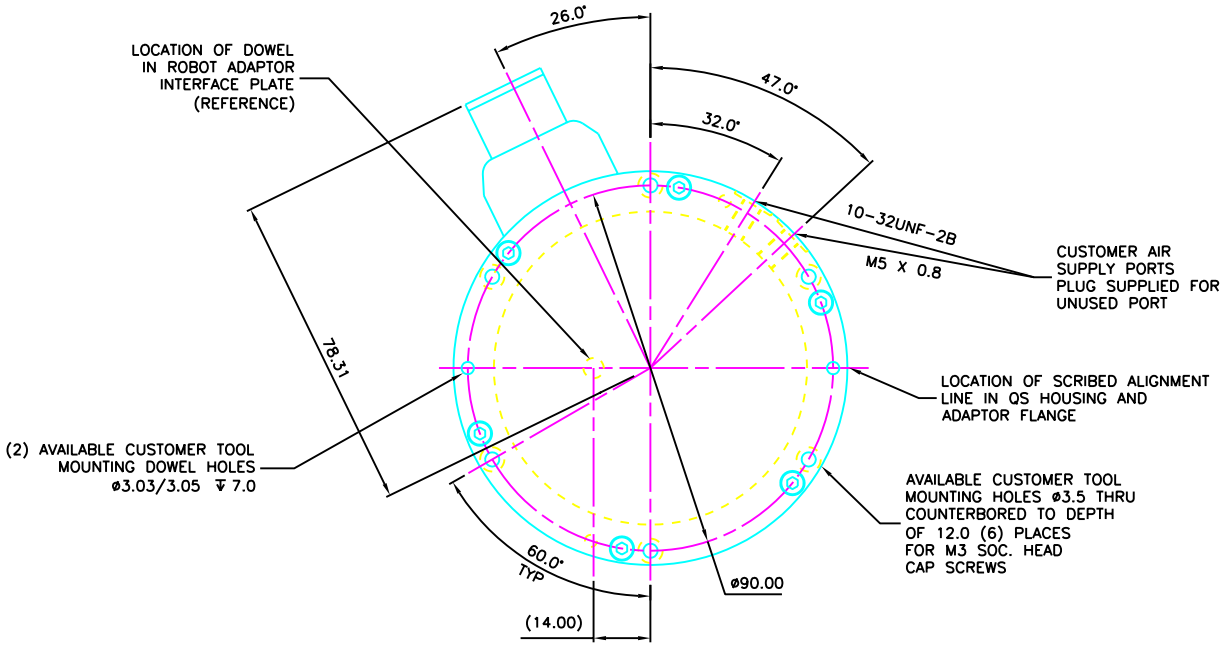
QUICKSTOP
COLLISION SENSOR
MODEL
QS-100NP-MP

SIZE D | DRAWING NUMBER 91501D1092A | REV 11

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REPLACEMENT PARTS LIST			
SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING			
8	1	90506-C1064	QSC-4-0.6-MP
6	1	94502-C1019A	QSSA-MS
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-B1038A	QSCR-200
ITEM	QTY	ARI PART NO.	DESCRIPTION

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.XX = ±
ANGLES = ±
SURFACE FINISH = ✓
MAT'L:

SURFACE TREATMENT:

DR REN 03/08/91
CHK C.ANNIS 03/08/91
ENG
MFG
QC C.ANNIS 03/08/91
ISSUED 1.5x
SCALE:
DO NOT SCALE DRAWING
DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

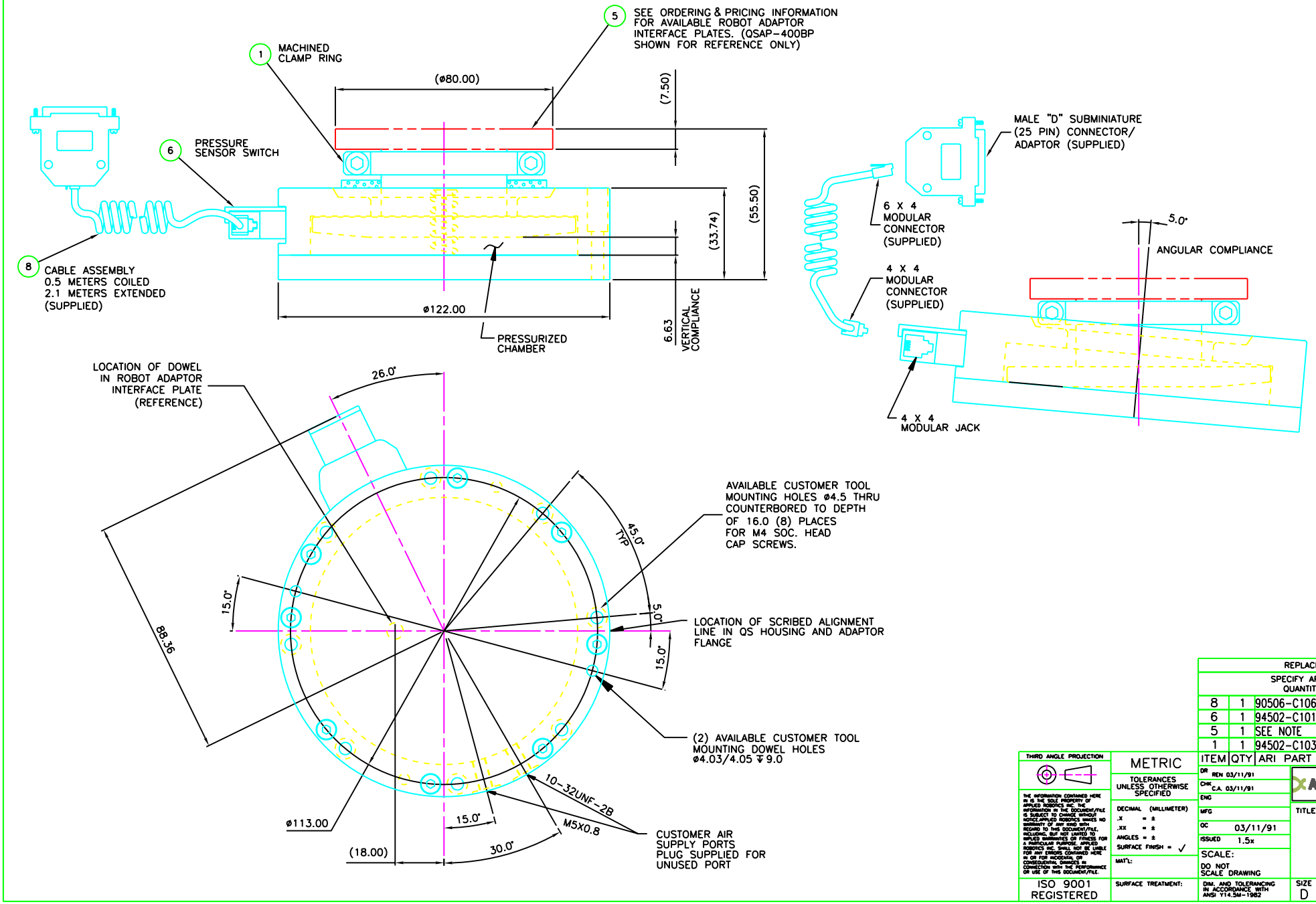
Applied Robotics, Inc.
648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

TITLE

QUICKSTOP
COLLISION SENSOR
MODEL
QS-200NP-MP

SIZE	DRAWING NUMBER	REV
D	91501D1093A	13

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REPLACEMENT PARTS LIST

SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING

ITEM	QTY	ARI PART NO.	DESCRIPTION
8	1	90506-C1064	QSC-4-0.6-MP
6	1	94502-C1019A	QSSA-MS
5	1	SEE NOTE	ADAPTOR PLATE
1	1	94502-C1039	QSCR-400

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓
MAT'L:

SURFACE TREATMENT:

DR REN 03/11/91
CHK C.A. 03/11/91
ENG
MFG
QC 03/11/91
ISSUED 1.5x

SCALE:
DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

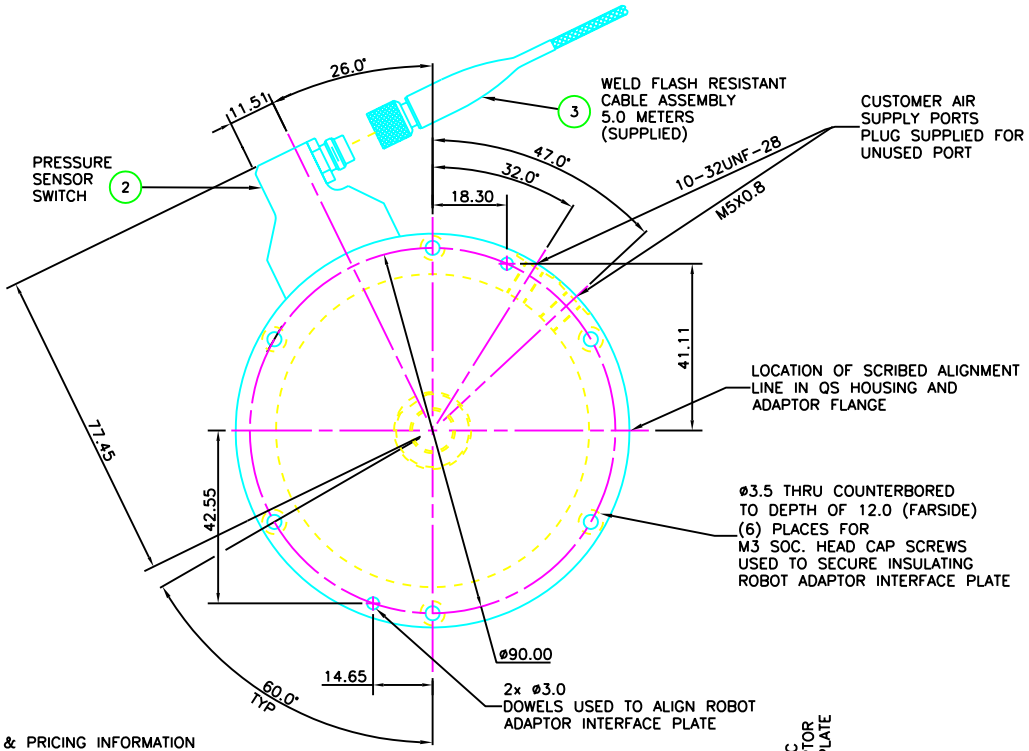
Applied Robotics, Inc.
648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

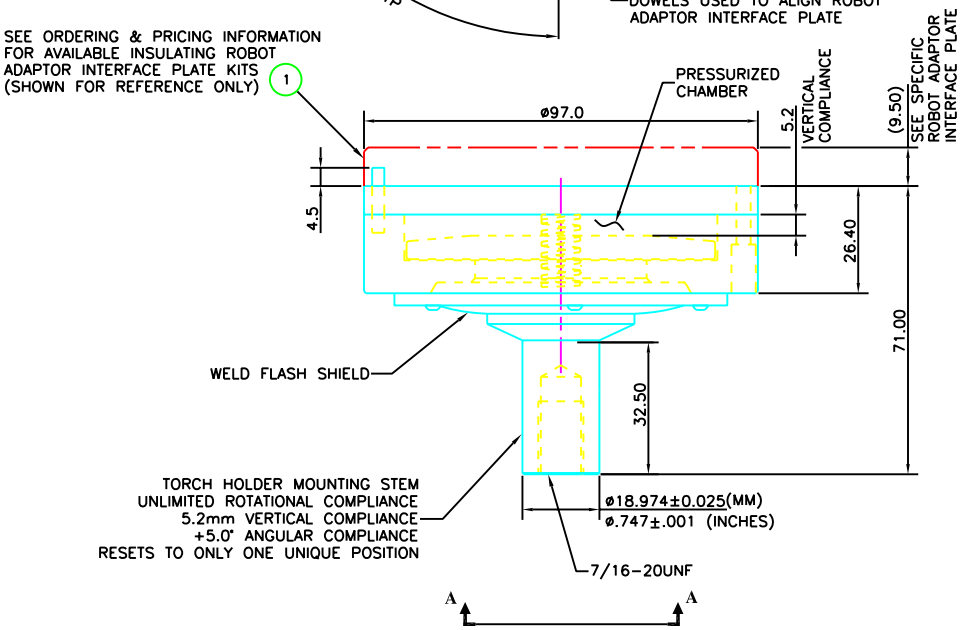
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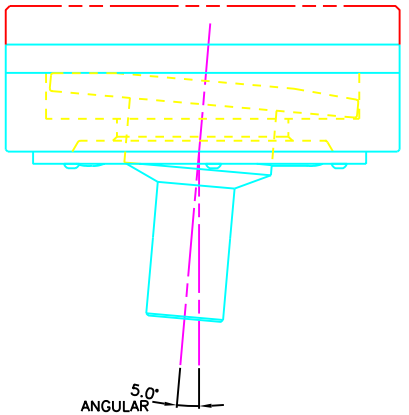
QUICKSTOP COLLISION SENSOR MODEL QS-400NP-MP

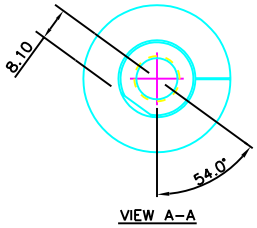
SIZE D | DRAWING NUMBER 91501D1094A | REV 13

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VIEW A-A

REPLACEMENT PARTS LIST			
SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING			
3	1	93505-C1063A	QSCAW-3-5.0-U
2	1	94502-C1020A	QSSA-T3S
1	1	SEE NOTE	INSULATING PLATE
ITEM	QTY	ARI PART NO.	DESCRIPTION

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓
MAT'L:

SURFACE TREATMENT:

DR J.ECKER 1/8/91
CHK C.ANNIS 1/8/91
ENG
MFG
QC
ISSUED J.ECKER 1/8/91
SCALE: 1.5X
DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

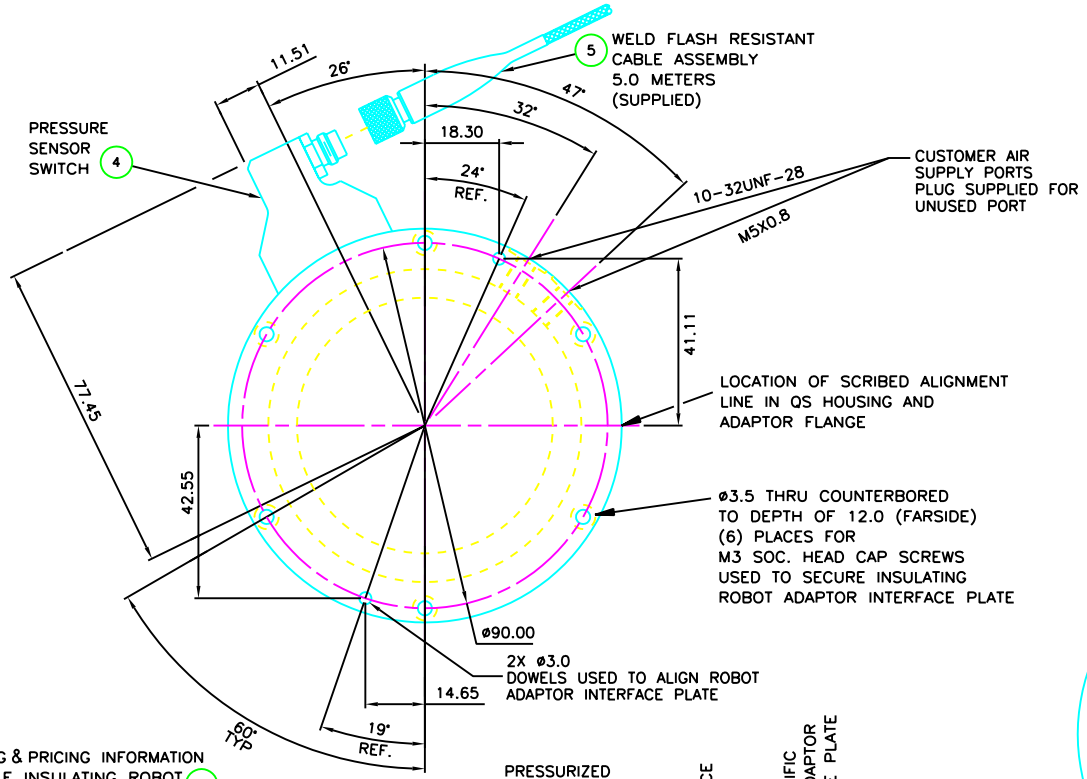
Applied Robotics, Inc.
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Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

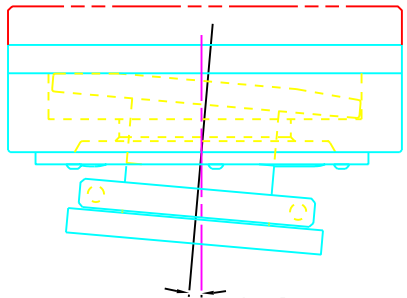
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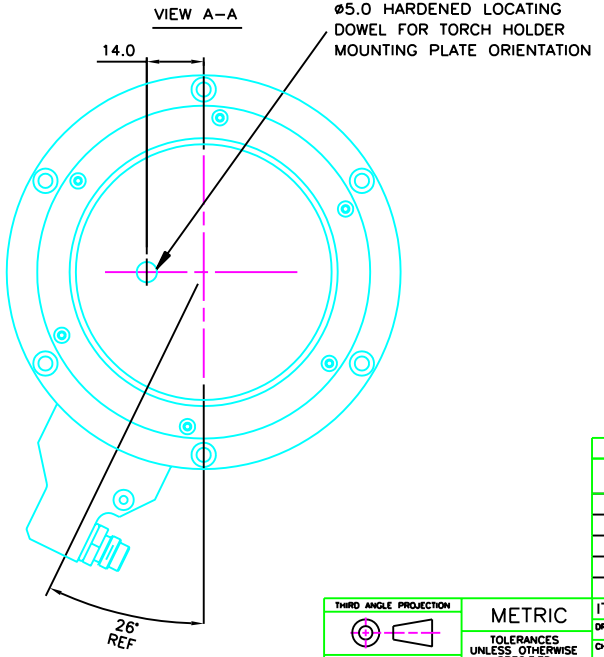
QUICKSTOP
COLLISION SENSOR
MODEL
QS-AWSDNP

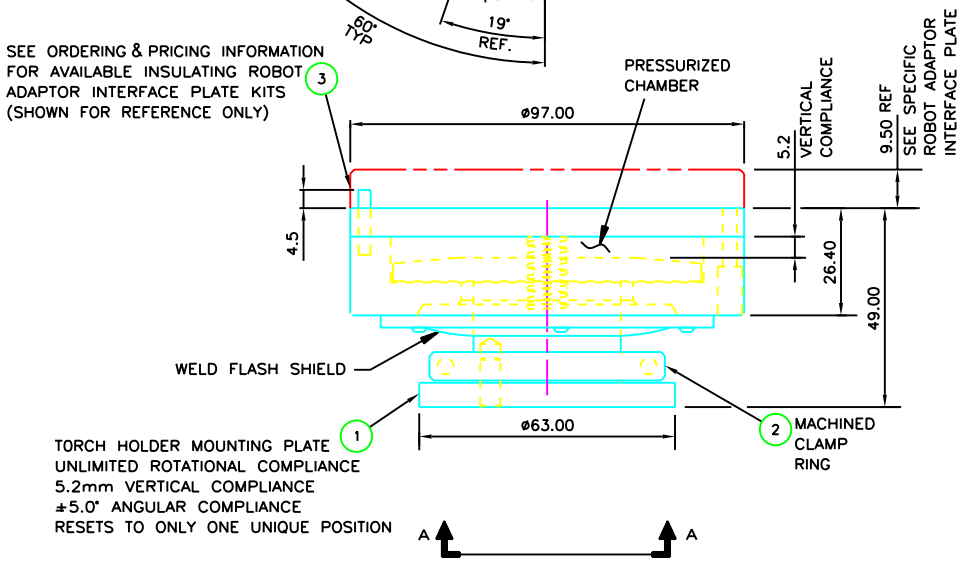
SIZE	DRAWING NUMBER	REV
D	92500D1006A	12

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REPLACEMENT PARTS LIST

SPECIFY ARI PART NUMBER AND QUANTITY WHEN ORDERING

ITEM	QTY	ARI PART NO.	DESCRIPTION
5	1	93505-C1063A	QSCAW-3-5.0-U
4	1	94502-C1020A	QSSA-T3S
3	1	SEE NOTE	INSULATING PLATE
2	1	94502-B1038A	QSCR-200
1	1	94501-B1089A	QSAP-200BP

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METRIC

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DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓

MAT'L:

SURFACE TREATMENT:

DR
CHK J.ECKER 05/18/94
ENG C.ANNIS 05/18/94
MFG
QC
ISSUED J.ECKER 05/18/94

SCALE: 1.5

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

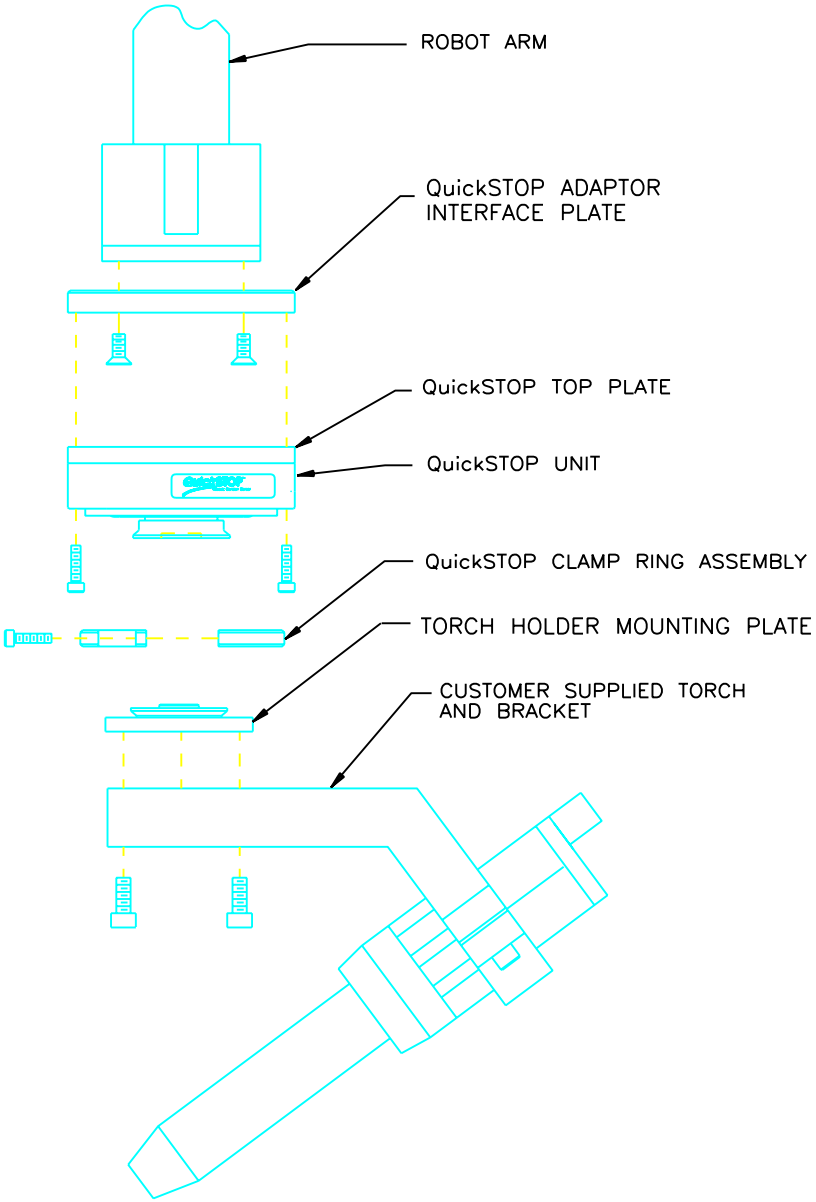
Applied Robotics, Inc.
648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

TITLE

QUICKSTOP COLLISION SENSOR MODEL QS-AWFPNP

SIZE D | DRAWING NUMBER 94502D1047A | REV 09

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DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓

MAT'L:

SURFACE TREATMENT:

ITEM	QTY	ARI PART NO.	DESCRIPTION

DR A. MAHONEY 1/20/96
CHK
ENG
MFG
QC
ISSUED

SCALE: 1x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

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Solutions in reach
Applied Robotics, Inc.
648 Saratoga Rd.
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Tel.(518)384-1000
Fax.(518)384-1200

TITLE

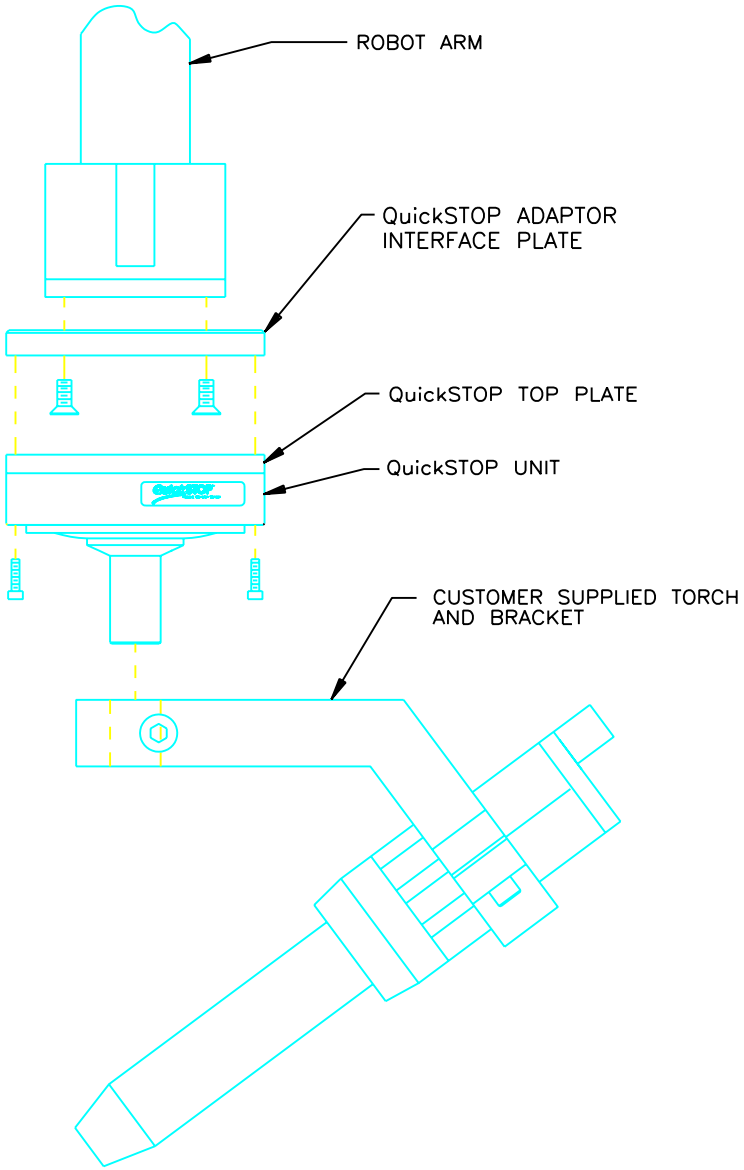
TORCH MOUNTING INFORMATION FOR THE QS-AWFP

SIZE C

DRAWING NUMBER 95601C1057A

REV 00

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METRIC

TOLERANCES UNLESS OTHERWISE SPECIFIED

DECIMAL (MILLIMETER)
.X = ±
.XX = ±
ANGLES = ±
SURFACE FINISH = ✓

MAT'L:

SURFACE TREATMENT:

ITEM	QTY	ARI PART NO.	DESCRIPTION

DR A. MAHONEY 1/20/96
CHK
ENG
MFG
QC
ISSUED

SCALE: 1x

DO NOT SCALE DRAWING

DIM. AND TOLERANCING IN ACCORDANCE WITH ANSI Y14.5M-1982

Applied Robotics, Inc.
648 Saratoga Rd.
Glenville, NY 12302
Tel.(518)384-1000
Fax.(518)384-1200

TITLE

TORCH MOUNTING INFORMATION FOR THE QS-AWSD

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