2nd Time

D.L. RICCI CORP.
PWHT JOB ANALYSIS SHEET

CUSTOMER: Major Tool
JOBSITE: Indianapolis Indiana
DATE: 2-9-06 **CUSTOMER CONTACT:** Dave McCorkle
TECHNICIAN: Eric, Herb, Bret, Joe, Seth, Kevin **PROCEDURE/ MATERIAL:** Inconel/stainless steel
WORK ORDER#: **JOB LOCATION:** Major Tool shop
SYSTEM #: **RECORDER S/N#:** R-91, RC-088, 074, 079, 070
I.S.O. LINE #: RC-093, RC037, RC-092, R-94, R-93, R-9
SPOOL #:
FIELD WELD #:
CHART #: 11 charts **TOTAL WELDS:** ____ **TOTAL TC'S:** 101

WORK DESCRIPTION: When Temps were all Lower then 212° we started ramping up the vessel and ports. till we got the ports back up to 300° & vessel Back up TO 707° and then held Ports at Temp for 21 hours & The vessel for 18 hours so the both had a total of 42 hours of soak

HEAT CYCLE: Ports From 200° to 300° at 50°/per 120 min. then Held 21 hours
vessel From 200° to 707° at 50°/per 70 min Then Held 18 hours.

AMBIENT TO _____F AT_____F/HR, ABOVE_____F AT_____F/HR
HOLD FOR_____HRS AT_____F/HR, +/-_____F, COOL TO_____F AT_____F/HR.
COOL TO AMBIENT UNDER INSULATION Y/N_____.

PWHT CYCLE INFORMATION:

When hold time was complete we ramped down on the vessel at 50° per hour Till 500° to keep ports in soak for 3 extra hours so we would have 42 hours on both Ports and vessel after we were at 500° we set the ramp to 90° per hour and the target temp Down 100° and held at each target temp till even and then set Target temp 100° less uptill we were and 200° Then we shut off machs. and let cool.

* TO INCLUDE ALL INFORMATION RELEVANT TO PWHT CYCLE*

Herb Norden 2/11/06
TECHNICIAN DATE

CUSTOMER ACCEPTANCE*: _____ DATE: 11 Feb 2006
* SIGNATURE ACCEPTS ABOVE HEAT CYCLE PROCEDURE

K Drive: Job Sheet- Excel File

D.L. RICCI CORP.
WELD AND THERMOCOUPLE IDENTIFICATION

DATE: 2-9-06 CUSTOMER CONTACT: Doug McGorkle

TECHNICIAN: Eric, Herb, Brad, Joe, Seth, Kevin PROCEDURE/ MATERIAL: Inconel / stainless Steel

WORK ORDER#: _____ JOB LOCATION: _____

SYSTEM #: _____ RECORDER S/N#: R-91, RC-088, RC-074, RC-079 RC-070, RC-093, RC-037, RC092, R-94, R-93, R-95

I.S.O. LINE #: _____

SPOOL #: _____

FIELD WELD #: _____

CHART #: 11 Recorders TOTAL WELDS: _____ TOTAL TC'S: 101

WELD IDENTIFICATION AND THERMOCOUPLE LAYOUT
THIS I.S.O. DRAWING IS COMPLETED BY THE PWHT TECHNICIAN

_____
TECHNICIAN DATE

D.L.Ricci Corp.

PWHT QUALITY CONTROL SHEET

CUSTOMER Major Tool W/O# _____

DATE: 2-9-06

1. Customer has given specific direction to D.L. Ricci, as to which welds need PWHT. Heat Treating Documentation packet has been given to the technician. The technician as reviewed the procedure.

Technician

2. Drawings of each spool piece have been completed. Each drawing shows the spool piece number and describes each weld on the spool.

Technician

3. Welds are wrapped and troubleshooting is complete. All zones are working properly. Technician has reviewed procedure (ramp rate, soak temperature, soak time).

Technician

4. Welds are at soak temperature. Technician has reviewed chart (checking ramp rate up to soak).

Technician

5. When soak is complete, technician has reviewed chart, checked soak time/temperature and reviewed ramp rate to completion.

Technician

6. PWHT is complete. Technician has reviewed chart and everything is correct. (Do not unwrap welds until this stage is signed off)

Technician

7. Unwrap welds. Take hardness test if required and record results.

Technician

First Time

D.L. RICCI CORP.
PWHT JOB ANALYSIS SHEET

CUSTOMER: Major Tool
JOBSITE: Indianapolis Indiana
DATE: 1-31-06 CUSTOMER CONTACT: Doug McCorkle
TECHNICIAN: Eric, Herb, Bret, Joe, Seth, Kevin PROCEDURE/ MATERIAL: Inconel/stainless steel
WORK ORDER#: 65678/1.0 JOB LOCATION: Major tool shop
SYSTEM #: RECORDER S/N#: R-91, RC-088, RC-074, RC-079
I.S.O. LINE #: RC-070, RC-093, RC-032, RC-092, R-94, R-93, R-95
SPOOL #:
FIELD WELD #:
CHART #: 11 TOTAL WELDS: TOTAL TC'S: 101

WORK DESCRIPTION: ran a bake at 707° on the vessel and 275°-311° on the ports.

HEAT CYCLE: 300° at 50°/per 120 min. at 300° held 21 hours
70 min. at 707° held 24 hours.
AMBIENT TO 707° F AT 50°/1° F/HR, ABOVE _____ F AT _____ F/HR
HOLD FOR ____ HRS AT _____ F/HR, +/- _____ F, COOL TO _____ F AT _____ F/HR.
COOL TO AMBIENT UNDER INSULATION Y/N _____.

PWHT CYCLE INFORMATION:
started at Ambient and ramped up 50° every 70 min on the vessel till 707
started at Ambient and slowly ramped up at the ports 50° every 2 hours or so.
When the vessel got too 700° we held it the first time 24 hours First Time
when the ports got to 300° we held them 21 hours the First Time 70 min
when hold time was complete we ramp Down on the vessel 50° per ~~hour~~
Till about 500° and then the ports we fell out of soak and then we
* TO INCLUDE ALL INFORMATION RELEVANT TO PWHT CYCLE*

Neil Jacobs 2/11/06
TECHNICIAN DATE

CUSTOMER ACCEPTANCE*: _____ DATE: 11 Feb 2006
* SIGNATURE ACCEPTS ABOVE HEAT CYCLE PROCEDURE

K Drive: Job Sheet- Excel File

start to ramp the ports Down 50° per ~~hour~~ 70 min to 200°
and at 500° we changed the ramp rate on the vessel to 90° per hour
and target temp to 100° per ~~set~~ step and we would hold each step till
we were within 10° Top to Bottom

D.L. RICCI CORP.
TIME TEMPERATURE TABULATIONS

CUSTOMER: _____

DATE: 2-6-6 CUSTOMER CONTACT: _____

TECHNICIAN: _____ PROCEDURE/ MATERIAL: _____

WORK ORDER#: _____ JOB LOCATION: _____

SYSTEM #: [redacted] RECORDER SERIAL #: 009A093

I.S.O. LINE #: _____

SPOOL #: _____

FIELD WELD #: _____

CHART #: 1 TOTAL WELDS: _____ TOTAL TC'S: 12

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
14:12	70	69	71	70	70	69	71	78	71	71	71	70
14:42	124	125	125	128	128	130	129	127	129	127	126	123
15:12	130	130	132	141	135	149	142	136	139	133	124	130
15:42	132	132	133	139	135	145	145	136	139	132	125	133
16:12	135	134	136	146	142	148	146	138	142	135	130	135
16:42	161	161	162	166	166	171	171	162	167	160	155	160
17:12	172	173	174	177	175	172	171	175	176	172	170	173
17:42	172	173	174	175	174	171	170	171	173	169	169	174
18:12	173	173	173	171	172	171	171	171	171	169	169	173
1842	172	172	172	171	172	172	171	171	171	169	169	172
1912	171	171	172	171	172	171	171	171	171	169	169	171
1942	174	173	174	173	180	176	179	174	174	172	172	172
20:12	194	194	200	212	203	202	201	199	199	196	196	197
20:42	222	222	223	248	222	227	223	222	223	220	220	220
21:12	223	223	225	243	229	226	221	221	222	219	218	223
21:42	245	249	249	268	254	253	249	245	249	243	242	244
22:12	271	272	272	272	276	272	273	272	272	268	267	271
22:42	284	286	286	285	290	286	285	286	287	283	282	28
2312	310	311	311	310	315	312	319	311	312	308	306	309
2342	322	322	322	323	326	325	321	321	321	319	318	322
0012	335	335	334	337	337	338	334	335	335	332	332	325
1:12	382	382	383	384	385	386	385	380	382	379	379	379
1:42	407	407	409	409	410	410	409	406	408	404	404	404
212	423	424	424	428	424	422	421	422	421	419	419	423
242	449	449	449	450	450	450	446	447	447	444	444	445
312	471	472	472	473	473	473	471	472	471	468	468	470
342	488	488	489	492	487	488	488	487	484	485	484	486
412	513	514	514	517	513	511	513	513	513	510	510	511
00:42	335	335	334	337	337	338	334	335	335	332	332	325

* Time/Temperature Log shall be used to record temperatures above 800 Degrees F (or per applicable procedure) every hour during the heating and cooling cycles and every one-half hour during PWHT cycle.

D.L. RICCI CORP.
TIME TEMPERATURE TABULATIONS

CUSTOMER: _____

DATE: 2-7 CUSTOMER CONTACT: _____

TECHNICIAN: _____ PROCEDURE/ MATERIAL: _____

WORK ORDER#: _____ JOB LOCATION: _____

SYSTEM #: _____ RECORDER SERIAL #: 009A093

I.S.O. LINE #: _____

SPOOL #: _____

FIELD WELD #: _____

CHART #: 1 TOTAL WELDS: _____ TOTAL TC'S: 12

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
4:42	528	526	528	529	528	527	526	525	527	525	524	525
5:12	553	552	553	553	553	551	551	550	552	549	549	550
5:42	572	572	573	573	573	574	571	571	571	569	569	571
6:12	596	596	596	596	601	597	595	593	594	591	591	592
6:42	621	620	621	622	620	622	619	618	620	616	617	617
7:12	639	639	640	641	639	640	639	638	637	636	636	637
7:42	665	664	665	664	665	664	664	664	663	661	660	662
8:12	676	675	676	683	674	676	674	675	675	673	672	673
8:42	701	701	702	703	701	701	699	699	701	699	699	698
9:12	702	702	702	703	702	702	701	700	701	699	699	701
9:42	702	701	703	702	702	701	701	701	701	699	699	700
10:12	705	706	706	710	704	708	704	704	706	705	704	704
10:42	709	708	710	709	708	709	709	708	706	706	706	707
11:12	708	708	709	709	709	707	708	706	708	706	706	707
11:42	709	709	709	710	709	709	709	708	708	706	706	707
12:42	708	708	702	708	709	708	708	708	709	706	706	707
13:42	709	708	709	709	709	709	709	721	708	709	706	707
14:42	709	709	709	710	709	709	708	708	708	706	706	707
15:42	708	709	709	709	709	709	709	709	709	706	706	707
16:42	708	708	709	709	709	708	708	708	708	706	706	707
17:42	708	708	709	711	709	709	708	707	708	706	706	707
18:42	708	708	709	709	709	709	709	708	708	706	706	707
19:42	710	708	709	708	709	709	709	709	708	706	706	707
20:42	709	712	709	711	709	709	709	708	708	709	706	707
21:42	708	708	709	710	709	709	709	709	708	706	706	707
22:42	709	708	709	709	709	709	709	707	708	706	706	707
23:42	708	708	709	710	709	709	708	708	708	706	706	707
0042	708	708	709	710	709	709	708	708	708	706	706	707
0142	708	709	709	710	709	709	709	709	708	706	706	707

* Time/Temperature Log shall be used to record temperatures above 800 Degrees F (or per applicable procedure) every hour during the heating and cooling cycles and every one-half hour during PWHT cycle.

D.L. RICCI CORP.
TIME TEMPERATURE TABULATIONS

CUSTOMER: _____

DATE: 2-8 CUSTOMER CONTACT: _____

TECHNICIAN: _____ PROCEDURE/ MATERIAL: _____

WORK ORDER#: _____ JOB LOCATION: _____

SYSTEM #: _____ RECORDER SERIAL #: 009A093

I.S.O. LINE #: _____

SPOOL #: _____

FIELD WELD #: _____

CHART #: 1 TOTAL WELDS: _____ TOTAL TC'S: 12

VESSEL

300 deg F

Started up

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
0242	709	708	709	711	709	709	709	709	708	706	706	70
0342	708	708	709	711	709	709	708	709	708	706	706	70
442	708	709	708	74	709	709	710	709	708	706	706	70
542	708	708	708	711	709	709	708	708	708	707	706	70
6:42	710	708	708	710	709	709	707	709	708	706	706	70
7:42	708	708	708	713	710	710	708	706	708	706	706	70
8:42	702	705	702	702	700	702	700	699	698	698	698	70
9:12	682	687	679	677	675	675	675	674	674	674	673	68
9:42	658	665	657	651	651	651	650	651	649	649	649	66
10:12	632	637	631	627	628	627	627	626	627	624	624	63
10:42	608	613	607	602	603	602	602	601	602	599	600	61
11:12	582	584	581	588	586	589	584	581	585	580	582	58
12:12	522	525	522	505	502	512	501	500	507	504	520	52
13:12	475	475	474	468	460	467	453	465	469	466	472	47
14:12	422	427	417	412	405	410	401	404	410	411	426	42
15:12	381	385	381	389	372	389	371	384	386	382	388	38
16:12	349	349	350	353	350	353	350	351	350	348	356	34
17:12	341	343	342	344	339	352	341	345	346	343	343	34
18:12	304	306	304	304	311	315	301	307	311	310	320	31
19:12	297	298	298	301	300	303	298	300	300	298	297	29
20:12	275	279	280	281	284	283	281	281	279	279	279	27
21:12	264	266	262	267	261	266	257	264	264	263	267	267
22:12	244	246	243	244	239	241	241	244	246	241	250	24
23:12	232	226	223	222	227	223	216	223	225	223	233	22
00:12	209	210	207	205	208	204	200	207	205	206	212	21
01:26	200	200	201	205	202	201	203	201	200	198	199	19
2:26	240	240	241	249	242	244	243	242	241	237	237	23
3:26	285	285	284	302	290	293	284	286	287	283	240	28
4:26	321	322	322	324	326	324	321	321	322	318	318	32

* Time/Temperature Log shall be used to record temperatures above 800 Degrees F (or per applicable procedure) every hour during the heating and cooling cycles and every one-half hour during PWHT cycle.

D.L. RICCI CORP.
TIME TEMPERATURE TABULATIONS

CUSTOMER: _____

DATE: 2-9 **CUSTOMER CONTACT:** _____

TECHNICIAN: _____ **PROCEDURE/ MATERIAL:** _____

WORK ORDER#: _____ **JOB LOCATION:** _____

SYSTEM #: _____ **RECORDER SERIAL #:** 009A093

I.S.O. LINE #: _____

SPOOL #: _____

FIELD WELD #: _____

CHART #: 1 **TOTAL WELDS:** _____ **TOTAL TC'S:** 12

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
526	364	364	364	375	363	363	366	362	361	361	359	362
6:26	404	405	405	406	409	404	404	404	403	401	401	404
7:26	452	453	453	456	453	454	451	452	453	450	450	454
8:26	496	497	498	503	496	498	496	496	496	492	492	501
9:26	539	539	540	541	537	536	539	538	538	534	535	536
10:26	580	581	582	584	579	581	581	580	580	575	576	577
11:26	626	621	623	625	622	620	622	621	622	617	618	619
12:26	662	662	663	670	661	661	664	662	662	657	658	658
13:26	702	708	703	705	702	703	702	701	699	701	699	701
14:26	708	709	710	709	709	709	709	708	708	706	706	707
15:26	709	708	709	708	709	709	709	708	708	706	706	707
16:26	708	708	709	705	709	709	709	709	707	706	706	707
17:26	708	708	709	707	710	709	709	709	708	706	706	707
18:26	708	708	709	707	709	709	709	709	709	706	706	707
19:26	708	709	708	705	709	709	709	709	708	706	706	707
2026	708	708	709	705	709	709	709	713	707	706	706	707
2126	708	708	709	707	709	709	709	709	709	705	706	707
2-26	708	708	707	709	709	709	709	709	708	706	706	707
2326	708	708	707	710	709	709	708	709	708	706	706	707
0026	708	708	708	708	709	709	709	709	709	706	706	707
126	708	708	708	709	709	709	709	709	709	706	706	707
226	708	708	709	711	709	709	709	709	709	706	706	707
326	708	708	709	706	709	709	709	709	708	706	706	707
426	708	708	709	706	709	709	709	709	708	706	706	707
526	708	708	709	706	709	709	709	709	708	706	706	707
6:26	708	708	709	709	708	709	708	709	709	706	706	707
7:26	708	708	709	708	709	709	709	709	708	706	706	707
8:26	683	698	678	675	676	677	667	676	676	672	673	68
9:28	635	628	629	635	633	632	630	631	632	629	629	63

* Time/Temperature Log shall be used to record temperatures above 800 Degrees F (or per applicable procedure) every hour during the heating and cooling cycles and every one-half hour during PWHT cycle.

D.L. RICCI CORP.
TIME TEMPERATURE TABULATIONS

CUSTOMER: _____

DATE: 2-10 **CUSTOMER CONTACT:** _____

TECHNICIAN: _____ **PROCEDURE/ MATERIAL:** _____

WORK ORDER#: _____ **JOB LOCATION:** _____

SYSTEM #: _____ **RECORDER SERIAL #:** _____

I.S.O. LINE #: _____

SPOOL #: _____

FIELD WELD #: _____

CHART #: 1 **TOTAL WELDS:** _____ **TOTAL TC'S:** 12

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
10:26	579	583	583	596	587	590	581	584	587	584	586	586
11:26	498	498	498	502	502	512	501	500	506	507	524	511
12:26	458	460	464	471	464	473	455	466	470	467	473	461
13:26	400	402	405	402	402	414	401	405	410	412	428	406
14:26	382	384	387	392	390	396	382	389	391	387	390	386
15:26	335	339	342	340	336	350	326	342	346	345	358	346
16:26	298	302	304	299	286	311	285	304	308	310	325	303
17:26	265	270	272	262	244	276	254	271	274	278	294	270
18:26	237	241	243	231	215	245	227	243	244	250	265	243
19:26	214	217	218	206	196	197	194	216	214	225	239	224
20:26	196	200	200	186	175	159	166	197	186	203	217	201
21:26	183	188	187	171	156	140	146	180	167	187	199	186

* Time/Temperature Log shall be used to record temperatures above 800 Degrees F (or per applicable procedure) every hour during the heating and cooling cycles and every one-half hour during PWHT cycle.

D.L. RICCI CORP.
WELD AND THERMOCOUPLE IDENTIFICATION

DATE: 1-31-06
TECHNICIAN: Eric, Herb, Brad, Joe, Seth, Kevin
WORK ORDER#:
SYSTEM #:

CUSTOMER CONTACT: Doug McCorkle
PROCEDURE/ MATERIAL: Inconel / Stainless Steel
JOB LOCATION: Major Tool shop
RECORDER S/N#: R-91, RC-088, RC-074, RC-079 RC-070, RC-093, RC-037, RC-092, R-94, R-93, R-95

I.S.O. LINE #:
SPOOL #:
FIELD WELD #:
CHART #: 11 Recorders TOTAL WELDS: TOTAL TC'S: 101

WELD IDENTIFICATION AND THERMOCOUPLE LAYOUT
THIS I.S.O. DRAWING IS COMPLETED BY THE PWHT TECHNICIAN

TECHNICIAN 2-11-06 DATE

D.L.Ricci Corp.

PWHT QUALITY CONTROL SHEET

CUSTOMER Major Tool W/O# _____

DATE: 2-11-06

1. Customer has given specific direction to D.L. Ricci, as to which welds need PWHT. Heat Treating Documentation packet has been given to the technician. The technician as reviewed the procedure.

Herb Ybarra
Technician

2. Drawings of each spool piece have been completed. Each drawing shows the spool piece number and describes each weld on the spool.

Herb Ybarra
Technician

3. Welds are wrapped and troubleshooting is complete. All zones are working properly. Technician has reviewed procedure (ramp rate, soak temperature, soak time).

Herb Ybarra
Technician

4. Welds are at soak temperature. Technician has reviewed chart (checking ramp rate up to soak).

Herb Ybarra
Technician

5. When soak is complete, technician has reviewed chart, checked soak time/temperature and reviewed ramp rate to completion.

Herb Ybarra
Technician

6. PWHT is complete. Technician has reviewed chart and everything is correct. (Do not unwrap welds until this stage is signed off)

Herb Ybarra
Technician

7. Unwrap welds. Take hardness test if required and record results.

_____
Technician

D.L. RICCI CORP.
5001 Moundview Drive
Red Wing, Minnesota 55066
Phone: 651/388-8661 Fax 651/388-0002

CERTIFICATE OF CALIBRATION

MODEL:	AH3725-N00	SERIAL NO:	AH009A93
THERMOCOUPLE TYPE:	K	RANGE:	0 - 2000 F
CALIBRATION DATE:	11/30/05	DUE DATE:	5/30/06

TEST EQUIPMENT USED:	THERMO-ELECTRIC E-2642		
MANUFACTURER:	Thermo-Electric	CALIBRATION DATE:	8/16/05
MODEL NO:	E2642	ACCURACY:	+/-1 F
SERIAL NO:	0008032		

AMBIENT TEMP: 60° HUMIDITY: 53% ZONE: 1

INPUT	AS FOUND	AS LEFT	ACCURACY
200	200	200	+/-10 DEG F
400	400	400	+/-10 DEG F
600	600	600	+/-10 DEG F
800	800	800	+/-10 DEG F
1000	1000	1000	+/-10 DEG F
1200	1200	1200	+/-10 DEG F
1400	1400	1400	+/-10 DEG F
1600	1600	1600	+/-10 DEG F
1800	1802	1806	+/-10 DEG F
2000	2000	2000	+/-10 DEG F

THIS INSTRUMENT HAS BEEN CALIBRATED WITHIN MANUFACTURERS SPECIFICATION.
THIS CALIBRATION IS TRACEABLE TO THE N.I.S.T.
WE GUARANTEE THAT THIS PRODUCT HAS PASSED THROUGH E.H.S. STANDARD TESTING AND SATISFIES ALL SPECIFICATIONS

CALIBRATED BY: Matt Wilson
SIGNATURE: Matt Wilson

PREHEAT AND STRESS RELIEVING EQUIPMENT

DIAGRAM #1 NORTH SIDE (DIRECTION ON D.#5)

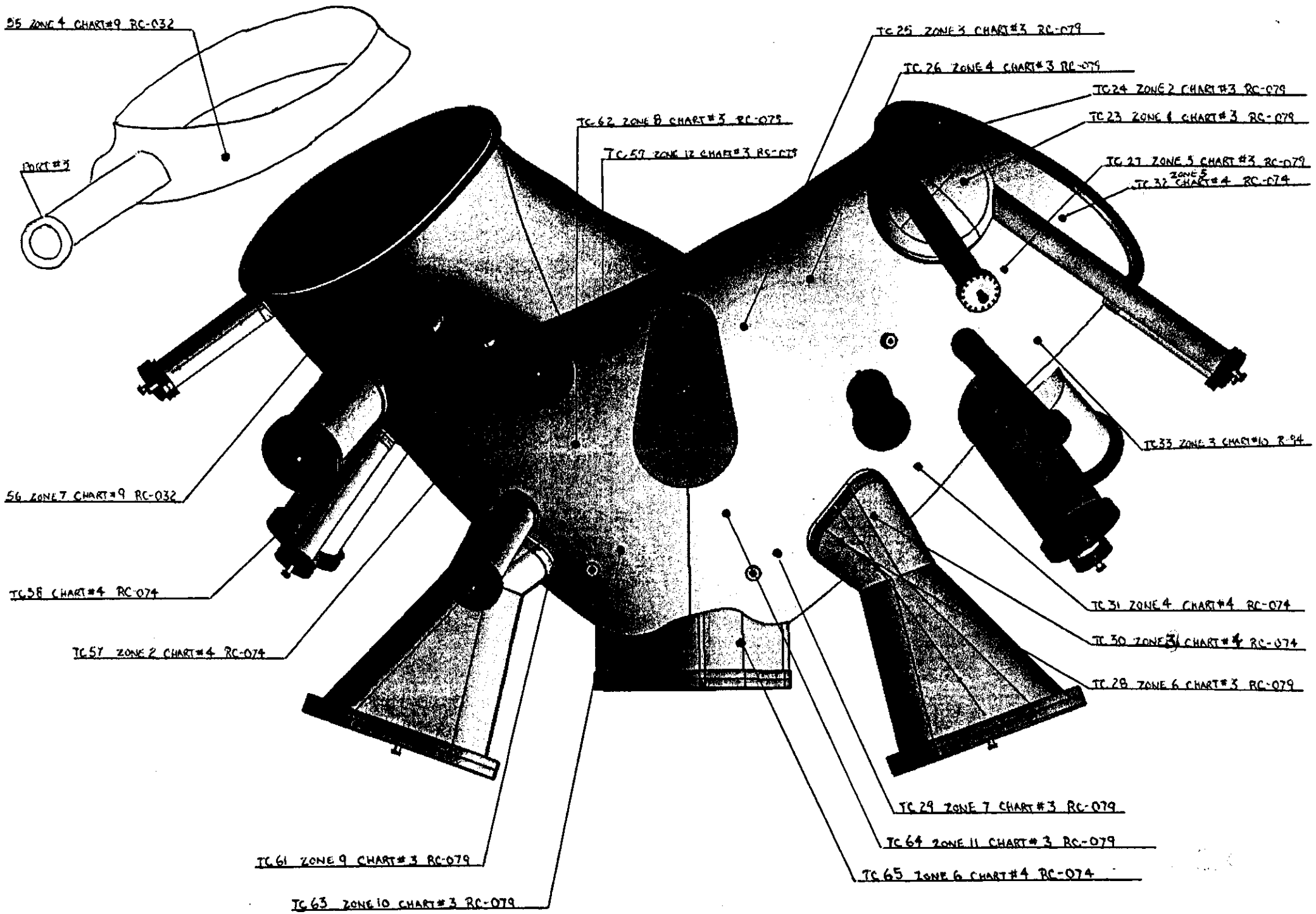


DIAGRAM #2 EAST SIDE (DIRECTION ON D.#5

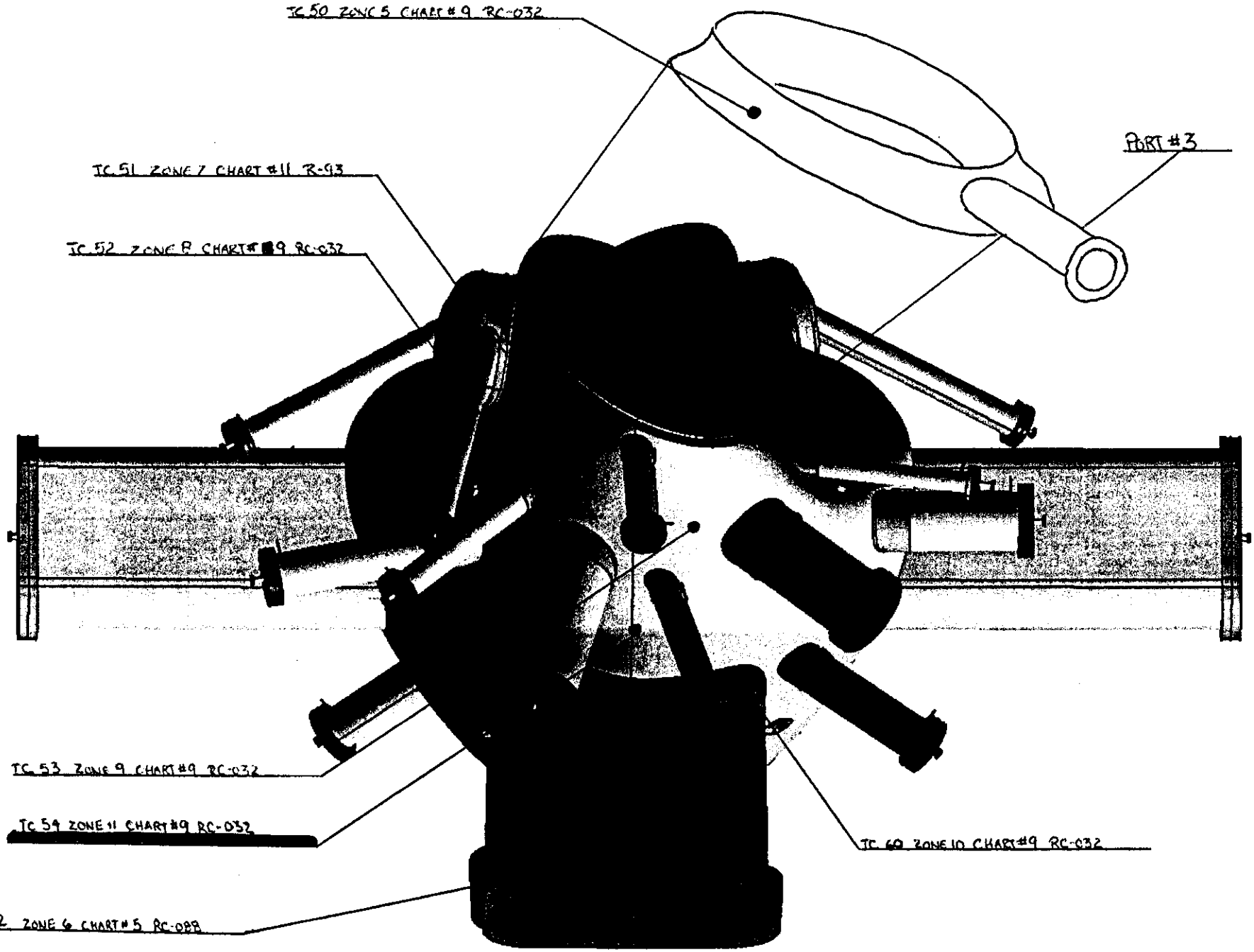


DIAGRAM #3 SOUTH SIDE (DIRECTION ON D.#5)

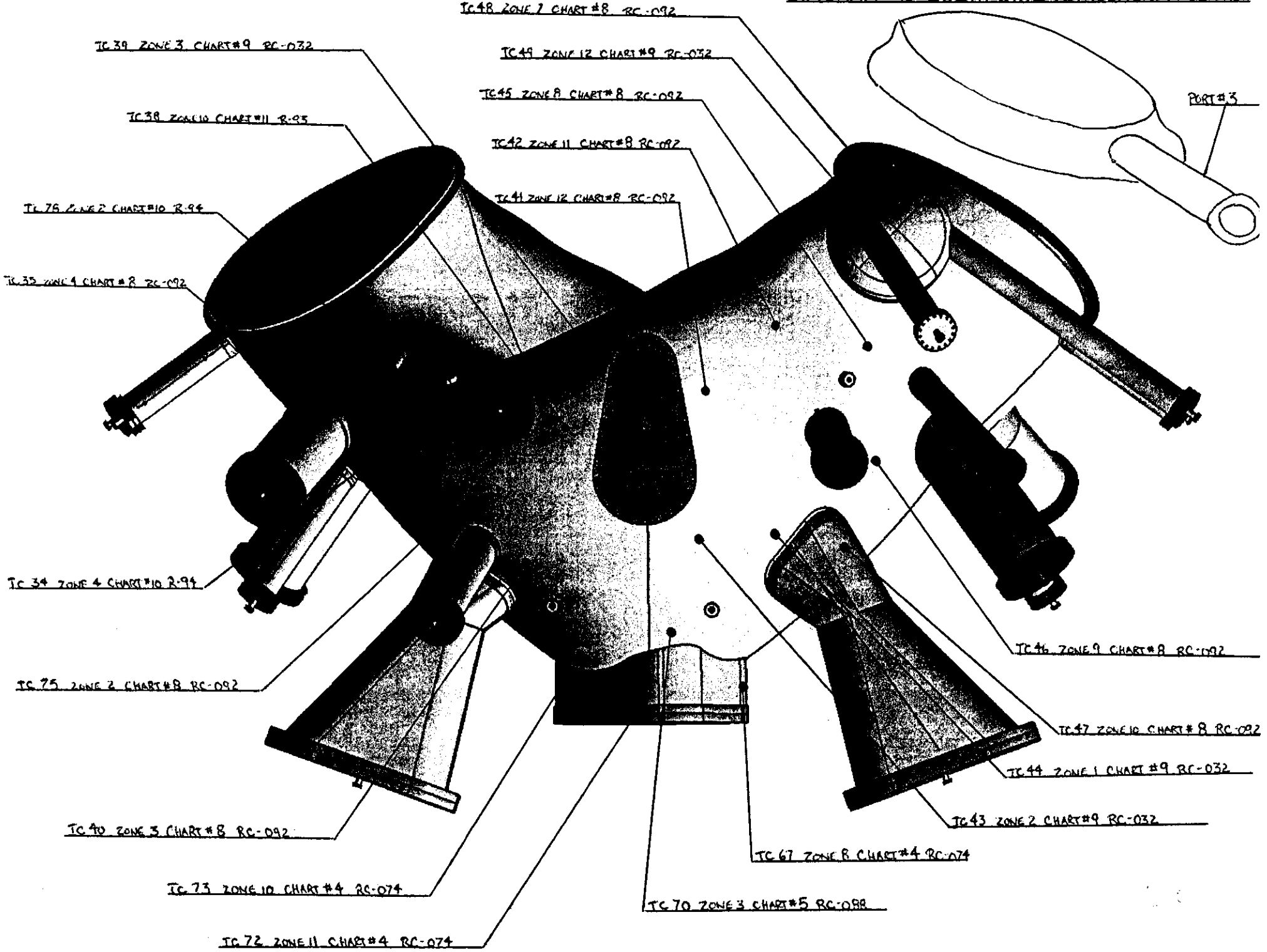


DIAGRAM #4 WEST SIDE (DIRECTION ON D.#5)

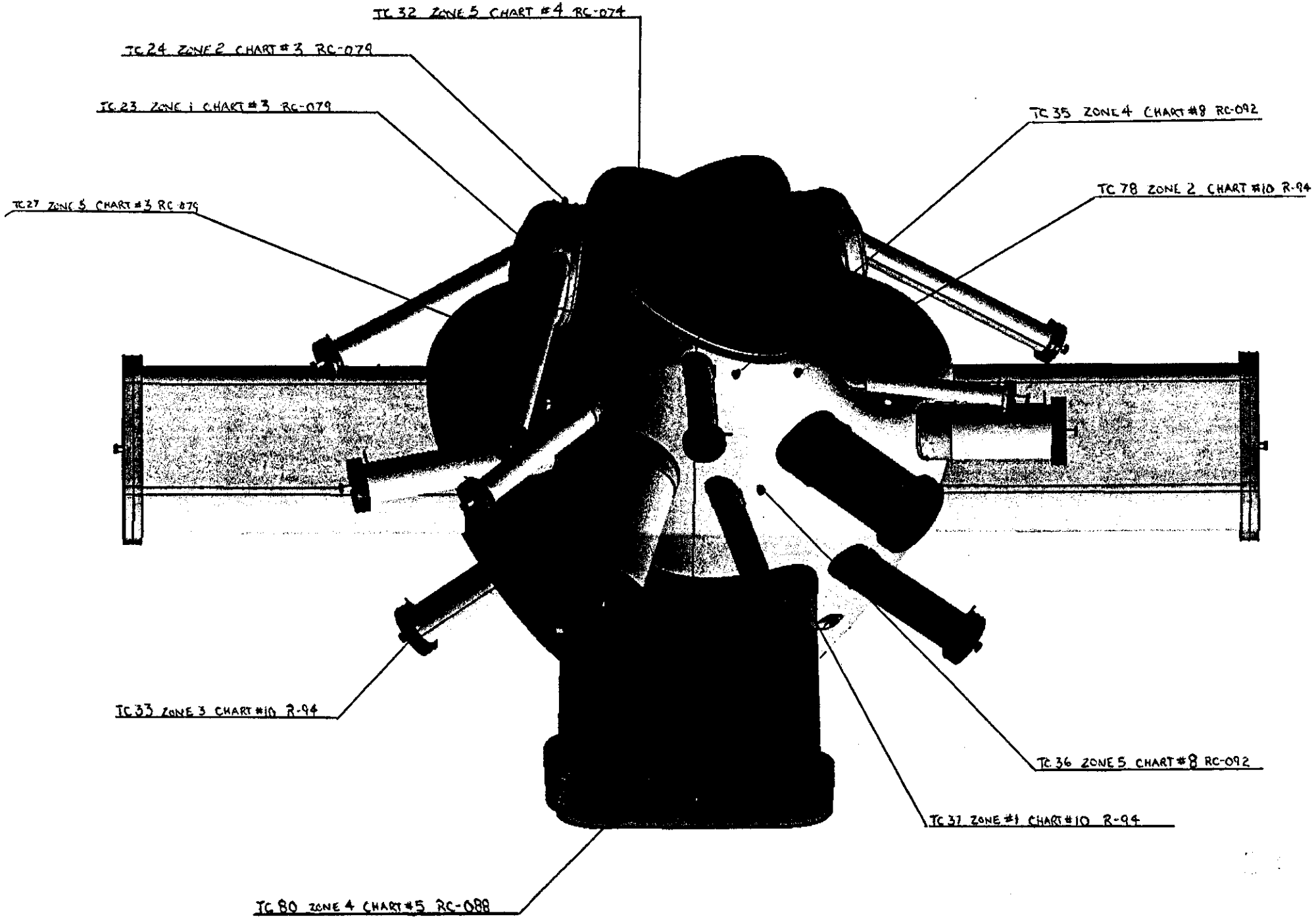


DIAGRAM #5 TOP VIEW

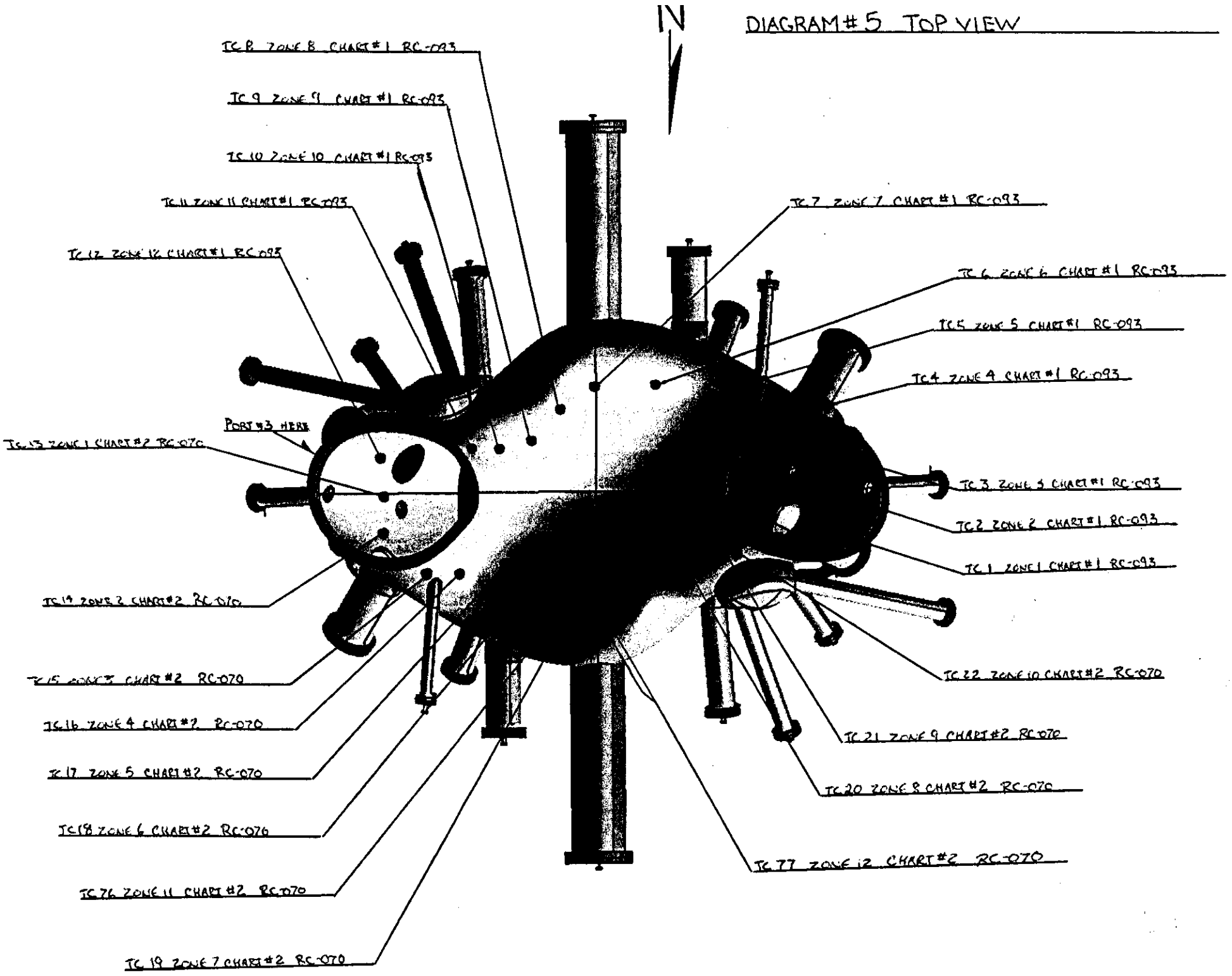
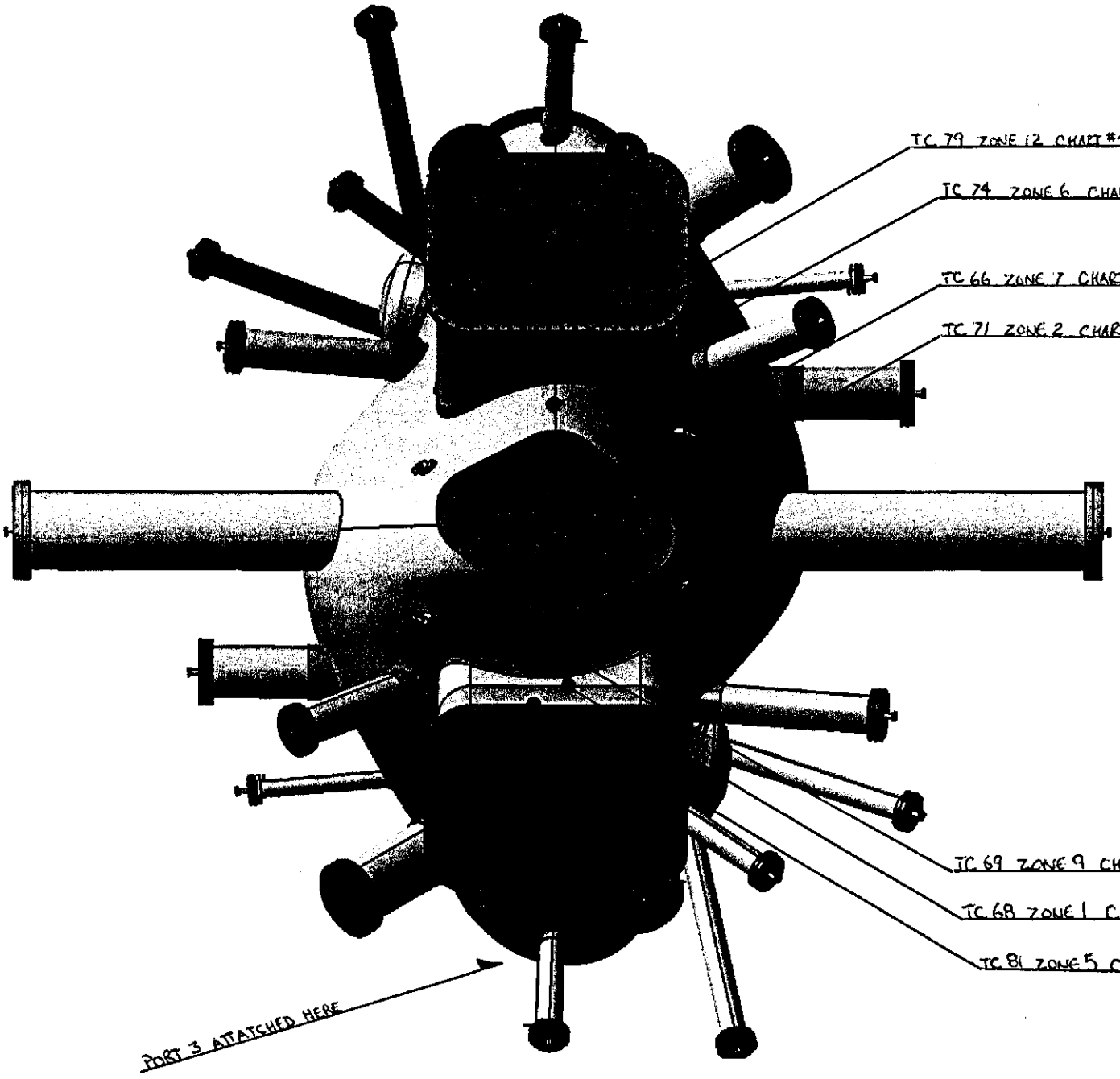
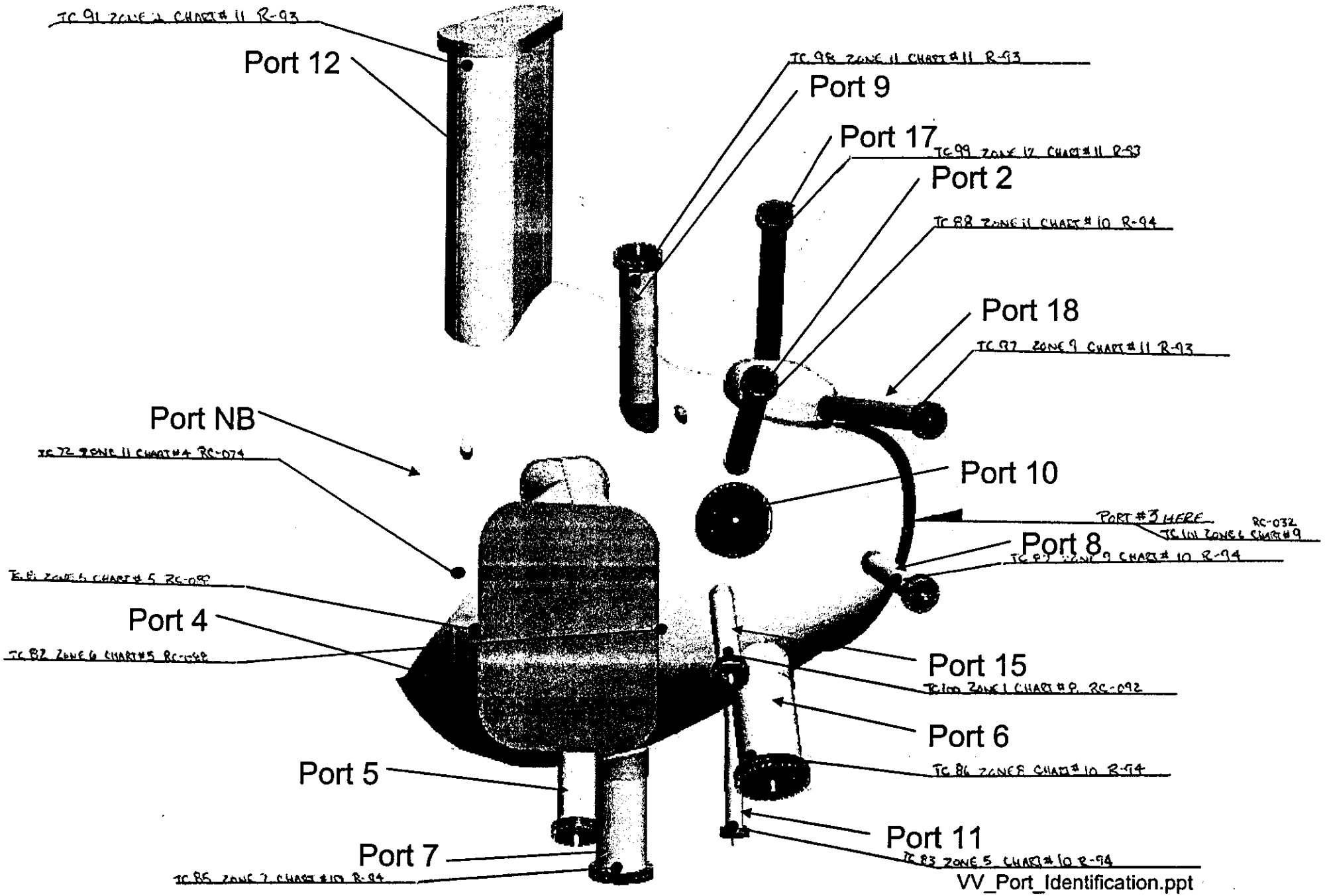


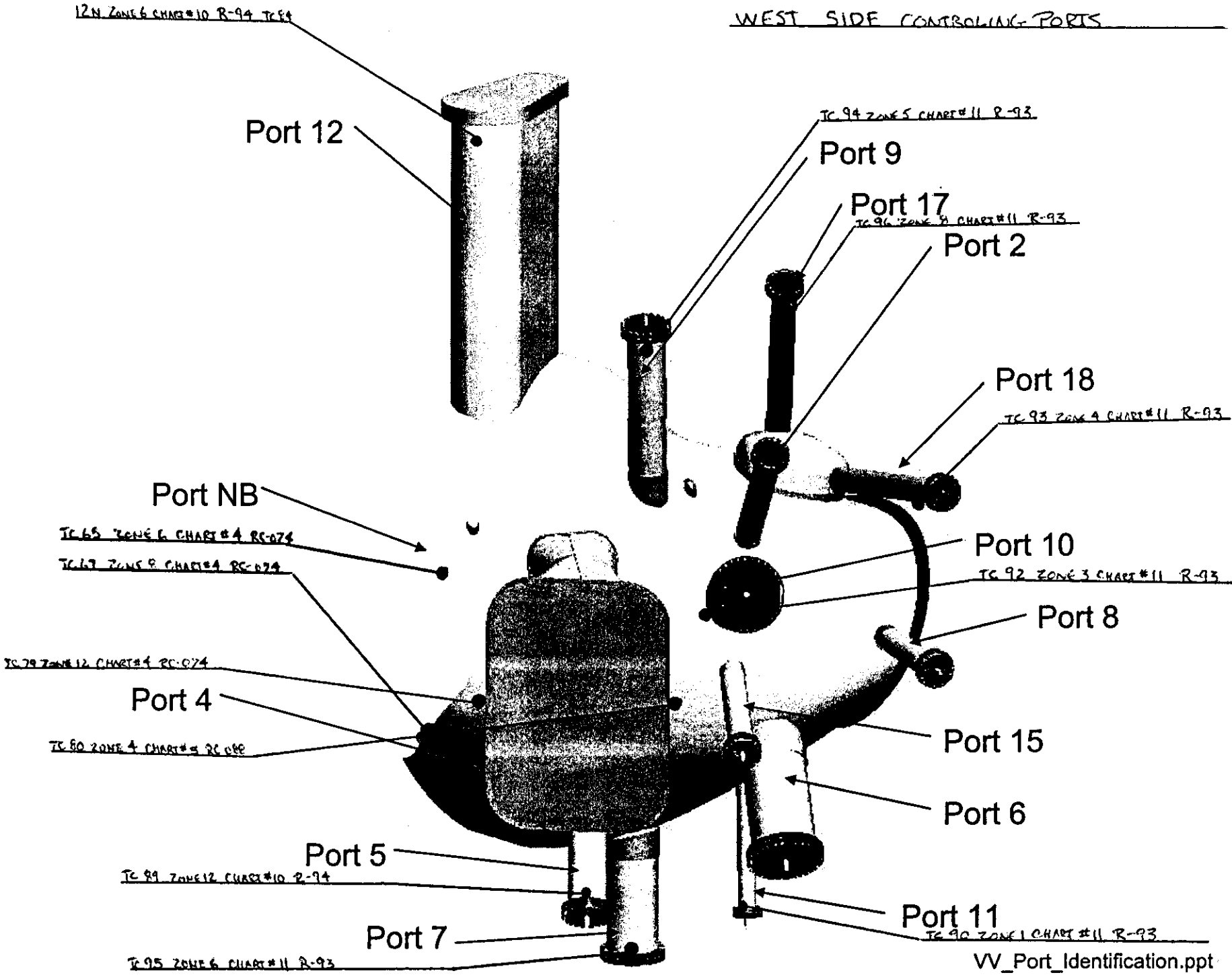
DIAGRAM #6 BOTTOM (DIRECTION ON D. #5)



EAST SIDE CONTROLING PORTS



VV_Port_Identification.ppt


WEST SIDE CONTROLLING PORTS
12N ZONE 6 CHART #10 R-94 TC 84
Port 12
TC 94 ZONE 5 CHART #11 R-93
Port 9
Port 17
TC 96 ZONE 8 CHART #11 R-93
Port 2
Port 18
TC 93 ZONE 4 CHART #11 R-93
Port NB
TC 65 ZONE 6 CHART #4 RC-074
TC 67 ZONE 8 CHART #4 RC-074
Port 10
TC 92 ZONE 3 CHART #11 R-93
Port 8
TC 79 ZONE 12 CHART #4 RC-074
Port 4
TC 80 ZONE 4 CHART #4 RC-074
Port 15
Port 6
Port 5
TC 99 ZONE 12 CHART #10 R-94
Port 7
TC 95 ZONE 6 CHART #11 R-93
Port 11
TC 90 ZONE 1 CHART #11 R-93
VV_Port_Identification.ppt