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**Series:** Speech File Backup Files
**Subseries:** Chron File, 1989-1993

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**OA/ID Number:** 13819
**Folder ID Number:** 13819-007

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**Folder Title:**
Industrial League of Orange County--Irvine, California 6/19/92 [OA 7575] [2]

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Bette — More Aura visit much closer to front of speech

CAL FOREIGN TRADE STATS?

Defense of free trade v. protectionism?

(Hinchliffe/Gershowitz)
June 12, 1992 8 a.m.
DOD Draft One

**PRESIDENTIAL REMARKS: INDUSTRIAL LEAGUE OF ORANGE COUNTY**
**FRIDAY, JUNE 19, 1992 1 P.M.**
**IRVINE HYATT, IRVINE, CALIFORNIA**

I get a lot of letters from across this country. Folks write from their hearts and tell me about the things that really matter. Sometimes they write about their pleasures, sometimes about their pain: like Blane Harris, just up the road in Tustin. He's a manager, unemployed for the first time in his career. He wrote to me about these last 9 months, and asked: "[are you] able to understand the depth of my despair and the feeling of hopelessness which engulfs me? Mr. President, can you really help?"

will this work?

Yes, Blane, I understand. I feel deeply all the stories I hear. None of you is a statistic to me -- but a man or a woman with a family, with dreams, with pride, with pain. And yes, Blane, **I can help**. I pledge we'll join forces -- you and I and all 250 million Americans. We'll call on this nation's stubborn genius for survival and rebirth. Together **we will beat** this setback in our economy. We'll enter the 21st century stronger and more competitive than ever, leaving our children such a legacy of accomplishment that they'll say: "**we're proud to be Americans -- the best natural resource of this land -- and the greatest, most resilient, most generous people on the face of this earth.**"

I'd cut way back.

people don't think of themselves as resources.

We're poised at an extraordinary moment in history. We have seen in the last few years events we scarcely dreamed would have passed in our entire lifetimes. We're closer than ever to peoples of this world, rejoicing as one at the new breeze of freedom

occurred? taken place

which swept the globe, scattering the last dust of grim totalitarianism. A few days ago I met with Russia's freely elected President and we spoke of the dreams we share for our people. Together we laid to rest the spectre of the Cold War.

But there are new challenges we face in the unexplored post-Cold War terrain. There are still pioneer days ahead. You know, at one point in a movie called "Awakenings," a fellow who's been asleep for decades wakes up and has the whole world in front of him. When his doctor asks him what he wants to do that day, his face breaks into a huge grin and he shouts: "Everything!" That's the spirit we need to call up from our past -- that purely American belief in unlimited possibilities.

It's not going to be easy. We're entering an entirely different economic world than the one we grew up in -- a new age of American competition in a fiercely challenging global market-place. And we simply have to make some changes if we expect to compete. We have to realize the intensified need for sophisti-cated, well-educated workers. The worldwide high-tech explosion will leave us behind unless we literally reinvent American educa-tion -- to turn out the best-prepared workers in this world. We have a huge challenge ahead of us. But we can more than match it if we remember what FDR said a half-century ago: "The only limit to our realization of tomorrow will be our doubts of today."

I am absolutely committed to using every resource I can to pave our way into the future. Right now, I'll fight for measures to add jobs -- actions like encouraging investments through the

capital gains tax cut; increasing jobs by reducing regulations; and encouraging trade and opening markets abroad.

Long-term, Washington must have the courage to do the hard work of government -- work which requires a little less self-interest and a lot more discipline than most elected officials currently show. I'm talking about whipping government spending into control. I'm talking about being brave enough to launch a genuine, strong effort to reduce runaway entitlement programs -- to set true spending limits -- and to enforce disciplinary measures. **I'm talking about real government reform.**

Congressmen should come ~~out of~~ down from their Capitol Hill ivory towers and listen to Americans: 77% of whom support the balanced budget amendment. Come on, Congress, voters are saying. We know you're borrowing from the future to pay for indulgences of the present and we won't stand for this any more.

As President, I call for a balanced budget amendment because **to ensure long-term economic growth -- we must get federal spending under control.** High deficits raise interest rates; high interest rates kill jobs; a ransomed future kills hope.

But our economic recovery depends mostly not on government action, but on Americans and their unbeatable spirit. When they're hit by a blow they don't give up -- they shake themselves off and get up more determined than ever before. William Jennings Bryan captured that bold spirit when he said: "Destiny is not a matter of **chance** -- it's a matter of **choice**. It is not a thing to be waited for -- it is a thing to be achieved."

I'm impressed and inspired by how the people of this state are actively reconfiguring your own economy. You're not waiting for **chance** -- you're making the **choice**. That's what we've got to do all over this land. For 200 years, our prosperity has sprung from our ability to innovate, to create, to change as the world changes. That's the heart of entrepreneurial capitalism: it's a heart I hear beating ~~pretty strongly~~ right here in Orange County.

This place is almost like an ~~r&d~~ R&D lab for the whole country -- because you're figuring out how to shape your own identity in an evolving economy. This area is packed with successful examples of the technological transition from the Cold War to the era of global economic competition -- you're using systems developed for national defense to take aim at commercial markets worldwide.

When the iron curtain was unlocked, American military gates began to be locked. So, as the defense department cuts back on contracts, you face the daunting challenge of adapting from the military to the competitive civilian market. It's going to be tough for a lot of private sector companies. I'm tremendously concerned about the adjustments they and their employees will have to make -- we would have cut even more from the defense budget, but we wanted to give them time to adapt.

And that's going to be an exciting process for this nation. For the past decades, our finest minds have been working on the task of preserving the peace. Now that they're turning to the commercial world, amazing gates of opportunity are opening. During the Cold War, the military essentially funded the develop-

earlier use of examples???



ment of new manufacturing techniques. Now, led by Orange County, companies are demonstrating wonderful creativity and innovation in turning these techniques to new uses in the civilian market.

Hughes Aircraft is using the Global Positioning Satellite System as the basic part of a new procedure controlling vessel traffic along our coastal waters. McDonnell Douglas is using the SDI-funded SSTO program to dramatically reduce costs of getting into orbit and ensure we lead the world's commercial aerospace industry. Rockwell is developing ways of using SDI technologies offshoots to give us smart cars and smart freeways, breaking gridlock on our highways. — Good news for So. Cal.

And I just came from visiting Aura Systems. I got to see up close how this small company is thriving: why they're hiring when so many others are firing. It's because they're able to adapt. They're at the cutting edge of the post-Cold War era, leading the drive to transform this world into a productive peace. Aura started as a military r&d company, doing virtually 100% DOD work. Now, that's fallen to 20%. But they've seen the future: they're using their military-developed technology to beat weapons into ploughshares. Their imagination has led them to turn SDI-funded work on electromagnetics for vibrationless jackhammers and cataract surgery. And they're applying their military electro-optics technology to improve commercial telecommunications.

Why not emphasize civilian commercial a buildup rather than defense has fallen.

These companies show us our future. They're not stuck in the old ways of thinking. They're not afraid to take risks -- I visited Aura to send the message that we must encourage risk-

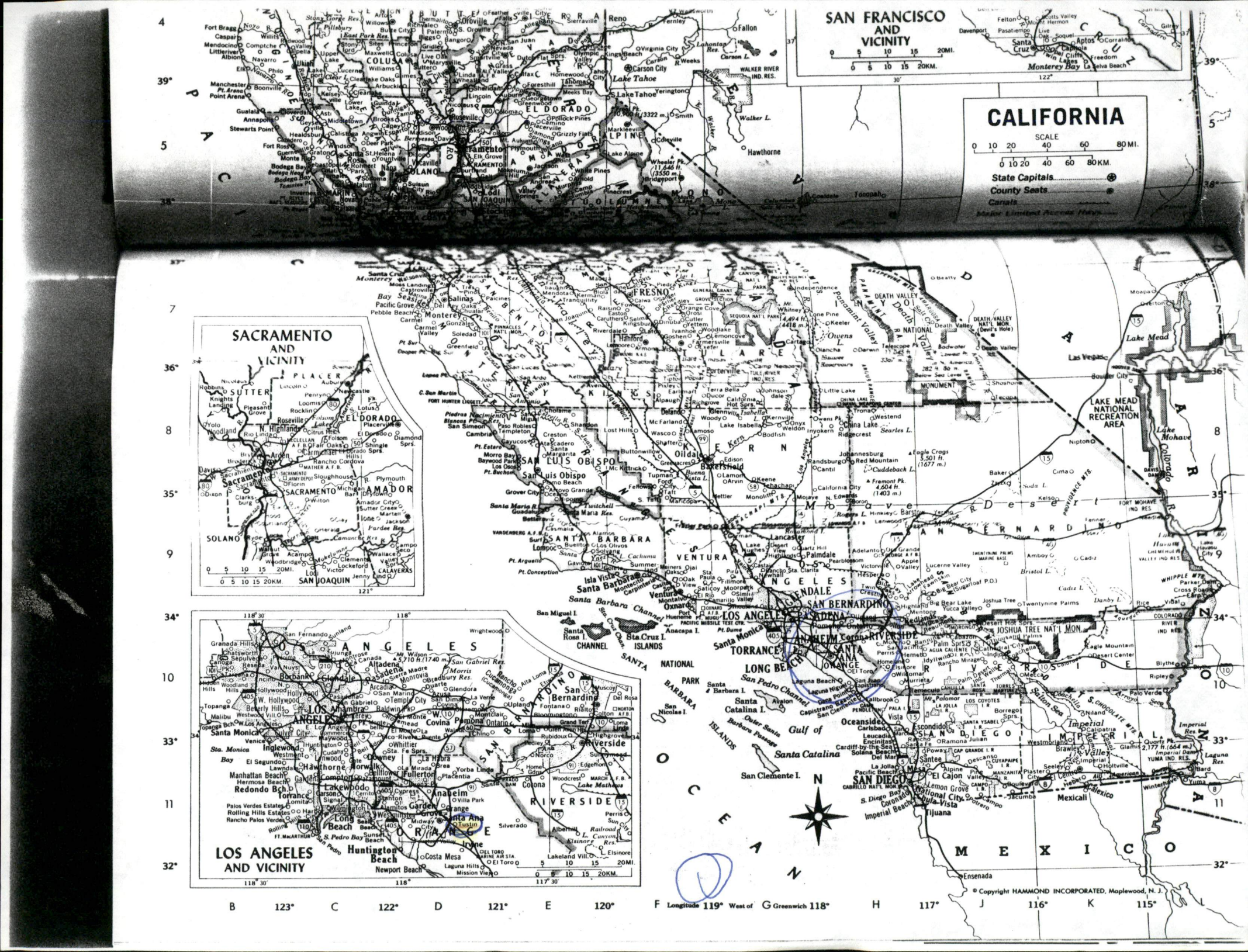
taking. Look what happens to companies who want to be the biggest fish in the pond but who are afraid to be the first to dive in. Companies willing to maneuver and adapt to changing marketplace realities survive. Dinosaurs are fated to die.

One more thing -- just because the Cold War is over doesn't mean that our need for the strongest defense is over, too. It may change, but it will never disappear. Look at the threat posed by terrorists -- by third world dictators -- by global uncertainties. Well, because companies like these in Orange County continue to develop and use technology begun for defense, our next generation of the military will find that the technology has continued to evolve. We need not fear for our defense -- for our future -- for our children.

When I was visiting Aura Systems this morning, I was struck by how its motto can speak to all of us right now. This company calls itself "The Link Between Problem and Solution." Well, we have the chance to be that link for our country. We have the chance to guide America into the world of the new century -- a world in which defeatism produces defeat, but where confidence and self-reliance produce greatness.

**We will find that greatness**. We will shape from inside ourselves a country ready to seize the opportunities the new world economy offers. I believe in that -- I believe in us -- I believe in America. God bless you all.

# # # # #


CALIFORNIA
SCALE
0 10 20 40 60 80 MI.
0 10 20 40 60 80 KM.
State Capitals
County Seats
Canals
SAN FRANCISCO AND VICINITY
0 5 10 15 20MI.
0 5 10 15 20KM.
SACRAMENTO AND VICINITY
0 5 10 15 20MI.
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LOS ANGELES AND VICINITY
0 5 10 15 20MI.
0 5 10 15 20KM.
PACIFIC OCEAN
MEXICO
Gulf of Santa Catalina
Outer Santa Barbara Passage
Santa Barbara Channel
SANTA BARBARA CHANNEL ISLANDS
NATIONAL PARK
Lake Tahoe
Carson City
Reno
Fallon
Sacramento
Fresno
Bakersford
Los Angeles
San Diego
Death Valley
Lake Mead
Lake Mohave
Colorado River
Salton Sea
Imperial Valley
Mojave Desert
Ensenada
Tijuana
Mexicali
Longitude 119° West of Greenwich
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# Table C. Cities — **Area and Population**

| MSA/ CMSA code[1] | State and place code | City | Land area[2] | | Population | | | | Net change, 1980-1986 | | Population characteristics, 1980 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1986 | | | | | | Percent— | | | | | |
| | | | 1985 (Sq. mi.) | 1980 (Sq. mi.) | Total persons | Rank | Per square mile | 1980 | Number | Percent | White | Black | American Indian, Eskimo, and Aleut | Asian and Pacific Islander | Hispanic[3] | 65 years old and over |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| | | CALIFORNIA—Con. | | | | | | | | | | | | | | |
| 4472 | 06 2050 | Oxnard | 24.6 | 24.0 | 126 980 | 133 | 5 162 | 108 195 | 18 785 | 17.4 | 55.78 | 6.10 | .90 | 6.15 | 44.40 | 6.6 |
| 7362 | 06 2060 | Pacifica | 12.0 | 12.0 | 36 960 | 650 | 3 080 | 36 866 | 94 | .3 | 79.02 | 5.56 | .60 | 9.10 | 13.09 | 4.8 |
| 4472 | 06 2085 | Palm Springs | 76.1 | 76.0 | 31 010 | 797 | 407 | 32 359 | -1 349 | -4.2 | 89.22 | 4.46 | .57 | 2.42 | 8.97 | 25.0 |
| 7362 | 06 2090 | Palo Alto | 24.6 | 24.6 | 55 950 | 401 | 2 274 | 55 225 | 725 | 1.3 | 88.93 | 2.78 | .33 | 6.08 | 3.79 | 13.4 |
| 4472 | 06 2115 | Paramount | 4.8 | 4.8 | 42 750 | 560 | 8 906 | 36 407 | 6 343 | 17.4 | 70.59 | 3.45 | 1.06 | 2.44 | 46.17 | 7.6 |
| 4472 | 06 2125 | Pasadena | 23.2 | 23.1 | 129 900 | 129 | 5 599 | 118 072 | 11 828 | 10.0 | 64.74 | 20.70 | .46 | 5.19 | 18.37 | 14.9 |
| 7362 | 06 2140 | Petaluma | 10.5 | 9.2 | 38 560 | 626 | 3 672 | 33 834 | 4 726 | 14.0 | 93.67 | 1.29 | .64 | 2.01 | 5.95 | 10.4 |
| 4472 | 06 2145 | Pico Rivera | 8.2 | 8.2 | 54 340 | 416 | 6 627 | 53 387 | 953 | 1.8 | 70.17 | .23 | .59 | 1.56 | 76.14 | 6.9 |
| 7362 | 06 2175 | Pittsburg | 12.1 | 11.5 | 41 240 | 584 | 3 408 | 33 465 | 7 775 | 23.2 | 61.39 | 20.19 | .74 | 6.78 | 18.78 | 7.4 |
| 4472 | 06 2195 | Placentia | 6.7 | 6.7 | 38 250 | 631 | 5 709 | 35 041 | 3 209 | 9.2 | 85.40 | 1.09 | .62 | 4.04 | 20.32 | 4.7 |
| 7362 | 06 2210 | Pleasant Hill | 6.5 | 6.4 | 28 480 | 852 | 4 382 | 25 547 | 2 933 | 11.5 | 93.36 | 1.05 | .43 | 3.06 | 5.57 | 8.5 |
| 7362 | 06 2215 | Pleasanton | 15.4 | 13.1 | 44 350 | 529 | 2 880 | 35 160 | 9 190 | 26.1 | 94.80 | .86 | .33 | 2.22 | 6.35 | 4.7 |
| 4472 | 06 2230 | Pomona | 22.9 | 22.8 | 115 540 | 146 | 5 045 | 92 742 | 22 798 | 24.6 | 62.72 | 18.99 | 1.03 | 2.72 | 30.50 | 8.9 |
| 4472 | 06 2278 | Rancho Cucamonga | 35.7 | 35.3 | 75 760 | 267 | 2 122 | 55 250 | 20 510 | 37.1 | 87.09 | 2.21 | .66 | 2.11 | 16.32 | 4.2 |
| 4472 | 06 2284 | Rancho Palos Verdes | 13.5 | 12.4 | 46 540 | 495 | 3 447 | 36 577 | 9 963 | 27.2 | 86.12 | 2.01 | .26 | 9.94 | 2.97 | 4.6 |
| 6690 | 06 2290 | Redding | 46.7 | 29.4 | 51 490 | 449 | 1 103 | 42 103 | 9 387 | 22.3 | 95.79 | 1.15 | 1.71 | .57 | 2.80 | 12.0 |
| 4472 | 06 2295 | Redlands | 23.8 | 22.1 | 52 900 | 433 | 2 223 | 43 619 | 9 281 | 21.3 | 85.24 | 2.45 | .70 | 2.31 | 16.90 | 11.6 |
| 4472 | 06 2300 | Redondo Beach | 6.2 | 6.0 | 63 830 | 327 | 10 295 | 57 102 | 6 728 | 11.8 | 89.77 | 1.10 | .79 | 3.64 | 11.46 | 6.7 |
| 7362 | 06 2305 | Redwood City | 33.7 | 33.7 | 57 340 | 381 | 1 701 | 54 951 | 2 389 | 4.3 | 86.69 | 2.72 | .48 | 3.38 | 15.68 | 11.4 |
| 4472 | 06 2320 | Rialto | 19.5 | 15.1 | 53 790 | 423 | 2 758 | 37 862 | 15 928 | 42.1 | 77.15 | 11.17 | 1.03 | 1.32 | 18.83 | 7.3 |
| 7362 | 06 2330 | Richmond | 33.5 | 32.8 | 77 860 | 255 | 2 324 | 74 676 | 3 184 | 4.3 | 39.72 | 47.94 | .61 | 4.88 | 10.33 | 10.5 |
| 4472 | 06 2370 | Riverside | 74.0 | 71.8 | 196 750 | 76 | 2 659 | 170 591 | 26 159 | 15.3 | 80.47 | 6.89 | 1.01 | 1.98 | 16.15 | 8.8 |
| 4472 | 06 2400 | Rosemead | 5.6 | 5.5 | 47 520 | 487 | 8 486 | 42 604 | 4 916 | 11.5 | 63.91 | .35 | .82 | 8.83 | 57.40 | 9.9 |
| 6920 | 06 2420 | Sacramento | 97.3 | 96.1 | 323 550 | 49 | 3 325 | 275 741 | 47 809 | 17.3 | 67.63 | 13.37 | 1.20 | 8.71 | 14.20 | 13.6 |
| 7120 | 06 2435 | Salinas | 17.7 | 15.1 | 96 960 | 192 | 5 478 | 80 479 | 16 481 | 20.5 | 62.72 | 1.79 | 1.20 | 6.97 | 38.09 | 9.1 |
| 4472 | 06 2450 | San Bernardino | 55.3 | 53.2 | 138 620 | 120 | 2 507 | 118 794 | 19 826 | 16.7 | 67.61 | 14.95 | 1.13 | 1.47 | 25.41 | 11.9 |
| 7362 | 06 2455 | San Bruno | 5.9 | 5.9 | 35 190 | 691 | 5 964 | 35 417 | -227 | -.6 | 82.18 | 2.37 | .50 | 8.01 | 14.39 | 8.1 |
| 4472 | 06 2460 | San Buenaventura (Ventura) | 20.0 | 18.2 | 85 690 | 229 | 4 285 | 73 774 | 11 916 | 16.2 | 89.26 | 1.11 | 1.26 | 1.52 | 12.06 | 12.3 |
| 4472 | 06 2470 | San Clemente | 17.2 | 16.9 | 33 200 | 748 | 1 930 | 27 325 | 5 875 | 21.5 | 93.62 | .91 | .60 | 1.69 | 8.40 | 14.9 |
| 7320 | 06 2475 | San Diego | 329.0 | 320.0 | 1 015 190 | 7 | 3 086 | 875 538 | 139 652 | 16.0 | 76.17 | 8.87 | .58 | 6.53 | 14.92 | 9.7 |
| 7362 | 06 2485 | San Francisco | 46.4 | 46.4 | 749 000 | 12 | 16 142 | 678 974 | 70 026 | 10.3 | 58.19 | 12.73 | .52 | 21.71 | 12.28 | 15.4 |
| 4472 | 06 2490 | San Gabriel | 4.0 | 4.0 | 33 050 | 752 | 8 263 | 30 072 | 2 978 | 9.9 | 76.12 | .57 | .83 | 8.48 | 38.17 | 16.5 |
| 7362 | 06 2510 | San Jose | 169.2 | 158.0 | 712 080 | 14 | 4 209 | 629 400 | 82 680 | 13.1 | 73.61 | 4.64 | .76 | 8.26 | 22.33 | 6.2 |
| 7362 | 06 2525 | San Leandro | 13.1 | 13.0 | 65 800 | 320 | 5 023 | 63 952 | 1 848 | 2.9 | 87.37 | 1.19 | .52 | 6.67 | 13.01 | 16.8 |
| ... | 06 2535 | San Luis Obispo | 8.6 | 8.9 | 37 220 | 645 | 4 328 | 34 252 | 2 968 | 8.7 | 92.37 | 1.33 | .63 | 2.46 | 6.52 | 11.5 |
| 7362 | 06 2555 | San Mateo | 11.7 | 11.7 | 81 020 | 246 | 6 925 | 77 640 | 3 380 | 4.4 | 83.66 | 3.56 | .33 | 7.66 | 9.23 | 14.7 |
| 7362 | 06 2565 | San Rafael | 16.1 | 15.8 | 44 730 | 520 | 2 778 | 44 700 | 30 | .1 | 92.32 | 2.25 | .35 | 2.83 | 4.78 | 11.4 |
| 4472 | 06 2570 | Santa Ana | 27.4 | 27.4 | 236 780 | 65 | 8 642 | 204 023 | 32 757 | 16.1 | 64.83 | 4.04 | .80 | 5.22 | 44.50 | 7.4 |
| 7480 | 06 2575 | Santa Barbara | 18.8 | 18.7 | 79 290 | 251 | 4 218 | 74 414 | 4 876 | 6.6 | 84.04 | 2.46 | .96 | 1.67 | 22.17 | 18.3 |
| 7362 | 06 2580 | Santa Clara | 19.3 | 19.1 | 88 560 | 219 | 4 589 | 87 700 | 860 | 1.0 | 81.91 | 1.93 | .62 | 8.83 | 14.66 | 8.1 |
| 7362 | 06 2585 | Santa Cruz | 11.7 | 11.6 | 45 890 | 504 | 3 922 | 41 483 | 4 407 | 10.6 | 90.05 | 1.87 | .76 | 2.62 | 8.73 | 14.3 |
| 7480 | 06 2595 | Santa Maria | 16.8 | 16.6 | 51 270 | 454 | 3 052 | 39 685 | 11 585 | 29.2 | 69.41 | 2.17 | .98 | 5.25 | 33.47 | 10.7 |
| 4472 | 06 2600 | Santa Monica | 8.2 | 8.2 | 93 170 | 205 | 11 362 | 88 314 | 4 856 | 5.5 | 85.69 | 4.07 | .45 | 4.04 | 13.00 | 16.4 |
| 7362 | 06 2615 | Santa Rosa | 33.6 | 26.6 | 97 600 | 187 | 2 905 | 82 658 | 14 942 | 18.1 | 93.15 | 1.33 | 1.34 | 1.50 | 5.64 | 15.8 |
| 7362 | 06 2630 | Saratoga | 12.0 | 11.8 | 29 520 | 830 | 2 460 | 29 261 | 259 | .9 | 93.89 | .27 | .20 | 4.52 | 2.75 | 8.2 |
| 4472 | 06 2650 | Seal Beach | 11.8 | 11.8 | 26 870 | 894 | 2 277 | 25 975 | 895 | 3.4 | 95.26 | .69 | .35 | 2.42 | 3.50 | 35.1 |
| 7120 | 06 2655 | Seaside | 9.1 | 9.1 | 37 050 | 646 | 4 071 | 36 567 | 483 | 1.3 | 50.70 | 29.85 | .90 | 11.85 | 9.97 | 4.0 |
| 4472 | 06 2702 | Simi Valley | 33.4 | 26.0 | 90 030 | 214 | 2 696 | 77 500 | 12 530 | 16.2 | 92.48 | 1.07 | .82 | 2.20 | 9.31 | 3.5 |
| 4472 | 06 2730 | South Gate | 7.5 | 7.5 | 80 580 | 248 | 10 744 | 66 784 | 13 796 | 20.7 | 79.92 | 1.87 | .66 | 1.43 | 58.35 | 10.8 |
| 7362 | 06 2765 | South San Francisco | 9.6 | 9.3 | 51 550 | 446 | 5 370 | 49 393 | 2 157 | 4.4 | 71.78 | 3.97 | .71 | 13.73 | 22.18 | 8.3 |
| 8120 | 06 2805 | Stockton | 42.9 | 40.0 | 183 430 | 84 | 4 276 | 148 283 | 35 147 | 23.7 | 65.40 | 10.44 | .86 | 9.30 | 22.07 | 11.0 |
| 7362 | 06 2835 | Sunnyvale | 23.4 | 23.0 | 112 130 | 152 | 4 792 | 106 618 | 5 512 | 5.2 | 80.92 | 2.41 | .63 | 10.56 | 11.53 | 8.2 |
| 4472 | 06 2880 | Temple City | 3.9 | 3.8 | 31 080 | 796 | 7 969 | 28 972 | 2 108 | 7.3 | 89.93 | .19 | .43 | 5.07 | 12.91 | 14.3 |
| 4472 | 06 2897 | Thousand Oaks | 46.9 | 45.2 | 96 280 | 197 | 2 053 | 77 072 | 19 208 | 24.9 | 93.35 | .83 | .51 | 2.60 | 5.80 | 6.1 |
| 4472 | 06 2910 | Torrance | 20.5 | 20.5 | 135 570 | 125 | 6 613 | 129 881 | 5 689 | 4.4 | 83.92 | .68 | .49 | 10.52 | 8.35 | 8.5 |
| 5170 | 06 2960 | Turlock | 8.0 | 7.2 | 33 960 | 730 | 4 245 | 26 287 | 7 673 | 29.2 | 87.71 | .84 | .80 | 2.33 | 14.17 | 12.7 |
| 4472 | 06 2965 | Tustin | 10.8 | 9.6 | 41 970 | 572 | 3 886 | 32 248 | 9 722 | 30.1 | 87.99 | 2.68 | .64 | 4.12 | 8.74 | 7.6 |
| 7362 | 06 2985 | Union City | 18.5 | 18.5 | 50 730 | 459 | 2 742 | 39 406 | 11 324 | 28.7 | 59.16 | 8.36 | .66 | 17.75 | 27.93 | 5.5 |
| 4472 | 06 2990 | Upland | 15.0 | 13.8 | 57 160 | 386 | 3 811 | 47 647 | 9 513 | 20.0 | 89.21 | 1.86 | .55 | 2.82 | 12.05 | 8.4 |
| 7362 | 06 2995 | Vacaville | 20.4 | 18.6 | 54 910 | 410 | 2 692 | 43 367 | 11 543 | 26.6 | 84.43 | 5.49 | 1.02 | 2.54 | 11.95 | 6.4 |
| 7362 | 06 3000 | Vallejo | 25.8 | 24.1 | 93 260 | 204 | 3 615 | 80 303 | 12 957 | 16.1 | 63.53 | 19.04 | .71 | 12.47 | 8.50 | 10.9 |
| 8780 | 06 3015 | Visalia | 21.6 | 20.5 | 61 550 | 347 | 2 850 | 49 729 | 11 821 | 23.8 | 82.84 | 1.19 | .87 | 1.35 | 19.18 | 10.3 |
| 7320 | 06 3017 | Vista | 17.8 | 15.0 | 48 000 | 480 | 2 697 | 35 834 | 12 166 | 34.0 | 84.73 | 1.16 | .89 | 3.12 | 17.20 | 15.9 |
| 7362 | 06 3030 | Walnut Creek | 18.5 | 16.5 | 58 650 | 369 | 3 170 | 54 033 | 4 617 | 8.5 | 93.72 | .75 | .23 | 3.91 | 3.31 | 20.2 |
| 4472 | 06 3070 | West Covina | 17.4 | 17.0 | 96 890 | 193 | 5 568 | 80 292 | 16 598 | 20.7 | 77.69 | 5.76 | .67 | 7.29 | 20.99 | 5.6 |
| 4472 | 06 3085 | Westminster | 10.9 | 10.9 | 73 230 | 279 | 6 718 | 71 133 | 2 097 | 2.9 | 84.34 | .71 | .80 | 8.25 | 12.01 | 7.4 |
| 4472 | 06 3110 | Whittier | 12.9 | 12.8 | 72 660 | 281 | 5 633 | 68 558 | 4 102 | 6.0 | 88.31 | .57 | .59 | 1.86 | 23.35 | 13.2 |
| 6920 | 06 3150 | Woodland | 9.1 | 6.7 | 34 390 | 718 | 3 779 | 30 235 | 4 155 | 13.7 | 81.94 | 1.12 | .99 | 1.81 | 22.66 | 10.7 |
| 4472 | 06 3169 | Yorba Linda | 15.9 | 13.5 | 39 810 | 606 | 2 504 | 28 254 | 11 556 | 40.9 | 92.85 | .41 | .53 | 2.97 | 8.21 | 3.9 |

[1]MSA = Metropolitan statistical area. CMSA = Consolidated MSA. All areas defined as of October 18, 1986. [2]Dry land and land temporarily or partially covered by water. [3]Persons of Hispanic origin may be of any race.

# Table C. Cities — Households, Vital Statistics, Hospitals, and Crime

| City | Households, 1980 | | | | Births, 1984 | | | Deaths, 1984 | | | | Hospitals, 1985 | | | Serious crimes known to police, 1985 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Percent— | | Number | | | Number | | Rate | | | Beds | | Number | | |
| | Number | Persons per household | Female family householder[1] | One-person[2] | Total | To mothers under 20 yr. old (Percent) | Rate[3] | Total | Infant[4] | Total[3] | Infant[5] | Number | Number | Rate[6] | Total | Violent[7] | Rate[8] |
| | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| CALIFORNIA—Con. | | | | | | | | | | | | | | | | | |
| Oxnard | 33 087 | 3.21 | 11.4 | 17.8 | 3 088 | 13.4 | 25.5 | 731 | 34 | 6.0 | 11.0 | 3 | 343 | 270 | 7 772 | 718 | 6 234 |
| Pacifica | 12 733 | 2.88 | 9.6 | 17.8 | 674 | 6.8 | 18.5 | 218 | 5 | 6.0 | 7.4 | – | – | – | 916 | 75 | 2 321 |
| Palm Springs | 15 138 | 2.11 | 7.7 | 34.1 | 482 | 13.7 | 13.3 | 461 | 5 | 12.7 | 10.4 | 1 | 330 | 1 064 | 3 168 | 224 | 8 756 |
| Palo Alto | 23 041 | 2.33 | 9.1 | 30.7 | 554 | 2.9 | 9.9 | 504 | 6 | 9.0 | 10.8 | 2 | 1 487 | 2 658 | 3 830 | 164 | 6 509 |
| Paramount | 11 279 | 3.20 | 14.0 | 19.5 | 1 005 | 18.1 | 25.0 | 246 | 7 | 6.1 | 7.0 | 1 | 184 | 430 | 2 588 | 436 | 6 217 |
| Pasadena | 47 056 | 2.42 | 11.9 | 33.6 | 2 342 | 10.8 | 18.7 | 1 415 | 26 | 11.3 | 11.1 | 4 | 922 | 710 | 11 279 | 1 488 | 8 768 |
| Petaluma | 12 122 | 2.76 | 9.3 | 20.6 | 662 | 6.3 | 18.1 | 371 | 7 | 10.2 | 10.6 | 1 | 99 | 257 | 1 949 | 113 | 5 145 |
| Pico Rivera | 15 399 | 3.45 | 11.2 | 14.5 | 1 088 | 13.8 | 19.3 | 349 | 10 | 6.2 | 9.2 | 1 | 95 | 175 | 2 295 | 412 | 3 912 |
| Pittsburg | 11 087 | 2.97 | 13.0 | 16.7 | 1 182 | 12.2 | 30.6 | 364 | 3 | 9.4 | 2.5 | 1 | 81 | 196 | 2 966 | 643 | 7 629 |
| Placentia | 10 794 | 3.24 | 8.7 | 12.2 | 581 | 11.7 | 15.6 | 163 | 4 | 4.4 | 6.9 | 1 | 114 | 298 | 1 429 | 96 | 3 655 |
| Pleasant Hill | 9 771 | 2.52 | 8.6 | 23.6 | 406 | 3.9 | 15.2 | 197 | 2 | 7.4 | 4.9 | – | – | – | 1 809 | 90 | 6 336 |
| Pleasanton | 11 317 | 3.10 | 8.6 | 13.7 | 420 | 5.7 | 10.9 | 177 | 2 | 4.6 | 4.8 | – | – | – | 1 611 | 72 | 4 216 |
| Pomona | 30 322 | 2.96 | 13.2 | 23.3 | 2 704 | 14.5 | 25.3 | 779 | 22 | 7.3 | 8.1 | 4 | 1 714 | 1 483 | 9 705 | 1 912 | 8 816 |
| Rancho Cucamonga | 16 979 | 3.24 | 6.4 | 10.7 | 398 | 4.0 | 6.3 | 164 | 10 | 2.6 | 25.1 | – | – | – | 2 697 | 166 | 4 247 |
| Rancho Palos Verdes | 11 925 | 3.06 | 6.4 | 10.9 | 292 | 3.4 | 6.3 | 188 | 5 | 4.0 | 17.1 | – | – | – | 751 | 77 | 1 912 |
| Redding | 16 786 | 2.46 | 10.3 | 26.3 | 1 125 | 11.8 | 23.3 | 594 | 14 | 12.3 | 12.4 | 3 | 405 | 787 | 3 528 | 275 | 7 544 |
| Redlands | 15 759 | 2.68 | 9.7 | 23.0 | 763 | 12.1 | 15.4 | 420 | 9 | 8.5 | 11.8 | 1 | 195 | 369 | 2 411 | 181 | 4 808 |
| Redondo Beach | 24 637 | 2.31 | 10.4 | 30.8 | 977 | 4.3 | 16.0 | 400 | 4 | 6.5 | 4.1 | 1 | 203 | 318 | 3 494 | 249 | 5 544 |
| Redwood City | 22 921 | 2.37 | 9.1 | 29.7 | 1 358 | 7.7 | 24.4 | 578 | 9 | 10.4 | 6.6 | 3 | 545 | 950 | 2 841 | 210 | 4 830 |
| Rialto | 12 241 | 3.04 | 11.3 | 15.6 | 988 | 14.4 | 22.1 | 320 | 14 | 7.2 | 14.2 | – | – | – | 3 227 | 316 | 7 227 |
| Richmond | 28 107 | 2.64 | 18.9 | 26.0 | 1 464 | 15.8 | 19.2 | 766 | 17 | 10.1 | 11.6 | 1 | 43 | 55 | 9 453 | 1 960 | 11 630 |
| Riverside | 60 964 | 2.75 | 11.0 | 22.1 | 4 626 | 12.6 | 25.4 | 1 611 | 54 | 8.8 | 11.7 | 5 | 1 017 | 517 | 15 688 | 1 870 | 8 366 |
| Rosemead | 13 102 | 3.19 | 13.4 | 18.4 | 1 096 | 11.1 | 23.9 | 330 | 10 | 7.2 | 9.1 | 2 | 227 | 478 | 2 317 | 369 | 4 895 |
| Sacramento | 112 859 | 2.39 | 12.3 | 31.8 | 9 566 | 13.6 | 31.5 | 4 569 | 83 | 15.0 | 8.7 | 6 | 1 937 | 599 | 33 908 | 3 681 | 10 835 |
| Salinas | 26 857 | 2.94 | 11.6 | 20.4 | 2 511 | 15.2 | 28.7 | 766 | 21 | 8.7 | 8.4 | 3 | 426 | 439 | 7 736 | 634 | 8 558 |
| San Bernardino | 42 823 | 2.63 | 14.0 | 26.0 | 3 434 | 16.7 | 26.3 | 1 413 | 48 | 10.8 | 14.0 | 3 | 915 | 660 | 15 001 | 2 248 | 11 181 |
| San Bruno | 13 757 | 2.57 | 9.0 | 25.5 | 582 | 4.8 | 16.8 | 232 | 5 | 6.7 | 8.6 | – | – | – | 1 435 | 129 | 3 834 |
| San Buenaventura (Ventura) | 29 169 | 2.52 | 9.6 | 25.1 | 1 401 | 8.8 | 16.8 | 796 | 8 | 9.5 | 5.7 | – | – | – | 4 711 | 419 | 5 449 |
| San Clemente | 11 764 | 2.32 | 7.5 | 25.7 | 526 | 8.7 | 17.7 | 222 | 6 | 7.4 | 11.4 | 1 | 116 | 349 | 1 046 | 70 | 3 402 |
| San Diego | 321 060 | 2.53 | 10.6 | 27.9 | 15 928 | 9.6 | 16.6 | 6 622 | 155 | 6.9 | 9.7 | 18 | 4 465 | 440 | 67 893 | 6 250 | 6 870 |
| San Francisco | 298 956 | 2.19 | 9.9 | 41.4 | 9 679 | 8.1 | 13.6 | 7 984 | 85 | 11.2 | 8.8 | 19 | 6 131 | 819 | 58 590 | 9 502 | 7 988 |
| San Gabriel | 11 152 | 2.64 | 11.5 | 25.7 | 826 | 5.6 | 26.2 | 454 | 6 | 14.4 | 7.3 | 1 | 184 | 557 | 1 822 | 253 | 5 529 |
| San Jose | 209 593 | 2.96 | 11.0 | 18.7 | 14 598 | 10.7 | 21.3 | 3 865 | 115 | 5.6 | 7.9 | 6 | 1 802 | 253 | 40 224 | 3 470 | 5 697 |
| San Leandro | 27 204 | 2.34 | 8.4 | 28.7 | 1 022 | 5.1 | 15.5 | 929 | 6 | 14.1 | 5.9 | 3 | 505 | 767 | 4 784 | 411 | 6 917 |
| San Luis Obispo | 13 670 | 2.37 | 7.4 | 26.4 | 361 | 7.8 | 10.2 | 290 | 4 | 8.2 | 11.1 | 4 | 422 | 1 134 | 2 055 | 87 | 5 604 |
| San Mateo | 32 855 | 2.35 | 8.8 | 30.2 | 1 098 | 4.7 | 13.8 | 798 | 15 | 10.1 | 13.7 | 2 | 477 | 589 | 4 916 | 499 | 5 894 |
| San Rafael | 18 757 | 2.32 | 9.2 | 30.4 | 597 | 3.0 | 13.5 | 563 | 8 | 12.7 | 13.4 | 1 | 235 | 525 | 2 383 | 153 | 5 015 |
| Santa Ana | 64 038 | 3.12 | 10.2 | 21.7 | 6 931 | 13.8 | 30.7 | 1 473 | 65 | 6.5 | 9.4 | 5 | 741 | 313 | 22 459 | 1 558 | 9 683 |
| Santa Barbara | 32 509 | 2.22 | 9.1 | 35.0 | 1 497 | 8.8 | 19.5 | 1 236 | 12 | 16.1 | 8.0 | 7 | 784 | 989 | 4 732 | 360 | 5 920 |
| Santa Clara | 34 037 | 2.49 | 9.7 | 27.2 | 1 290 | 5.1 | 14.3 | 604 | 12 | 6.7 | 9.3 | 1 | 318 | 359 | 5 407 | 278 | 5 728 |
| Santa Cruz | 16 617 | 2.30 | 9.7 | 31.5 | 1 132 | 8.8 | 25.7 | 723 | 9 | 16.4 | 8.0 | 2 | 405 | 883 | 5 835 | 306 | 12 870 |
| Santa Maria | 14 040 | 2.80 | 10.3 | 22.0 | 1 354 | 13.3 | 29.1 | 539 | 9 | 11.6 | 6.6 | 2 | 154 | 300 | 3 628 | 223 | 8 034 |
| Santa Monica | 43 912 | 1.97 | 9.4 | 44.7 | 975 | 5.8 | 10.7 | 1 002 | 7 | 11.0 | 7.2 | 2 | 824 | 884 | 9 795 | 915 | 10 259 |
| Santa Rosa | 33 826 | 2.43 | 10.1 | 26.9 | 1 965 | 8.3 | 21.5 | 1 258 | 12 | 13.8 | 6.1 | 4 | 525 | 538 | 6 405 | 356 | 6 878 |
| Saratoga | 9 295 | 3.10 | 5.7 | 11.6 | 220 | 1.8 | 7.4 | 213 | – | 7.2 | – | – | – | – | 701 | 41 | 2 236 |
| Seal Beach | 13 351 | 1.91 | 5.3 | 44.9 | 144 | 1.4 | 5.5 | 558 | 1 | 21.4 | 6.9 | – | – | – | 902 | 89 | 3 296 |
| Seaside | 9 875 | 3.05 | 12.8 | 15.4 | 1 392 | 10.8 | 37.0 | 205 | 22 | 5.4 | 15.8 | – | – | – | 2 009 | 559 | 4 966 |
| Simi Valley | 22 036 | 3.51 | 8.7 | 7.8 | 1 400 | 9.0 | 16.5 | 339 | 11 | 4.0 | 7.9 | 2 | 209 | 232 | 2 636 | 114 | 3 026 |
| South Gate | 22 883 | 2.91 | 12.3 | 23.3 | 1 938 | 11.0 | 25.6 | 524 | 15 | 6.9 | 7.7 | – | – | – | 3 828 | 548 | 4 965 |
| South San Francisco | 17 534 | 2.82 | 10.9 | 21.1 | 796 | 6.8 | 15.7 | 359 | 6 | 7.1 | 7.5 | 1 | 120 | 233 | 2 055 | 101 | 3 828 |
| Stockton | 55 335 | 2.62 | 12.8 | 27.2 | 4 868 | 15.1 | 28.4 | 2 014 | 47 | 11.7 | 9.7 | 4 | 714 | 389 | 19 389 | 1 561 | 10 977 |
| Sunnyvale | 42 932 | 2.46 | 9.2 | 27.5 | 1 722 | 5.3 | 15.6 | 694 | 14 | 6.3 | 8.1 | – | – | – | 4 004 | 224 | 3 518 |
| Temple City | 10 689 | 2.67 | 10.5 | 22.6 | 424 | 8.0 | 14.0 | 304 | 2 | 10.0 | 4.7 | – | – | – | 923 | 66 | 2 912 |
| Thousand Oaks | 25 639 | 2.97 | 8.1 | 14.8 | 813 | 5.4 | 8.7 | 310 | 2 | 3.3 | 2.5 | 1 | 212 | 220 | 3 154 | 127 | 3 251 |
| Torrance | 49 613 | 2.60 | 9.4 | 24.5 | 2 059 | 6.0 | 15.5 | 1 058 | 25 | 8.0 | 12.1 | 5 | 1 269 | 936 | 7 178 | 635 | 5 250 |
| Turlock | 9 931 | 2.59 | 10.1 | 25.7 | 845 | 14.2 | 26.9 | 338 | 6 | 10.8 | 7.1 | 1 | 319 | 939 | 2 354 | 118 | 7 667 |
| Tustin | 12 740 | 2.43 | 10.7 | 28.1 | 868 | 5.8 | 22.1 | 274 | 10 | 7.0 | 11.5 | 1 | 150 | 357 | 3 114 | 346 | 7 581 |
| Union City | 11 925 | 3.28 | 10.1 | 13.2 | 896 | 8.9 | 19.0 | 190 | 8 | 4.0 | 8.9 | – | – | – | 2 813 | 231 | 6 195 |
| Upland | 17 561 | 2.69 | 9.0 | 22.5 | 762 | 8.4 | 14.5 | 390 | 4 | 7.4 | 5.2 | 1 | 310 | 542 | 2 566 | 138 | 4 809 |
| Vacaville | 14 530 | 2.84 | 8.4 | 16.8 | 859 | 8.8 | 17.7 | 250 | 7 | 5.1 | 8.1 | 1 | 84 | 153 | 1 825 | 124 | 3 631 |
| Vallejo | 29 010 | 2.68 | 11.3 | 23.8 | 1 766 | 13.0 | 19.9 | 840 | 14 | 9.5 | 7.9 | 2 | 328 | 352 | 6 424 | 623 | 6 992 |
| Visalia | 18 190 | 2.70 | 10.6 | 21.6 | 1 434 | 15.5 | 25.7 | 532 | 10 | 9.5 | 7.0 | 2 | 282 | 458 | 4 780 | 260 | 8 387 |
| Vista | 13 690 | 2.60 | 9.5 | 22.6 | 1 215 | 10.4 | 28.3 | 536 | 13 | 12.5 | 10.7 | – | – | – | NA | NA | NA |
| Walnut Creek | 23 387 | 2.26 | 5.6 | 32.3 | 622 | 1.3 | 11.1 | 802 | 6 | 14.3 | 9.6 | 3 | 526 | 897 | 2 654 | 117 | 4 408 |
| West Covina | 26 389 | 3.02 | 9.7 | 14.2 | 1 603 | 7.9 | 17.9 | 496 | 15 | 5.5 | 9.4 | 3 | 402 | 415 | 5 551 | 442 | 5 993 |
| Westminster | 23 837 | 2.97 | 9.6 | 16.5 | 1 126 | 8.9 | 15.4 | 474 | 8 | 6.5 | 7.1 | 1 | 182 | 249 | 4 378 | 317 | 5 633 |
| Whittier | 26 971 | 2.52 | 8.7 | 25.7 | 2 722 | 9.1 | 38.8 | 1 168 | 16 | 16.6 | 5.9 | 2 | 521 | 717 | 3 085 | 258 | 4 173 |
| Woodland | 10 740 | 2.74 | 9.5 | 21.6 | 601 | 14.1 | 18.2 | 287 | 3 | 8.7 | 5.0 | 2 | 240 | 698 | 2 022 | 161 | 5 996 |
| Yorba Linda | 8 659 | 3.26 | 7.8 | 8.8 | 563 | 3.2 | 16.4 | 119 | 4 | 3.5 | 7.1 | – | – | – | 760 | 82 | 2 270 |

[1]No spouse present. [2]Householder living alone. [3]Per 1,000 resident population estimated as of July 1, 1984. [4]Deaths of infants under 1 year old. [5]Deaths of infants under 1 year old per 1,000 live births. [6]Per 100,000 resident population estimated as of July 1, 1986. [7]Includes murder and nonnegligent manslaughter, forcible rape, robbery, and aggravated assault. [8]Per 100,000 resident population estimated for 1985 by the FBI.

# Table C. Cities — Police Officers, Education, Money Income, and Housing

| City | Police officers, 1985 | | Educational attainment,[2] 1980 | | Money income | | | | | | Housing, 1980 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Per capita[3] | | | | Percent below poverty level, 1979 | | | | Year-round housing units | | | | | |
| | | | | | 1985 | | 1979 | | | | | | | Percent— | | Occupied housing units | | |
| | Number | Rate[1] | Percent completing 12 years or more | Percent completing 16 years or more | Total (Dol.) | Percent of State average | Current dollars | Constant (1985) dollars | Persons | Families | Total units | Percent change, 1970-1980 | Total | Built 1939 or earlier | With 5 or more units | Total | Percent owner occupied | Median value[4] (Dol.) |
| | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 |
| CALIFORNIA—Con. | | | | | | | | | | | | | | | | | | |
| Oxnard | 149 | 12.0 | 61.5 | 10.8 | 9 032 | 76.0 | 6 247 | 9 258 | 12.3 | 9.5 | 35 087 | 66.9 | 34 949 | 2.8 | 26.8 | 33 087 | 53.8 | 72 000 |
| Pacifica | 40 | 10.1 | 83.2 | 20.0 | 12 871 | 108.3 | 8 804 | 13 048 | 5.8 | 5.4 | 13 137 | 31.4 | 13 131 | 3.0 | 18.5 | 12 733 | 68.0 | 95 200 |
| Palm Springs | 83 | 22.9 | 77.2 | 18.0 | 16 109 | 135.5 | 11 666 | 17 289 | 10.4 | 7.4 | 24 461 | 96.7 | 24 043 | 3.1 | 32.1 | 15 138 | 60.2 | 102 200 |
| Palo Alto | 101 | 17.2 | 91.3 | 54.0 | 21 141 | 177.9 | 12 799 | 18 968 | 6.0 | 2.5 | 23 747 | 11.9 | 23 739 | 21.1 | 25.8 | 23 041 | 55.3 | 148 900 |
| Paramount | NA | NA | 46.5 | 3.8 | 7 267 | 61.1 | 5 294 | 7 846 | 18.9 | 16.0 | 11 730 | 1.2 | 11 728 | 11.0 | 18.9 | 11 279 | 46.0 | 62 700 |
| Pasadena | 202 | 15.7 | 77.3 | 29.5 | 13 557 | 114.1 | 9 184 | 13 611 | 14.1 | 10.7 | 49 732 | 6.0 | 49 683 | 34.5 | 35.5 | 47 056 | 45.7 | 92 100 |
| Petaluma | 45 | 11.9 | 77.4 | 16.2 | 11 887 | 100.0 | 7 992 | 11 844 | 6.3 | 4.9 | 12 540 | 53.4 | 12 533 | 19.5 | 8.0 | 12 122 | 68.2 | 89 100 |
| Pico Rivera | NA | NA | 54.3 | 5.0 | 8 111 | 68.2 | 5 878 | 8 711 | 10.7 | 8.9 | 15 884 | 8.4 | 15 882 | 6.3 | 17.9 | 15 399 | 71.2 | 65 700 |
| Pittsburg | 52 | 13.4 | 71.1 | 11.3 | 9 821 | 82.6 | 6 867 | 10 177 | 12.9 | 10.6 | 11 927 | 72.0 | 11 926 | 11.7 | 7.8 | 11 087 | 70.1 | 66 300 |
| Placentia | 44 | 11.3 | 81.5 | 25.7 | 13 499 | 113.6 | 8 993 | 13 328 | 5.1 | 3.7 | 11 379 | 93.0 | 11 377 | 4.3 | 14.7 | 10 794 | 73.2 | 116 600 |
| Pleasant Hill | 37 | 13.0 | 84.9 | 25.5 | 14 945 | 125.7 | 9 784 | 14 500 | 4.5 | 2.8 | 10 140 | 46.1 | 10 123 | 1.6 | 23.2 | 9 771 | 60.8 | 93 400 |
| Pleasanton | 51 | 13.3 | 87.8 | 24.8 | 15 560 | 130.9 | 9 619 | 14 255 | 3.5 | 3.1 | 11 665 | 111.0 | 11 661 | 3.8 | 11.2 | 11 317 | 76.6 | 116 700 |
| Pomona | 149 | 13.5 | 61.9 | 10.7 | 8 574 | 72.1 | 5 819 | 8 624 | 17.2 | 13.5 | 32 153 | 11.4 | 32 137 | 13.3 | 18.9 | 30 322 | 57.3 | 60 900 |
| Rancho Cucamonga | NA | NA | 82.0 | 16.8 | 11 832 | 99.6 | 8 240 | 12 212 | 5.5 | 4.6 | 17 839 | X | 17 836 | 2.3 | 6.2 | 16 979 | 84.2 | 81 800 |
| Rancho Palos Verdes | NA | NA | 95.3 | 51.2 | 22 822 | 192.0 | 15 222 | 22 559 | 2.8 | 2.2 | 12 281 | X | 12 275 | .5 | 18.4 | 11 925 | 81.1 | (5) |
| Redding | 71 | 15.2 | 79.7 | 16.4 | 9 972 | 83.9 | 7 535 | 11 167 | 10.1 | 7.8 | 17 932 | 166.7 | 17 911 | 8.3 | 22.5 | 16 786 | 53.4 | 62 000 |
| Redlands | 63 | 12.6 | 79.0 | 27.0 | 12 118 | 102.0 | 8 545 | 12 664 | 9.7 | 7.7 | 17 144 | 44.9 | 17 137 | 18.4 | 14.0 | 15 759 | 66.0 | 72 300 |
| Redondo Beach | 95 | 15.1 | 83.2 | 24.0 | 17 313 | 145.7 | 10 287 | 15 245 | 7.8 | 5.6 | 25 867 | 27.7 | 25 843 | 8.8 | 37.7 | 24 637 | 38.3 | 113 500 |
| Redwood City | 70 | 11.9 | 76.8 | 18.6 | 14 542 | 122.4 | 9 720 | 14 405 | 7.2 | 5.2 | 23 491 | 11.1 | 23 477 | 12.3 | 31.4 | 22 921 | 48.6 | 123 400 |
| Rialto | 50 | 11.2 | 74.2 | 9.2 | 9 517 | 80.1 | 7 046 | 10 442 | 8.5 | 7.0 | 13 862 | 62.5 | 13 861 | 3.5 | 6.7 | 12 241 | 76.3 | 60 800 |
| Richmond | 158 | 19.4 | 67.3 | 13.7 | 9 854 | 82.9 | 6 977 | 10 340 | 16.5 | 14.9 | 29 082 | 8.0 | 29 074 | 17.2 | 12.7 | 28 107 | 57.5 | 61 900 |
| Riverside | 254 | 13.5 | 76.6 | 18.7 | 10 802 | 90.9 | 7 597 | 11 259 | 11.3 | 8.7 | 64 299 | 40.0 | 64 266 | 10.9 | 18.3 | 60 964 | 60.9 | 68 000 |
| Rosemead | NA | NA | 54.7 | 8.6 | 7 904 | 66.5 | 5 641 | 8 360 | 14.9 | 11.6 | 13 643 | 1.6 | 13 639 | 17.5 | 10.0 | 13 102 | 53.8 | 68 500 |
| Sacramento | 502 | 16.0 | 71.6 | 18.7 | 10 627 | 89.4 | 7 558 | 11 201 | 15.0 | 11.7 | 123 284 | 27.6 | 123 237 | 19.4 | 22.0 | 112 859 | 56.4 | 56 800 |
| Salinas | 138 | 15.3 | 60.6 | 12.5 | 8 852 | 74.5 | 6 795 | 10 070 | 12.5 | 9.5 | 28 383 | 49.7 | 28 347 | 10.7 | 29.4 | 26 857 | 51.5 | 71 900 |
| San Bernardino | 238 | 17.7 | 66.7 | 12.4 | 8 876 | 74.7 | 6 339 | 9 394 | 16.3 | 13.8 | 46 458 | 27.0 | 46 428 | 14.7 | 17.0 | 42 823 | 59.4 | 52 600 |
| San Bruno | 46 | 12.3 | 81.2 | 18.4 | 14 121 | 118.8 | 9 655 | 14 309 | 5.0 | 3.8 | 14 658 | 29.1 | 14 656 | 11.3 | 27.7 | 13 757 | 56.6 | 111 400 |
| San Buenaventura (Ventura) | 106 | 12.3 | 81.2 | 20.5 | 12 516 | 105.3 | 8 543 | 12 661 | 7.7 | 5.8 | 30 627 | 51.8 | 30 588 | 10.5 | 22.1 | 29 169 | 57.5 | 93 400 |
| San Clemente | 38 | 12.4 | 86.5 | 25.1 | 16 721 | 140.7 | 10 545 | 15 628 | 7.8 | 6.2 | 13 233 | 76.9 | 13 119 | 2.5 | 15.9 | 11 764 | 51.4 | 136 800 |
| San Diego | 1 407 | 14.2 | 78.9 | 24.0 | 11 766 | 99.0 | 8 016 | 11 880 | 12.4 | 9.2 | 341 928 | 41.7 | 341 528 | 13.0 | 29.2 | 321 060 | 49.1 | 90 700 |
| San Francisco | 1 929 | 26.3 | 74.0 | 28.2 | 13 575 | 114.2 | 9 265 | 13 731 | 13.7 | 10.3 | 316 608 | 2.0 | 316 351 | 57.7 | 43.0 | 298 956 | 33.7 | 104 600 |
| San Gabriel | 47 | 14.3 | 67.9 | 15.8 | 11 100 | 93.4 | 7 742 | 11 474 | 11.1 | 8.8 | 11 546 | 7.2 | 11 540 | 23.2 | 29.1 | 11 152 | 54.7 | 86 300 |
| San Jose | 976 | 13.8 | 76.4 | 21.1 | 12 583 | 105.9 | 8 382 | 12 422 | 8.2 | 6.3 | 216 653 | 55.0 | 216 600 | 7.3 | 18.6 | 209 593 | 62.1 | 97 900 |
| San Leandro | 87 | 12.6 | 69.9 | 10.6 | 13 199 | 111.1 | 9 453 | 14 009 | 4.8 | 3.5 | 28 086 | 15.0 | 28 080 | 15.0 | 22.0 | 27 204 | 62.3 | 79 600 |
| San Luis Obispo | 49 | 13.4 | 84.1 | 30.1 | 10 831 | 91.1 | 7 324 | 10 854 | 23.3 | 7.1 | 14 506 | 45.5 | 14 496 | 14.5 | 28.5 | 13 670 | 46.5 | 87 700 |
| San Mateo | 105 | 12.6 | 82.5 | 24.5 | 16 261 | 136.8 | 11 080 | 16 421 | 5.8 | 4.4 | 34 268 | 16.7 | 34 238 | 13.8 | 34.4 | 32 855 | 51.8 | 126 700 |
| San Rafael | 70 | 14.7 | 88.2 | 33.2 | 17 218 | 144.9 | 11 542 | 17 105 | 7.7 | 5.4 | 19 200 | 36.2 | 19 197 | 11.4 | 30.8 | 18 757 | 53.7 | 148 300 |
| Santa Ana | 352 | 15.2 | 59.7 | 12.0 | 9 395 | 79.0 | 6 567 | 9 732 | 14.0 | 10.1 | 67 180 | 35.1 | 67 163 | 9.1 | 29.0 | 64 038 | 51.3 | 80 500 |
| Santa Barbara | 132 | 16.5 | 77.9 | 28.0 | 13 733 | 115.5 | 9 103 | 13 491 | 11.0 | 6.3 | 33 925 | 14.7 | 33 898 | 26.5 | 34.9 | 32 509 | 41.6 | 130 800 |
| Santa Clara | 141 | 14.9 | 76.9 | 20.7 | 14 367 | 120.9 | 9 360 | 13 872 | 5.8 | 4.0 | 34 858 | 25.3 | 34 855 | 4.1 | 34.7 | 34 037 | 47.4 | 96 800 |
| Santa Cruz | 59 | 13.0 | 79.4 | 24.7 | 11 149 | 93.8 | 7 535 | 11 167 | 16.5 | 10.1 | 17 871 | 30.6 | 17 769 | 28.8 | 22.2 | 16 617 | 47.9 | 90 300 |
| Santa Maria | 59 | 13.1 | 65.1 | 10.5 | 9 501 | 79.9 | 6 507 | 9 643 | 11.7 | 9.5 | 15 018 | 39.0 | 15 007 | 10.7 | 22.7 | 14 040 | 53.4 | 64 300 |
| Santa Monica | 146 | 15.3 | 82.0 | 33.6 | 17 755 | 149.4 | 11 126 | 16 489 | 9.9 | 6.6 | 46 418 | 10.2 | 46 382 | 20.6 | 66.1 | 43 912 | 22.1 | 189 800 |
| Santa Rosa | 120 | 12.9 | 81.1 | 22.0 | 12 291 | 103.4 | 8 471 | 12 554 | 9.3 | 6.5 | 35 192 | 83.7 | 35 104 | 9.8 | 16.4 | 33 826 | 59.3 | 88 000 |
| Saratoga | NA | NA | 92.5 | 48.1 | 25 572 | 215.2 | 15 059 | 22 317 | 2.2 | 1.4 | 9 543 | 33.7 | 9 531 | 6.0 | 5.0 | 9 295 | 89.7 | (5) |
| Seal Beach | 38 | 13.9 | 78.8 | 26.0 | 16 594 | 139.6 | 11 128 | 16 492 | 6.0 | 2.3 | 13 928 | 17.7 | 13 889 | 4.0 | 50.8 | 13 351 | 74.8 | 125 900 |
| Seaside | 36 | 8.9 | 76.3 | 11.3 | 7 950 | 66.9 | 5 546 | 8 219 | 14.7 | 12.8 | 10 316 | 11.6 | 10 315 | 5.0 | 13.4 | 9 875 | 42.4 | 68 300 |
| Simi Valley | 77 | 8.8 | 82.9 | 14.1 | 12 104 | 101.8 | 7 801 | 11 561 | 4.9 | 4.0 | 22 643 | 53.2 | 22 638 | 1.0 | 3.0 | 22 036 | 83.0 | 94 700 |
| South Gate | 90 | 11.7 | 48.0 | 4.9 | 7 070 | 59.5 | 5 734 | 8 498 | 14.2 | 12.2 | 23 589 | .2 | 23 582 | 18.9 | 22.3 | 22 883 | 50.9 | 64 200 |
| South San Francisco | 73 | 13.6 | 73.3 | 14.3 | 11 981 | 100.8 | 8 478 | 12 564 | 6.2 | 5.0 | 18 020 | 26.2 | 17 995 | 9.3 | 20.0 | 17 534 | 62.5 | 98 200 |
| Stockton | 253 | 14.3 | 65.7 | 14.0 | 9 333 | 78.5 | 6 757 | 10 014 | 16.6 | 13.5 | 61 315 | 59.3 | 61 260 | 17.5 | 24.3 | 55 335 | 52.4 | 55 500 |
| Sunnyvale | 117 | 10.3 | 83.1 | 26.6 | 16 073 | 135.2 | 10 359 | 15 352 | 4.8 | 3.7 | 44 021 | 38.9 | 44 006 | 2.0 | 30.7 | 42 932 | 51.0 | 119 800 |
| Temple City | NA | NA | 76.9 | 13.2 | 11 980 | 100.8 | 8 574 | 12 707 | 4.8 | 3.4 | 11 037 | .4 | 11 032 | 13.1 | 9.5 | 10 689 | 67.9 | 87 000 |
| Thousand Oaks | NA | NA | 89.3 | 29.6 | 15 178 | 127.7 | 9 879 | 14 641 | 4.4 | 3.4 | 27 491 | 164.3 | 27 464 | .6 | 15.8 | 25 639 | 71.7 | 125 700 |
| Torrance | 234 | 17.1 | 83.6 | 22.1 | 15 333 | 129.0 | 10 285 | 15 242 | 4.7 | 3.6 | 50 994 | 12.0 | 50 982 | 4.3 | 34.1 | 49 613 | 55.7 | 123 100 |
| Turlock | 42 | 13.7 | 65.3 | 15.9 | 8 998 | 75.7 | 6 953 | 10 304 | 12.9 | 11.6 | 10 918 | 119.1 | 10 917 | 10.8 | 23.5 | 9 931 | 54.3 | 62 000 |
| Tustin | 59 | 14.4 | 85.0 | 23.9 | 13 429 | 113.0 | 9 342 | 13 845 | 6.6 | 4.2 | 13 171 | 42.7 | 13 166 | 2.5 | 43.3 | 12 740 | 40.7 | 119 800 |
| Union City | 48 | 10.6 | 72.9 | 14.8 | 10 784 | 90.7 | 7 565 | 11 211 | 7.1 | 6.3 | 12 333 | 215.2 | 12 333 | 2.7 | 12.3 | 11 925 | 70.3 | 88 900 |
| Upland | 57 | 10.7 | 79.5 | 22.3 | 13 504 | 113.6 | 9 641 | 14 288 | 6.8 | 5.6 | 18 595 | 75.3 | 18 588 | 7.4 | 20.2 | 17 561 | 62.3 | 89 400 |
| Vacaville | 47 | 9.4 | 79.3 | 16.0 | 10 891 | 91.6 | 7 499 | 11 114 | 8.5 | 6.7 | 15 358 | 137.2 | 15 350 | 2.3 | 10.0 | 14 530 | 67.8 | 70 300 |
| Vallejo | 104 | 11.3 | 72.9 | 12.5 | 10 185 | 85.7 | 7 226 | 10 709 | 10.7 | 9.3 | 30 319 | 28.1 | 30 318 | 17.9 | 12.7 | 29 010 | 62.9 | 62 200 |
| Visalia | 73 | 12.8 | 72.3 | 17.4 | 10 038 | 84.5 | 7 474 | 11 076 | 10.8 | 9.0 | 19 487 | 104.7 | 19 478 | 8.1 | 13.2 | 18 190 | 61.5 | 64 000 |
| Vista | NA | NA | 73.1 | 15.1 | 10 212 | 85.9 | 7 207 | 10 681 | 11.0 | 8.8 | 14 962 | 72.5 | 14 934 | 4.0 | 23.2 | 13 690 | 58.6 | 82 600 |
| Walnut Creek | 73 | 12.1 | 91.3 | 37.5 | 19 265 | 162.1 | 12 764 | 18 916 | 4.0 | 2.9 | 24 405 | 67.2 | 24 400 | 2.1 | 37.0 | 23 387 | 66.4 | 135 300 |
| West Covina | 104 | 11.2 | 81.8 | 18.4 | 11 844 | 99.7 | 8 697 | 12 889 | 5.3 | 4.2 | 27 375 | 42.9 | 27 372 | .9 | 20.8 | 26 389 | 70.8 | 84 000 |
| Westminster | 81 | 10.4 | 76.9 | 15.5 | 12 181 | 102.5 | 8 454 | 12 529 | 7.2 | 5.6 | 24 563 | 43.1 | 24 539 | 1.3 | 17.4 | 23 837 | 66.6 | 95 300 |
| Whittier | 85 | 11.5 | 76.4 | 19.7 | 13 763 | 115.8 | 9 648 | 14 298 | 7.4 | 5.3 | 27 796 | 7.7 | 27 789 | 13.3 | 22.8 | 26 971 | 59.6 | 86 200 |
| Woodland | 46 | 13.6 | 69.2 | 14.7 | 10 499 | 88.3 | 7 774 | 11 521 | 8.3 | 6.9 | 11 251 | 64.3 | 11 239 | 14.5 | 18.7 | 10 740 | 61.5 | 66 200 |
| Yorba Linda | NA | NA | 89.6 | 29.0 | 16 160 | 136.0 | 10 308 | 15 276 | 3.0 | 2.3 | 9 058 | 164.8 | 9 056 | 2.7 | 4.5 | 8 659 | 85.1 | 126 600 |

[1]Per 10,000 resident population estimated for 1985 by the FBI. [2]Persons 25 years old and over. [3]Based on resident population estimated as of July 1, 1986, for 1985 data and enumerated as of April 1, 1980, for 1979 data. [4]Specified owner occupied. [5]$200,000 or more.

| City | New private housing units authorized by building permits: 1986 Number | 1986 Valuation ($1,000) | 1980-1986 period Number | 1980-1986 period Percent of 1980 housing stock | Civilian labor force, 1986 (BLS) Total | Percent change, 1985-1986 | Unemployment Total | Unemployment Rate[1] | Employed,[2] 1980 Total | Rate per 1,000 employees: Professional specialty and technical | Rate per 1,000 employees: Precision production craft, and operators | Manufactures, 1982: Establishments Total | Establishments Percent with 20 or more employees | All employees Number (1,000) | All employees Percent change, 1977-1982 | All employees Annual payroll (Mil. dol.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 |
| CALIFORNIA—Con. | | | | | | | | | | | | | | | | |
| Oxnard | 581 | 54 381 | 2 705 | 7.7 | 65 051 | 4.2 | 6 523 | 10.0 | 45 766 | 114.8 | 216.3 | 80 | 33.8 | 5.5 | -5.2 | 107.6 |
| Pacifica | 88 | 6 676 | 360 | 2.7 | 22 126 | 1.2 | 1 009 | 4.6 | 19 864 | 138.7 | 171.2 | NA | NA | NA | NA | NA |
| Palm Springs | 339 | 15 354 | 4 874 | 19.9 | 21 101 | 6.8 | 1 301 | 6.2 | 14 979 | 141.9 | 128.2 | 36 | 22.2 | .6 | 20.0 | 8.8 |
| Palo Alto | 349 | 20 312 | 1 496 | 6.3 | 36 080 | -1.4 | 1 269 | 3.5 | 30 512 | 387.6 | 80.4 | 196 | 36.2 | 26.1 | 15.0 | 725.9 |
| Paramount | 363 | 12 267 | 1 129 | 9.6 | 16 479 | 2.3 | 1 485 | 9.0 | 13 622 | 54.0 | 403.5 | 291 | 29.9 | 6.0 | 1.7 | 105.2 |
| Pasadena | 917 | 57 679 | 3 467 | 7.0 | 65 123 | 2.6 | 3 499 | 5.4 | 55 985 | 229.4 | 148.6 | 249 | 29.7 | 9.9 | 1.0 | 208.4 |
| Petaluma | 472 | 29 500 | 2 639 | 21.0 | 21 669 | 3.8 | 823 | 3.8 | 15 969 | 138.1 | 182.8 | 82 | 34.1 | 1.9 | 90.0 | 32.9 |
| Pico Rivera | 136 | 8 973 | S | S | 26 250 | 2.4 | 2 017 | 7.7 | 22 016 | 65.5 | 321.9 | 90 | 47.8 | 3.0 | -46.4 | 45.9 |
| Pittsburg | 990 | 56 032 | 3 933 | 33.0 | 17 043 | 3.2 | 1 304 | 7.7 | 13 476 | 108.0 | 246.1 | 43 | 20.9 | 2.4 | -22.6 | 65.4 |
| Placentia | 938 | 46 462 | 1 840 | 16.2 | 22 591 | 4.4 | 824 | 3.6 | 17 682 | 184.9 | 171.4 | 84 | 23.8 | 1.8 | 157.1 | 30.7 |
| Pleasant Hill | 520 | 26 652 | 2 473 | 24.4 | 16 512 | 3.5 | 694 | 4.2 | 13 544 | 180.1 | 160.1 | 32 | 28.1 | .5 | NA | 9.7 |
| Pleasanton | 1 417 | 103 726 | 5 080 | 43.5 | 20 876 | 3.5 | 677 | 3.2 | 17 349 | 182.2 | 143.5 | 42 | 38.1 | 1.2 | - | 24.5 |
| Pomona | 963 | 42 990 | 4 522 | 14.1 | 44 019 | 2.4 | 3 666 | 8.3 | 36 661 | 125.4 | 287.0 | 190 | 32.1 | 14.9 | 28.4 | 338.7 |
| Rancho Cucamonga | 4 745 | 270 129 | 11 595 | 65.0 | 33 596 | 7.2 | 1 278 | 3.8 | 24 930 | 153.5 | 223.9 | 104 | 43.3 | 4.1 | NA | 69.1 |
| Rancho Palos Verdes | 126 | 29 857 | 656 | 5.3 | 20 807 | 2.7 | 573 | 2.8 | 18 383 | 299.9 | 64.8 | NA | NA | NA | NA | NA |
| Redding | S | S | S | S | 21 953 | 2.7 | 2 170 | 9.9 | 17 614 | 170.9 | 137.6 | 96 | 17.7 | 1.7 | 88.9 | 27.1 |
| Redlands | 1 293 | 76 686 | 4 077 | 23.8 | 24 918 | 7.1 | 1 003 | 4.0 | 18 448 | 238.5 | 142.6 | 39 | 35.9 | 1.2 | 33.3 | 16.3 |
| Redondo Beach | 513 | 52 389 | 2 512 | 9.7 | 39 353 | 2.6 | 1 753 | 4.5 | 34 160 | 190.0 | 188.7 | 44 | 31.8 | D | D | D |
| Redwood City | 426 | 29 641 | 2 012 | 8.6 | 32 884 | 1.2 | 1 060 | 3.2 | 29 935 | 155.6 | 204.9 | 125 | 24.8 | 4.5 | 25.0 | 111.5 |
| Rialto | 1 581 | 105 341 | 5 713 | 41.2 | 21 947 | 6.8 | 1 405 | 6.4 | 15 846 | 114.9 | 224.0 | 42 | 23.8 | .9 | 50.0 | 11.9 |
| Richmond | 1 688 | 84 075 | 3 780 | 13.0 | 38 208 | 3.1 | 3 365 | 8.8 | 29 833 | 144.3 | 185.9 | 142 | 35.9 | D | D | D |
| Riverside | 3 107 | 192 667 | 11 731 | 18.2 | 108 669 | 6.7 | 7 591 | 7.0 | 76 468 | 181.9 | 203.2 | 204 | 40.2 | 12.8 | 54.2 | 250.4 |
| Rosemead | 211 | 12 506 | 747 | 5.5 | 20 324 | 2.5 | 1 407 | 6.9 | 17 186 | 81.5 | 303.7 | 55 | 29.1 | 1.5 | 36.4 | 21.2 |
| Sacramento | 3 681 | 251 730 | 23 556 | 19.1 | 154 094 | 4.7 | 10 683 | 6.9 | 113 333 | 175.2 | 138.0 | 397 | 28.5 | 18.2 | 61.1 | 398.1 |
| Salinas | 1 443 | 68 570 | 5 037 | 17.7 | 46 510 | 2.0 | 5 564 | 12.0 | 34 240 | 103.0 | 164.9 | 84 | 28.6 | 3.4 | - | 56.1 |
| San Bernardino | 3 087 | 136 982 | 9 687 | 20.9 | 60 134 | 6.8 | 4 248 | 7.1 | 43 110 | 148.8 | 180.9 | 120 | 36.7 | 3.9 | 44.4 | 64.4 |
| San Bruno | 313 | 12 035 | 438 | 3.0 | 21 847 | 1.2 | 791 | 3.6 | 19 806 | 122.4 | 183.1 | 33 | 15.2 | .5 | - | 12.0 |
| San Buenaventura (Ventura) | 570 | 41 776 | 2 938 | 9.6 | 47 384 | 4.4 | 2 909 | 6.1 | 34 777 | 190.7 | 168.2 | 111 | 18.0 | 2.0 | NA | 31.3 |
| San Clemente | 596 | 61 884 | 3 878 | 29.3 | 17 077 | 4.3 | 711 | 4.2 | 13 295 | 187.1 | 177.4 | NA | NA | NA | NA | NA |
| San Diego | 18 995 | 1 372 748 | 72 183 | 21.1 | 482 348 | 5.2 | 24 127 | 5.0 | 358 469 | 206.4 | 161.8 | 1 201 | 29.1 | 76.8 | 44.1 | 1 687.5 |
| San Francisco | 2 037 | 184 349 | 9 425 | 3.0 | 400 204 | .7 | 22 030 | 5.5 | 342 484 | 191.5 | 116.2 | 1 614 | 27.0 | 52.4 | 22.1 | 1 183.5 |
| San Gabriel | 400 | 16 620 | S | S | 15 806 | 2.5 | 881 | 5.6 | 13 559 | 132.5 | 205.8 | 84 | 28.6 | 1.6 | -27.3 | 25.4 |
| San Jose | 3 764 | 213 082 | 26 101 | 12.0 | 376 993 | -1.4 | 25 474 | 6.8 | 308 112 | 183.2 | 225.7 | 931 | 30.4 | 58.5 | 52.3 | 1 465.3 |
| San Leandro | 591 | 28 125 | 1 836 | 6.5 | 38 215 | 3.4 | 1 855 | 4.9 | 31 229 | 99.0 | 223.0 | 286 | 39.2 | 13.3 | 4.7 | 300.0 |
| San Luis Obispo | 432 | 28 635 | 2 331 | 16.1 | 21 348 | 4.2 | 872 | 4.1 | 15 801 | 212.6 | 117.6 | 62 | 22.6 | D | D | D |
| San Mateo | 216 | 16 945 | 2 036 | 5.9 | 46 265 | 1.2 | 1 462 | 3.2 | 42 144 | 145.9 | 150.2 | 123 | 14.6 | 2.1 | 61.5 | 40.4 |
| San Rafael | 151 | 13 187 | 1 321 | 6.9 | 25 851 | 1.0 | 933 | 3.6 | 24 348 | 197.7 | 118.5 | 131 | 16.0 | 1.8 | 12.5 | 31.5 |
| Santa Ana | 2 253 | 116 089 | 7 270 | 10.8 | 124 708 | 4.2 | 6 516 | 5.2 | 96 012 | 112.9 | 315.4 | 1 017 | 28.4 | 32.5 | 21.3 | 588.3 |
| Santa Barbara | 390 | 34 747 | 1 870 | 5.5 | 47 511 | 3.4 | 1 913 | 4.0 | 37 315 | 198.5 | 153.6 | 186 | 19.9 | 4.0 | 21.2 | 65.9 |
| Santa Clara | 901 | 40 791 | 2 500 | 7.2 | 59 012 | -1.4 | 2 915 | 4.9 | 49 170 | 204.5 | 244.5 | 720 | 33.9 | 58.2 | 70.7 | 1 332.7 |
| Santa Cruz | 144 | 12 276 | 1 094 | 6.1 | 26 801 | 2.8 | 2 257 | 8.4 | 19 010 | 205.9 | 177.2 | 124 | 21.8 | 3.8 | 15.2 | 62.9 |
| Santa Maria | 590 | 30 577 | 3 071 | 20.4 | 22 553 | 3.0 | 1 875 | 8.3 | 16 922 | 109.4 | 199.6 | 62 | 29.0 | 2.3 | -20.7 | 35.0 |
| Santa Monica | 151 | 15 759 | 1 373 | 3.0 | 55 848 | 2.6 | 2 679 | 4.8 | 48 304 | 279.1 | 111.8 | 228 | 26.8 | 8.4 | 23.5 | 170.6 |
| Santa Rosa | S | S | S | S | 50 161 | 3.7 | 2 576 | 5.1 | 36 452 | 176.6 | 165.1 | 131 | 22.1 | 6.3 | 50.0 | 143.5 |
| Saratoga | 126 | 23 876 | 467 | 4.9 | 16 701 | -1.4 | 593 | 3.6 | 14 119 | 282.4 | 98.9 | NA | NA | NA | NA | NA |
| Seal Beach | 37 | 4 674 | 570 | 4.1 | 13 241 | 4.4 | 459 | 3.5 | 10 383 | 262.4 | 98.9 | 9 | 11.1 | D | D | D |
| Seaside | 102 | 5 201 | 275 | 2.7 | 13 079 | 2.0 | 1 405 | 10.7 | 9 762 | 92.0 | 160.3 | NA | NA | NA | NA | NA |
| Simi Valley | 1 728 | 150 749 | 7 305 | 32.3 | 49 400 | 4.4 | 2 952 | 6.0 | 36 320 | 156.0 | 252.6 | 89 | 18.0 | 2.1 | 133.3 | 46.0 |
| South Gate | [3]64 | [3]3 072 | S | S | 31 278 | 2.4 | 2 348 | 7.5 | 26 283 | 53.5 | 391.6 | 254 | 35.0 | 8.3 | -43.5 | 146.4 |
| South San Francisco | 44 | 3 392 | 634 | 3.5 | 28 932 | 1.2 | 1 242 | 4.3 | 26 046 | 96.8 | 190.1 | 190 | 42.1 | 6.4 | -4.5 | 146.1 |
| Stockton | 880 | 60 480 | 8 768 | 14.3 | 79 438 | 1.1 | 9 171 | 11.5 | 59 044 | 137.9 | 164.9 | 205 | 36.1 | 8.1 | - | 161.1 |
| Sunnyvale | 766 | 36 973 | 4 132 | 9.4 | 72 682 | -1.4 | 3 259 | 4.5 | 60 850 | 235.3 | 206.8 | 507 | 44.8 | 84.9 | 74.0 | 2 320.2 |
| Temple City | 62 | 5 041 | 334 | 3.0 | 15 648 | 2.7 | 597 | 3.8 | 13 674 | 128.6 | 194.2 | 39 | 12.8 | .9 | NA | 14.3 |
| Thousand Oaks | 812 | 110 840 | 4 436 | 16.1 | 51 572 | 4.5 | 2 657 | 5.2 | 38 249 | 209.0 | 148.1 | 90 | 13.3 | 3.1 | 158.3 | 53.9 |
| Torrance | [3]451 | [3]37 761 | [4]2 011 | 3.9 | 81 068 | 2.6 | 3 122 | 3.9 | 70 814 | 182.2 | 175.1 | 334 | 37.7 | 22.7 | 36.7 | 512.5 |
| Turlock | 1 031 | 47 949 | 2 731 | 25.0 | 14 932 | 3.1 | 1 758 | 11.8 | 11 186 | 154.6 | 216.0 | 58 | 36.2 | 2.9 | 16.0 | 43.3 |
| Tustin | 368 | 18 991 | 628 | 4.8 | 21 651 | 4.3 | 852 | 3.9 | 16 896 | 172.3 | 172.8 | 133 | 33.8 | 8.2 | 256.5 | 169.4 |
| Union City | 341 | 16 758 | 3 295 | 26.7 | 22 618 | 3.3 | 1 234 | 5.5 | 18 366 | 116.8 | 262.9 | 60 | 51.7 | 2.0 | -31.0 | 42.2 |
| Upland | 892 | 81 809 | 4 810 | 25.9 | 32 216 | 7.3 | 1 014 | 3.1 | 24 069 | 188.5 | 192.6 | 109 | 20.2 | 1.7 | -15.0 | 28.4 |
| Vacaville | [3]711 | [3]41 780 | S | S | 23 172 | 5.6 | 1 857 | 8.0 | 16 285 | 148.4 | 249.4 | 27 | 33.3 | D | D | D |
| Vallejo | 2 553 | 153 841 | 6 430 | 21.2 | 43 874 | 6.0 | 2 276 | 5.2 | 31 781 | 137.2 | 214.3 | 38 | 28.9 | D | D | D |
| Visalia | 1 268 | 62 125 | 4 715 | 24.2 | 28 523 | 2.8 | 2 499 | 8.8 | 21 808 | 172.4 | 159.4 | 99 | 31.3 | 3.6 | 16.1 | 56.9 |
| Vista | 1 768 | 115 371 | 6 523 | 43.6 | 19 561 | 5.2 | 1 058 | 5.4 | 14 475 | 122.1 | 224.1 | 42 | 9.5 | .5 | NA | 6.2 |
| Walnut Creek | 311 | 20 320 | 2 402 | 9.8 | 30 636 | 3.5 | 1 113 | 3.6 | 25 278 | 222.3 | 89.8 | 55 | 21.8 | 3.1 | 121.4 | 60.7 |
| West Covina | 250 | 15 050 | 2 386 | 8.7 | 48 648 | 2.6 | 2 543 | 5.2 | 41 887 | 152.2 | 207.3 | 22 | 31.8 | 1.6 | -15.8 | 39.1 |
| Westminster | 199 | 13 976 | 936 | 3.8 | 43 935 | 4.3 | 1 863 | 4.2 | 34 177 | 161.1 | 233.5 | 124 | 22.6 | 2.4 | 9.1 | 34.5 |
| Whittier | 217 | 14 156 | 769 | 2.8 | 38 953 | 2.6 | 1 929 | 5.0 | 33 636 | 168.4 | 202.4 | 123 | 28.5 | 2.9 | - | 52.5 |
| Woodland | 923 | 30 972 | 2 546 | 22.6 | 17 495 | 4.3 | 1 619 | 9.3 | 13 022 | 130.1 | 190.8 | 68 | 41.2 | 2.6 | -21.2 | 45.7 |
| Yorba Linda | 1 343 | 191 114 | 5 269 | 58.2 | 17 798 | 4.5 | 407 | 2.3 | 14 127 | 202.0 | 141.7 | NA | NA | NA | NA | NA |

[1]Percent of total civilian labor force. [2]Persons 16 years old and over. [3]Data are for 9 to 11 months. [4]Data for 1985 and 1986 are for 9 to 11 months.

| City | Manufactures, 1982—Con. | | | | | | | Wholesale trade, 1982 | | | | Retail trade—all establishments, 1982 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Production workers | | | | | | | | | | | | Sales | | |
| | | | Wages | | | | | | | | | | | | |
| | Number (1,000) | Work-hours (Millions) | Total (Mil. dol.) | Average per production worker (Dollars) | Value added by manufacture (Mil. dol.) | Value of shipments (Mil. dol.) | New capital expenditures (Mil. dol.) | Establishments | Sales (Mil. dol.) | Paid employees[1] | Annual payroll ($1,000) | Number | Total (Mil. dol.) | Percent change, 1977-1982 | Per capita[2] (Dollars) |
| | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| CALIFORNIA—Con. | | | | | | | | | | | | | | | |
| Oxnard | 4.1 | 7.8 | 67.4 | 16 439 | 338.9 | 615.4 | 52.6 | 115 | 339.4 | 1 510 | 28 476 | 760 | 518.0 | 33.1 | 4 478 |
| Pacifica | NA | NA | NA | NA | NA | NA | NA | 7 | 1.3 | 17 | 184 | 169 | 86.6 | 32.7 | 2 349 |
| Palm Springs | .3 | .6 | 3.8 | 12 667 | 34.7 | 48.3 | 1.0 | 55 | 131.9 | 282 | 5 055 | 613 | 375.0 | 47.4 | 11 095 |
| Palo Alto | 9.5 | 17.8 | 207.4 | 21 832 | 1 144.3 | 1 714.0 | 120.1 | 176 | 1 073.1 | 3 714 | 88 404 | 751 | 552.0 | 61.1 | 10 042 |
| Paramount | 4.5 | 8.7 | 65.7 | 14 600 | 207.2 | 562.1 | 47.3 | 147 | 805.2 | 2 199 | 41 024 | 261 | 118.2 | 51.3 | 3 040 |
| Pasadena | 5.2 | 9.9 | 77.5 | 14 904 | 307.1 | 469.0 | D | 175 | 822.7 | 2 486 | 48 258 | 1 171 | 901.7 | 43.6 | 7 455 |
| Petaluma | 1.3 | 2.4 | 20.1 | 15 462 | 72.1 | 161.0 | 3.4 | 65 | 317.4 | 656 | 12 309 | 475 | 217.8 | 106.9 | 6 156 |
| Pico Rivera | 2.3 | 4.5 | 31.1 | 13 522 | 110.3 | 262.0 | 6.9 | 80 | 767.5 | 1 644 | 36 444 | 296 | 156.9 | 82.6 | 2 863 |
| Pittsburg | 1.7 | 3.0 | 45.9 | 27 000 | 264.4 | 521.9 | 9.1 | 24 | 245.3 | 562 | 13 717 | 176 | 105.0 | 67.7 | 2 892 |
| Placentia | 1.4 | 2.6 | 18.0 | 12 857 | 62.7 | 108.8 | D | 58 | 139.1 | 1 167 | 16 099 | 274 | 139.3 | 48.6 | 3 814 |
| Pleasant Hill | .4 | .8 | 5.1 | 12 750 | 24.8 | 48.4 | 1.0 | 42 | 83.5 | 375 | 7 368 | 296 | 251.5 | 70.6 | 9 612 |
| Pleasanton | .5 | 1.0 | 8.3 | 16 600 | 30.8 | 91.1 | 3.3 | 53 | 278.1 | 1 107 | 12 465 | 294 | 124.8 | 41.0 | 3 496 |
| Pomona | 9.5 | 18.1 | 183.5 | 19 316 | 772.6 | 1 207.6 | 26.2 | 122 | 512.8 | 1 530 | 27 233 | 680 | 447.2 | 26.8 | 4 451 |
| Rancho Cucamonga | 3.0 | 5.5 | 42.1 | 14 033 | 211.3 | 407.1 | 9.0 | 49 | 147.9 | 343 | 5 768 | 308 | 149.6 | NA | 2 522 |
| Rancho Palos Verdes | NA | NA | NA | NA | NA | NA | NA | 29 | 20.8 | 104 | 1 449 | 134 | 38.3 | -3.4 | 876 |
| Redding | 1.1 | 2.2 | 14.9 | 13 545 | 67.1 | 142.9 | 12.0 | 137 | 249.7 | 952 | 16 955 | 765 | 432.6 | 36.3 | 9 222 |
| Redlands | .9 | 1.7 | 10.1 | 11 222 | 38.0 | 87.5 | 2.0 | 34 | 113.5 | 249 | 3 672 | 408 | 257.4 | 74.5 | 5 495 |
| Redondo Beach | D | D | D | D | D | D | D | 53 | 262.6 | 1 011 | 24 345 | 565 | 277.0 | 14.9 | 4 705 |
| Redwood City | 1.7 | 3.4 | 32.2 | 18 941 | 133.4 | 227.5 | 8.9 | 113 | 308.7 | 941 | 21 118 | 539 | 471.8 | 60.7 | 8 586 |
| Rialto | .7 | 1.3 | 8.1 | 11 571 | 29.0 | 58.5 | 2.6 | 31 | 270.9 | 483 | 10 529 | 246 | 118.7 | 54.9 | 2 845 |
| Richmond | D | D | D | D | D | D | D | 99 | 1 191.0 | 1 872 | 47 435 | 499 | 354.0 | 52.6 | 4 641 |
| Riverside | 8.1 | 15.7 | 133.8 | 16 519 | 526.9 | 983.9 | 32.6 | 192 | 790.5 | 3 312 | 66 721 | 1 388 | 1 063.1 | 51.3 | 6 109 |
| Rosemead | 1.2 | 2.3 | 14.0 | 11 667 | 35.6 | 74.7 | 1.3 | 42 | 294.7 | 588 | 9 518 | 264 | 169.2 | 52.5 | 3 826 |
| Sacramento | 10.3 | 20.1 | 194.7 | 18 903 | 1 011.4 | 2 172.8 | 74.2 | 697 | 2 700.6 | 9 872 | 205 475 | 2 686 | 1 660.7 | 53.4 | 5 754 |
| Salinas | 2.5 | 4.7 | 37.2 | 14 880 | 206.8 | 436.6 | 6.5 | 212 | 690.8 | 2 488 | 53 810 | 917 | 584.9 | 59.5 | 6 927 |
| San Bernardino | 2.6 | 4.8 | 38.7 | 14 885 | 158.7 | 271.5 | 26.3 | 184 | 562.7 | 2 361 | 43 108 | 1 268 | 966.1 | 37.0 | 7 771 |
| San Bruno | .3 | .6 | 7.0 | 23 333 | 18.8 | 31.6 | .5 | 49 | 477.3 | 526 | 14 041 | 372 | 262.8 | 21.0 | 7 516 |
| San Buenaventura (Ventura) | 1.3 | 2.3 | 17.8 | 13 692 | 68.8 | 140.2 | 6.3 | 195 | 427.2 | 2 139 | 38 978 | 887 | 616.2 | 69.9 | 7 630 |
| San Clemente | NA | NA | NA | NA | NA | NA | NA | 34 | 27.6 | 112 | 1 884 | 303 | 134.5 | 57.3 | 4 684 |
| San Diego | 45.4 | 86.2 | 791.0 | 17 423 | 3 637.5 | 5 907.7 | 364.6 | 1 436 | 5 239.8 | 19 282 | 370 505 | 7 207 | 4 341.7 | 54.8 | 4 740 |
| San Francisco | 24.0 | 43.8 | 379.8 | 15 825 | 1 585.5 | 3 303.1 | 84.4 | 2 028 | 13 425.6 | 23 402 | 559 344 | 8 640 | 4 250.4 | 49.2 | 6 145 |
| San Gabriel | 1.1 | 2.1 | 13.3 | 12 091 | 51.6 | 87.5 | 2.2 | 67 | 158.6 | 500 | 10 294 | 291 | 214.8 | 61.8 | 6 976 |
| San Jose | 26.9 | 51.4 | 539.3 | 20 048 | 2 888.4 | 5 470.5 | 466.5 | 815 | 4 068.4 | 10 901 | 241 224 | 4 704 | 3 156.4 | 59.0 | 4 788 |
| San Leandro | 8.3 | 15.5 | 169.2 | 20 386 | 761.1 | 1 654.3 | 50.7 | 322 | 1 796.1 | 5 184 | 115 199 | 671 | 491.9 | 40.3 | 7 615 |
| San Luis Obispo | D | D | D | D | D | D | D | 58 | 83.7 | 538 | 8 549 | 514 | 308.1 | 47.9 | 8 994 |
| San Mateo | .7 | 1.3 | 11.8 | 16 857 | 45.9 | 75.0 | 1.8 | 203 | 2 082.1 | 1 881 | 51 623 | 917 | 582.2 | 35.9 | 7 473 |
| San Rafael | 1.0 | 1.9 | 14.8 | 14 800 | 56.0 | 108.7 | 3.8 | 196 | 508.8 | 1 655 | 31 268 | 766 | 558.5 | 61.0 | 12 582 |
| Santa Ana | 21.3 | 42.1 | 319.5 | 15 000 | 1 242.3 | 2 286.9 | 82.1 | 629 | 2 166.8 | 6 526 | 135 411 | 1 677 | 1 182.1 | 33.9 | 5 442 |
| Santa Barbara | 2.3 | 4.3 | 32.6 | 14 174 | 166.0 | 267.9 | 6.2 | 174 | 291.2 | 1 797 | 32 163 | 1 253 | 657.4 | 41.5 | 8 804 |
| Santa Clara | 27.4 | 52.0 | 461.4 | 16 839 | 2 815.8 | 4 631.3 | 334.8 | 431 | 2 620.5 | 8 185 | 203 861 | 766 | 716.8 | 39.4 | 8 129 |
| Santa Cruz | 2.4 | 4.6 | 36.8 | 15 333 | 220.4 | 388.5 | 10.4 | 62 | 70.1 | 618 | 7 758 | 661 | 395.0 | 39.0 | 9 326 |
| Santa Maria | 1.5 | 2.8 | 20.4 | 13 600 | 80.1 | 190.4 | 4.0 | 106 | 194.6 | 1 066 | 18 526 | 531 | 466.6 | 72.5 | 11 062 |
| Santa Monica | 5.7 | 11.0 | 90.1 | 15 807 | 532.7 | 808.2 | 20.0 | 198 | 1 259.7 | 2 097 | 45 008 | 1 253 | 938.9 | 84.5 | 10 527 |
| Santa Rosa | 4.3 | 8.7 | 78.5 | 18 256 | 317.8 | 507.8 | 17.7 | 156 | 371.5 | 1 703 | 30 974 | 1 127 | 718.4 | 58.1 | 8 258 |
| Saratoga | NA | NA | NA | NA | NA | NA | NA | 24 | 46.7 | 101 | 2 300 | 228 | 75.1 | 90.2 | 2 565 |
| Seal Beach | D | D | D | D | D | D | D | 19 | 13.5 | 53 | 999 | 213 | 92.2 | 72.3 | 3 605 |
| Seaside | NA | NA | NA | NA | NA | NA | NA | 13 | 13.7 | 107 | 1 889 | 186 | 155.1 | 47.5 | 4 104 |
| Simi Valley | 1.0 | 1.9 | 13.1 | 13 100 | 58.8 | 98.4 | 16.3 | 43 | 35.0 | 233 | 3 373 | 568 | 315.7 | 91.6 | 3 879 |
| South Gate | 6.1 | 11.1 | 97.8 | 16 033 | 358.3 | 748.5 | 25.0 | 85 | 895.8 | 1 232 | 24 134 | 397 | 223.4 | 33.5 | 3 102 |
| South San Francisco | 4.2 | 8.1 | 82.7 | 19 690 | 434.7 | 971.8 | 15.5 | 406 | 3 284.4 | 7 615 | 171 759 | 377 | 272.2 | 66.4 | 5 429 |
| Stockton | 6.0 | 11.0 | 112.4 | 18 733 | 385.6 | 947.0 | 22.6 | 284 | 1 990.3 | 4 398 | 93 723 | 1 449 | 908.7 | 59.1 | 5 616 |
| Sunnyvale | 30.1 | 59.9 | 569.1 | 18 907 | 5 473.2 | 8 198.2 | 516.3 | 218 | 1 193.7 | 4 767 | 114 595 | 885 | 658.6 | 63.5 | 6 149 |
| Temple City | .7 | 1.3 | 9.7 | 13 857 | 25.3 | 43.3 | 1.2 | 21 | 11.2 | 106 | 1 497 | 273 | 123.0 | 72.4 | 4 152 |
| Thousand Oaks | .8 | 1.7 | 12.8 | 16 000 | 157.6 | 230.6 | 7.0 | 97 | 1 628.3 | 944 | 15 418 | 830 | 631.0 | 124.9 | 6 962 |
| Torrance | 14.4 | 27.3 | 287.5 | 19 965 | 1 517.1 | 3 665.5 | 132.5 | 342 | 6 223.8 | 4 643 | 111 870 | 1 460 | 1 287.8 | 46.8 | 9 890 |
| Turlock | 2.4 | 4.4 | 33.2 | 13 833 | 98.8 | 345.2 | 5.9 | 57 | 86.0 | 386 | 5 604 | 328 | 172.1 | 64.3 | 6 000 |
| Tustin | 4.4 | 9.4 | 76.1 | 17 295 | 395.0 | 709.5 | 26.4 | 144 | 857.5 | 2 235 | 53 838 | 457 | 268.0 | 114.1 | 6 976 |
| Union City | 1.5 | 2.9 | 29.7 | 19 800 | 156.2 | 406.8 | 6.5 | 64 | 470.4 | 1 475 | 34 028 | 178 | 79.6 | 77.3 | 1 877 |
| Upland | 1.3 | 2.6 | 18.1 | 13 923 | 60.2 | 172.9 | 3.7 | 74 | 100.5 | 699 | 9 572 | 408 | 242.0 | 94.7 | 4 854 |
| Vacaville | D | D | D | D | D | D | D | 15 | D | D | D | 308 | 174.3 | 55.3 | 3 712 |
| Vallejo | D | D | D | D | D | D | D | 38 | 90.4 | 254 | 4 309 | 626 | 416.7 | 50.8 | 4 855 |
| Visalia | 2.7 | 5.1 | 38.2 | 14 148 | 136.0 | 373.6 | 13.9 | 120 | 418.0 | 1 261 | 22 096 | 712 | 496.6 | 50.6 | 9 327 |
| Vista | .3 | .6 | 3.9 | 13 000 | 11.5 | 23.7 | .6 | 34 | 74.2 | 305 | 4 798 | 383 | 166.9 | 63.0 | 4 213 |
| Walnut Creek | 1.2 | 2.4 | 17.3 | 14 417 | 129.9 | 200.2 | 8.0 | 122 | 1 050.9 | 1 210 | 28 038 | 638 | 597.8 | 62.9 | 10 628 |
| West Covina | .4 | .8 | 7.2 | 18 000 | 75.0 | 97.2 | 3.9 | 33 | 73.5 | 218 | 4 047 | 719 | 561.0 | 61.7 | 6 483 |
| Westminster | 1.7 | 3.1 | 20.9 | 12 294 | 68.3 | 132.3 | 3.1 | 62 | 136.5 | 651 | 11 504 | 731 | 528.8 | 37.3 | 7 283 |
| Whittier | 2.1 | 3.8 | 29.4 | 14 000 | 100.5 | 195.5 | 4.6 | 86 | 640.5 | 1 634 | 43 006 | 624 | 497.0 | 28.4 | 7 197 |
| Woodland | 1.9 | 3.5 | 28.8 | 15 158 | 119.7 | 399.2 | 14.9 | 63 | 194.3 | 658 | 12 075 | 301 | 172.3 | 39.8 | 5 470 |
| Yorba Linda | NA | NA | NA | NA | NA | NA | NA | 21 | 33.2 | 115 | 1 508 | 212 | 76.0 | 75.7 | 2 431 |

[1]For pay period including March 12, 1982. [2]Based on resident population estimated as of July 1, 1982.

# Table C. Cities — Retail Trade and Taxable Service Industries

| City | Retail trade—establishments with payroll, 1982 | | | | | | | | | Taxable service industries—establishments with payroll, 1982 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sales | | | | | Paid employees[2] | | | | Receipts (Mil. dol.) | | | | | |
| | | | Per capita[1] (Dollars) | | | | | | | | | Selected kinds of business | | | | |
| | Number | Total (Mil. dol.) | General merchandise group stores | Food stores | Apparel and accessory stores | Eating and drinking places | Number | Percent change, 1977-1982 | Annual payroll (Mil. dol.) | Number | Total | Hotels, motels, and other lodging places | Health services, except hospitals | Legal services | Paid employees[2] | Annual payroll (Mil. dol.) |
| | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 |
| CALIFORNIA—Con. | | | | | | | | | | | | | | | | |
| Oxnard | 538 | 508.1 | 736 | 909 | 218 | 383 | 7 053 | 10.9 | 63.1 | 547 | 132.3 | 5.5 | 45.2 | 6.9 | 3 700 | 51.6 |
| Pacifica | 105 | 84.1 | D | 904 | D | 229 | 1 244 | 17.7 | 10.7 | 84 | 15.6 | D | 6.4 | .1 | 456 | 5.1 |
| Palm Springs | 442 | 368.5 | 909 | 2 018 | 1 369 | 1 738 | 6 556 | 40.9 | 53.5 | 550 | 203.7 | 86.4 | 52.7 | 8.5 | 5 863 | 69.2 |
| Palo Alto | 559 | 544.5 | 1 480 | 1 463 | 1 299 | 1 284 | 7 951 | 14.9 | 77.2 | 1 144 | 591.9 | 35.6 | 84.5 | 67.6 | 10 919 | 239.8 |
| Paramount | 148 | 114.1 | D | 809 | D | 224 | 1 271 | 5.5 | 13.8 | 171 | 106.9 | D | 23.3 | .9 | 2 821 | 45.0 |
| Pasadena | 778 | 887.4 | 1 458 | 1 202 | 397 | 795 | 12 337 | 11.6 | 123.5 | 1 362 | 594.5 | 28.9 | 142.9 | 34.2 | 12 043 | 202.4 |
| Petaluma | 301 | 212.3 | 720 | 1 684 | 238 | 640 | 3 176 | 78.4 | 27.1 | 276 | 49.4 | 2.5 | 20.8 | 2.7 | 1 568 | 17.5 |
| Pico Rivera | 184 | 151.2 | D | 1 110 | 158 | 358 | 2 197 | 55.5 | 19.5 | 180 | 81.9 | 1.0 | 31.3 | D | 1 939 | 28.4 |
| Pittsburg | 100 | 102.4 | D | 933 | 80 | 194 | 1 268 | 61.9 | 13.6 | 102 | 18.0 | D | 9.3 | 1.5 | 473 | 6.7 |
| Placentia | 141 | 133.7 | - | 865 | 291 | 345 | 1 622 | 13.6 | 15.8 | 179 | 34.6 | D | 11.9 | 1.3 | 783 | 13.0 |
| Pleasant Hill | 198 | 247.8 | 2 591 | 1 868 | 442 | 947 | 3 193 | 26.1 | 29.9 | 235 | 56.0 | D | 19.3 | 1.7 | 1 580 | 21.4 |
| Pleasanton | 166 | 120.8 | D | 1 039 | 139 | 470 | 1 962 | 33.9 | 16.1 | 217 | 43.8 | D | 15.3 | .8 | 1 269 | 16.8 |
| Pomona | 439 | 437.8 | 653 | 816 | 108 | 438 | 5 477 | -5.6 | 52.2 | 489 | 165.8 | D | 76.9 | 13.3 | 4 078 | 65.3 |
| Rancho Cucamonga | 194 | 146.8 | 83 | 1 057 | 68 | 282 | 2 033 | NA | 16.7 | 136 | 51.5 | - | 5.8 | D | 1 229 | 23.2 |
| Rancho Palos Verdes | 40 | 36.1 | - | D | 35 | 52 | 480 | -38.3 | 4.7 | 134 | 27.8 | D | 9.3 | D | 743 | 11.3 |
| Redding | 555 | 423.5 | D | D | 441 | 759 | 5 461 | 8.3 | 52.2 | 618 | 138.6 | 17.6 | 52.5 | 13.3 | 3 728 | 51.8 |
| Redlands | 262 | 252.8 | 963 | 957 | 223 | 560 | 3 678 | 30.7 | 30.7 | 305 | 59.8 | 1.0 | 28.8 | 2.0 | 1 593 | 22.4 |
| Redondo Beach | 347 | 269.5 | D | 1 388 | 168 | 888 | 4 599 | -2.2 | 38.9 | 383 | 173.2 | D | 35.9 | 4.1 | 3 367 | 57.0 |
| Redwood City | 377 | 464.5 | 538 | 1 725 | 201 | 967 | 5 288 | 31.5 | 57.5 | 481 | 214.2 | 3.9 | D | 18.2 | 4 455 | 87.2 |
| Rialto | 155 | 116.7 | D | 845 | 129 | 364 | 1 751 | 26.2 | 14.8 | 138 | 37.5 | D | 10.5 | .2 | 1 144 | 14.5 |
| Richmond | 347 | 347.9 | 1 021 | 835 | 332 | 234 | 4 044 | 5.9 | 42.5 | 307 | 102.6 | 2.2 | 30.8 | 4.3 | 2 652 | 42.0 |
| Riverside | 973 | 1 048.9 | 1 070 | 1 110 | 238 | 508 | 12 896 | 10.5 | 124.5 | 1 113 | 312.8 | 6.2 | 116.4 | 30.0 | 9 690 | 118.9 |
| Rosemead | 156 | 163.6 | D | 784 | 215 | 389 | 2 390 | 18.4 | 21.0 | 111 | 31.9 | D | 8.0 | D | 1 018 | 12.1 |
| Sacramento | 1 922 | 1 633.0 | 804 | 1 266 | 229 | 680 | 24 152 | 19.2 | 227.1 | 2 805 | 927.5 | 51.5 | 213.3 | 132.1 | 22 797 | 353.3 |
| Salinas | 638 | 573.5 | 961 | 1 426 | 356 | 540 | 7 166 | 16.3 | 71.1 | 646 | 152.9 | 8.4 | 54.9 | 11.8 | 4 137 | 58.4 |
| San Bernardino | 973 | 953.1 | 1 863 | 1 146 | 391 | 759 | 13 484 | 6.6 | 122.0 | 973 | 260.5 | 5.5 | 91.0 | 30.9 | 7 168 | 102.7 |
| San Bruno | 261 | 258.5 | 2 470 | 1 076 | 491 | 563 | 3 404 | -8.6 | 34.5 | 200 | 46.5 | D | D | 2.3 | 1 343 | 18.8 |
| San Buenaventura (Ventura) | 587 | 605.3 | 1 169 | 1 313 | 298 | 639 | 7 255 | 20.2 | 72.8 | 802 | 235.3 | 11.4 | 70.5 | 22.0 | 6 002 | 86.6 |
| San Clemente | 198 | 129.2 | 226 | 1 470 | 137 | 643 | 1 938 | 13.0 | 15.8 | 243 | 44.6 | 5.4 | 15.1 | 2.4 | 988 | 15.4 |
| San Diego | 4 925 | 4 260.7 | 614 | 910 | 272 | 610 | 64 231 | 25.7 | 560.0 | 7 200 | 3 047.5 | 300.0 | 598.2 | 225.9 | 75 460 | 1 161.8 |
| San Francisco | 5 883 | 4 080.8 | 609 | 1 143 | 541 | 1 146 | 60 185 | 12.1 | 657.3 | 8 228 | 4 924.5 | 544.8 | 500.0 | 793.6 | 100 531 | 1 814.2 |
| San Gabriel | 182 | 210.5 | D | 1 525 | 88 | 614 | 2 113 | -3.3 | 24.1 | 244 | 62.0 | .5 | 25.4 | .8 | 2 106 | 24.3 |
| San Jose | 2 943 | 3 094.8 | 707 | 1 077 | 229 | 422 | 39 387 | 18.5 | 386.7 | 3 749 | 1 415.1 | 47.3 | 339.7 | 131.7 | 36 268 | 575.5 |
| San Leandro | 480 | 482.0 | 1 843 | 1 361 | 322 | 617 | 5 582 | 15.8 | 59.5 | 605 | 250.4 | D | 74.8 | 4.7 | 4 836 | 89.3 |
| San Luis Obispo | 413 | 303.8 | 658 | 1 892 | 502 | 946 | 4 978 | 21.3 | 39.5 | 446 | 107.1 | 15.7 | 43.9 | 11.1 | 3 148 | 40.1 |
| San Mateo | 625 | 571.7 | 1 588 | 1 360 | 781 | 755 | 8 122 | 8.5 | 83.6 | 897 | 353.5 | 22.1 | D | 19.8 | 7 131 | 113.5 |
| San Rafael | 555 | 550.1 | 1 870 | 1 690 | 558 | 916 | 6 323 | 13.1 | 70.7 | 716 | 210.4 | D | 51.6 | 15.2 | 5 643 | 83.7 |
| Santa Ana | 1 139 | 1 156.6 | 454 | 1 103 | 151 | 538 | 14 779 | 6.3 | 143.8 | 2 102 | 724.4 | 18.8 | 150.4 | 110.0 | 17 375 | 283.8 |
| Santa Barbara | 885 | 638.6 | 842 | 1 751 | 574 | 1 316 | 10 875 | 3.6 | 93.5 | 1 143 | 373.7 | 23.0 | 113.3 | 35.3 | 9 036 | 146.5 |
| Santa Clara | 529 | 705.3 | 617 | 1 268 | 250 | 832 | 8 444 | 14.3 | 93.8 | 768 | 578.9 | 30.5 | 87.6 | 4.4 | 14 533 | 242.1 |
| Santa Cruz | 482 | 389.5 | 684 | 2 054 | 303 | 1 178 | 6 148 | 12.2 | 54.5 | 456 | 109.2 | 9.8 | 31.6 | 10.3 | 3 306 | 36.6 |
| Santa Maria | 394 | 460.7 | 1 646 | 1 447 | 419 | 827 | 5 121 | 27.2 | 48.0 | 397 | 88.0 | 7.5 | 30.9 | 4.2 | 2 665 | 33.0 |
| Santa Monica | 870 | 920.9 | 891 | 934 | 786 | 1 376 | 12 140 | 33.7 | 131.1 | 1 795 | 777.3 | 23.3 | 187.3 | 48.5 | 15 969 | 313.5 |
| Santa Rosa | 828 | 705.8 | 1 444 | 1 750 | 435 | 791 | 9 841 | 31.4 | 93.9 | 1 057 | 233.5 | 9.0 | 97.6 | 19.6 | 6 536 | 89.9 |
| Saratoga | 122 | 71.5 | D | 787 | 97 | 309 | 1 120 | 70.5 | 9.2 | 161 | 22.5 | D | 10.3 | 1.1 | 601 | 8.6 |
| Seal Beach | 135 | 89.5 | D | 1 020 | 375 | 615 | 1 554 | 19.4 | 11.2 | 117 | 72.5 | - | 9.3 | 1.2 | 1 384 | 28.8 |
| Seaside | 137 | 153.4 | D | 142 | D | 277 | 1 741 | 14.2 | 18.3 | 84 | 18.1 | 1.1 | 1.5 | .5 | 820 | 6.3 |
| Simi Valley | 309 | 307.0 | 648 | 1 316 | 103 | 346 | 4 066 | 46.7 | 35.3 | 275 | 49.3 | D | 16.3 | D | 1 393 | 16.0 |
| South Gate | 235 | 216.2 | D | 884 | 40 | 185 | 2 226 | -6.8 | 24.3 | 223 | 63.4 | D | 15.4 | 1.0 | 1 747 | 22.5 |
| South San Francisco | 259 | 265.9 | D | 1 233 | 79 | 1 035 | 3 359 | 49.1 | 38.5 | 325 | 260.8 | 16.4 | 44.7 | 1.6 | 4 501 | 82.3 |
| Stockton | 1 085 | 890.8 | 916 | 1 171 | 305 | 585 | 12 811 | 27.9 | 116.1 | 1 231 | 339.5 | 11.1 | 127.5 | D | 9 563 | 132.4 |
| Sunnyvale | 571 | 646.7 | 533 | 952 | 233 | 783 | 8 598 | 56.0 | 86.5 | 752 | 456.4 | 24.5 | 62.4 | 4.5 | 10 757 | 193.4 |
| Temple City | 171 | 118.8 | D | 1 104 | 267 | 310 | 1 521 | 15.8 | 13.2 | 129 | 30.2 | - | 12.1 | .5 | 1 068 | 11.2 |
| Thousand Oaks | 547 | 622.4 | 936 | 1 382 | 338 | 552 | 7 849 | 83.3 | 73.9 | 726 | 231.2 | 5.8 | 66.9 | 10.8 | 4 683 | 93.0 |
| Torrance | 1 080 | 1 269.4 | 1 950 | 1 613 | 740 | 888 | 16 320 | 12.2 | 153.9 | 1 499 | 523.7 | 11.2 | 193.4 | 28.9 | 12 972 | 210.2 |
| Turlock | 234 | 167.8 | 220 | 1 781 | 339 | 564 | 2 222 | 20.9 | 21.7 | 215 | 41.6 | 2.8 | 21.9 | 1.6 | 1 193 | 14.9 |
| Tustin | 302 | 260.1 | D | 1 920 | 169 | 1 172 | 4 245 | 58.0 | 34.7 | 633 | 182.6 | 3.4 | 48.5 | 18.4 | 5 124 | 73.7 |
| Union City | 97 | 76.8 | - | 1 071 | 6 | 172 | 1 172 | 84.6 | 11.4 | 78 | 23.5 | - | 4.4 | D | 627 | 8.6 |
| Upland | 231 | 236.7 | 688 | 884 | 182 | 513 | 3 439 | 65.8 | 28.0 | 397 | 100.8 | D | 61.9 | 4.2 | 2 709 | 40.0 |
| Vacaville | 188 | 170.5 | D | 1 001 | 120 | 732 | 2 458 | 18.0 | 23.1 | 182 | 25.9 | 1.1 | 11.3 | .9 | 826 | 8.5 |
| Vallejo | 406 | 409.5 | 549 | 1 155 | 113 | 387 | 4 922 | 15.5 | 50.0 | 389 | 128.4 | 3.9 | 68.3 | 5.0 | 3 718 | 55.5 |
| Visalia | 497 | 488.2 | 1 892 | 1 749 | 403 | 748 | 6 356 | 16.6 | 57.2 | 528 | 120.8 | 7.2 | 52.8 | 7.1 | 4 025 | 47.1 |
| Vista | 227 | 161.8 | D | 1 580 | 77 | 328 | 1 929 | 21.1 | 18.4 | 266 | 43.5 | 1.4 | 16.1 | 2.9 | 1 222 | 15.3 |
| Walnut Creek | 457 | 592.1 | 1 358 | 1 722 | 855 | 710 | 6 440 | 13.4 | 69.7 | 871 | 314.6 | 1.0 | 111.6 | 22.6 | 7 800 | 135.6 |
| West Covina | 465 | 552.9 | 1 141 | 1 104 | 414 | 584 | 6 981 | 21.0 | 65.2 | 408 | 117.6 | 3.7 | 66.2 | 4.1 | 3 350 | 47.0 |
| Westminster | 496 | 520.5 | 1 285 | 1 410 | 621 | 459 | 6 735 | 11.1 | 61.8 | 408 | 104.0 | D | 47.5 | 5.4 | 2 438 | 34.4 |
| Whittier | 426 | 488.1 | 925 | 1 280 | 255 | 459 | 6 222 | -6.2 | 60.9 | 625 | 171.6 | D | 81.8 | 10.5 | 4 497 | 67.4 |
| Woodland | 221 | 169.6 | D | 1 716 | 292 | 422 | 1 998 | 3.8 | 20.7 | 165 | 49.3 | 2.3 | 26.1 | 2.7 | 1 224 | 15.3 |
| Yorba Linda | 77 | 71.3 | D | 1 006 | 39 | 169 | 766 | 22.4 | 8.2 | 107 | 22.1 | - | 9.9 | D | 632 | 8.2 |

[1]Based on resident population estimated as of July 1, 1982. [2]For pay period including March 12, 1982.

# Table C. Cities — Federal Grants, Government Employment, and City Government Finances

| City | Federal grants, 1986 | | Federal government civilian employment, 1984 | City government employment, 1985 (October) | | | Form of government[2] (As of 1986) | City government finances, 1984-1985 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | General revenue | | | | | | | General expenditure | | | | |
| | | | | | | | | | Intergovernmental | | Taxes | | | | | Per capita[3] (Dollars) | | Percent of total for— | |
| | Procurement contract awards (Mil. dol.) | Grant awards (Mil. dol.) | | Total | Rate[1] | Percent education | | Total (Mil. dol.) | Total (Mil. dol.) | Percent from State government | Total (Mil. dol.) | Per capita[3] (Dollars) | | | Total (Mil. dol.) | | | | |
| | | | | | | | | | | | | Total | Property | Sales and gross receipts | | Total | Capital outlays | Public welfare | Highways |
| | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 |
| CALIFORNIA—Con. | | | | | | | | | | | | | | | | | | | |
| Oxnard | 69.1 | 9.1 | 605 | [4]1 071 | [4]84.3 | [4]– | CM | [4]54.1 | [4]8.1 | [4]59.9 | [4]24.7 | [4]194 | [4]80 | [4]98 | [4]50.3 | [4]396 | [4]46 | [4]– | [4]12.8 |
| Pacifica | – | .4 | 70 | 238 | 64.4 | – | CM | 13.2 | 4.2 | 82.4 | 4.6 | 124 | 65 | 52 | 13.3 | 361 | 110 | – | 5.0 |
| Palm Springs | 1.1 | 3.0 | 405 | 501 | 161.6 | – | CM | [4]35.6 | [4]3.4 | [4]45.3 | [4]20.1 | [4]648 | [4]250 | [4]310 | [4]38.4 | [4]1 238 | [4]189 | [4]– | [4]9.9 |
| Palo Alto | 382.1 | 8.3 | 2 812 | 1 393 | 249.0 | – | CM | [4]43.6 | [4]2.2 | [4]66.2 | [4]19.4 | [4]346 | [4]76 | [4]244 | [4]50.0 | [4]894 | [4]104 | [4]– | [4]4.5 |
| Paramount | 15.6 | 1.0 | 54 | 217 | 50.8 | – | CM | 16.9 | 6.0 | 58.1 | 7.0 | 165 | 69 | 88 | 16.5 | 385 | 97 | – | 23.2 |
| Pasadena | 1 058.9 | 54.1 | 1 492 | 1 766 | 136.0 | – | CM | 104.4 | 20.2 | 48.0 | 47.9 | 369 | 116 | 206 | 95.4 | 735 | 138 | – | 10.1 |
| Petaluma | 3.7 | 1.3 | 172 | 237 | 61.5 | – | CM | 14.3 | 4.0 | 50.0 | 6.7 | 173 | 53 | 84 | 14.3 | 371 | 80 | – | 14.9 |
| Pico Rivera | 4.9 | 1.7 | 101 | 319 | 58.7 | – | CM | 16.1 | 4.0 | 61.6 | 8.9 | 164 | 58 | 82 | 14.8 | 272 | 21 | – | 12.9 |
| Pittsburg | 1.4 | .4 | 106 | 229 | 55.5 | – | CM | 31.4 | 4.8 | 88.6 | 7.0 | 171 | 117 | 43 | 30.4 | 737 | 88 | – | 3.5 |
| Placentia | 3.8 | .3 | 68 | 176 | 46.0 | – | CM | 10.5 | 2.0 | 82.4 | 7.2 | 189 | 49 | 96 | 8.9 | 233 | 20 | – | 12.4 |
| Pleasant Hill | 4.4 | .2 | 34 | 130 | 45.6 | – | CM | 10.9 | 1.5 | 89.0 | 5.9 | 206 | 30 | 142 | 9.0 | 316 | 27 | – | 15.5 |
| Pleasanton | 4.2 | .8 | 357 | 326 | 73.5 | – | CM | 37.2 | 3.9 | 91.3 | 10.3 | 232 | 84 | 70 | 47.9 | 1 080 | 456 | – | 7.6 |
| Pomona | 926.9 | 6.0 | 759 | 832 | 72.0 | – | CM | 84.8 | 10.4 | 50.3 | 24.7 | 213 | 76 | 118 | 79.8 | 690 | 13 | – | 6.7 |
| Rancho Cucamonga | 2.3 | 1.0 | – | 141 | 18.6 | – | CM | 20.3 | 4.8 | 82.3 | 11.7 | 155 | 43 | 44 | 12.8 | 169 | 39 | – | 17.2 |
| Rancho Palos Verdes | .8 | .5 | 10 | [4]51 | [4]11.0 | [4]– | CM | [5]5.6 | [5]2.1 | [5]92.3 | [5]2.3 | [5]49 | [5]8 | [5]15 | [5]7.3 | [5]156 | [5]61 | [5]– | [5]19.2 |
| Redding | 5.6 | 4.7 | 619 | 594 | 115.4 | – | CM | 28.7 | 7.4 | 59.2 | 12.4 | 241 | 56 | 156 | 23.5 | 457 | 73 | – | 16.4 |
| Redlands | .7 | .9 | 125 | 387 | 73.2 | – | CM | 22.2 | 3.7 | 84.3 | 10.6 | 200 | 102 | 70 | 20.5 | 387 | 95 | – | 12.1 |
| Redondo Beach | 611.7 | 1.5 | 333 | 595 | 93.2 | – | CM | 40.2 | 5.0 | 74.3 | 18.3 | 287 | 94 | 159 | 36.7 | 575 | 39 | – | 10.6 |
| Redwood City | 9.9 | 3.1 | 305 | 561 | 97.8 | – | CM | 38.8 | 4.8 | 74.2 | 21.8 | 380 | 156 | 173 | 30.2 | 526 | 64 | – | 8.6 |
| Rialto | .1 | 4.0 | 71 | 276 | 51.3 | – | CM | 17.7 | 2.7 | 71.2 | 9.3 | 173 | 58 | 46 | 14.7 | 273 | 48 | – | 15.0 |
| Richmond | 207.0 | 4.1 | 2 978 | [5]723 | [5]92.9 | [5]– | CM | [4]69.6 | [4]7.9 | [4]47.3 | [4]30.3 | [4]390 | [4]234 | [4]139 | [4]55.6 | [4]714 | [4]69 | [4]– | [4]5.6 |
| Riverside | 14.4 | 29.1 | 1 096 | 2 008 | 102.1 | – | CM | 96.9 | 15.3 | 67.4 | 42.7 | 217 | 48 | 133 | 100.4 | 511 | 92 | – | 15.9 |
| Rosemead | 1.3 | 7.2 | 66 | 90 | 18.9 | – | CM | 12.8 | 3.6 | 55.2 | 6.0 | 127 | 57 | 61 | 10.3 | 216 | 34 | – | 27.6 |
| Sacramento | 285.4 | 1 576.1 | 9 517 | 3 413 | 105.5 | – | CM | 177.3 | 24.9 | 68.8 | 89.6 | 277 | 81 | 159 | 165.0 | 510 | 83 | – | 13.2 |
| Salinas | 5.4 | 5.0 | 654 | 658 | 67.9 | – | CM | 42.9 | 12.5 | 73.0 | 21.2 | 218 | 56 | 134 | 34.5 | 355 | 66 | – | 19.0 |
| San Bernardino | 20.5 | 19.4 | 1 456 | 1 608 | 116.0 | – | MC | 108.4 | 17.9 | 58.5 | 42.9 | 309 | 106 | 179 | 103.4 | 746 | 209 | – | 5.3 |
| San Bruno | 3.7 | .4 | 1 978 | 232 | 65.9 | – | CM | 12.8 | 1.9 | 84.9 | 6.1 | 173 | 47 | 107 | 13.1 | 373 | 49 | – | 10.6 |
| San Buenaventura (Ventura) | – | 1.1 | 307 | 686 | 80.1 | – | CM | 46.9 | 6.8 | 77.7 | 23.9 | 279 | 71 | 185 | 36.9 | 431 | 69 | – | 12.5 |
| San Clemente | 9.3 | .3 | 161 | 300 | 90.4 | – | CM | 14.3 | 1.2 | 86.4 | 5.4 | 163 | 84 | 54 | 13.3 | 399 | 24 | – | 9.2 |
| San Diego | 2 342.4 | 295.1 | 27 632 | 8 473 | 83.5 | – | CM | 600.6 | 121.4 | 56.9 | 211.7 | 209 | 72 | 118 | 503.6 | 496 | 100 | Z | 6.0 |
| San Francisco | 556.8 | 521.7 | 23 185 | 24 914 | 332.6 | – | MC | 1 745.9 | 643.5 | 69.9 | 563.5 | 752 | 383 | 190 | 1 352.6 | 1 806 | 207 | 12.1 | .8 |
| San Gabriel | .7 | .4 | 99 | 209 | 63.2 | – | CM | 8.4 | 2.0 | 84.9 | 5.1 | 153 | 54 | 86 | 8.2 | 247 | 31 | – | 16.9 |
| San Jose | 1 027.8 | 120.3 | 3 829 | 4 966 | 69.7 | – | CM | 446.3 | 71.3 | 59.7 | 213.5 | 300 | 99 | 139 | 416.0 | 584 | 167 | – | 20.8 |
| San Leandro | 46.3 | 1.5 | 258 | 590 | 89.7 | – | CM | 40.2 | 6.8 | 70.8 | 21.2 | 322 | 61 | 248 | 39.3 | 597 | 34 | – | 13.6 |
| San Luis Obispo | 43.7 | 4.1 | 198 | 409 | 109.9 | – | CM | 18.7 | 3.9 | 61.4 | 10.2 | 274 | 55 | 193 | 16.6 | 445 | 104 | – | 11.3 |
| San Mateo | 8.9 | 2.0 | 376 | 730 | 90.1 | – | CM | 47.2 | 8.8 | 88.1 | 26.3 | 325 | 108 | 162 | 42.1 | 520 | 147 | – | 24.7 |
| San Rafael | 3.2 | 2.7 | 518 | 461 | 103.1 | – | CM | 25.0 | 3.0 | 82.5 | 13.6 | 305 | 74 | 204 | 39.4 | 882 | 424 | – | 28.4 |
| Santa Ana | 114.0 | 16.8 | 3 287 | 1 885 | 79.6 | – | CM | 113.0 | 25.5 | 40.4 | 58.5 | 247 | 91 | 128 | 125.8 | 531 | 181 | – | 6.7 |
| Santa Barbara | 77.5 | 28.9 | 1 032 | 1 158 | 146.0 | – | CM | 57.7 | 5.7 | 62.3 | 28.1 | 354 | 94 | 228 | 66.5 | 839 | 338 | – | 5.5 |
| Santa Clara | 94.7 | 4.7 | 336 | 1 120 | 126.5 | – | CM | 80.3 | 7.5 | 72.3 | 34.8 | 393 | 104 | 272 | 83.6 | 944 | 243 | – | 13.1 |
| Santa Cruz | 4.5 | 30.0 | 278 | 745 | 162.3 | – | CM | 28.6 | 4.7 | 88.9 | 11.9 | 260 | 71 | 171 | 52.8 | 1 150 | 596 | – | 42.2 |
| Santa Maria | 8.7 | 2.9 | 228 | 455 | 88.7 | – | CM | 24.5 | 4.1 | 80.4 | 10.0 | 195 | 39 | 142 | 26.4 | 515 | 88 | – | 8.4 |
| Santa Monica | 87.6 | 13.5 | 329 | 1 634 | 175.4 | – | CM | 82.3 | 15.5 | 70.5 | 36.7 | 394 | 95 | 225 | 74.0 | 794 | 103 | – | 6.1 |
| Santa Rosa | 9.7 | 8.7 | 773 | 825 | 84.5 | – | CM | 59.8 | 9.5 | 53.7 | 25.3 | 259 | 73 | 166 | 49.1 | 503 | 91 | – | 11.4 |
| Saratoga | .1 | .2 | 78 | 70 | 23.7 | – | CM | 4.3 | 1.5 | 86.4 | 2.4 | 82 | 16 | 38 | 5.5 | 185 | 28 | – | 27.9 |
| Seal Beach | 330.2 | .2 | 1 162 | 141 | 52.5 | – | CM | 9.5 | 2.2 | 88.7 | 5.4 | 199 | 83 | 97 | 9.8 | 363 | 63 | – | 8.0 |
| Seaside | – | 1.0 | 39 | 163 | 44.0 | – | CM | 8.5 | 2.1 | 70.3 | 5.2 | 140 | 33 | 99 | 8.0 | 215 | 18 | – | 11.3 |
| Simi Valley | 21.6 | 3.3 | 132 | 342 | 38.0 | – | CM | 27.8 | 6.6 | 79.8 | 10.4 | 115 | 32 | 50 | 49.2 | 546 | 192 | – | 34.4 |
| South Gate | 2.7 | 2.6 | 116 | 440 | 54.6 | – | CM | 27.3 | 12.4 | 72.5 | 8.5 | 106 | 38 | 55 | 19.3 | 240 | 12 | – | 16.3 |
| South San Francisco | 9.2 | 2.4 | 170 | 579 | 112.3 | – | CM | 32.6 | 3.6 | 78.8 | 14.9 | 290 | 90 | 179 | 30.9 | 600 | 100 | – | 14.7 |
| Stockton | 16.2 | 19.2 | 2 039 | 1 605 | 87.5 | – | CM | 88.7 | 15.6 | 54.7 | 41.4 | 226 | 57 | 147 | 87.2 | 476 | 61 | – | 11.2 |
| Sunnyvale | 2 687.3 | 2.4 | 993 | [5]875 | [5]78.0 | [5]– | CM | 79.5 | 10.2 | 58.2 | 42.2 | 376 | 115 | 220 | 68.1 | 607 | 108 | – | 14.3 |
| Temple City | .1 | .1 | 61 | 53 | 17.1 | – | CM | 5.2 | 1.5 | 90.1 | 2.6 | 83 | 26 | 49 | 4.8 | 154 | 37 | – | 21.5 |
| Thousand Oaks | 23.3 | 1.9 | 271 | 477 | 49.5 | – | CM | 37.2 | 7.0 | 82.0 | 16.3 | 169 | 44 | 104 | 28.4 | 295 | 50 | – | 20.5 |
| Torrance | 368.9 | 15.1 | 468 | 1 519 | 112.0 | – | CM | 77.6 | 14.7 | 52.9 | 50.5 | 373 | 69 | 261 | 77.2 | 569 | 87 | – | 18.5 |
| Turlock | .1 | 1.3 | 86 | [4]229 | [4]67.4 | [4]– | CM | 10.9 | 2.4 | 84.5 | 4.3 | 128 | 33 | 81 | 9.8 | 289 | 27 | – | 17.1 |
| Tustin | 22.8 | .4 | 122 | 210 | 50.0 | – | CM | 16.3 | 4.3 | 83.7 | 10.1 | 240 | 92 | 131 | 13.7 | 326 | 61 | – | 24.2 |
| Union City | .7 | .8 | 54 | 214 | 42.2 | – | CM | 13.5 | 3.7 | 79.6 | 7.3 | 144 | 58 | 64 | 11.4 | 226 | 17 | – | 11.2 |
| Upland | 3.1 | .5 | 181 | 349 | 61.1 | – | CM | 19.8 | 3.7 | 77.0 | 9.9 | 174 | 61 | 77 | 18.5 | 323 | 37 | – | 10.0 |
| Vacaville | .2 | .9 | 81 | 294 | 53.5 | – | CM | 21.1 | 4.3 | 80.7 | 8.5 | 155 | 62 | 46 | 14.3 | 260 | 34 | – | 16.0 |
| Vallejo | 23.9 | 9.3 | 11 039 | 453 | 48.6 | – | CM | 31.4 | 6.7 | 53.9 | 18.1 | 194 | 59 | 99 | 34.8 | 373 | 106 | – | 30.1 |
| Visalia | 5.9 | 8.6 | 268 | 503 | 81.7 | – | CM | 31.1 | 7.2 | 67.2 | 10.7 | 174 | 35 | 120 | 32.7 | 531 | 180 | – | 9.5 |
| Vista | .6 | .5 | 90 | [4]224 | [4]46.7 | [4]– | CM | 15.4 | 2.7 | 78.4 | 7.6 | 159 | 47 | 49 | 13.9 | 290 | 62 | – | 21.7 |
| Walnut Creek | 8.9 | 7.4 | 570 | 335 | 57.1 | – | CM | 26.5 | 3.1 | 86.3 | 15.7 | 267 | 67 | 147 | 23.7 | 405 | 138 | – | 22.4 |
| West Covina | 25.0 | 1.6 | 167 | 530 | 54.7 | – | CM | 33.4 | 5.9 | 76.2 | 16.9 | 175 | 62 | 87 | 44.3 | 458 | 175 | – | 9.2 |
| Westminster | .3 | 1.2 | 152 | 311 | 42.5 | – | CM | 18.8 | 4.8 | 81.5 | 11.3 | 154 | 30 | 113 | 18.8 | 256 | 31 | – | 19.6 |
| Whittier | 4.8 | 61.4 | 332 | 496 | 68.3 | – | CM | 22.5 | 5.0 | 62.4 | 11.1 | 153 | 37 | 105 | 33.1 | 456 | 207 | – | 10.7 |
| Woodland | 2.0 | 1.3 | 135 | 252 | 73.3 | – | CM | 14.5 | 2.9 | 76.7 | 6.1 | 179 | 77 | 78 | 14.5 | 421 | 26 | – | 16.7 |
| Yorba Linda | – | .2 | 73 | 102 | 25.6 | – | CM | 9.8 | 1.8 | 94.7 | 3.8 | 96 | 32 | 30 | 10.2 | 257 | 84 | – | 19.4 |

[1]Per 10,000 population estimated as of July 1, 1986. [2]MC = Mayor-council; CM = Council-manager; CO = Commission. [3]Based on resident population estimated as of July 1, 1986. [4]Data are for 1984. [5]Data are for 1983.

| City | City government finances, 1984-1985—Con. | | | | | | | | | Climate[2] | | | | | | | Typical monthly electric bills, 1986 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | General expenditure—Con. | | | | | | Debt outstanding | | | Average daily temperature (Degrees Fahrenheit) | | | | | | | Residential[6] | | |
| | Percent of total for— | | | | | | | | | Mean | | Limits | | | | | | | |
| | Education | Health and hospitals | Police protection | Sewerage and sanitation | Parks and recreation | Housing and community development | Total (Mil. dol.) | Per capita[1] (Dol.) | Percent utility | Jan. | July | Jan.[3] | July[4] | Annual precipitation (Inches) | Heating degree days[5] | Cooling degree days[5] | Total (Dol.) | Percent change, 1980-1986 | Commercial[7] (Dol.) |
| | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 |
| CALIFORNIA—Con. | | | | | | | | | | | | | | | | | | | |
| Oxnard | [8]– | [8].2 | [8]20.5 | [8]27.5 | [8]11.1 | [8]20.5 | [8]8.8 | [8]69 | [8]46.2 | 54.6 | 65.7 | 43.5 | 74.7 | 14.53 | 2 068 | 357 | 56.07 | 63.0 | 558.24 |
| Pacifica | – | – | 18.7 | 24.3 | 6.6 | 18.7 | 2.4 | 64 | – | 48.5 | 62.2 | 41.5 | 71.0 | 19.71 | 3 161 | 115 | 66.97 | 148.4 | NA |
| Palm Springs | [8]– | [8]– | [8]23.2 | [8]5.9 | [8]10.0 | [8]23.2 | [8]31.6 | [8]1 020 | [8]– | 55.1 | 91.7 | 40.8 | 109.1 | 5.20 | 1 109 | 3 820 | 56.07 | 63.0 | NA |
| Palo Alto | [8]– | [8]– | [8]18.2 | [8]17.2 | [8]12.0 | [8]18.2 | [8]23.5 | [8]421 | [8]4.2 | 47.8 | 66.3 | 38.5 | 77.9 | 14.77 | 2 891 | 275 | 31.35 | 124.9 | 333.00 |
| Paramount | – | – | 18.9 | – | 10.2 | 18.9 | 57.3 | 1 341 | .9 | 57.2 | 74.1 | 47.7 | 83.8 | 14.85 | 1 204 | 1 339 | 56.07 | 63.0 | NA |
| Pasadena | – | 3.9 | 17.6 | 5.9 | 13.3 | 17.6 | 141.1 | 1 086 | 15.5 | 55.0 | 74.7 | 43.1 | 88.6 | 19.29 | 1 550 | 1 299 | 56.07 | 12.2 | NA |
| Petaluma | – | – | 20.4 | 15.0 | 6.6 | 20.4 | 15.8 | 410 | 7.2 | 47.1 | 67.0 | 37.7 | 82.5 | 24.02 | 2 960 | 316 | 66.97 | 148.4 | NA |
| Pico Rivera | – | – | 17.6 | .9 | 16.6 | 17.6 | 25.9 | 477 | – | 57.2 | 74.1 | 47.7 | 83.8 | 14.85 | 1 204 | 1 339 | 56.07 | 63.0 | 558.24 |
| Pittsburg | – | – | 10.8 | 1.0 | 3.0 | 10.8 | 213.5 | 5 177 | Z | 45.2 | 78.0 | 37.5 | 95.0 | 13.77 | 2 674 | 1 448 | 66.97 | 148.4 | NA |
| Placentia | – | – | 33.0 | 1.0 | 14.4 | 33.0 | 2.8 | 73 | – | 54.9 | 73.5 | 42.4 | 88.8 | 14.46 | 1 644 | 1 118 | 56.07 | 63.0 | NA |
| Pleasant Hill | – | – | 28.1 | .2 | .9 | 28.1 | 34.0 | 1 194 | – | 49.7 | 61.7 | 43.2 | 69.5 | 23.24 | 2 951 | 91 | 66.97 | 148.4 | NA |
| Pleasanton | – | – | 7.1 | 11.0 | 3.9 | 7.1 | 143.3 | 3 231 | .4 | 45.9 | 71.3 | 34.7 | 90.0 | 14.11 | 3 011 | 734 | 66.97 | 148.4 | NA |
| Pomona | – | .3 | 14.5 | 3.3 | 2.7 | 14.5 | 559.5 | 4 842 | – | 52.4 | 74.6 | 39.0 | 90.9 | 17.02 | 1 972 | 1 191 | 56.07 | 63.0 | 558.24 |
| Rancho Cucamonga | – | – | 26.6 | – | 2.6 | 26.6 | 114.7 | 1 513 | – | 52.0 | 75.0 | 40.6 | 91.8 | 19.89 | 2 175 | 1 223 | 56.07 | NA | 558.24 |
| Rancho Palos Verdes | [9]– | [9]– | [9]20.3 | [9]– | [9]43.5 | [9]20.3 | [9]– | [9]– | [9]– | 55.1 | 69.1 | 44.1 | 78.3 | 13.13 | 1 719 | 677 | 56.07 | 63.0 | NA |
| Redding | – | – | 18.8 | 14.5 | 9.4 | 18.8 | 55.7 | 1 082 | 67.2 | 46.5 | 83.5 | 37.3 | 99.5 | 40.95 | 2 544 | 2 139 | 32.48 | 111.0 | NA |
| Redlands | – | – | 20.5 | 16.9 | 5.9 | 20.5 | 31.1 | 588 | 6.0 | 51.9 | 78.2 | 39.1 | 95.9 | 12.89 | 1 992 | 1 571 | 56.07 | 63.0 | NA |
| Redondo Beach | – | – | 20.5 | 3.4 | 3.3 | 20.5 | 50.2 | 786 | – | 55.1 | 69.1 | 44.1 | 78.3 | 13.13 | 1 719 | 677 | 56.07 | 63.0 | 558.24 |
| Redwood City | – | – | 17.3 | 10.1 | 9.7 | 17.3 | 80.2 | 1 398 | 8.5 | 48.7 | 68.4 | 39.2 | 82.9 | 19.27 | 2 600 | 432 | 66.97 | 148.4 | NA |
| Rialto | – | – | 22.3 | 5.2 | 7.8 | 22.3 | 16.1 | 299 | – | 55.3 | 78.7 | 44.0 | 94.9 | 14.93 | 1 529 | 1 893 | 56.07 | 63.0 | NA |
| Richmond | [8]– | [8]– | [8]11.9 | [8]4.4 | [8]4.9 | [8]11.9 | [8]139.8 | [8]1 796 | [8]– | 49.7 | 62.4 | 42.0 | 69.7 | 21.83 | 2 687 | 162 | 66.97 | 148.4 | NA |
| Riverside | – | – | 16.6 | 13.4 | 12.5 | 16.6 | 328.0 | 1 667 | 45.2 | 52.8 | 77.2 | 39.5 | 94.2 | 9.64 | 1 818 | 1 471 | 72.66 | 85.6 | 654.90 |
| Rosemead | – | 1.3 | 24.1 | 2.7 | 13.1 | 24.1 | 6.4 | 134 | – | 54.8 | 74.8 | 41.3 | 89.1 | 17.76 | 1 532 | 1 281 | 56.07 | 63.0 | NA |
| Sacramento | – | – | 22.4 | 16.2 | 12.1 | 22.4 | 125.8 | 389 | 13.4 | 47.1 | 76.6 | 40.2 | 93.1 | 17.87 | 2 398 | 1 379 | 42.55 | 148.8 | 278.45 |
| Salinas | – | – | 22.1 | 2.9 | 8.8 | 22.1 | 36.1 | 373 | – | 51.4 | 59.5 | 42.8 | 67.7 | 18.35 | 3 170 | 48 | 66.97 | 148.4 | NA |
| San Bernardino | – | .5 | 14.2 | 12.1 | 7.1 | 14.2 | 201.6 | 1 454 | – | 52.9 | 79.3 | 39.4 | 97.6 | 15.68 | 1 777 | 1 718 | 56.07 | 63.0 | 558.24 |
| San Bruno | – | – | 21.9 | 8.3 | 12.1 | 21.9 | – | – | – | 48.5 | 62.2 | 41.5 | 71.0 | 19.71 | 3 161 | 115 | 66.97 | 148.4 | NA |
| San Buenaventura (Ventura) | – | – | 23.2 | 13.7 | 12.0 | 23.2 | 45.3 | 529 | 9.7 | 54.6 | 65.7 | 43.5 | 74.7 | 14.53 | 2 068 | 357 | 56.07 | 63.0 | 558.24 |
| San Clemente | – | – | 19.8 | 23.4 | 11.0 | 19.8 | 2.0 | 59 | – | 53.2 | 66.7 | 41.6 | 75.0 | 12.34 | 2 221 | 375 | 73.58 | 77.5 | NA |
| San Diego | – | Z | 16.0 | 14.3 | 12.1 | 16.0 | 1 087.7 | 1 071 | .2 | 56.8 | 70.3 | 48.4 | 75.6 | 9.32 | 1 284 | 842 | 74.98 | 77.5 | 787.57 |
| San Francisco | 2.5 | 19.5 | 8.6 | 9.5 | 6.1 | 8.6 | 1 388.9 | 1 854 | 2.8 | 48.5 | 62.2 | 41.5 | 71.0 | 19.71 | 3 161 | 115 | 66.97 | 148.4 | NA |
| San Gabriel | – | – | 34.0 | 1.5 | 10.7 | 34.0 | – | – | – | 54.8 | 74.8 | 41.3 | 89.1 | 17.76 | 1 532 | 1 281 | 56.07 | 63.0 | NA |
| San Jose | – | 1.3 | 13.9 | 12.8 | 6.9 | 13.9 | 510.8 | 717 | Z | 49.5 | 68.8 | 41.1 | 81.5 | 13.86 | 2 439 | 498 | 66.97 | 148.4 | NA |
| San Leandro | – | Z | 13.6 | 9.6 | 11.3 | 13.6 | 37.8 | 575 | – | 49.0 | 63.7 | 43.4 | 70.6 | 18.03 | 2 877 | 174 | 66.97 | 148.4 | NA |
| San Luis Obispo | – | – | 21.5 | 11.5 | 13.3 | 21.5 | 2.6 | 69 | 93.4 | 52.1 | 64.8 | 41.7 | 77.4 | 23.00 | 2 498 | 285 | 66.97 | 148.4 | NA |
| San Mateo | – | – | 18.3 | 10.4 | 9.7 | 18.3 | 15.2 | 187 | – | 48.7 | 68.4 | 39.2 | 82.9 | 19.27 | 2 600 | 432 | 66.97 | 148.4 | NA |
| San Rafael | – | – | 9.1 | .2 | 5.8 | 9.1 | 45.5 | 1 018 | – | 49.5 | 67.8 | 41.4 | 82.3 | 37.48 | 2 439 | 483 | 66.97 | 148.4 | NA |
| Santa Ana | – | – | 21.2 | 3.1 | 5.4 | 21.2 | 226.2 | 955 | 1.6 | 55.9 | 72.2 | 44.1 | 82.9 | 12.60 | 1 430 | 1 089 | 56.07 | 63.0 | 558.24 |
| Santa Barbara | – | – | 13.3 | 4.4 | 6.6 | 13.3 | 48.1 | 606 | 24.3 | 54.0 | 66.6 | 42.7 | 76.0 | 17.70 | 1 993 | 393 | 56.07 | 63.0 | 558.24 |
| Santa Clara | – | – | 10.5 | 15.1 | 4.3 | 10.5 | 229.5 | 2 592 | 50.4 | 49.5 | 68.8 | 41.1 | 81.5 | 13.86 | 2 439 | 498 | 40.29 | 58.9 | NA |
| Santa Cruz | – | – | 7.4 | 8.0 | 7.8 | 7.4 | 41.8 | 911 | 16.0 | 49.0 | 62.8 | 38.4 | 75.0 | 28.98 | 3 136 | 95 | 66.97 | 148.4 | NA |
| Santa Maria | – | – | 15.5 | 10.7 | 10.1 | 15.5 | 49.2 | 959 | .2 | 50.8 | 62.3 | 38.8 | 72.1 | 12.35 | 3 054 | 76 | 66.97 | 148.4 | NA |
| Santa Monica | – | – | 14.2 | 10.6 | 8.0 | 14.2 | 30.4 | 326 | – | 56.4 | 65.8 | 48.8 | 70.5 | 13.69 | 1 873 | 438 | 56.07 | 63.0 | 558.24 |
| Santa Rosa | – | – | 14.3 | 12.7 | 7.8 | 14.3 | 157.7 | 1 615 | .6 | 46.7 | 67.4 | 36.0 | 84.3 | 29.88 | 2 980 | 382 | 66.97 | 148.4 | NA |
| Saratoga | – | – | 22.6 | – | 13.8 | 22.6 | 1.8 | 61 | – | 49.5 | 68.8 | 41.1 | 81.5 | 13.86 | 2 439 | 498 | 66.97 | 148.4 | NA |
| Seal Beach | – | – | 26.3 | 9.7 | 20.0 | 26.3 | 4.3 | 159 | 16.8 | 55.2 | 72.8 | 44.3 | 83.0 | 11.54 | 1 485 | 1 091 | 56.07 | 63.0 | NA |
| Seaside | – | – | 25.2 | – | 15.0 | 25.2 | 1.7 | 46 | – | 51.4 | 59.5 | 42.8 | 67.7 | 18.35 | 3 170 | 48 | 66.97 | 148.4 | NA |
| Simi Valley | – | – | 11.9 | 7.6 | .1 | 11.9 | 165.8 | 1 842 | .8 | 54.6 | 65.7 | 43.5 | 74.7 | 14.53 | 2 068 | 357 | 56.07 | 63.0 | 558.24 |
| South Gate | – | – | 35.2 | 5.6 | 11.3 | 35.2 | – | – | – | 57.2 | 74.1 | 47.7 | 83.8 | 14.85 | 1 204 | 1 339 | 56.07 | 63.0 | 558.24 |
| South San Francisco | – | 1.1 | 16.6 | 12.2 | 10.4 | 16.6 | 30.0 | 581 | – | 48.5 | 62.2 | 41.5 | 71.0 | 19.71 | 3 161 | 115 | NA | NA | NA |
| Stockton | – | – | 20.5 | 17.3 | 8.5 | 20.5 | 95.1 | 519 | – | 45.2 | 78.0 | 37.5 | 95.0 | 13.77 | 2 674 | 1 448 | 66.97 | 148.4 | NA |
| Sunnyvale | – | – | 15.5 | 19.3 | 11.2 | 15.5 | 48.8 | 435 | .3 | 49.5 | 68.8 | 41.1 | 81.5 | 13.86 | 2 439 | 498 | 66.97 | 148.4 | NA |
| Temple City | – | – | 22.8 | 1.3 | 7.6 | 22.8 | 2.6 | 85 | – | 54.8 | 74.8 | 41.3 | 89.1 | 17.76 | 1 532 | 1 281 | 56.07 | 63.0 | NA |
| Thousand Oaks | – | – | 16.8 | 17.0 | 3.5 | 16.8 | 20.1 | 209 | 11.3 | 54.6 | 65.7 | 43.5 | 74.7 | 14.53 | 2 068 | 357 | 56.07 | 63.0 | 558.24 |
| Torrance | – | .1 | 23.9 | 3.9 | 10.5 | 23.9 | 42.4 | 313 | 26.0 | 55.1 | 69.1 | 44.1 | 78.3 | 13.13 | 1 719 | 677 | 56.07 | 63.0 | 558.24 |
| Turlock | – | – | 26.3 | 20.4 | 8.5 | 26.3 | 13.4 | 395 | – | 45.7 | 76.8 | 37.5 | 94.4 | 11.70 | 2 671 | 1 287 | 37.13 | 95.8 | NA |
| Tustin | – | – | 28.2 | 1.2 | 7.1 | 28.2 | 10.7 | 256 | – | 53.6 | 70.9 | 40.3 | 83.4 | 11.97 | 1 854 | 813 | 56.07 | 63.0 | NA |
| Union City | – | – | 32.4 | – | 5.3 | 32.4 | 13.7 | 270 | – | 45.9 | 71.3 | 34.7 | 90.0 | 14.11 | 3 011 | 734 | 66.97 | 148.4 | NA |
| Upland | – | – | 21.6 | 27.2 | 6.9 | 21.6 | 59.6 | 1 042 | 5.3 | 52.0 | 75.0 | 40.6 | 91.8 | 19.89 | 2 175 | 1 223 | 56.07 | 63.0 | NA |
| Vacaville | – | – | 27.0 | 12.2 | 10.2 | 27.0 | 63.8 | 1 162 | 2.5 | 45.2 | 75.6 | 36.1 | 95.1 | 24.29 | 2 788 | 1 174 | 66.97 | 148.4 | NA |
| Vallejo | – | – | 23.3 | 6.1 | 2.8 | 23.3 | 60.1 | 644 | 7.1 | 47.1 | 67.0 | 37.7 | 82.5 | 24.02 | 2 960 | 316 | 66.97 | 148.4 | NA |
| Visalia | – | – | 13.4 | 21.2 | 8.4 | 13.4 | 52.8 | 857 | – | 46.0 | 80.9 | 36.9 | 97.7 | 9.86 | 2 460 | 1 804 | 56.07 | 63.0 | NA |
| Vista | – | – | 12.9 | 7.7 | 10.4 | 12.9 | 27.9 | 582 | – | 52.2 | 73.3 | 38.7 | 87.8 | 14.53 | 2 006 | 980 | 73.58 | 77.5 | NA |
| Walnut Creek | – | – | 20.3 | .6 | 19.5 | 20.3 | 27.0 | 460 | – | 49.7 | 61.7 | 43.2 | 69.5 | 23.24 | 2 951 | 91 | 66.97 | 148.4 | NA |
| West Covina | – | – | 22.6 | .9 | 28 4 | 22.6 | 43.6 | 451 | – | 52.2 | 74.4 | 40.7 | 89.7 | 17.13 | 2 048 | 1 134 | 56.07 | 63.0 | 558.24 |
| Westminster | – | – | 34.4 | 1.5 | 7.3 | 34.4 | 1.4 | 19 | 100.0 | 55.2 | 72.8 | 44.3 | 83.0 | 11.54 | 1 485 | 1 091 | 56.07 | 63.0 | 558.24 |
| Whittier | – | – | 19.3 | 5.0 | 6.6 | 19.3 | 15.2 | 209 | – | 57.2 | 74.1 | 47.7 | 83.8 | 14.85 | 1 204 | 1 339 | 56.07 | 63.0 | 558.24 |
| Woodland | – | – | 17.6 | 18.1 | 8.6 | 17.6 | 27.4 | 796 | – | 45.1 | 76.6 | 36.6 | 96.2 | 17.89 | 2 709 | 1 321 | 66.97 | 148.4 | NA |
| Yorba Linda | – | – | 17.9 | 10.6 | 15.5 | 17.9 | 6.9 | 172 | – | 54.9 | 73.5 | 42.4 | 88.8 | 14.46 | 1 644 | 1 118 | 56.07 | 63.0 | NA |

[1]Based on resident population estimated as of July 1, 1986. [2]Represents normal values based on the 30-year period, 1951-1980 (see text). [3]Average daily minimum. [4]Average daily maximum. [5]For definition, see text. [6]As of January 1; based on consumption of 750 kWh. [7]Based on billing demand of 30 kW and consumption of 6,000 kWh. [8]Data are for 1984. [9]Data are for 1983.

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The Link Between Problem and Solution

# FACSIMILE LEAD SHEET

FROM:

RONALD J. GOLDSTEIN
SENIOR VICE PRESIDENT
AURA SYSTEMS, INC.
2335 Alaska Avenue
El Segundo, California 90245
Ph: (310)643-5300 X213
Fax: (310)643-8719

DATE: 6/11/92
PAGES: 19
(Including this page)

TO:

Name: MS. JENNIFER GROSSMAN
MS. BETH HINCHLIFFE

Title:

Company: WHITE HOUSE SPEECH WRITING

Phone:

Fax: 202/456-6218

COMMENTS: MS. GROSSMAN & HINCHLIFFE:

ENCLOSED:

1. POINT PAPER FOR THE PRESIDENT
2. ATTACHMENTS

ORIGINAL VIA COURIER SERVICE.

SINCERELY,

RONALD J. GOLDSTEIN
SENIOR VICE PRESIDENT

*The Link between Problem and Solution.*

**Aura Systems, Inc.**
2335 Alaska Avenue
El Segundo, California 90245
Phone: (310) 643-5300
FAX: (310) 643-8719

June 11, 1992

Ms. Jennifer Grossman
Ms. Beth Hinchliffe
White House Speech Writing
Old Executive Office Building
Room #122
Washington, DC 20500
Tel: (202) 456-2930
Fax: (202) 456-6218

**Subject:** *Aura Systems, Inc., El Segundo (Los Angeles), CA--Tour and Town Meeting, June 19, 1992*

Per your conversation with Mark Feldman and me, the information discussed follows:

1. Point Paper for the President
2. Attachments

If you should have any questions or need additional information, please do not hesitate to call.

Sincerely,

Ronald J. Goldstein
Senior Vice President,
Business Development

Encl.

RJG/jj

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June 11, 1992

# POINT PAPER FOR THE PRESIDENT

**Subject:** *Aura Systems, Inc., El Segundo (Los Angeles), CA--Tour and Town Meeting, June 19, 1992*

1. Small, growing company with fundamentally unique industrial/commercial product and technology areas:

- Two key product areas fundamentally starting to change industry/commerce

••Magnetics: Uniquely high performance, clean, cost-effective machine motion and vibration control

••• Patented linear actuators and frictionless bearings with very efficient, clean, focused magnetic force controlled by digital processors.

••Electro-optics: Uniquely bright, high resolution, flexible, low cost high resolution television and filmless movie displays.

••• Patented actuated mirror arrays with digitally controlled tilting mirrors for each picture element which provides for brighter, high resolution large display, at much lower cost.

2. Implications are superior competitiveness, increased jobs and growing/new industries:

- Aura has doubled its jobs in past year (now 160+ people) and significantly increased revenues.

••Aura advertising and searching for top engineering, design and manufacturing personnel in California (mainly aerospace) and nationwide.

••Aura helping trade balance with development of overseas marketplace.

••Aura has products in production for and in product evaluation by some of leading companies worldwide (list attached).

••• Application areas include: Industrial, Petrochemical, Automotive, Aviation, Medical, Defense and Communication/Entertainment (list attached).

••• Major new development and production announcements for Aura occuring currently and over next 12 to 24 months, based on customers' decision milestone estimates.

••• Independent market analyst have estimated that potential is large, possibly creating revenues approaching $1 billion in a relatively short number of years. (Aura estimated revenues for this fiscal year $15 to $20 million).

3. National Defense needs transformed to Commercial benefits.

June 11, 1992

- Magnetics major impetus from Strategic Defense Initiative in 1986 via General Motors Hughes Aircraft--required high disturbance force (10 X gravity) isolation and stabilization magnetic gimbal bearing system for kinetic energy weapons.

- Electro-optics major impetus from Strategic Defense Initiative via Air Force Egland Air Force Base Weapons Testing Center starting in 1988--real physical scene projection display and dynamic hardware-in-loop test systems for kinetic energy weapon engagement vehicles.

4. Company

- Founded as Aura in 1987 by scientists/engineers.

- Key Officers (Resumes attached):

  - Zvi (Harry) Kurtzman--Chief Executive Officer and President
  - Dr. Arthur J. Schwartz--Executive Vice President
  - Keith O. Stuart--Senior Vice President, Chief Operating Officer
  - Cipora Kurtzman Lavut--Senior Vice President, Investor Relations
  - Dr. Gregory Um--Vice President, Manager, Electro-Optical Systems Division
  - Dr. Richard E. Van Allen, Ph.D--Vice President, Manager, Magnetics Division
  - Dr. C. Rogers Saxon--President Aura CAD/CAm, Inc.
  - Ronald J. Goldstein--Senior Vice President, Business Development
  - Samuel S. Guzik--Senior Vice President, General Counsel
  - Francis T. Phalen--Senior Vice President, Chief Financial Officer
  - Anthony T. Cascio--Vice President, Intellectual Property

- Associated Information:

  - Dr. Charles D. Kelman--Joint venture with Aura for magnetic assisted eye cataract removal. Will be given National Merit Award week of 15 June.
  - Bert Boeckmann. Will be attending

- Motto: "The Link Between Problem and Solution"

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# ATTACHMENTS

1. Customers
2. Magnetics Applications
3. Management Resumes

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# AURA SYSTEMS -- CUSTOMERS

| | INDUSTRIAL | AUTOMOTIVES | AVIATION/SPACE | DEFENSE | ENERGY | MEDICAL | COMMUNICATION/ ENTERTAINMENT |
|---|---|---|---|---|---|---|---|
| 1. ALCON/NESTLE | | | | | | √ | |
| 2. BALL | √ | | | | | | |
| 3. BOEING | | | √ | √ | | | |
| 4. CAE-LINK | | | √ | | | | |
| 5. CARCO | | | √ | | | | |
| 6. CATERPILLAR | | √ | | | | | |
| 7. CONOCO | | | | | √ | | |
| 8. DAEWOO | | | | | | | √ |
| 9. DAVID TAYLOR USN | | | | √ | | | |
| 10. DETROIT DIESEL | | √ | | | | | |
| 11. ECHLIN | | √ | | | | | |
| 12. FORD MOTOR CORP | | √ | | | | | |
| 13. GENERAL DYNAMICS | | | | √ | | | |
| 14. GENERAL MOTORS | | √ | √ | | | | |
| 15. GOODYEAR | | √ | | | | | |
| 16. HARRIS | | | | √ | | | √ |
| 17. HUGHES | √ | | | √ | | | |
| 18. JOHNSON CONTROL | | √ | | | | | |
| 19. KGK | √ | | | | | | |
| 20. LITTON | | | √ | √ | | | |
| 21. MARTIN MARIETA | √ | | | | | | |
| 22. MITSUBISHI STEEL | | √ | | | | | |
| 23. MOOG | | | √ | | | | |
| 24. NELSON INDUSTRIES | √ | | | | | | |
| 25. ROCKWELL | | √ | | | | | |
| 26. SAIC | √ | | | | | | |
| 27. SUNDSTRAND | √ | | | | | | |
| 28. SWINGLINE/ACCO | √ | | | | | | |
| 29. T & N | | √ | | | | | |
| 30. TMC | √ | | √ | √ | | √ | |
| 31. TOKAI RUBBER | | √ | | | | | |
| 32. TOYOTA | | √ | | | | | |
| 33. U.S AIR FORCE | | | | √ | | | |
| 34. U.S. ARMY | | | | √ | | | |
| 35. U.S NAVY | | | | √ | | | |
| 36. UNIVERSITIES | √ | | | | | | |
| 37. VARIAN ASSOCIATES | √ | | | | | | |

jj 6/11/92

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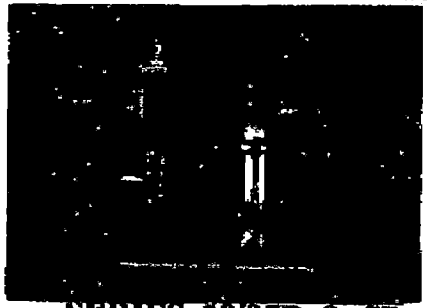
*The Link between Problem and Solution.*

**Aura Systems, Inc.**
2335 Alaska Avenue
El Segundo, California 90245
Phone: (310) 643-5300
FAX: (310) 643-8719

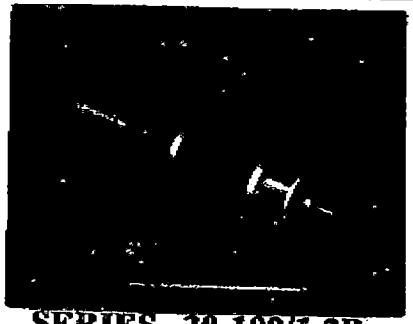
# MAGNETICS APPLICATIONS

# AURA MAGNETICS - INDUSTRY APPLICABILITY EXAMPLES

Aura Systems, Inc.



SERIES 10/05P & SP



SERIES 30-100/1.2P

| | | |
|---|---|---|
| **INDUSTRIAL:** | * VIBRATION CANCELLATION<br>* LINEAR ACTUATION<br>* NOISE CANCELLATION<br>• AIR/COOLER COMPRESSOR<br>• ROBOTICS<br>• VALVE CONTROL | * PILOT VALVE ACTUATION<br>• GUIDE CONTROLS<br>• VARIABLE RATE MOTORS<br>* ROBOTICS<br>* HAND/INDUSTRIAL TOOLS<br>* MATERIAL TENSIONING/MEASURING<br>* GROUNDWATER PUMPS<br>* STRUCTURAL SHAKERS<br>* APPAREL SEWING |
| **PETROCHEMICAL:** | — | • RECIPROCATING PUMPS<br>• METERING PUMPS |
| **AVIATION:** | * VIBRATION SUPPRESSION | * VIBRATION SUPPRESSION<br>* FLIGHT SIMULATION<br>• AIRCRAFT HYDRAULIC REPLACEMENT<br>• ACTIVE SEAT SUSPENSION |
| **AUTOMOTIVE:** | * ENGINE VALVE ACTUATION; REGULATOR VALVES<br>* ACTIVE ASSIST HYDRAULIC ENGINE MOUNTS<br>* VIBRATION/NOISE CANCELLATION | * PILOT VALVE ACTUATION<br>* ENGINE VALVING<br>* ENGINE STARTING<br>* ACTIVE SEAT SUSPENSION<br>* TRANSMISSION SHIFTER<br>* DOOR LOCKS |
| **MARINE:** | * VIBRATION CANCELLATION<br>* STRUCTURAL SHAKERS<br>* ACTIVE CONTROLS | * ACTIVE CONTROLS<br>* STRUCTURAL SHAKERS |
| **ENTERTAINMENT:** | * ANIMATRONS | * ANIMATRONS |
| **MEDICAL:** | • AIR COMPRESSORS<br>* BLOOD/FLUID PUMPS | — |

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# AURA MAGNETICS - INDUSTRY APPLICABILITY EXAMPLES

Aura Systems, Inc.

SERIES 5/0.2 VAPS

SERIES 300-500/20B

| | | |
|---|---|---|
| **INDUSTRIAL:** | * HYDRAULIC TURBULENCE SUPPRESSION<br>* VALVE CONTROL<br>• MAGNETIC DISK HEAD CONTROLLER<br>• TAPE HEAD CONTROLLER | * TEXTILE WEAVING<br>• GUIDE CONTROLS<br>• VARIABLE RATE MOTORS<br>* STRUCTURAL SHAKERS/DAMPENERS<br>• ROTARY ACTUATOR MOTORS |
| **PETROCHEMICAL:** | * PROCESS TURBULENCE CANCELLATION | * GEOACOUSTIC SOUNDERS<br>• DOWN-HOLE PUMPS |
| **AVIATION:** | • FLUIDIC TURBULENCE CANCELLATION | * FLIGHT SIMULATORS<br>* VIBRATION CANCELLATION |
| **AUTOMOTIVE:** | * POWER STEERING VARIABLE ASSIST<br>* FLUIDIC TURBULENCE CANCELLATION<br>◦ VARIABLE FUEL THROTTLE | * ACTIVE VEHICLE SUSPENSION<br>• ROTARY ACTUATOR MOTORS |
| **MARINE:** | * FLUIDIC TURBULENCE CANCELLATION/<br>* NOISE SUPPRESSION | * VIBRATION/NOISE CANCELLATION<br>* STRUCTURAL SHAKERS/DAMPENERS<br>* ACTIVE CONTROLS<br>* MACHINERY ISOLATION |
| **ENTERTAINMENT:** | ——— | * ACTION RIDE PLATFORMS<br>* ANIMATRONS |
| **MEDICAL:** | ——— | |

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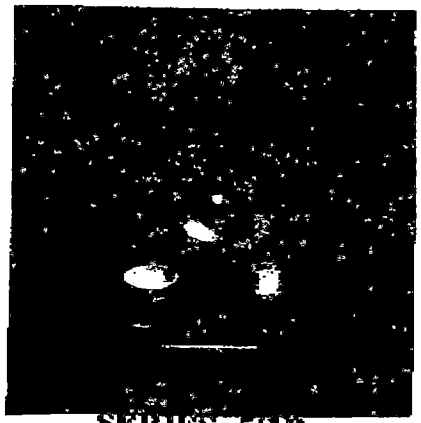
# AURA MAGNETICS - INDUSTRY APPLICABILITY EXAMPLES

Aura Systems, Inc.



SERIES 5/1B

SERIES MBS 50/400

| | SERIES 5/1B | SERIES MBS 50/400 |
|---|---|---|
| INDUSTRIAL: | * NOISE CANCELLATION<br>* APPAREL SEWING | * TURBO COMPRESSORS/EXPANDERS<br>* TURBOMOLECULAR PUMPS<br>* HIGH SPEED SPINDLES<br>* HIGH EFFICIENCY MOTORS |
| PETROCHEMICAL: | ——— | |
| AVIATION: | * NOISE CANCELLATION | * TURBINE ENGINES<br>* SENSOR SUITE STABILIZATION & POINTING<br>* VIBRATION ISOLATION |
| AUTOMOTIVE: | * AUDIO SPEAKERS<br>* NOISE CANCELLATION | * ALTERNATORS<br>* PUMPS |
| MARINE: | * NOISE CANCELLATION | * PROPULSION NOISE ISOLATION<br>* MACHINERY ISOLATION |
| ENTERTAINMENT: | * AUDIO SPEAKERS | ——— |
| MEDICAL: | ——— | * CATARACT EMULSIFICATION<br>* CATHETER CONTROLLER<br>* REMOTE OPERATION |

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# AURA SYSTEMS

## Summary
## of
## Management Resumes

**March 1992**

**Name:** **Rachel Gal Choppin**
**Title:** **Vice President Human Resources**
Age: 45

Education: M.A., Educational and Career Counseling. University of California at Los Angeles, 1984
Certificate in Counseling, The London Clinic and Institute of Psychotherapy, London, England, 1980
Teaching Certificate in Biology for Middle And Secondary Schools, School of Education, Hebrew University, Jerusalem, Israel, 1970
B.Sc., Biology, Hebrew University, Jerusalem, Israel, 1969

Summary: Ms. Choppin has over 22 years experience in the area of personnel. Excellent analytical, negotiating, networking, recruiting, leadership, training and counseling skills. Sound understanding of myself and other people as well as the dynamic of groups. Ability and wiliness to learn and adapt to new situations. Solid knowledge of personnel processes and procedures. Worked as a Personnel Director at Aura, Recruiter at Search Associates, Fund raiser at the State of Israel Bonds, Career Counselor at National Council of Jewish Women, Teacher at Stephen Wise Day Schools, Researcher in Science Education in England and Israel. Altogether twenty two years of work experience in Personnel & Training, Investment & Fund Raising and Research & publications.

**Name:** **Anthony T. Cascio**
**Title:** **Vice President, Intellectual Property**
Age: 42

Education: J.D., John Marshall School of Law, Chicago, 1978
M.S.E.E., University of California, Santa Barbara, 1974
B.S.E.E., University of Illinois, Urbana, 1972

Summary: Mr. Cascio has over 13 years in the area of Patent Law. Mr. Cascio has been with the Company since June, 1992 and in his function as Chief Patent Counsel has responsibility for the preparation and filing of Company patent applications worldwide. He also assists in licensing of Company technology and provides litigation support. Prior to joining Aura, Mr. Cascio was with the law firm of Poms, Smith, Lande & Rose, Los Angeles. Other positions held by Mr. Cascio were Technology Counsel, Tandem Computers Incorporated, Cupertino, and private practice with Fitch, Even, Tabin & Flannery (now McCubbery, Bartels, Meyer & Ward), San Francisco.

**Name:** **Ronald J. Goldstein**
**Title:** **Senior Vice President, Business Development**
Age:

Education: M.S. Computing Technology, George Washington University
M.S. Managment of R&D, George Washington University
Coursework toward Ph.D. Nuclear Engineering, North Carolina State University

Summary: Prior to joining Aura in 1989, Mr. Goldstein was Manager, Laboratories and Manager, Space Initiatives at Hughes Aircraft Company where he was responsible for the design, production and marketing of a wide variety of aerospace systems and hardware. Prior to joining Hughes in 1982, Mr. Goldstein was the Special Assistant for National Programs in the Office of the Secretary of Defense, and before that held high level program management positions with the Defense Department and Central Intelligence Agency. Before then, he was a Captain in the Infantry and Special Projects in the Army. Prior to that he was employed in a technical and managerial capacity with Westinghouse.

**Name:** **Samuel S. Guzik**
**Title:** **Senior Vice President, General Counsel, Director**
Age: 39

Education: J.D., Stanford University, 1978
B.S., Industrial and Labor Relations, Cornell University, 1974

Summary: Mr. Guzik has over 13 years experience as an attorney. Mr. Guzik has served as General Counsel since joining Aura Systems, Inc. in September, 1991. Prior thereto, he was a partner in the law firm of Ervin, Cohen & Jessup, Beverly Hills, as Aura's outside general counsel, where he was responsible for all of Aura's corporate matters since inception. Prior to joining ECJ in 1980, he was an associate in the Wall Street law firm of Willkie, Farr & Gallagher.

**Name:** **Neal Kaufman**
**Title:** **Senior Vice President/Director**
Age: 46

Education: B.S. Engineering, University of California at Los Angeles, 1967

Summary: Mr. Kaufman is a co-founder of the company with over 23 years of experience designing large complex software systems. He was

involved in the development of a distributed simulation project using networked IBM computers. He managed a variety of software development systems including real-time data acquisition and control systems for high speed rotating machinery. He developed image processing software for the Viking and Mariner projects, and for the testing of quartz sensors. Mr. Kaufman designed and implemented test facilities dealing with high speed rotating machinery, including the development of a real-time distributed computer test facility.

**Name:** **Zvi (Harry) Kurtzman**
**Title:** **Chelf Executive Officer and President, Chairman of the Board**
Age: 45

Education: M.S. Physics California State University at Northridge, 1971
B.S. Physics California State University at Northridge, 1970
Coursework toward Ph.D. Theoretical Physics University of California Riverside

Summary: Mr. Kurtzman has been CEO and President of Aura since its inception in 1987. Prior to the start of Aura, Mr. Kurtzman was CEO and President of a number of small technology companies since 1982. Mr. Kurtzman's business experience was first gained helping run a family retail business for over 10 years. In addition to his business experience, Mr. Kurtzman has 20 years of experience as a scientist in numerous defense and aerospace organizations. Mr. Kurtzman has received a new technology awards from Rockwell, merrit award from TRW, and a merrit award from Hughes Aircraft. Mr. Kurtzman has 3 publications in Physics Review Letters.

**Name:** **Cipora Kurtzman Lavut**
**Title:** **Senior Vice President, Investor Relations, Director**
Age: 35

Education: B.S., Business Administration with a Marketing Option, California State University Northridge, 1980

Summary: Ms. Lavut is a co-founder of the company with over 11 years of experience in the area of business relations and marketing. Ms. Lavut's work experience at Aura Systems includes interfacing with the brokerage and investor communities, writing news releases, organizing trade shows, placing articles and advertisments in publications, putting together company brochures and literature, participating in contractual negotiation for the company and participating in business decision. Prior to joining the company

my experience was in retailing running a family business for 5 years.

**Name:** **Gerald S. Papazian**
**Title:** **Vice President, Administration**
Age: 36

Education: J.D./M.B.A., University of California, Los Angeles, 1981; B.A., Economics, University of Southern California, 1977.

Summary: Mr. Papazian has over 11 years of experience. Mr. Papazian came to Aura Systems, Inc. in 1988 and currently is serving as Vice President, Administration. From 1986 to 1988, Mr. Papazian was Vice President, Corporate Finance, of the Investment Banking Division of Bear, Stearns & Co., Inc. Prior to joining Bear, Stearns, Mr. Papazian was an Associate in the law firm of Stroock & Stroock & Lavan.

**Name:** **Francis T. (Frank) Phalen**
**Title:** **Senior Vice President, Chief Financial Officer, Director**
Age: 52

Education: Certified Public Accountant University of the State of New York, 1968.
Bachelor of Business Arts, Iowa College, 1964

Summary: Mr. Phalen has over 28 years experience in the area of corporate management. Mr. Phalen is a Senior Vice President and Chief Financial Officer of Aura Systems Inc., since November 1988 and has been a director of the company since January 1989. From august 1987 until Mr. Phalen joined the company he was Associate Director, Corporate Finance, for Bear Stearns and Co. in Los Angeles, California. From October 1986 until March 1987 Mr. Phalen was Chief financial Officer of Stars to Go Inc. From June 1980 unit mid 1986 Mr. Phalen served as Vice President and Treasurer of Charter Hawley Hale Stores, Inc., where he played a key role in the defeat of a hostile take over attemp, devised new financing strategies and instituted cash management streamlining techniques. For the three years prior thereto Mr. Phalen a certified public accountant was a partner in the public accounting firm of Deloitte & Touche, where he handled troubled companies and retail companies.

**Name:** **C. Rogers Saxon**
**Title:** **President, Aura CAD/CAM, Inc.**
Age: 44

Education: Ph.D., Cognitive Psychology, University of California, Irvine, 1985
M.A., Cognitive Psychology, University of California, Irvine, 1982
M.S., Mathematics, Claremont Graduate School, Claremont, 1977
B.S., Mathematics, Harvey Mudd College, Claremont, 1976

Summary: Dr. Saxon has over 14 years of experience. Dr. Saxon runs the CAD/CAM subsidiary company in the Aura Systems family. His task is to build a profitable business by establishing a winning market position for the CAD/CAM product, while implementing a successful marketing, distribution, and sales plan. The CAD/CAM business is run as a retail operation. Dr. Saxon supervises all facets of the business, including personnel, cash flow, product packaging, advertising, legal, and major accounts. Prior to his assignment with Aura CAD/CAM in 1988, Dr. Saxon managed the Advanced Computing Division of Aura Systems. In that capacity, he managed a staff that developed and marketed monitoring and control software for use in the aerospace and construction fields. Before joining Aura in 1985, Dr. Saxon held various technical and program management positions in the aerospace industry.

**Name:** **Dr. Arthur J. Schwartz**
**Title:** **Executive Vice President/Director & Corporate Secretary**
Age: 44

Education: Ph.D. Physics University of Pittsburgh 1977
M.S. Physics University of Chicago 1971
A.B. Physics University of Chicago 1969

Summary: Dr. Schwartz is a co-founder of the company with 15 years experience in the development and exploitation of high technology products. He has direct responsibility for all technologies and the development and corporate management of subsidiaries. Dr. Schwartz lead the marketing activities for Aura's Scene projector technology which has resulted in the Air Force funding for Aura's technology. He has been responsible for the creation of Aura's film distribution company, ADSI, and has contributed to both the ADSI technology and the Aura Medical technology. He provides a lead roll on the business development

and exploitation of many of the company's key technologies and the formation of external business relations to further these ends.

Dr. Schwartz was trained as a Physicist. He has previously been a Research Associate at Carnegie Mellon University in the Center For Joining of Metals. He also served as a Research Assistant Professor in the Department of Applied Mathematics at University of Pittsburgh conducting activities at the National Center of Atmospheric Research. He left Academia for a Senior Physicist post at Hughes Aircraft Co. where he lead research activities in signal processing algorithm and advanced focal plane array technology. He left Hughes in 1984 to devote full time to the formation of the company. His former supervisors at Hughes were among the company's first customers.

**Name:** **Keith O. Stuart**
**Title:** **Senior Vice President, Chief Operating Officer**
Age: 36

Education: B.S.E.E., University of California at Los Angeles, 1978
M.S.E.E., University of California at Los Angeles, 1980

Summary: 1986-Present: Aura Systems- Created and developed Aura's magnetic bearing and actuator technology, and am heavily involved in the application of this technology in a large number of applications.

Successfully designed, fabricated and tested Aura's first magnetic bearing for an SDI program. The technology developed on this program has been used in all subsequent Aura magnetic bearings.

Personally designed and oversaw the development of Aura's first high force actuator, and so far have been awarded 5 patents, with numerous patents pending. All actuators subsequently built by Aura use this basic technology.

Currently, I am responsible for the day-to-day operations at Aura, and am directing the effort to transform Aura's business from technology development to product development utilizing basic magnetic bearing, high force actuator and advanced display (HDTV) technology.

1978-1986: Hughes Aircraft Company- Managed a program to develop a computer controlled automated test station on a government program. Had direct responsibility for a 30-person

team, and personally wrote over 1,200 pages of specifications that applied to that program.

**Name:** **Dr. Gregory S. Um**
**Title:** **Vice President, Manager of Electro-Optical Systems Div.**
Age: 44

Education: Ph.D. in Physics, State University of N.Y., Stony Brook, 1976
A.B. in Physics, University of California, Berkeley, 1970

Summary: Dr. Um has 15 years of experience in project management and of industrial technical experience in the fields of scene projection systems, sensor systems and analysis, signal processing algorithms, wavefront sensors, high energy laser pointing and tracking systems, physics of thermodynamics and thermal properties. He is the principal inventor of the Aura Systems' scene projectors and has directed all of the scene projector development efforts within the company. Prior to joining Aura Dr. Um has been a Senior Scientist at Hughes Aircraft Co. with major acheivments in the area of sensors, optics, and algorithms. Dr. Um has over 20 professional publications.

**Name:** **Richard E. Van Allen**
**Title:** **Vice President/Magnetics Division Manager**
Age: 45

Education: Ph.D. in Astronautics, Purdue University, 1977
M.S. in Astronautics, Purdue University, 1969
B.S. in Aeronautical and Astronautical Engineering, 1968

Summary: Dr. Van Allen has 24 years experience in the Aerospace industry encompassing a broad range of responsibilities.

Dr. Van Allen is currently Vice President/Magnetics Division Manager at Aura Systems, Inc. In his current position, he is responsible for overseeing the multiple projects ongoing in the division (both commercial and governmental). Among the contracts being worked on in the division are those involving electromagnetic actuators with applications in areas which include underwater shakers; variable assist power steering and active suspension for automobiles; optical table isolation and loudspeakers. Additional contracts involving magnetic bearings are also in work. These include one leading to a two axis gimbal

which will fly on the Space Shuttle; another for use in turbo-molecular pumps with applications in the semiconductor manufacturing industry; and a third to supply magnetic bearings for canned motor pumps with applications in the oil industry.

Prior to joining Aura Systems, Dr. Van Allen spent seven years at Hughes Aircraft, where he was Manager of the Mission Requirements Laboratory in the Advanced Governments Program Division in the Space and Communications Group. As such, he managed several advanced studies associated with the design of large space systems. Dr. Van Allen was also involved in major systems studies of defensive satellites and kinetic energy weapons for strategic defense, where he acted as Mission Definition Manager. Finally, he has extensive experience in the design, development and test of large simulations for space systems.

Dr. Van Allen worked for ten years at the NASA Jet Propulsion Laboratory, where he was the Navigation Team Chief for the Voyager mission to the outer planets of the solar system. He was involved in prelaunch mission analysis and space flight operations, which led to the successful flybys of Jupiter, Saturn, Uranus and Neptune.

Honors and activities include membership in Tau Beta Pi, Sigma Gamma Tau, Omicron Delta Kappa, NASA Graduate Fellowship and Senior Member of the American Institute of Aeronautics and Astronautics.

**Name:** **Michael Wilde**
**Title:** **President Delphi Components/**
**Vice President Manufacturing Aura Systems**
Age: 45
Clearance: Secret

Education: B.S. Electrical Technology, DeVry, 1970

Summary: Mr. Wilde has over 25 years of experience in the design and manufacturing of micro-electronic components. Mr. Wilde is also responsible for the manufacturing of all of the control electronics for Aura's actuators and magnetic bearings.

Prior to Delphi Components, Mr. Wilde was the business center manager for MaCom for 14 years. He was responsible for 200 manufacturing employees and over $17M in annual sales.

March 12, 1992

Information on Defense Drawdown Programs

# AMELIORATING THE IMPACT OF THE DEFENSE DRAWDOWN

Reductions in the size of the armed forces, the defense civilian workforce, and the number of defense facilities continue. The Department of Defense (DOD) is engaged in efforts to ease the burden of individuals and communities affected by the drawdown. There are four basic categories adversely affected by the drawdown: military personnel, DOD civilian employees, communities in which closing bases are located, and employees of companies whose defense business is shrinking.

## Military Personnel Reductions

The Nation has a special obligation to treat equitably the men and women of the armed forces who have served their country honorably and with distinction, but for whose services we no longer have a need. We must do so both because it is the right thing to do and because the way in which we treat today's departing veterans will have a profound effect upon our ability to continue to recruit first-rate, talented people into the armed forces in the future. The Department of Defense has worked hard to ensure that America's departing servicemen and women receive the respect and fair treatment they have earned.

When we took office in 1989, the number of active duty military personnel was 2,131,000. Now, it is 1,935,000. By the end of fiscal year (FY) 1997 under our current plans, it will be 1,626,000. From FY'89 through FY'97, the armed forces will have been reduced in size by 505,000 people, or a total of 24%. We plan to achieve the departure of the 505,000 servicemembers over that period in the following ways:

-- voluntary separation of 110,000 military personnel who volunteer to leave the service in exchange for a generous separation incentive benefit (equal at the departing servicemember's option to either: (1) a series of annual payments of 2.5% of final base pay multiplied by the number of years served, paid for twice the number of years served, or (2) a lump sum of 15% of final base pay multiplied by the number of years served);

-- voluntary separation of 50,000 military personnel by releasing them upon request from their legal obligation to serve a specified number of years;

-- reduction by 275,000 of the number of people recruited into the armed forces;

-- involuntary retirement of 40,000 military personnel who are eligible for military retirement pay; and

-- involuntary separation or denial of reenlistment opportunities for 30,000 who are not eligible for military retirement pay.

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Within the above figures, in the current fiscal year (ending 9/31/92) we expect to separate voluntarily from the service 66,000 military personnel, to reduce recruiting by 40,000, and to separate involuntarily 15,000. From the beginning (10/1/91) to the end (9/31/92) of FY'92, we will reduce the armed forces by 6%.

To assist departing military personnel with the transition to civilian employment, they receive employment counseling from Department of Labor personnel, access to a nationwide resume referral service in which DOD provides resumes to interested companies, and access to a nationwide job referral service in which DOD provides to departing servicemembers job information provided by hiring companies. We also have special programs developed with the Department of Education as part of AMERICA 2000 to encourage departing military personnel to pursue careers in teaching. DOD also provides travel, transportation, and leave allowances to assist with job-search efforts.

All military personnel leaving as a result of the drawdown are entitled to the following benefits following separation from the armed forces:

- commissary and post exchange privileges for one year; 2 yrs.
- health care for ~~6 months~~ 60-120 days for the departing servicemember and his or her family;
- continued occupancy of military housing for up to 6 months;
- continuation of dependent children in DOD dependents schools until completion of the school year; and
- special Montgomery GI Bill educational benefits.

DOD Civilian Personnel Reductions

When we took office in 1989, the number of DOD civilian employees (including foreign nationals) was 1,117,000. Now, it is 1,040,000. By the end of FY'97 under our current plans, it will be 904,000. From FY'89 through FY'97, DOD civilian employment will have been reduced in size by 213,000 people, or a total of 19%. We plan to achieve the departure of the 213,000 employees over that period in the following ways:

- termination of the services of 53,000 foreign nationals employed at bases overseas;
- reduction by 130,000 of the number of people hired into the DOD civilian work force; and
- reduction in force (i.e., involuntary departure) of 30,000 U.S. citizen DOD civilian employees.

Within the above figures, during the current fiscal year (ending 9/31/92) we expect to separate involuntarily 11,000 foreign national employees and 5,000 DOD U.S. citizen employees, and reduce recruitment by 28,000. From the beginning (10/1/91) to the end (9/31/92) of FY'92, we will reduce the DOD civilian workforce by 4%.

To assist departing DOD civilian employees, we provide access to a nationwide job referral service in which DOD provides resumes to interested companies. Departing DOD U.S. citizen civilian employees receive the following benefits:

-- separation pay (equal to the sum of 1 week of pay for each year of service up to 10 years of service plus 2 weeks of pay for each year of service above 10 years); and

-- the right to purchase reduced-cost health care benefits for up to one year at the Federal employee rate for the former employee and the former employee's family.

For DOD civilian employees losing their jobs because of the closure of a military base, the Director of the Office of Personnel Management has authorized early qualification for retirement. That lowers pension eligibility requirements from 50 years of age plus 30 years of Federal service, to 50 years of age with 20 years of service or any age with 25 years of service.

Communities Affected by Base Closures

The Department of Defense has an Office of Economic Adjustment that assists communities in which base closures occur. The Office assists communities with plans to make effective use of closing facilities for job-producing activities that benefit the local community. The Office has had an excellent record of success assisting communities with conversion of closed bases to useful assets for the communities.

In the past 30 years, closures of defense facilities have eliminated 93,424 DOD civilian jobs in communities, but the post-closure use of the facilities has generated 158,104 jobs on those converted bases. In those 30 years, communities working with the DOD Office of Economic Assistance have:

-- converted 12 closing bases into 4-year colleges;

-- converted 75 closing bases into industrial or office parks; and

-- converted 42 closing bases into commercial airports.

For the new round of more than 38 base closures and realignments announced last year as a result of the Courter Commission's work, the DOD Office of Economic Adjustment is already working with every one of the communities affected. Assistance provided includes:

-- technical advice on organizing and planning for reuse of closing bases to generate new jobs;

-- grants (average $100,000) to local community organizations planning for reuse of closing bases;

-- contacts with the National Association of Installation Developers, an association of companies experienced in taking over and making effective economic use of closed DOD facilities; and

-- assistance in making contact with other Federal agencies with programs that may help a community in which a base is closing.

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## Private Citizens Affected by Cuts in Defense Procurement

The Department of Defense does not have the mission or any programs to assist the many thousands of private sector employees who lose jobs because the Department is no longer purchasing weapons and supplies in the same quantities as in the past. The Federal and State worker assistance and unemployment compensation programs that apply to other private sector employees apply to employees of defense contractor companies and provide the temporary, limited economic protection that other private sector employees enjoy. Last Autumn, Congress enacted as part of the Defense Appropriation bill a $200 million appropriation out of the Defense budget for the Departments of Commerce and Labor to give grants to communities and workers affected by cuts in defense procurement.

Dany,
If you going to use any specific info from Cheney's answer, you need to call back and verify. (B/C Cheney answered off the top of his head.

Sec Def Reply to Audience Question on defense conversion, May 22, 1992

To: Chris Koiner
From: Vivien Raudin
(703) 697-8491
8 pages

[APPLAUSE]

QUESTION: A massive dislocation -- economic dislocation -- is likely to result if a million people are laid off in the defense related industries. Does the Defense Department take it as part of its role to encourage alternate uses of these industries, such as, for example, the aircraft industry manufacturing a TGV type of train, so that these industries can remain healthy in case they're ever needed again to produce a high volume of defense-related products?

SEC. CHENEY: It depends. Let me, if I can, quickly walk through a couple of considerations. There are some areas where there are major adjustments required as a result of the decisions we've made to down size the force and so forth, where we do have special obligations.

At the top of the list I'd put the obligation to our uniformed military personnel, those who are going to have to leave before they complete their 20 years, and were being asked to depart. We've got special responsibilities there. We have also special authorities to help them financially on their way out, to pay a bonus as they depart the service. To continue, for a period of time, health care and access to schools for their dependents and so forth. And we're doing that.

We have job counseling systems established, and job banks, and we're working to help place those people as they leave the service. And we're doing the same for the civilians in the Department of Defense.

We have some special authorities to help those communities that are affected by base closings. Over the years, we made grants, planning grants, to help some 400 communities through that process. And we're able to do that, as well.



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Our obligation and authority with respect to the employees of private contractors, though, are significantly different. From a conceptual and legal standpoint, if we go out and contract for goods or services -- for aircraft, for example -- once we have received the aircraft and we've paid the contractor, the obligation is ended. We have no continuing legal obligation in that case.

Now, you might argue there's a moral obligation of some kind to assist or help. But I think the basic adjustment that needs to be made is really a matter for the private sector to make. I don't think we want to be in the business where the Department of Defense, for example, not having any vital defense interest at stake, gets involved in terms of trying to direct how these companies adjust, what kinds of new products they decide to produce, how they decide to diversify or consolidate to adapt to the market circumstances. I think we will be much better off as a society if we let the market place work to make those adjustments.

There's one exception to that. There are a few special areas where we have production that only we require. Where it's unique in terms of the production of, for example, nuclear powered ships, aircraft carriers and

submarines, where there are certain elements of that production line, if you will, that we need to look at in terms of making certain we have that capacity in the future, even though we're going to have fewer submarines in the future. So, there may be some places there where we have to make some specialized investments in order to protect a certain part of the industrial base.

But we should not let that argument, about the need to protect the industrial base, lead us to make decisions that interfere with the normal workings in the market place out there that are the trends and the forces that ordinarily force the modernization of our economy in the private sector. I think we want to be able to draw up on a fully modern private sector, a fully modern industrial base. And good old fashioned competition is at the heart of that.

QUESTION: Earlier, your comments on the former Soviet were very enlightening. Might you share with us some of your reflections on China, and how do you see the changes taking place that you see today, as you look into the future, affecting both the United States and the world.
SEC. CHENEY: China, clearly, is still one of the few Communist regimes left -- at least pays lip service to the notion of a Communist regime. I've been encouraged

# OASD(PR) FAX COVER SHEET

**Date:** 6/10/92

**To:** Mr. Gary Gershowitz

**Telecopier Number:** (202) 456-6218 **Office Number:** (202) 456-7750

**From:** Gary Powell

**Telecopier Number:** (703) 695-6929 **Office Number:** (703) 697-1771

**Subject:** Information You Discussed W/ Mr. Torell:

Information from 2 Hearings is attached. We have marked those pages pertinent to your discussion. Please call if we can provide further help.

Summary Sheet per our discussion.

**This package consists of** 28 **pages including this cover sheet.**

## Breaking Down Barriers To Buying Commercial Items

1. The DoD prefers to buy more commercial items and develop fewer unique items for the DoD. In this way we lessen the need for a "defense-unique" industrial base and avoid the costs associated with developing new products.

2. Mr. Yockey's testimony, as part of a discussion of "industrial base issues" lays out the Department's overall strategy/keep that part of the industrial base on which the DoD relies healthy. One of the tools available to us is to "break down the barriers to buying commercial items". Mr. Yockey's testimony (pages 5 and 6) lays out the underpinnings of that approach:

a. Buying "commercial" gives us better competition than might otherwise be the case.

b. "Foreign competition" is not necessarily a stumbling block from a national security perspective -- as long as we maintain access to the products when we need them.

3. Mr. Torelli's testimony (page 1) reaffirms the basic "buy commercial" guidance discussed by Mr. Yockey, and then provides details (pages 4-8) on how we will work to make the policy statement a reality:

a. Ensure our basic acquisition policies ("DOD Directives 5000.1 and 5000.2) support "commercial practice" buying.

b. How we've developed additional guidance (the "handbook" on page 5) that gives our employees detailed "How to do it" information.

c. How we're reviewing our individual military specifications (page 5, where we tell our contractors precisely what we want, or how they are to do something) to eliminate those where commercial standards will suffice.

d. How we're also working to change the laws and requlations which govern government procurement (pages 6, 7, and 8: the Federal Acquisition Regulations -- the "FAR", and public law -- "Truth in Negotiations Act") to make the government a more attractive customer and to allow us to increase the number and value of the commercial products we buy.

**4. Basically, we're trying to simplify the complex, rigid rules which govern the way we must do business -- to allow more commercial products to be bought, and to encourage more "commercial" companies to want to do business with us.**

See (particularly) pg 1, and pg 54 thru 8 in this statement

STATEMENT BY

MR. NICHOLAS TORELLI

DEPUTY ASSISTANT SECRETARY OF DEFENSE (PRODUCTION RESOURCES)

BEFORE THE

SENATE ARMED SERVICES COMMITTEE

SUBCOMMITTEE ON DEFENSE INDUSTRY AND TECHNOLOGY

ON

FINANCIAL STRENGTH OF THE DEFENSE INDUSTRIAL BASE

INTEGRATION OF COMMERCIAL AND MILITARY TECHNOLOGIES

AND

DEPARTMENT OF DEFENSE DEPENDENCY ON FOREIGN SOURCES FOR WEAPON SYSTEM PARTS AND COMPONENTS

TUESDAY, APRIL 16, 1991

RUSSELL SENATE OFFICE BUILDING - ROOM SR-222

Not for publication unless released by the Senate Armed Services Committee

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE, I APPRECIATE THE OPPORTUNITY TO DISCUSS WITH YOU THE INTEGRATION OF COMMERCIAL AND MILITARY TECHNOLOGIES AND THE STRENGTH OF THE DEFENSE INDUSTRIAL BASE.

A STRONG INDUSTRIAL BASE AND THE INTEGRATION OF COMMERCIAL AND MILITARY TECHNOLOGIES ARE VITALLY IMPORTANT TO THE DEPARTMENT OF DEFENSE (DOD) AND THE OVERALL HEALTH OF THE NATION. IN THESE TIMES OF SHRINKING BUDGETS AND WITH THE MEMORIES OF THE RECENT MILITARY OPERATIONS STILL FRESH IN OUR MINDS, THEIR IMPORTANCE IS MORE OBVIOUS THAN EVER. I FEEL VERY STRONGLY ABOUT MY OWN RESPONSIBILITIES IN ACHIEVING THESE GOALS AS DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR PRODUCTION RESOURCES.

DURING THE HEARINGS HELD, IN JUNE OF 1989, BY THE SENATE SUBCOMMITTEE ON OVERSIGHT OF GOVERNMENT MANAGEMENT ON DOD USE OF COMMERCIAL AND NONDEVELOPMENTAL ITEMS, DEPUTY SECRETARY OF DEFENSE ATWOOD COMMITTED THE DEPARTMENT TO MAKING MORE EFFECTIVE USE OF COMMERCIAL ITEMS. IMMEDIATELY FOLLOWING THAT HEARING, WE ESTABLISHED AN AGGRESSIVE AGENDA AIMED AT BREAKING DOWN BARRIERS TO BUYING COMMERCIAL ITEMS. I WOULD LIKE TO PRESENT SOME OF THE ONGOING ACTIONS FROM THAT AGENDA TO THE COMMITTEE TODAY.

WEAPONS SYSTEMS

IN OUR DEVELOPMENT AND USE OF SPECIFICATIONS AND STANDARDS, WE ARE PURPOSEFULLY MOVING AWAY FROM MILITARY-UNIQUE REQUIREMENTS AND TOWARD STANDARD COMMERCIAL REQUIREMENTS, WHEREVER IT MAKES SENSE. THIS WILL NOT ONLY ALLOW THE PURCHASE OF COMMERCIAL ITEMS, IT WILL ENCOURAGE SUCH PURCHASES. WE ARE ALSO PURPOSEFULLY MOVING AWAY FROM SPECIFYING DESIGN REQUIREMENTS IN CONTRACTS AND TOWARD FUNCTIONAL AND PERFORMANCE REQUIREMENTS TO ALLOW FLEXIBILITY IN MANUFACTURING AND TECHNOLOGY. WE ARE ACCOMPLISHING THIS CHANGE THROUGH TRAINING OUR ACQUISITION CORE, THROUGH REVISIONS TO OUR REGULATIONS, AND THROUGH THE USE OF NONREGULATORY GUIDANCE, SUCH AS HANDBOOKS.

WE RECENTLY COMPLETED THE DEVELOPMENT OF A NEW TRAINING COURSE ON BUYING NONDEVELOPMENTAL ITEMS (NDI). THE OBJECTIVE OF THE COURSE IS TO BETTER EQUIP OUR ACQUISITION PERSONNEL TO MAKE GOOD BUYING DECISIONS AND, WHEN THAT DECISION IS TO USE A COMMERCIAL PRODUCT, TO CARRY IT OUT EFFECTIVELY. IN THIS "FULL SPECTRUM" TRAINING, WE MOVE THROUGH THE ACQUISITION PROCESS FROM THE GENESIS OF THE NEED TO THE DELIVERY TO THE USER, IDENTIFYING POTENTIAL IMPEDIMENTS TO BUYING COMMERCIAL ITEMS AND WAYS TO AVOID OR OVERCOME THEM. WE HAVE TWO VERSIONS OF THE COURSE - ONE GEARED TO "SYSTEM ACQUISITIONS," WHERE THERE IS GREAT POTENTIAL FOR COMMERCIAL USE AT THE SYSTEM, SUBSYSTEM, COMPONENT AND PART LEVELS, AND ONE GEARED TO "ITEMS OF SUPPLY," SUCH AS CONSUMABLE AND DURABLE GOODS, AN AREA IN WHICH WE HAVE MADE SOME

PROGRESS AND PLAN TO DO EVEN BETTER. THE IMPORTANCE OF RESEARCHING THE COMMERCIAL MARKET AND USING PERFORMANCE BASED REQUIREMENTS IS STRESSED IN BOTH VERSIONS OF THE COURSE. WE GIVE SPECIAL ATTENTION IN THE "ITEMS OF SUPPLY" VERSION TO WRITING SIMPLIFIED ITEM DESCRIPTIONS, TO UTILIZING MARKET ACCEPTABILITY REQUIREMENTS, AND TO DEVELOPING STRONG LINES OF COMMUNICATION WITH USERS AND SUPPLIERS TO GET FEEDBACK ON THE QUALITY OF THE ITEMS BOUGHT. WE BEGAN OFFERING THE COURSES AT BUYING ACTIVITIES AROUND THE COUNTRY IN JANUARY OF THIS YEAR AND WILL BE HOLDING AT LEAST 50 CLASSES DURING THE REMAINDER OF THE YEAR.

WE HAVE REVISED THE REGULATIONS WHICH GOVERN HOW THE DEPARTMENT DEFINES ITS NEEDS. WE HAVE PROPOSED A CHANGE TO THE FEDERAL ACQUISITION REGULATION (FAR), PART 10, WHICH ADDRESSES THE USE OF SPECIFICATIONS AND STANDARDS. THIS CHANGE TURNS ON END THE ORDER OF PREFERENCE FOR SELECTING SPECIFICATIONS AND STANDARDS. NONGOVERNMENT OR INDUSTRY STANDARDS WILL BE THE FIRST CHOICE, MILITARY SPECIFICATIONS WILL BE LAST. IN ADDITION, THE CHANGE TO THE FAR, PART 10, EMPHASIZES WRITING SPECIFICATIONS IN TERMS OF FUNCTION AND/OR PERFORMANCE CHARACTERISTICS, AS WELL AS WRITING SPECIFICATIONS TO FOSTER THE PURCHASE OF COMMERCIAL PRODUCTS. IT ALSO DIRECTS THE SELECTIVE APPLICATION AND TAILORING OF SPECIFICATIONS AND STANDARDS TO FIT THE IMMEDIATE PROCUREMENT. THIS PROPOSED CHANGE HAS BEEN

APPROVED BY THE CIVILIAN ACQUISITION COUNCIL AND WE EXPECT TO SEE IT PUBLISHED IN THE FEDERAL REGISTER BY JUNE 1992.

OUR BASIC ACQUISITION DIRECTIVES - "POLICIES GOVERNING DEFENSE ACQUISITION" (DODD 5000.1) AND "DEFENSE ACQUISITION MANAGEMENT POLICIES AND PROCEDURES" (DODD 5000.2) WERE RECENTLY REVISED TO INCLUDE SPECIFIC DIRECTION ON CONSIDERING COMMERCIAL ALTERNATIVES AT THE BEGINNING OF EACH NEW PROCUREMENT, AS WELL AS AT THE SUBSYSTEM, COMPONENT AND PART LEVELS WITHIN A SYSTEM PROCUREMENT. IN DODD 5000.2, WE ARE DIRECTING THAT THE ACQUISITION STRATEGY SHOULD BE TAILORED TO THE EXTENT FEASIBLE TO EMPLOY COMMERCIAL PRACTICES WHEN PURCHASING COMMERCIAL ITEMS. THE FOLLOWING COMMERCIAL PRACTICES ARE SPECIFICALLY SPELLED OUT IN THE NEW DIRECTIVES: BUYING FOR BEST VALUE, CONSIDERING SUPPLIERS' PAST PERFORMANCE, ACCEPTING COMMERCIAL OPERATIONAL, MAINTENANCE, AND SAFETY DATA, USING COMMERCIAL LOGISTICS SUPPORT, AND USING COMMERCIAL PACKAGING AND USING COMMERCIAL ITEM DESCRIPTIONS IN CONJUNCTION WITH A MARKET ACCEPTABILITY REQUIREMENT. MARKET ACCEPTABILITY PROVISIONS REQUIRE THAT A PRODUCT MUST HAVE GAINED MARKET ACCEPTANCE IN TERMS OF VOLUME OF SALES, LENGTH OF TIME IN THE MARKET, OR OTHER APPROPRIATE CRITERIA. IN SUPPORT OF THE DODD 5000.2 DIRECTIVE, WE HAVE ISSUED DETAILED GUIDANCE ON THE PREPARATION OF COMMERCIAL ITEM DESCRIPTIONS AND THE USE OF MARKET ACCEPTABILITY. THIS GUIDANCE IS AIMED AT ENSURING THAT THESE DESCRIPTIONS WILL BE

SIMPLE, FUNCTION OR PERFORMANCE ORIENTED, GENERALLY EASY FOR INDUSTRY TO UNDERSTAND AND USE, AND RESULT IN THE PURCHASE OF QUALITY PRODUCTS.

WE HAVE PUBLISHED A DOD HANDBOOK, ENTITLED "BUYING NDI." THIS MANUAL SPECIFICALLY ADDRESSES THE INTEGRATION OF COMMERCIAL ITEMS INTO OUR PROCUREMENT PROCESS. IT IS USED IN CONJUNCTION WITH THE TRAINING COURSE AND AS A STAND-ALONE GUIDE. WE ARE ALSO PREPARING ANOTHER HANDBOOK SPECIFICALLY AIMED AT PROVIDING SPECIFICATION WRITERS INFORMATION ON DOING MARKET RESEARCH AND INCORPORATING THE RESULTS OF THAT RESEARCH INTO AN ITEM DESCRIPTION. WE ALSO PLAN TO PUBLISH A COMPENDIUM OF COMMERCIAL ACQUISITION CASE STUDIES THIS YEAR, WHICH WILL SERVE AS A "LESSONS LEARNED" DOCUMENT. BOTH OF THESE PUBLICATIONS WILL BE INCORPORATED INTO OUR TRAINING CURRICULUM.

AS PART OF THE DEFENSE MANAGEMENT REVIEW (DMR), WE DID A COMPLETE REVIEW OF ALL OF OUR SPECIFICATIONS AND STANDARDS, SOME 35,000 DOCUMENTS. THE REVIEW CRITERIA INCLUDED THE CURRENCY AND THE NECESSITY OF THESE DOCUMENTS, AS WELL AS THE APPROPRIATENESS OF MAINTAINING A MILITARY SPECIFICATION OR STANDARD, AS OPPOSED TO AN INDUSTRY STANDARD OR COMMERCIAL ITEM DESCRIPTION. AS A RESULT OF THIS REVIEW, WE HAVE BEGUN THE CONVERSION OF 3500 OF OUR MILITARY

DOCUMENTS TO INDUSTRY STANDARDS OR COMMERCIAL DESCRIPTIONS, AND 1500 MORE WILL BE CANCELLED.

IN THE AREA OF RIGHTS IN TECHNICAL DATA AND SOFTWARE, THE DEPARTMENT HAS BEEN MAKING PROGRESS TOWARD DEVELOPMENT OF A COMBINED FAR RULE, WHICH IS EQUITABLE TO BOTH GOVERNMENT AND INDUSTRY. THESE EFFORTS HAVE BEEN UNDER THE CHAIRMANSHIP OF THE DIRECTOR OF DEFENSE PROCUREMENT STAFF AND HAVE INCLUDED INPUTS FROM VARIOUS SOURCES, INCLUDING INDUSTRY AND GOVERNMENT AGENCIES. THE FINAL COMBINED FAR RULE ON RIGHTS IN TECHNICAL DATA WILL BE AN AGGREGATE OF BENEFICIAL RECOMMENDATIONS TAKEN FROM THESE INPUTS.

WE ARE ALSO WORKING WITH INDUSTRY TO ADDRESS THEIR CONCERNS REGARDING COST OR PRICING DATA REQUIREMENTS FOR SALES OF COMMERCIAL PRODUCTS TO THE GOVERNMENT. THE RECENT LEGISLATIVE INCREASE IN THE TRUTH IN NEGOTIATIONS ACT (10 U.S.C. 2306A) THRESHOLD FROM $100,000 TO $500,000 WILL ENCOURAGE MANY COMMERCIAL CONTRACTORS WHO WANT TO SELL PRODUCTS TO THE DEPARTMENT OF DEFENSE.

IN ADDITION, WE ARE CONTINUING TO REVIEW THE REGULATIONS GOVERNING ACCOUNTING REQUIREMENTS TO IDENTIFY THOSE PROVISIONS WHICH IMPEDE THE ACQUISITION OF COMMERCIAL PRODUCTS AND RECOMMEND CHANGES WHERE POSSIBLE. ON SEPTEMBER 6, 1990, WE PUBLISHED A PROPOSED RULE IN THE FEDERAL REGISTER AIMED AT STREAMLINING AND SIMPLIFYING CURRENT

REQUIREMENTS FOR OBTAINING AN EXEMPTION FROM THE SUBMISSION OF COST OR PRICING DATA. THE PROPOSED RULE EASES EXEMPTION CRITERIA BY PERMITTING CONTRACTING OFFICERS TO GRANT AN EXEMPTION FOR CONTRACTS OF $1 MILLION OR LESS FOR CASES WHICH DO NOT STRICTLY MEET THE CURRENT EXEMPTION CRITERIA, SUCH AS ITEMS THAT ARE NEW TO THE MARKET. IN RESPONSE TO THE PROPOSED RULE, OVER 266 PUBLIC COMMENTS HAVE BEEN RECEIVED FROM 49 SOURCES. THE PUBLIC COMMENTS HAVE BEEN ANALYZED AND POLICY ISSUES ARE CURRENTLY BEING ADDRESSED. WE ANTICIPATE PUBLISHING AN INTERIM RULE TO GIVE INTERESTED PARTIES ADDITIONAL TIME TO RESPOND TO THE CHANGES PRIOR TO PUBLISHING A FINAL RULE. WE EXPECT THAT OUR PROPOSED CHANGES WILL BE A SIGNIFICANT STEP IN REMOVING IMPEDIMENTS TO THE PURCHASE OF COMMERCIAL PRODUCTS.

TO ENCOURAGE SUPPLIERS TO OFFER COMMERCIAL ITEMS TO DOD, NEW REGULATIONS WILL BE PUBLISHED THIS MONTH THAT SIMPLIFY DOD'S CONTRACTING PROCEDURES FOR COMMERCIAL ITEMS. THE NEW REGULATIONS ELIMINATE DOD UNIQUE REQUIREMENTS IN THE FOLLOWING AREAS:

- QUALITY ASSURANCE
- SPECIFICATIONS AND STANDARDS
- PACKAGING AND MARKING
- TECHNICAL DATA ACQUISITION

- LICENSING OF COMPUTER SOFTWARE.

THE PROPOSED CHANGE ALSO REDUCES THE NUMBER OF CONTRACT CLAUSES THAT WE WILL USE IN CONTRACTING FOR COMMERCIAL ITEMS AND LIMITS THE CLAUSES THAT MAY "FLOWDOWN" FROM PRIME CONTRACTOR TO SUBCONTRACTOR. THIS PROPOSED RULE WILL ALSO BE PUBLISHED AS AN INTERIM RULE, ALLOWING ADDITIONAL PUBLIC COMMENTS TO BE SOLICITED.

THESE NEW REGULATIONS WILL REMOVE MANY OF THE PROCEDURAL IMPEDIMENTS THAT DISCOURAGE SUPPLIERS FROM OFFERING COMMERCIAL PRODUCTS TO THE DEPARTMENT OF DEFENSE. THERE ARE, HOWEVER, A NUMBER OF AREAS IN THE U.S. CODE THAT APPLY TO DEPARTMENT OF DEFENSE CONTRACTS BUT NOT TO CONTRACTS IN THE PRIVATE SECTOR. THE PUBLIC COMMENTS RECEIVED IN RESPONSE TO THE PROPOSED RULE SUGGEST THAT THESE EXISTING STATUTORY REQUIREMENTS POSE SIGNIFICANT IMPEDIMENTS TO POTENTIAL SUPPLIERS. ALTHOUGH WE CONTINUE TO MAKE IMPROVEMENTS TO THE REGULATIONS AND PROCEDURES WE USE TO BUY COMMERCIAL ITEMS, WE CANNOT FULLY EMULATE COMMERCIAL PRACTICES WITHIN THE CURRENT STATUTORY FRAMEWORK.

YOU HAVE REQUESTED THAT I ALSO ADDRESS DOD DEPENDENCY ON FOREIGN SOURCES FOR WEAPON SYSTEM PARTS AND COMPONENTS TODAY.

# OASD(PR) FAX COVER SHEET

**Date:** 6/10/92

**To:** Mr. Gary Gershowitz

**Telecopier Number:** (202) 456-6218 **Office Number:** (202) 456-7750

**From:** Gary Powell

**Telecopier Number:** (703) 695-6929 **Office Number:** (703) 697-1771

**Subject:** Information You Discussed w/ Mr. Torelli:

Information from 2 Hearings is attached. We have marked those pages pertinent to your discussion Please call if we can provide further help.

**This package consists of** 1 **pages including this cover sheet.**

See pages 5 & 6 of this statement

STATEMENT
DONALD J. YOCKEY
ACTING UNDER SECRETARY OF DEFENSE (ACQUISITION)
BEFORE THE
SENATE ARMED SERVICES COMMITTEE
ON JUNE 18, 1991

**INDUSTRIAL BASE ISSUES**

Mr. Chairman and Members of the committee, I am pleased to appear before you today to discuss the defense industrial base. I appreciate the opportunity to discuss an issue that is of such importance to the Congress and to the Department of Defense, and am particularly pleased to share this forum with Admiral David E. Jeremiah, the Vice Chairman of the Joint Chiefs of Staff. As you will recall, he has discussed these topics with you before, and with the Committee's permission, it is appropriate that he follow-up by first giving you his assessment of the new strategy and its implications for the industrial base. I will then continue with my remarks.

* * * * *

Admiral Jeremiah's review of the strategic situation emphasized the importance of incorporating a reconstitution strategy in our planning process. I will focus primarily on other aspects of the industrial base.

Industrial base activities managed by the Department of Defense range from: (1) the complexities of overseeing our routine peacetime business of efficiently equipping and supporting our military forces; (2) the industrial preparedness posture appropriate to deal with the potential near-term regional contingencies and conflicts; and (3) include the planning activities needed to meet potential production needs to reconstitute, or even further expand, our forces in response to an emerging future global threat.

Today I plan to discuss selected industrial base issues from each of these three broad areas. I first need to emphasize that the industrial base dedicated to defense production must shrink, given the new budget realities. We will do what we can to mitigate the effects, but we can't prevent it from happening.

Peacetime Posture

Now, with regard to the situation as we now see it in peacetime, our ability to reduce our force structure while meeting our national security needs for regional contingencies demands that we maintain superior forces both through high-quality, well-trained personnel and through the excellence of our weapon systems. Operation Desert Storm demonstrated the absolute correctness of our long-standing policy of insisting on technological superiority in our weapons, and thoroughly reinforces the need to preserve this policy as a key corollary to reduced force structure.

Therefore, our long-term security requires that we sustain our capability to produce first-class weapons systems. To accomplish this, we must continue to invest in new technology. In this regard, we are committed to funding robust levels of research and development, both (a) direct DoD funding of the Technology Base -- $3.9 billion in FY92 -- as well as (b) effort funded through the contractor Independent Research and Development (IR&D) program.

The Department has increased the cap on Independent Research and Development/Bid and Proposal (IR&D/B&P) costs by 4.4 percent for FY91 and by an additional 3.8 percent for FY92. We approved these increases despite an overall decline in the defense budget to ensure that sufficient funds are available to enable defense contractors to develop the advanced technologies that strengthen our national security and support the industrial base.

We are providing strong support to the defense industrial base by preferentially funding technologies that are critical to the DoD mission. The FY91 Defense Critical Technologies Plan that was forwarded on May 7, 1991 provides increased attention to manufacturing. One critical new technology, Flexible Manufacturing, was added this year to the twenty critical technologies on the prior list, to exemplify the importance of integrating technologies for manufacturing. In addition, the plan contains an assessment, for each of the 21 critical technologies, of the infrastructure relevant

to supporting the industrial and manufacturing capabilities of the United States.

We are pursuing a number of actions to help improve the financial health of our defense contractors. One way we have acted to strengthen the industrial base is by ensuring that the contracts we award to industry do not damage our contractors' financial health by inappropriately exposing them to large losses. In the past, large fixed-price development contracts on high-risk programs, while legally binding, have resulted in major financial losses for industry when unanticipated problems arose. For some time our defense acquisition regulations have provided guidance that requires the use of cost-type contracts for risky development programs. The Department is strongly committed to fully meeting this initiative.

We also recently directed the Service Acquisition Executives to strictly limit the use of fixed-price production options in full-scale development contracts. We are able to ensure that this policy is being adhered to through review of the planned acquisition approach in milestone and program reviews of major defense acquisition programs, and we have asked the Service Acquisition Executives to make similar examinations of other programs within their Military Departments.

The Defense Management Report committed the Department to a periodic review of progress payment rates in light of prevailing

interest rates and restraints on outlays. Our new progress payment policy implements this commitment. It provides for an annual reassessment of progress payment rates based on the average quarterly short-term commercial borrowing rates experienced during the preceding year. Based on this assessment, progress payment rates of 85 percent for large businesses, 90 percent for small businesses, and 95 percent for small disadvantaged businesses will be used for new contract awards beginning July 1, 1991.

We are committed to maintaining sound, equitable, and stable policies that provide well-managed defense contractors the opportunity to earn reasonable rates of return in exchange for quality products. Use of award fees can be effectively utilized in this regard. Increases in IR&D/B&P recovery rates and policy changes to allow progress payment rates to change as interest rates change are two key steps that we have already taken to encourage continued participation in the defense market.

Another factor we have under review is the integration of commercial and military technology. As directed by Deputy Secretary Atwood, the Department has established an aggressive agenda aimed at breaking down barriers to buying commercial items. In addition, the incorporation of global capabilities into the defense sector provides a number of benefits to DoD and national security. Access to foreign production capabilities and technologies has enabled U.S. producers

to achieve improvements in defense equipment in a cost effective way. Foreign participation broadens the supplier base both in terms of production sources and technology. It provides the advantages of competition, higher quality and lower cost, that might otherwise be absent in highly-specialized and narrow market niches limited to domestic sources. This, of course, is consistent with long-standing public policy and congressional mandate requiring the marketplace and competition to dictate sourcing of DoD's purchases. However, as we put greater emphasis on commercial sources, we must be mindful that worldwide sourcing has become a fact of life. We therefore must be careful to ensure our reconstitution goals can be met during a long period of crisis, taking worldwide sourcing into account.

The ultimate bottom line for our peacetime activities is the essential need for industry and DoD to manage our programs and resources as wisely as possible to assure that we can gain maximum military effectiveness from our declining resources.

Reconstitution, Future Force Expansion Needs

As we reduce our force structure in response to world events, we need to ensure that we would be able to expand our force structure over a period of time to respond to some unanticipated emerging threat. This depends on how large the threat is and on how fast it reemerges, as well as our inherent ability to respond starting from our planned peacetime posture. At the front of this reconstitution

spectrum, we are considering establishing stockpiles of equipment that could form the basis for bringing up additional combat units after a period of organization and training. Once all existing stocks of usable equipment were issued to new units, any further expansion of forces would require increased production of new items of major combat equipment, for example, armored vehicles, aircraft, ships.

The time required for such industrial mobilization is highly dependent on the defined threat or threats, and the degree to which emergency procedures are employed, to include provisions of the expired Defense Production Act. As currently postulated, our threats generally fall into regional conflicts of short-term duration and short warning times or a global conflict with a somewhat longer duration and a longer warning time.

We will engage in regional conflicts with existing stocks, including prepositioning and war reserves. For future global conflicts, it would take many years to increase the production rate for our most complex systems to meet our needs. Since we will have enough warning time, this will enable us to fight such a global conflict with the advanced technology we are currently developing such as stealth, advance computer technology, etc., as shown in the ATF and LH. What we don't want to do is continue to produce older systems which do not include the latest technology, nor do we want to

invest too much in shortening the lead times for major current equipment beyond the results that could be achieved under wartime emergency management priorities. This would be expensive, and the cost would come at the direct expense of reductions in our standing military capability. Second, this would only perpetuate technical obsolescence over time. For these reasons, the Department is thoroughly examining all facets of how we can support the reconstitution concept before we make any major changes to our program policies.

Industrial Preparedness Planning

Consistent with statute and national policy, the DoD has long maintained an extensive industrial preparedness planning program to mobilize equipment, facilities and other resources for emergency situations. A key foundation of this program has been the Defense Production Act (DPA), which grants the President important authorities for mobilizing the Nation's industrial resources for national security purposes. An important authority, contained in Title I, allows the President to order priority performance of contracts for national security purposes. The DPA expired on October 20, 1990. We were able to support Operation Desert Shield/Storm because we were able to substitute the limited authorities of the Selective Service Act, and most importantly, because of the exceptional support of our many contractors.

Although the Persian Gulf conflict bore little direct relationship to our industrial planning baselines, our planning stood us in very good stead, particularly for many items managed by the Defense Logistics Agency. It contributed to our ability to surge items that are not stocked heavily in peacetime, at least partially because we have an inherent ability to surge them in emergencies. Very few major items were surged, the newest version of the Patriot missile being a notable exception. In general, war reserve stocks of major systems were adequate to support Operation Desert Storm.

We are in the process of updating our industrial base planning guidance, to broaden it beyond our traditional narrow focus on surge and mobilization planning. We are addressing industrial base issues more rigorously in the acquisition process. Specifically, our new Defense Acquisition Program Procedures require a specific focus on the industrial base capability to support all new major system acquisitions.

We will continue to protect a surge capability in many of our acquisition and support activities, particularly for consumable items such as munitions. Funding for these surge capabilities will be separately identified as we move toward more modern and efficient methods of industrially funding many of our peacetime support activities.

In summary, we are considering the impact of planned force reductions on the industrial base during the acquisition process. The Department's overall approach is based on the best mix of current systems and new developments. In lean times, we need to make difficult decisions or we will not succeed in meeting both the budgetary goals and the planned force reductions without major problems. I have organized my staff to integrate the full spectrum of talent to properly assess and evaluate the production base. We are continually getting better in our production base analyses and I believe that the procedures outlined in the newly revised acquisition instructions will get us there.

IN THE WHITE HOUSE AND AROUND TOWN:

o There will be a more serious debate over the budget deficit and runaway entitlement spending in this year's presidential campaign, although the tough choices will likely have to wait until next year, predict Clinton and Bush advisors. A new ABC News/Washington Post poll out today shows that, by a 77 percent to 17 percent majority, likely voters support a constitutional amendment requiring a balanced budget. The Bush White House beleives the additional public debate caused by the President's high-profile plea for a balanced budget amendment will also force Americans to think more clearly about government spending in general, and the difficult decisions required to curtail the growth of entitlements in particular. The Clinton campaign, meanwhile, agrees the budget deficit will be a powerful issue, but believes it will serve to remind voters of Washington gridlock and the need for change. For his part, Ross Perot spends a fair amount of time discussing the budget deficit, but, so far, has mostly shown only a willingness to highlight the problem. "[Perot] believes solving the budget deficit and getting that psychological barrier out of the way is the key to doing anything," Perot spokesperson Jim Squires told the Bulletin. "His position has been that what he would favor over any kind of constitutional amendment is a new Gramm-Rudman that works. He doesn't think it is a matter of law, but a matter of will and consensus building. ... He has said that he doesn't think [an amendment] is needed. He's for a balanced budget, not a balanced budget amendment." Perot's apparent desire to portray the budget deficit as a symptom of the Washington disease, coupled with his image as a successful businessman, however, will also help propel the issue to the forefront of the 1992 presidential campaign.

The debate over the balanced budget amendment will help focus the public's attention on government spending, including entitlement programs, reports White House domestic policy chief Clayton Yeutter. Yeutter believes even if the amendment does not make its way out of Congress, "it helps lay the groundwork for the discipline of entitlements and a strong effort to reduce the Federal deficit next year." Yeutter told the Bulletin: "The very fact that we are having this debate puts additional focus on the level of Federal spending and the runaway characteristics of the entitlement programs. And that will help in the subsequent debates over aggregate spending limits and disciplinary mechanisms that will inevitably carry over into 1993." While the President is expected to continue pushing for an amendment regardless of the outcome of upcoming Congressional votes, the detailed argument over how and where to prune entitlement spending will likely wait until after the election,

MISC. NOTES:
--entirely different economic world than one we grew up in

FROM LYNN MARTIN:
--PENSION BENEFITS -- Pension Benefit Guarnaty Corporation, begin monitroing legal and professional fees in bankruptcy cases in which it is a major creditor -- responsible for guaranteeing payment of benefits for private pension plans that cover some 40 million workers -- one of largest creditors in many of our nation's biggest bankruptcy cases -- have legal and moral obligation to American workers and taxpyaers to see that the scarce resources of bankrupt firms are used to pay promised pension and health benefits, not line the pockets of the bankpruptcy bar -- there is ample evidence of exoribitant fees being paid in bankruptcy cases where PBGC has substantial liability for pesnion benefits -- hourly attorney fees $500 -- charges of more than $300/hour just for preparing a bill -- victims are the men and whomen promised benefits, worked hard to earn them
--also extensive on emergency unemployment compesnation program

--pride; entrepreneurial spirit
--Reader's Digest survey -- 67% feel economy better served by less government involvement; 78% prayer important part of daily life

(spbudget)
BALANCED BUDGET:
I want to talk to you today about a big idea -- **a big change in the way your government works**. For the past 12 years, President Reagan and I have tried to get Congress to act responsibly and restrain federal spending. saddling future generations with a mountain of debt. **we're borrowing from the future to pay for indulgences of the present**. Our future is at stake. **To ensure long-term economic growth, we must get federal spending under control**. I've called for big changes in many areas -- revolutionary reforms in how this nation's gridlocked capitol does business. And for some time now, I've been speaking about how we create jobs in this country. Well, high deficits raise interest rates, and high interest rates kill jobs. So to make our economic future strong -- **the balanced budget is where we must start**. Look at your own family. You know what happens when you spend more than you make. The devil's going to come, demanding his due. Well that's what our American family faces right now. When you hear about our $360 billion deficit, remember -- that's not Monopoly money. Some day that debt must be paid with **your** money -- as sure as your own personal debts will have to be paid with **your** money.

# # # #

(spcircle)
We love America for what it is. But perhaps we love it even more for what it will be -- our vision of the America we'll forge together. An America whose economy is bursting upward. An

America whose children are prepared for the 21st century.

At one point in a movie called "Awakenings," a fellow who's been asleep for decades wakes up and has the whole world in front of him. When his doctor asks him what he wants to do that day, his face breaks into a huge grin and he shouts: "Everything!" That's what we need in America -- that belief in unlimited possibilities. And I tell you where we have to start. With the family. Our most precious resouce. People tell me of lost kids, stoned on drink or drugs or emptiness. Well, as I travel this country I talk to the good people who make up America -- the honest, decent folks this country xxx -- and when I see them, you can't tell me that American kids can't be the finest in the world. But we have to reclaim the values our country was founded upon. With a national call to action that emphasizes family -- not alienation. Right and wrong -- not "moral free fall". Responsibility, hard work, and self-discipline. And it's in the family that those values take root. Where kids learn they can -- and they must -- control their own lives. Where they learn that character means the courage to reach for dreams. For to make it through this world, we must each navigate by the dictates of our own inner moral compass. The family must shape that compass early. That's how our children will thrive -- and how our nation will survive.

(spcomput)
when we work to open markets and expand trade -- we make a priceless investment in our own children's future.

We're entering an entirely different economic world than the one we grew up in -- a new age of American competition in a fiercely challenging global marketplace. As American businesses meet worldwide challenges they will succeed because, as long as the playing field is level, American workers will outcompete and outproduce anyone, anywhere, anytime.

#k

(spdeere)

I see how you've done it. You've succeeded because of your commitment to quality -- to world-class performance. You've succeeded because of your priority of training and educational excellence.

cracking foreign markets creates more American economic growth and more American jobs. In this new global marketplace, America has built a solid foundation. Inflation is down. Interest rates have fallen to the lowest level in years. American exports have skyrocketed 80 percent in the last five years alone. But that doesn't mean we don't face problems. We do. Tough ones, and I know it. As President, I've traveled to 48 states. I've met with all sorts of people -- men and women and kids who are the real heart of America. I've talked with them. I've listened to them. Most of all, I've learned from them. I want to say something to everyone of them -- to every one of you. I hear you. I understand. I care. I want to help. I know that for a person out of a job, the unemployment rate is 100 percent. (letter)

We've got more to do to get this economy moving the way we

want it to -- the way we know it will. Together, these measures will help our economy grow -- will create jobs -- and will help every American reach for his or her dream.

we can feel the truth of what FDR said a half-century ago: "The only limit to our realization of tomorrow will be our doubts of today."

***

(spgovern.nts)
the heart of it: **in this $6 trillion economy, the way to add jobs is to encourage long-term investment**. capital gains tax of 15.4%. You know who this will help -- the bricklayers and the carpenters who now on unemployment. They'll be back on payrolls because the capital gains cut favors growth and jobs for working America.

888

(spla1)
--against hope believed in hope
--hope -- a waking dream
--strength beyond hope and despair (Eliot)
--grass-roots heroes

****

(spminori)
out building your own businesses from scratch -- so a special welcome to the White House, which is, after all, the ultimate mom and pop operation -- Barbara and I both work at home.

Each leader here today and the others across this land bear witness by their presence to the truth of a statement William Jennings Bryan made nearly 100 years ago: "Destiny is not a matter of **chance** -- it is a matter of **choice**. It is not a thing to be waited for -- it is a thing to be achieved."

# # # # #

(spnrsc)
**free trade**.

The world of the new century will be one where competition is in the economic arena. A world in which defeatism produces defeat. But where confidence and self-reliance produce greatness. Through our treaties, we define the America we want to build -- one where we believe in ourselves and in tomorrow. An America ready to seize the opportunities the new world economy offers.

# # # #

(spsteel)
the struggle against **excessive regulation**.

American workers have shown to foreign competitors that, given a level playing field, we can out-think, out-perform and out-produce anyone, anytime, anyplace. Well, a level playing field outside the United States is all well and good, but **you'll never reach it if you have to run yourselves to exhaustion right here at home on a treadmill of overzealous regulation**. \\

Over-regulation here in the United States can give foreign corporations an advantage over American firms. It also can drive U.S. businesses to move factories and jobs overseas. Let me assure you: **I will roll back the tide of over-regulation**. \\\

# # # # #

petence in five core subjects measured against world-class standards. And by the year 2000 our children will be the first in science and math. Our adults will be literate and able to compete in the work force. And sixth, finally, our schools will be safe, disciplined, and drug-free.

We'll achieve these goals by advancing four transforming ideas at the heart of America 2000:

First, flexibility for teachers and principals, freedom from the web of Federal regulations that impose a one-size-fits-all solution to our schools;

Second, a generation of new American schools. Teachers are critical to this exciting break-the-mold experiment in what education can be;

Third, world-class standards and voluntary national exams. Again, teachers are leading the way in defining standards, creating curriculum frameworks, developing exams to help us raise our sights and measure our performance;

And fourth and finally, parental choice of schools: public, private, religious.

Now, our plan is innovative. It is exciting. It is uniting this country. And it will work. Changing our schools is too important to wait or to waste a generation. And that's why education is one of the five urgent reform challenges that I've been talking about. We know we've got to be competitive in a changing world. We can't go on sending our children into the working world undereducated and ill-equipped and expect the business community to spend billions teaching new workers what they should have learned in school. Status quo schools simply will not carry us into the next century.

We set our goals for the year 2000 because we know our economic health, our economic survival depend on how we educate ourselves to face the challenges a new century will bring. Tom and the thousands of men and women like him will help us meet those challenges.

Teachers know that real excellence demands commitment from everyone in every community as we work to create communities where learning can happen. It demands that talented men and women give time to become tutors and mentors. It demands that businesses, churches and synagogues, and civic groups join together to support local schools. It demands that every citizen help his community develop a plan of action based on America 2000 and help the Nation reach these national education goals. Together, we literally will reinvent the American school community by community, neighborhood by neighborhood, all across this country. And at the heart of this shining new school will be, as always, the teacher.

Last week at the Oscars, George Lucas, filmmaker, might have captured it best when he thanked the teachers of his childhood. And he said, "All of us are teachers, teachers with very loud voices. But we will never match the power of the teacher who is able to whisper in a student's ear."

And so, Tom, on behalf of all Americans who have had the rare and priceless privilege of having a fine teacher whisper in their ear, congratulations. You teach the one lesson that matters the most. There's no distinction between who you are and what you do. You've woven the values of your life into your work. And thank you, sir. And may God bless you.

And now I have something special for you. This apple is the traditional symbol of teaching, and crystal represents the clarity of vision and commitment that the great teachers possess. And so, on behalf of a grateful Nation, an admiring Nation, with great pride in you, sir, congratulations.

Now, may I hand you this apple?

***Note:*** *The President spoke at 11:22 a.m. in the Rose Garden at the White House. In his remarks, he referred to Robert Schiller, superintendent of public instruction for the Michigan Department of Education, and Michael O. Emlaw, superintendent of Washtenaw Intermediate School District, MI.*

## Remarks to the American Business Conference

*April 7, 1992*

Thank you, Jim, very, very much. Thank you all, and I'm just delighted to be back

with you. And Jim Jones, thank you, sir, for the introduction, for your leadership not just of this wonderful organization but of the exchange and for everything else you do for this economy.

Some people think I've been traveling a little too much so today, as an example of my new policy, no trips further than one block away from the White House. [*Laughter*]

It is a pleasure to be with you. I'm delighted to have been accompanied by Barbara Franklin, who many of you saw coming in, I think, our new Secretary of Commerce, in whom I have great confidence: Barbara. And she and I both agree that she has large shoes to fill over there at Commerce with one of your originators, one of your founders, my dear, close friend, Bob Mosbacher, sitting in the back, back here. What a job he did for his country as Secretary.

But let me just say it is always a pleasure to speak with the members of the ABC, the American Business Conference because it's a pleasure to speak with the best, people that get things done. And I'd like to talk to you today about the future, the future of our country generally, and more particularly, the future of our country's business environment. In fact, we cannot separate the two. The America of the 21st century—Jim talked about some of the aspects of this, what ABC's about, its ability to make peace in the world, but to foster strong families, to create rewarding jobs—will be shaped today, in large part, by how hospitable we make America for business.

We can learn from your achievement. The key to the success of any high-growth company is the wise deployment of resources. The successful company channels labor and investment into those areas with the potential for the greatest expansion, for the highest return. And you take the risk; you reap the reward; everyone, meanwhile, benefits from the wealth you create. And that, in brief, is the genius of entrepreneurial capitalism, a system that has made America the envy of the world.

For 200 years our prosperity has sprung from our ability to innovate, to create, to change as the world changes. But America's world leadership is not automatic; it's not a birthright. We must continue to earn it day by day, quarter by quarter, year by year. And the world now is changing at a pace that no one could have dreamed of just a generation ago. And America, which has led the world's transformation, simply must change with it.

Over the last several years, deadweights have begun to slow the engine of growth, inefficiencies a competitive economy simply cannot tolerate. And today I want to discuss five areas of reform, five critical ways in which America must change if we are to continue to lead the world. You understand the urgency, for each of these problems presents itself to American companies not as an abstraction but in the most immediate way, as a cost of doing business, a cost you can't control, an expenditure with no possible return.

When our legal system becomes incapable of resolving disputes in a timely and civil manner, business loses the incentive to innovate and take risks. Secondly, when health care costs escalate, business picks up much of the tab. When Government imposes barriers to trade, business pays the price in opportunities lost. When our children leave school without rudimentary skills, business bears the burden in lowered productivity. And when Government freezes in gridlock, business can no longer plan rationally for the future.

Let me begin with the crying need to reform our country's civil justice system. Every American has heard stories of bizarre or frivolous lawsuits. But most of you have lived with them, tales that could have been torn from the pages of Kafka. Consider one example related by one of your members, Roger Coleman, president of Rykoff-Sexton, a food manufacturer and distributor.

After record earnings in 1989, Mr. Coleman publicly expressed his confidence that 1990 would be even better. And when earnings fell short, his hopeful statement became the cause of a shareholder class-action lawsuit. First, in a meeting with plaintiffs' contingency-fee lawyers, at which the merits of the case were never even discussed, the issue, says Mr. Coleman, was "the depths of our pockets." And next came the nightmare of discovery, endlessly expensive and invasive. The company's managers, instead of managing, spent their time preparing for

depositions. The lawsuit, he says, "brought everything to a stop." In the end, rather than permit the total exhaustion of company resources, Mr. Coleman decided to settle. And the tab for this exercise in futility, $8.7 million. And as he says, "That's over $8.7 million that was diverted from new investments in jobs and facilities."

The scenario is repeated daily throughout American business. And it is not repeated, let me stress, among our world competitors. Only the United States has seen the number of lawyers double over a 20-year period. And only the United States spends more than $80 billion annually in direct litigation costs, perhaps four times that in indirect costs. According to a recent survey, 40 percent of companies that had been the target of product liability suits have discontinued certain types of product research.

We must remove this ball and chain from our ability to produce, our ability to compete worldwide. And my Competitiveness Council, led by the Vice President, has offered 50 recommendations for legal reform. They would limit discovery to reasonable proportions, discourage some frivolous suits through a "loser pay" rule, and offer alternative means of resolving disputes.

This broad legal reform will not be easy. Just look at the fight that we've had on product liability reform. We introduced a reform bill in 1990 and again in 1991. And the Senate opposition, the majority in the Senate refused to bring it to a vote. And in the House it's stuck in two committees. The special interests are lining up against legal reform, and we could certainly use your help in moving it forward. We must reform the legal system of this country.

If we are successful, the effects will be far-reaching, extending into another area critically in need of change. Medical malpractice premiums almost doubled in the second half of the eighties. Doctors are practicing defensive medicine, ordering an estimated $20 billion a year in unnecessary tests and procedures to protect against frivolous lawsuits.

The trends in health care costs are simply unsustainable. From less than 6 percent 30 years ago, total health care expenditures are today about 13 percent of GDP. Some mid-range estimates put that figure at 30 percent by the year 2030. That's 30 cents of every dollar of national income spent on health care. Right now, according to one Federal study, American corporations already spend more on health care each year than they earn in aftertax profits.

We must reform the system, but we face a crossroad. Some have advocated nationalized care; others propose the so-called "pay or play" approach, which I am convinced is merely a step on the road to nationalized care. Neither is acceptable. Neither will preserve the quality of our country's health care, which remains the best in the entire world. And I will not let that high quality be taken away from the American people through some scheme of Government control.

Nationalized care means rationed care. Its promise of cost containment is a mirage. "Pay or play" would dump still more mandates on business. For employers, a 9-percent payroll tax would mean a 34-percent increase in health insurance costs. And that money has got to come from somewhere. And for a company unable to pass along the added costs through higher prices, that means decreased investment; it means lower wages; it means fewer jobs.

There is an alternative, a good one. And my proposed health care reform will build on the strengths of the existing system, preserving the quality of American care. We will increase consumer choice. And through transferable credits, we will assure access to basic health insurance for the uninsured and control costs through market incentives. And we will not have to raise taxes in the process, raise taxes on the employers.

I've targeted a third area for attention, like the others, absolutely critical to our success in the coming decades. You understand that for America to succeed economically at home we must succeed economically abroad. The fastest growing companies among your group, the ones creating the greatest number of jobs here at home, are those with far-reaching involvement in foreign markets.

I am committed to opening markets to American goods and services, removing the Government-imposed barriers that act as a hidden tax on American business. Each market shut off by protection is a lost opportunity to sell your products. A successful conclusion

to the current Uruguay round of trade negotiations, for instance, could increase world output by $5 trillion over the next decade. More than $1 trillion of that boom will go to the United States, creating a higher standard of living and, yes, more jobs for Americans.

And then, even closer to home, an area where Bob Mosbacher did so much and now Barbara Franklin has taken up the cause: exports to Mexico. They have more than doubled over the last years, creating more than 300,000 American jobs. Now, our North American free trade agreement, Mexico, Canada, and the U.S., will lock in and even multiply these gains, creating a $6 trillion market for American products in Canada, Mexico, and the U.S.A.

As world trade expands, the need for a sophisticated, well-educated work force will intensify. And yet the fact is grim and undeniable, and Jim referred to this one in introducing me, our current educational system is unable to produce the workers the highly competitive world market demands.

Our educational failures have hit American employees hard. English is now the language of international business, and yet only 20 percent of 17-year-olds can write a simple two-paragraph letter applying for a job. The situation in geography, math, science is equally dire. Too many businesses are forced to pay twice for the education of prospective employees, once through taxes that support our schools and again through job training to remedy the failures of those schools in educating our young.

Communities have begun taking matters into their own hands, with local businesses often acting as catalysts. ABC's Vital Link, which works with local schools to establish learning incentives for students, is a perfect example of the community-based efforts that our children need.

And still, there is much for the Government to do. This year seven different Federal agencies will spend $18 billion on a patchwork of 60 mandated vocational training programs. Is it any wonder that so many Americans who seek training don't know how to get it? Now, working with State and local governments, we've got a new program: our Job Training 2000 initiative we call it. And that will bring coherence to these programs and try to offer "one-stop shopping" to aspiring workers. Job Training 2000 perfectly complements the revolution now taking place in American education as a whole.

And through this, I hope you've heard of it, our America 2000 initiative, we will reinvent, literally reinvent our schools. Your chairman, Jim Jones, is a leader in what we call the New American Schools Development Corporation. It's a private group created at my request to launch an entire generation of break-the-mold new American schools.

This revolution is essential to creating a world-class work force. Now to do that, we need to set world-class standards for students and create a system of voluntary national tests to measure their progress. We've got to redouble our efforts to rid our schools of drugs and violence, to cleanse America of this scourge that wastes so many young lives. And we must make schools more accountable by forcing them to compete. And that mea- giving parents the opportunity to choo- their children's schools, public, private, or religious.

I am convinced that each of these major reforms, restoring sanity to our legal system, ensuring quality health care for all, expanding world trade, reinventing American education, is essential to this country's productivity. But each faces powerful opposition from special interests who profit from the status quo. And so, I've targeted a final reform, no less important than the others. If America is to change, our Government must change.

And last week in Philadelphia I presented seven specific programs, proposals really, to deal with the paralysis that grips the Congress. And the results of this gridlock are dismally plain. Congress was incapable even of passing a short-term, stimulative economic growth package. But they must understand I am going to continue to fight for measures essential to economic growth, and that includes something you know something about, a lot about, including a cut in the tax on capital gains.

And you have sitting here today a leader that knows something about the success of a capital gains cut, Jim Jones. Because if my memory serves me correctly, it was the Jones-Stieger initiative in '78 that showed

what can happen in the way of new investment, entrepreneurship, when a capital gains tax cut was enacted.

The American people, and I can understand this, are rightly fed up with business as usual, a deficit that is a fiscal and a moral outrage, a permanent governing class oblivious to the national interest, and hundreds of self-perpetuating programs that don't even aid the people they were designed to help. Now, I refuse to believe that this is the legacy we'll leave our kids. But it will be if we don't reform. I'm talking here about perks. I'm talking about the gymnasium. I'm talking about fundamental reform of the United States Congress.

The reforms that I've outlined here today are grounded in basic principles, a way of looking at the world. As Jefferson said, "The pillars of our prosperity are the most thriving when left most free to individual enterprise." In practice, that means Government must trust the wisdom of the markets more than the whims of the bureaucrats. The freely made decisions of business men and women must take precedence over the engineering schemes of Government. And all of our institutions, from the Congress to the local school board, must be accountable to those that they serve.

Over the last decade, America has changed the world. Given what's happening out there in this election year, we sometimes fail to count our blessings. There have been fundamental changes in this world, changes for world peace. And today we are blessed with those changes, and we are also blessed with the opportunity now to change America. With these principles that I've outlined here as our guide, I am absolutely convinced we will meet the challenges and exploit the opportunities of the world that is now being born.

Thank you all very much for what you do. And may God bless our country. Thank you all.

***Note:*** *The President spoke at 2:11 p.m. at the Willard Hotel. In his remarks, he referred to James R. Jones, chairman of the American Business Conference.*

## Executive Order 12799—Navy and Marine Corps Reserve Officer Promotions

*April 7, 1992*

By the authority vested in me as President by the Constitution and the laws of the United States of America, including section 301 of title 3 of the United States Code and section 5905(a) of title 10 of the United States Code, and in order to delegate authority to perform a certain function concerning the promotion of commissioned officers of the Naval Reserve and Marine Corps Reserve, it is hereby ordered as follows:

***Section 1.*** The authority vested in the President by section 5905(a) of title 10 of the United States Code to remove the name of any commissioned officer of the Naval Reserve or Marine Corps Reserve from a promotion list is delegated to the Secretary of Defense in cases concerning promotion to any grade below rear admiral (lower half) or brigadier general, without need for approval, ratification, or other action by the President. Nothing in this section shall be deemed to delegate the authority vested in the President by section 5898(c) of title 10 of the United States Code to remove a name from a selection board report.

***Sec. 2.*** The authority delegated to the Secretary of Defense by this order may be redelegated to the Deputy Secretary of Defense, any of the Assistant Secretaries of Defense, or the Secretary of the Navy, who may further subdelegate such authority to subordinates who are appointed to their office by the President, by and with the advice and consent of the Senate.

***Sec. 3.*** With respect to the functions delegated by this order, all prior actions taken for or on behalf of the President that would have been valid if taken pursuant to this order are ratified.

**George Bush**

The White House,
April 7, 1992.

[*Filed with the Office of the Federal Register, 9:34 a.m., April 8, 1992*]

***Note:*** *This Executive order was published in the Federal Register on April 9.*

mit in San Antonio, the United States and six of our Latin American neighbors agreed to move beyond the achievements of Cartagena and to strengthen interdiction, alternative development, and demand reduction efforts. In these and other endeavors, we are heartened by the prospect of extending human freedom and progress throughout the hemisphere—from Point Barrow, Alaska, to Puerto Williams, Chile, and to every point in between.

**Now, Therefore, I, George Bush,** President of the United States of America, by virtue of the authority vested in me by the Constitution and laws of the United States, do hereby proclaim Tuesday, April 14, 1992, as Pan American Day and the week of April 12 through April 18, 1992, as Pan American Week. I urge the Governors of the fifty States and the Commonwealth of Puerto Rico, and officials of other areas under the flag of the United States, to honor these observances with appropriate ceremonies and activities.

**In Witness Whereof,** I have hereunto set my hand this fourteenth day of April, in the year of our Lord nineteen hundred and ninety-two, and of the Independence of the United States of America the two hundred and sixteenth.

**George Bush**

[*Filed with the Office of the Federal Register, 10:18 a.m., April 15, 1992*]

***Note:*** *This proclamation was published in the Federal Register on April 16.*

## Address to Giddings & Lewis Employees and Local Chambers of Commerce in Fraser, Michigan

*April 14, 1992*

Thank you very much. And Governor Engler, thank you; I'm proud to be introduced by our great Governor here. I want to salute our Secretary of Labor, Lynn Martin. You met her when she came in. She is doing a lot, an awful lot in terms of job retraining, in terms of hope and opportunity for America's workers. I want to thank the CEO of Giddings & Lewis and Bill Fife here, who greeted us and has given us a short tour. Thanks to some of the workers here in this wonderful plant and then to Barbara Hollet and Linda Walling and Geary Maiuri an James Williams, Warren and to all the others from the six chambers of commerce. May I thank you for being here. I just want you to know I'm delighted to be with you today.

I'm sorry that Barbara Bush is not here. She's out in the State of Oregon today. But I take great pride in the fact that she's doing her part. I see these kids here trying to hit a blow for literacy in this country. And she asked me to extend her very best wishes.

Now, I want to talk to you today about the things that we really must do together, Government and business, public servants, private citizens, to leave our children a legacy worthy of this great country of ours. You see, I am not one who is so pessimistic about America. We are the leaders of the world, the undisputed leaders of the world, and now we've got great things to do here at home. I think that we've got to agree on what that legacy is going to be. Clearly, we want a world at peace. People say to the American people, "Well, how are things going?" An I take great pride in the fact that, see these little kids here, they won't go to sleep at night worrying about nuclear warfare the way the generations preceding had done. We want a world at peace. We want strong, wholesome families, and we want an economy that provides rewarding jobs for all.

More than any country on Earth, America has afforded each generation the opportunity to leave such a legacy. Today, we have that opportunity once again. The world is changing at a pace undreamed of a generation ago. And now America, which has led the world's transformation, must change as well. This afternoon I want to discuss five areas which I believe are overdue for reform, five key ways in which America must change if we are to honor coming generations with the legacy that they deserve.

As business men and women and as Giddings & Lewis employees, you understand the urgency. For each of these five problems presents itself to you not as some abstraction but in the most immediate way, as a cost, a cost of doing business. Too often these costs are beyond your control, drawing

resources away from your primary goals of expanding your companies and creating good jobs for your communities.

When our legal system, and the Governor touched on this, becomes incapable of resolving disputes in a civil and timely manner, business loses the incentive to innovate, loses the incentive to take risks. And when health care costs escalate, business picks up much of the tab. And when Government imposes barriers to trade, business pays the cost in lost markets. And then when our kids, our children, leave school without rudimentary skills, business bears in the lost productivity. And when Government freezes in gridlock, business can no longer plan rationally for the future.

So, let me start with Washington, and again, the Governor referred to that: If America is going to change, the Government must change. Ten days ago I presented seven specific proposals to cure the paralysis that grips the United States Congress. My proposals range from an elimination of these special-interest political action committees, these PAC's, elimination, not reduction but elimination, extends to a line-item veto, which will allow us at last to get a handle on this deficit that is mortgaging the future of these children here today. And I think it's high time that we limited the number of terms that Members of Congress may serve.

My aim is simple: We must create a flexible Government, responsive to the common good. And I have tried, I have tried over the past 3 years to invest my administration with this sort of flexibility. Now, let me give you a few examples of special concern right here to Macomb County.

A reformed Government knows its limits, refusing to impose undue burdens on business and consumers alike. For that reason, I've made it clear to Congress: This is no time to legislate an increase in the CAFE standards that would cost Americans jobs in the automotive industry. And I will not accept such legislation.

A reformed Government encourages innovation. Last October, by way of example, my administration joined with the Big Three, the automobile companies, to develop a new generation of batteries. And our goal: To make American car companies first in the world in producing competitive, electric cars by the year 2000.

A reformed Government finds flexible means to reach its goals. Our approach to the 1990 Clean Air Act, which requires deep reductions in air pollution, is a good example. To help communities and industries meet the objectives of that act, we've initiated a "cash for clunkers" program, allowing States and companies to buy the high-polluting old cars, get them off the road, and use the reduction in pollution to satisfy our clean air standards.

Flexibility, accountability, a willingness to innovate, Americans have a right to expect each of these from their Government and particularly from the United States Congress. Yet instead we get business as usual. I'll give you another example, dealing with a second area urgently in need of reform, the Nation's legal system. Our country—and this isn't true just of business, this is true of neighborhoods, true of towns and city government—our country is swamped in frivolous lawsuits. We tried to make a good start at reform in 1990 when I introduced a bill to reform product liability laws. Congress wouldn't budge. So we reintroduced the reform again in 1991. And the Senate Democrats refuse even to bring that bill to a vote. In the House it's stuck in two, that's right, two separate committees.

This inaction is inexcusable. America, regrettably, has become the most litigious society on Earth, and American companies pay the price, not only in dollars wasted but in lower productivity and a business environment hostile even to ordinary competitive practices. According to a recent survey, 40 percent of companies that had been the target of product liability suits have discontinued certain types of product research.

None of our competitors is afflicted with this lawsuit madness; we must remove this ball and chain from our ability to compete worldwide. And our Competitiveness Council, led by the Vice President, has offered 50 recommendations for legal reform, including reasonable limits to the discovery process, alternative means of resolving disputes, and a "loser pay" rule that would discourage the frivolous lawsuits. I urge you to urge the Congress to help stop this lawsuit madness.

We must help each other more and sue each other less. I'll give you an example. A lot of the people here in this plant, I'm sure, have kids in Little League. Some of you may coach Little League, like I did 1,000 years ago. And some people are refusing to coach Little League because they're afraid of some frivolous lawsuit; doctors, afraid of delivering babies because of a frivolous lawsuit. We really have to change this litigious society into a more gentle and a more friendly society.

Our comprehensive legal reform will be far-reaching, extending then into a third area critically in need of change, our Nation's health system. Everybody here, I'm sure, is concerned about the health care system. The litigation explosion has hit Michigan's health care hard. Every year your physicians and hospitals pay almost $500 million for medical liability coverage, $500 million. For the patient, that translates into an extra $300 added on to the average hospital bill.

The trends are simply unsustainable. Some estimates say that by 2030, the year 2030, that's only, what, 38 years away, we will spend 30 cents of every dollar of national income on health care. Again, much of the burden falls on business. Right now, American corporations spend more on health care each year than they earn in after-tax profits. Now, we've got to stop this drain on our productivity.

My proposed health care reform will build on our system's assets, especially in preserving the quality of care. We've still got the world's finest quality health care. We will reform the private insurance market and increase consumer choice. Through transferable tax credits we will bring coverage to those who are uninsured and control costs through market incentives. And we will avoid the pitfalls of what I would see as a nationalized care, with the rationing and the long waiting lines and the mediocre quality that comes with it. Health care reform must hew to this principle: Government has no business dictating what kind of health care you want to choose, dictating what kind of health care you receive.

I target then a fourth area for attention, like the others, absolutely critical for our success in the coming decades. With its global reach, this great company, Giddings & Lewis, exemplifies an indisputable truth about our future: If America is to succeed economically at home, we must succeed economically abroad. And in the postwar period, trade-related jobs have grown three times faster than the overall job creation. Exports have accounted for 70 percent of our economy's growth over the past 3 years. We will build on this success by continuing to open foreign markets to American goods and services, including the world's second largest market economy, Japan. And since I took office, our exports to Japan have grown 10 times faster than our imports from Japan, and our manufactured products are leading this expansion. That boom has already created an additional 200,000 jobs here at home.

And that's why we made this now-famous trip to Japan. I heard some criticism of that trip, but let's get the facts straight about what we accomplished. Of special interest to many of you, for example, was the pledge by private Japanese companies to increase the purchase of U.S.-made auto parts from $9 billion to $19 billion by 1994. And we didn't stop there. As a result of our trip, we've opened up Japan's $4 billion glass market, its $9 billion public-sector computer market, and its $27 billion paper market, offering American business enormous opportunities to sell American goods, and that, of course, means to create American jobs. And if we are to take advantage of the opportunities, we must stay abroad.

We must have a world-class work force. And yet the grim fact is undeniable: Our current education system is unable to produce the workers the highly competitive world market demands. The only solution left to us is radical change. That means we must literally reinvent American education. And on Thursday, I'm going to discuss the progress we've made in the year since we launched our America 2000 education initiative, a revolutionary movement that challenges every community to create what we call break-the-mold schools. We know how to do it. We set world-class standards for students. We redouble our efforts to rid our schools of drugs and violence, to cleanse Americans of this scourge that wastes so many young lives. And we make schools more accountable by forcing them to compete.

And that means letting parents choose their children's schools, public, private, or religious. We must have that kind of choice to bring real competition into the classroom.

And we need to take the same bold approach to job training, to provide Americans with the skills that this age of intense international competition demands. And I have developed such an approach, working with the Secretary here, and when Congress returns from recess, we will submit the "Job Training 2000 Act."

Our current job training system is merely—it's kind of a crazy quilt of good intentions. Over the years Congress has put in place scores of training programs, but they are uncoordinated, sometimes redundant, and too often unaccountable. This year, seven different Federal Agencies will administer some 60 training programs at a cost of $18 billion.

And with this jumble, is it any wonder that an 18-year-old, fresh from high school, doesn't know where to go for career guidance, or that an unemployed older worker, eager to learn a new trade, is confused about how to find training, or that a young parent on welfare, in search of a rewarding job, can't find advice on which trade school to attend, or which career to pursue? Unscrupulous operators, these fly-by-night trade schools prey on this confusion, and they take advantage of the system's lack of accountability. And they recruit the naive or somebody that's so desperate even though they know it's bad, they're willing to take a chance, signing them up for thousands of dollars in grants or loans, offer a few weeks training, and then leave the people burdened with debt.

A truly competitive America can't afford this waste of talent and energy. And it's not fair to the American worker. Job Training 2000 will disentangle that knot of Federal programs and make them serve the people who need them. And here are the key elements of this plan. First, it will create one-stop shopping for vocational training in every community. Second, it will certify programs so that they meet the needs of the local labor markets. And third, it will offer vouchers so aspiring workers can choose the training they want.

Along with Job Training 2000, I'm going to submit to Congress an important new initiative: It's called the "Youth Apprenticeship Act of 1992." Apprenticeship is one of the surest routes into the world of work, and we need to make it more widely available to our young people. And at the same time, we've got to encourage them to complete a sound high school education that prepares them for a lifetime of learning. The act accomplishes both these goals, making it easier for kids in the 11th and 12th grades to combine on-the-job training with their regular studies at school. And when they graduate from school, they will have not only a certificate that attests to their job skills but a diploma that represents a substantial and varied education.

Now, to get that "Apprenticeship Act" up and running, we will be offering demonstration grants to six States, California, Iowa, Maine, Oregon, Wisconsin, and right here in Michigan as well as a series of local areas. We owe our young people, we owe every American who seeks to climb the ladder of economic advantage, the finest job, the finest job training system the world can produce, and I mean to see that they get it.

Therefore I want to challenge the United States Congress to pass both of these initiatives, "Job Training 2000" and the "Youth Apprenticeship Act," this session, before the Congress adjourns for the year. But as you know, I'm the first to admit that I can't always count on Congress to act, no matter how great the urgency. For real education reform I enlisted the help of the Nation's Governors. You may remember this a couple of years ago, we got together at Charlottesville, Virginia. So far 43 Governors have responded by enrolling their States in this program we call America 2000.

And now I ask their help again. I call on the Governors here today, all of the Governors around the country, to initiate Job Training 2000 strategies in their own States; several are already hard at work. And I ask every Governor to bring together labor and business leaders with local officials to consolidate their own job training programs. And wherever possible, my administration will grant waivers to accelerate these efforts. And we will provide incentive grants to help them get started.

Each of the reforms that I've outlined here today—making Government accountable and flexible, restoring sanity to our legal system, ensuring quality health care for all, expanding world trade, and reinventing American education and job training for tomorrow's work force—each shares a single goal, to ensure that America remains the undisputed leader of the world, the freest, most prosperous, and competitive Nation on Earth.

And each of these reforms grows from a fundamental, uniquely American principle. Thomas Jefferson said it best, "The pillars of our prosperity are the most thriving when left most free to individual enterprise." And in practice that means Government must trust the wisdom of markets more than the whims of bureaucrats. And the freely made decisions of the people must take precedence over the engineering schemes of Government. And all our institutions, from Congress to the local trade school, must be accountable to those that they serve.

Over the last decade, America has changed the world. Today, we're blessed with the opportunity to change America. I couldn't help thinking about that sentence, "Over the last decade, America has changed the world," as I was walking along the line here and reading the computer screen in English and then in what the man running the screen told me was Russian. I had to take his word for that. But here was a shipment going off, a machine going off to Russia. We have a tremendous opportunity, and I intend to see that we continue to lead the world. And in so doing, we will be offering enormous job opportunities, expanded job markets for the American worker. We cannot pull back. We cannot withdraw into some sphere of isolation.

And so, as your President, I take great pride in the fact we've helped change the world. And now I can tell you we are going to make these changes at home that will enable us to remain the undisputed, the undisputed, admired leader of this changing world in which we live.

Thank you all very much. And may God bless each and every one of you and your families. And may God bless the United States of America. Thank you very, very much.

***Note:*** *The President spoke at 2:50 p.m. at the Giddings & Lewis, Inc., plant. In his remarks, he referred to William Fife, Jr., chairman and chief executive officer of Giddings & Lewis; Barbara Hollett, executive director, Metro East Chamber of Commerce; Linda Walling, director, Sterling Heights Chamber of Commerce; Gary Maiuri, chairman, Central Macomb County Chamber of Commerce; and James Williams, chairman, Warren, Center Line, and Sterling Heights Chamber of Commerce.*

## Remarks at a Bush-Quayle Fundraising Dinner in Dearborn, Michigan

*April 14, 1992*

Thank you very, very much. And John Engler, thank you, sir, Governor, for that kind introduction. John Engler and I have been side by side in politics for a long time, and I'll tell you, I am mighty proud of the job he is doing as Governor of this great State. You're lucky, and you ought to know it. I might salute your lovely wife, Michelle. He had to go to Texas to find her, but here she is, and we're all for her, too.

And let me thank Mike Timmis for the thoughtful invocation and Randy Agley for the superb job as master of ceremonies and for so many other things as well. Also, of course, our special thanks to our esteemed friend Max Fisher, whom we heard from tonight, always at my side, always with sound counsel and advice, a great friend of every Republican and a great leader of this State and, indeed, of our country. Max, thank you, sir.

And of course, if you want to get the job done, get Heinz Prechter involved; he'll twist the arm right out of your socket. But he did a first-class job. [*Laughter*]

And I also want to thank Dave Doyle and Chuck Yob and Tim Leuliette. And let me also acknowledge Bob Mosbacher, our former Secretary of Commerce, now one of the great leaders of our campaign; Bobby Holt, the national finance chairman, whom you met; and Michigan natives Spence Abraham, who used to be the State party chair-

vg 2068-N

BLANE A. HARRIS
16331 McFadden, No. 5
Tustin, CA 92680
(714) 542-3212

04 May 1992

The President
The White House
1600 Pennsylvania Avenue
Washington, D.C 20500

Dear President Bush,

Since this is an election year, this is probably a bad time to be sending you a letter. However, I am quite despondent and I feel I must convey my thoughts.

I am a Construction Manager and a Cost Estimator for commercial and industrial buildings. I am unemployed. I have been unemployed for almost nine months, with the exception of a few temporary agency assignments- mainly computer data entry.

I am not used to being unemployed. Even though my field of construction is highly cyclical and project-oriented, I have never been unemployed for longer than four (4) days...until now.

I am educated, competent, and highly resourceful. I have been told that I possess superior management skills. I have been a private consultant for the last four years and have earned a very liveable wage...until now.

When the construction economy collapsed in California, I assumed that measures would be enacted to stimulate growth and spur investment (when I say measures, I mean legislation which would revitalize, not artificially prop-up the economy....I forgot to mention that I am a Republican).

To make a long story short, nothing has been done. Regardless who is at fault, I am in desperate shape. Since I worked for myself for the last few years, I cannot even collect any unemployment or other benefits, even though the thought of doing so used to repulse me, and I could really use some help.

I've paid a lot of taxes in my lifetime (I am 36 years old). I would like to see them used for me right now. Not the former Soviet Union, not Mexico. Me.

I am not sure you are able to understand the depth of my despair and the feeling of hopelessness which engulfs me.

Mr. President, can you really help? Are you really interested in the people of this nation? Everywhere I go I hear people talking about how you are completely out of touch with reality. If the media is fabricating this image, they are doing a great job.

Mr. President, I too am losing confidence. If you really care I would appreciate some advice.

Please don't send me a form letter thanking me for my interest. A trite lithographed response written by a junior staffer with your printed signature would just confirm my worst fears. No response would be better.

I await your reply.

Sincerely,

Blane A. Harris

BAH:wp

C

Vn
my-206B-C

Specchwriter

Bobby

Sepuchn

1111 ALASKA AVE #86
FAIRFIELD CA 94533
March 25 1992

The Preside
The White House
Washington D.C. 20015

Dear President Bush:

I lost my job for four months and I still can't find a job that is suitable for me. The economic crisis really effect me so much. I hope you can give an efficient solution to solve this problem. Also I think you shouldn't send too much money to other countries. Our country needs more help. Please think about the advice.

Sincerely.

Christy Lau

May 13, 1992

Mr. President:

Enclosed please find an article that was published in today's L.A. Times, written by a man that I do not know. This article describes the ongoing problems in this country and what the majority of Americans are feeling.

My husband and I come from a hard working middle class background and had to earn and work hard for everything we have. We have two children that are college graduates; one from UCLA and one from California State University Northridge. One is waiting tables because he can't find employment in his chosen field and the other is an unemployed sports broadcaster. I DON'T THINK I HAVE TO GO INTO DETAIL ABOUT THEIR PROBLEMS. Thank goodness we are able to help them, but we are not sure for how much longer.

PLEASE READ THIS ARTICLE SO YOU CAN BETTER UNDERSTAND THE FRUSTRATIONS OF MANY AMERICANS AND MORE IMPORTANTLY THE YOUTH OF OUR COUNTRY.

Sincerely,

Carol Stein

Carol Stein
17248 Daemas Place
Granada Hills, CA 91344
818-363-0257

71
Sr. Org. 206 B-N

2294 Westridge Rd
Los Angeles CA
90049

May 5, 1992

Dear Mr. President:

I am concerned about unemployment in California. Many of our families are living under the pressure, that tomorrow, it could be them without a pay check. The tremendous unrest here the last few days that increased unemployment in an area that can ill afford it. With Gods help, we will pull together, rebuild our city and recover.
I am concerned that the air fare wars initiated by American and United Airlines will add to our unemployment. There are three airlines now in bankruptcy, struggling to recover and restructure. They employ

thousands of people in California. I believe the two healthy airlines are determined to drive the others out of business. I implore you to take steps to insure that these weaker carriers have their opportunity to restructure and continue to provide jobs.

Thank you,

Barbara Obrien

Rachel J. Hulberg
16624 Osborne Street
Sepulveda, CA. 91343

April 9, 1992

The President of the United States
The White House
Washington, D.C. 20500

Dear Mr. President:

I am a concerned citizen of Los Angeles County. I have agreed with some of the choices you've made that would benefit our communities, such as the Clean Air Act which you have recently proposed in your upcoming election.

I have noticed on the corners of our streets that there are jobless males and females, young and old, holding signs saying, "Will work for food and shelter." It is a concern of mine and yours, not only does it affect my personal future, but the future of all children.

Part of the unemployment issue comes not so much from the recession as it does the great increase in the people going into the job market. The rate of unemployment has risen and will continue to rise until something is done.

I believe opening more job opportunities for children and adults would help decrease the unemployment rate. You can create more jobs by increasing the school budget which would allow more schools to be built or added on to, which would help the construction industry, smaller classrooms and the teachers. To build more well structured, easily affordable homes, lower mortgage interest rates. Also make Workers Compensation frauds a Federal offense, so the employers pay less Workers Compensation Insurance per dollar, per employee. Therefore it would give them the ability to hire more people. These are just a few of my own ideas to help make this a better environment to live in.

I know that your concern is as great as mine when it comes to unemployment. I believe that the unemployment rates could be going down instead of rising. If you are interested in hearing more of my suggestions I have enclosed my address where I can be reached. You have to listen to what the voices of your people are saying before you can begin to help them.

Sincerely,

Rachel J. Hulberg
Senior
James Monroe High School

The President of the United States
The White House
Washington D.C. 20500

5/11/92

Dear President Bush :

The effects of the recession have hit home in this household. I have been laid off from my job of 18 years since mid-January. As a professional in management quite frankly the unemployment insurance provided to compensate a person under these circumstances is a joke. In southern California $920.00 a month does not even cover basic rent for a family of four, let alone utilities or food. When I consider how long and how much money I have paid into the system for unemployment insurance and what I get in return I get very sick. No one in their right mind would buy such a policy from any insurance company.

Additionally. continuation of health and dental insurance from my previous firm for a family of four is impossible at $577.75 / month. I have picked up another policy, under Blue Cross, which is cheaper ($260./mth) but with a $1000 deductible instead of $100 / individual. Also, Blue Cross excluded all previous medical conditions in my family for the next 5 years, regardless of how long ago they occurred. The conditions waived in both my wife and myself have been stable for over 5 years ( eye surgery and a heart arrhythmia. This frosts us as insurance companies base their rates on the total population then set out to exclude anyone who represents even the slightest risk. We are not in favor of a fully socialized medical system, but an alternate government program would add competition to the system.

Finally, to add insult to injury, both the federal and state governments inform me that they will penalize me a total of 12% on top of the taxes I owe on my 401K policy that I received after my layoff if I try to use the money to get through this period of unemployment . This would

amount to as much as 49% in taxes and penalities of my retirement funds . I'm sure all other families that are in this situation are in a similar predicament .

In this election year you could demonstrate real compassion to the unemployed by supporting / sponsoring legislation that would :

- Increase unemployment benefits to realistic levels on a regional basis , and extend benefits to a full year
- Require health insurance companies to accept families transferring insurance from a COBRA plan with no waivers permitted . At least require insurance companies to cover conditions that have not shown recurrence in the last year or two. An alternate federal plan would also add competition to the system.
- Eliminate the penalty for using 401k funds to survive on for those individuals that have been laid off during this recession. Considering the hardship unemployed people are already in , a tax penalty on their retirement funds that are used just to survive is outrageous . This would aid families significantly .

We urge your support on these issues and request your viewpoint on our concerns .

Sincerely

Jeff Reardon / Mary Reardon

Jeff and Mary Reardon
8136 Foxhall Dr.
Huntington Beach , California 92646

THE ECONOMY

# COPING WITH THE DEFENSE BUILD-DOWN

Military cutbacks from master sergeants to nuclear subs pose economic and security risks. So far Washington isn't doing a bad job. But it needs to do better. Here's how. ■ *by Lee Smith*

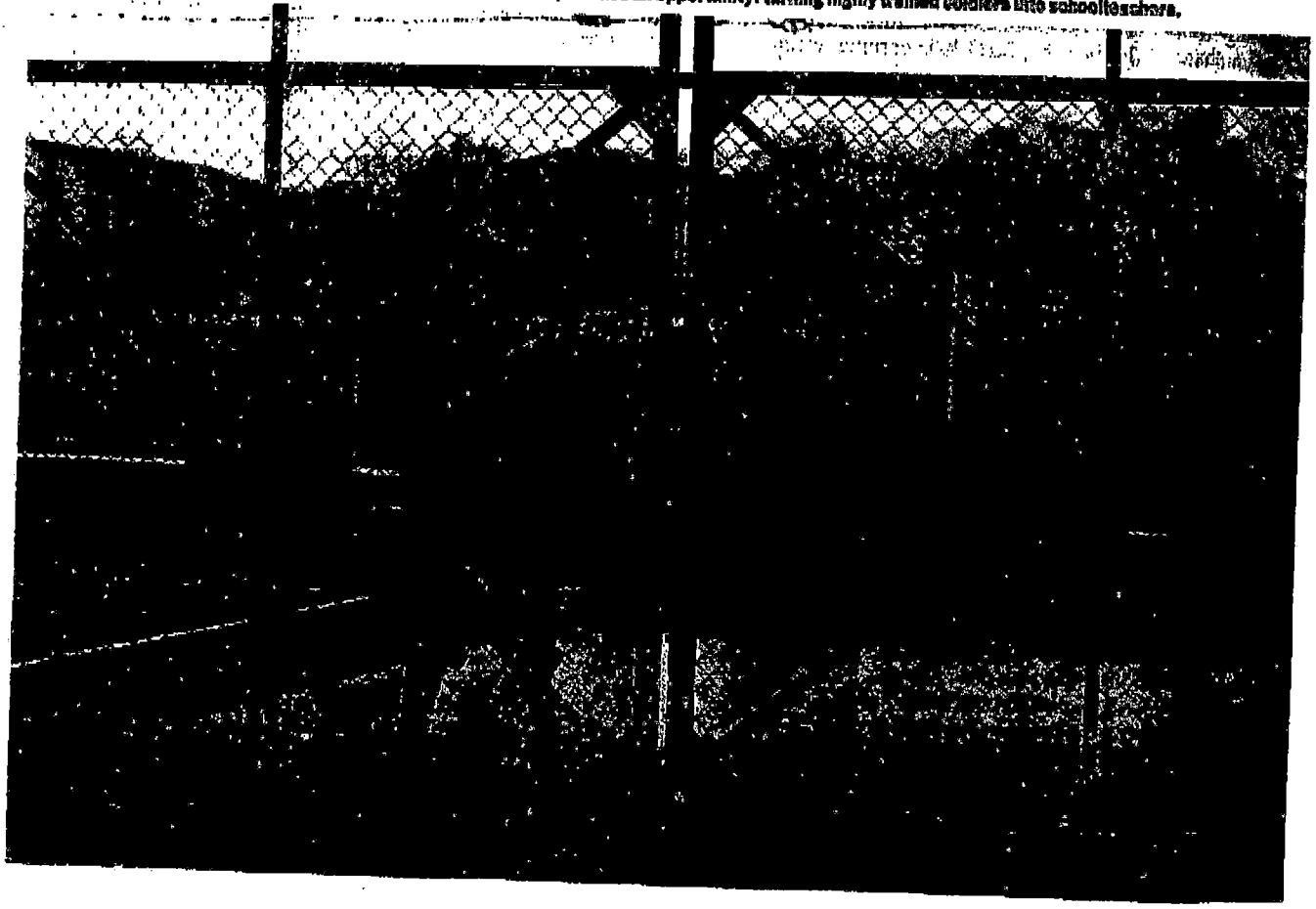
AS THE COLD WAR fades into history, the gates are closing forever at military bases in the U.S. and abroad. Weapons production lines from Connecticut to California have shut down. That's good news for peace, a daunting challenge for policymakers.

More than one million jobs—400,000 in uniform and over twice as many in the defense industry—may disappear by mid-decade. For Congressmen and other politicians from regions likely to be hardest hit, the economic consequences of the peace appear disastrous.

The prospect of grand-scale demobilization is raising security concerns as well. The U.S. downsized so recklessly after World War II that poorly trained and equipped GIs were chewed up by the North Koreans they encountered in 1950. Slashes in the defense budget after Vietnam created the infamous "hollow force," scraggly ranks of ill-disciplined troops. Will it happen again? Will America destroy the most competent armed force in its history?

Relax. So far Washington is cutting the military with more skill than usual. If that continues—and with a few additional improvements—this unprecedented restructuring will neither plunge the country back

The closing of U.S. military bases like this one outside Frankfurt provides an opportunity: turning highly trained soldiers into schoolteachers.





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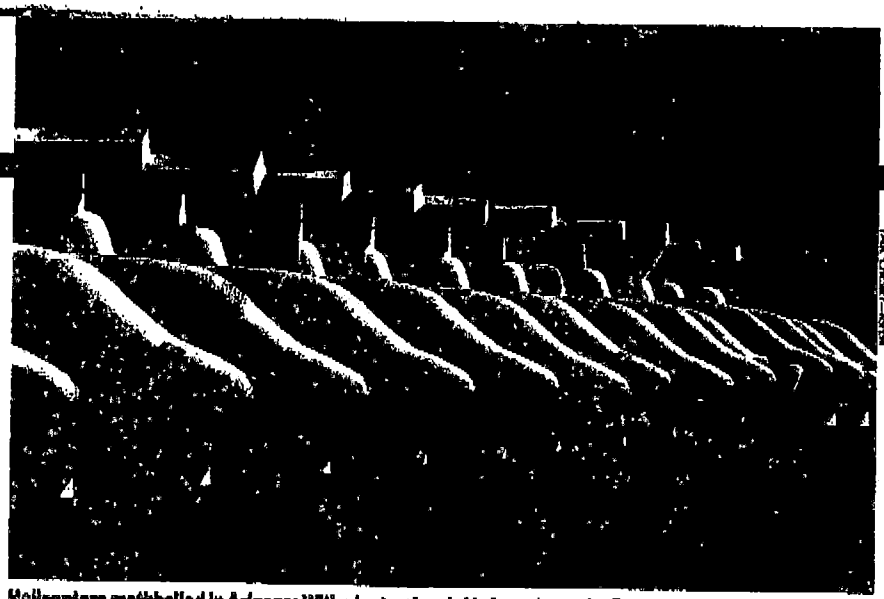

Helicopters mothballed in Arizona: With plenty of metal in inventory, the Pentagon is focusing on R&D.

into recession nor weaken national security. On the contrary, it should improve U.S. competitiveness in the long run.

But most of the tough decisions have yet to be made. The Bush Administration's $281 billion defense budget for fiscal 1993, which Congress is now debating, trims only $3 billion to $4 billion from what the military will likely spend this year. The main reason deeper cuts have been delayed is to provide time for defense contractors, and the communities that depend on them, to adjust. "None of the big firms appears mortally wounded, but all are going to lose some blood," says Wolfgang Demisch, defense industry analyst for UBS Securities.

Already the number of military suppliers has shriveled from 120,000 in the mid-1980s to 30,000 now—ranging from tiny machine shops and consultants up to industry leader McDonnell Douglas, which sold the government $8 billion worth of F-15s, Apache helicopters, and Tomahawk missiles last year (see table). The survivors will stay in business by maintaining and modernizing these old models rather than building new systems.

In many cases their laboratories will keep humming because the Pentagon plans to prepare for the battlefield of the 21st century by investing in prototypes of avant-garde weapons rather than new production runs. Lockheed, celebrated for the Skunk Works that produced the U-2 spy plane and Stealth fighter, and Martin Marietta, a leader in electronics, are particularly strong in basic research.

Exports will also help some contractors stretch out production lines. Finland, no longer worried about offending the Soviet Union, recently ordered 64 FA-18 fighter bombers from McDonnell Douglas for $3 billion. Even so, foreign sales are not going to rescue the U.S. defense industry. Says Gary Reich, a Shearson American Express analyst: "Nobody buys weapons the way we buy weapons."

What would happen if Clinton cut $50B more?

CAN military manufacturers switch to more commercial lines of work? At the end of World War II, General Motors stopped making tanks, unpacked old tools, and turned out 1941 model cars for hungry customers with dollars they had been waiting a wartime to spend. Consumers don't seem to be starved for anything these days. Says Renso L. Caporali, chairman of Grumman Corp., which relies on the Pentagon for 58% of its sales: "If someone can name a civilian industry that doesn't suffer from overcapacity, I'd love to hear about it."

Instead of plunging into unfamiliar waters, as they have in downturns past, most defense companies are merely tiptoeing in this time round. Grumman, which lost a bundle on the bus business in the 1970s, is using skills developed for the military to create information systems for nonmilitary customers, including the police department in Seoul, South Korea. Northrop, maker of the B-2 bomber, is looking into possible opportunities in rail transportation. "We understand lightweight, strong structures that travel at high speeds," says Chairman Kent Kresa. "That's our technology."

By and large, however, military contractors will shrink, merge, or fail in the 1990s. What will this do to the economy? Critics and admirers of the military industrial complex vastly inflate its size and power. The Pentagon's shopping list is puny compared with the total of what consumers and businesses buy. For everything from aircraft carriers to management advice from Booz Allen & Hamilton, the bill came to $137 billion last year, or just 2.4% of GDP.

What *is* worrisome is that part of the defense industrial base might crumble and leave the U.S. vulnerable should it ever have to resume wartime production. The Bush Administration plans to identify and nurture leading-edge technologies, such as composite materials and electronic sensors, but will not try to save the entire supply network. What happens to the subcontractor that makes struts for the F-15? "It's not our job to keep him whole," says Deputy Defense Secretary Donald J. Atwood.

Basically, that's a sound policy. If a major conflict threatens, the economy should be robust enough to bring forth most parts and machinery, provided suppliers have a few years of lead time. (As this caveat suggests, American intelligence will need to be more vigilant—and accurate—in the post–Cold War era.) One particularly flexible sector is aerospace, where the U.S., led by Boeing, General Electric, and Pratt & Whitney, has a thriving commercial industry.

Ships are another matter. So scrawny is the U.S. commercial shipbuilding business that of the 3,000 oceangoing civilian ships ordered worldwide over the past three years, only three are being built at American shipyards. Unable to compete with Japanese and Korean rivals in the manufacture of supertankers and bulk cargo carriers, the

Captain Maria Myers is being forced to quit.

REPORTER ASSOCIATE *Sunsel Ratan*

half-dozen major yards that remain in the U.S. depend almost exclusively on the Navy.

Building a nuclear-powered sub or aircraft carrier is a complex and arcane task, comparable, in a profane way, to cathedral building in the high Middle Ages. If the teams that make these ships are dispersed, it could be as difficult to make another U.S.S. *George Washington*, the Navy's newest carrier, as it would be to recreate Chartres.

To prevent that, the Navy should bunch its dwindling purchases of new ships to guarantee that at least two yards prosper. One survivor ought to be Tenneco's Newport News, the largest manufacturer of vessels in the Western Hemisphere. It has a work force of 26,000 and is the only yard that can make nuclear-powered carriers, like the *George Washington* and two others under construction, and nuclear subs, as well as a full range of conventional ships, including commercial ones.

What Newport News wants from the Navy is maintenance work on nuclear subs to keep its reactor skills current, contracts to make some cargo ships, and an order for an additional $4.2 billion carrier. The U.S. doesn't need another flattop, but if that's the price for holding together a vital corps of craftsmen, it might be justified. To keep down operating expenses, which can run to $900 million a year for a carrier and 20 or so escort ships, the Navy should then retire one or more of its older carriers.

The real pain of demobilization will be borne by those who are put out of work. Congress's Office of Technology Assessment estimates that as many as 1.4 million jobs could disappear by 1995—about 500,000 uniform and civilian slots in the Defense Department and 900,000 in weapons plants. That's almost as many as the 1.7 million manufacturing jobs that the OTA calculates disappeared during the 1980s when auto, steel, and other industries contracted.

In earlier demobilizations the Pentagon gave little thought to how it reduced the ranks. Dogfaces who had been drafted were happy to quit. Officers who were considered excess were simply fired. Gordon Smith, a retired lieutenant colonel living in Virginia, recalls the post-Vietnam downsizing: "A young captain with car and house payments would find a letter in his mailbox telling him he had been selected to leave in 90 days." The military provided no severance pay and no help in finding a new job, a callousness that not only angered those who left but also depressed those who stayed.

This time around Christopher Jehn, Assistant Secretary of Defense for Manpower, consulted some private employers before coming up with a plan not too different from the sort of separation packages that industry provides. Officers and enlisted folks are offered lump sums or annuities to leave. If they refuse, they run the risk of being mustered out later with a much smaller benefit. After eight years in the Army, Corporal Eric McArtor, 31, a military policeman at Fort Eustes, Virginia, accepted a one-time payment of $17,500, which he will use to start training at a civilian police academy in Texas.

NOT EVERYONE is happy. "I feel like I'm in a tub of water and the plug has been pulled," says Captain Maria Myers, 33, a public affairs specialist at Langley Air Force Base. "I don't know if I'm going into the sewer or I'll be recycled into something else." She is being forced out after seven years, she believes, because people in her category, reserve captain, have almost no chance of

## HOW THE TOP GUNS ARE FARING

| Company | Pentagon contracts fiscal 1991 (millions) | Comments |
|---|---|---|
| **MCDONNELL DOUGLAS** St. Louis | **$8,057.3** 45% of sales | Top planemaker reeling from troubles with the C-17 cargo jet and the end of F-15 fighter production. Lost out to General Dynamics and others in competition to build next-generation fighter. Civilian MD-80 and MD-11 business mixed, and deal for Taiwanese investment looks shaky. |
| **GENERAL DYNAMICS** Falls Church, Va. | **$7,848.2** 85% of sales | Selling missile business to Hughes for $450 million; member of team picked to build 650 F-22 fighters for up to $100 billion. Electric Boat division in trouble if White House wins bid to kill two Seawolf submarines worth $2 billion each. Tank business dead. |
| **RAYTHEON** Lexington, Mass. | **$4,099.8** 48% of sales | Missile maker has $8 billion order backlog. Work for Pentagon on Scud-busting Patriot program complete, but looking for boost with sales in Middle East. Hedging its bets by diversifying into energy and environmental engineering services. |
| **NORTHROP** Los Angeles | **$3,319.2** 58% of sales | With 50% of all revenues accounted for by B-2, facing grim prospects since program will be terminated after at most 20 planes. But business as a subcontractor providing avionics and advanced composites for commercial and military aircraft will likely expand. |
| **MARTIN MARIETTA** Bethesda, Md. | **$2,699.2** 44% of sales | Diversification into civilian materials and aerospace bodes well for rocket and aircraft component maker. Lost $385 million bid with Lockheed for LTV aircraft and missile business, but that might revive if Pentagon blocks $450 million sale to French company Thomson-CSF. |
| **LOCKHEED** Calabasas, Calif. | **$2,666.6** 27% of sales | Poised to move up contractor list as leader of F-22 team, but congressional grumbling about cost of the program is mounting, and recent crash of prototype threatens delays. Also makes rocket boosters, C-130 transport, and Trident sub-based nuclear missiles. |
| **GRUMMAN** Bethpage, N.Y. | **$2,363.5** 58% of sales | Premier builder of carrier-based planes, but its big production lines—F-14 fighter and A-6 attack craft—are halting this year. Vying for $50 billion Navy A-X attack plane, but cuts could strangle program in crib. May end up downsizing to maker of electronics. |

promotion regardless of talent. Still, the $6,000 annuity she will get for the next 14 years is a generous settlement.

Among the other losers are 100,000 or so young people the military will not recruit this year. In the mid-1980s the Pentagon signed up as many as 350,000 newcomers annually, many high school graduates trying to learn a skill or save for college. For blacks and Hispanics the military has offered a better chance for promotion than most other occupations. During 1992, hiring will drop to 210,000. Jehn acknowledges that will mean a loss of opportunity. "Still, none of us wants to make the military a high-tech Job Corps," he points out, adding that the Pentagon expects the percentage of minorities (30%) and women (11%) in the services to remain about the same.

Indeed, the release of some black officers, both commissioned and noncommissioned, onto the civilian market could be a boon. Police work will likely be a growth industry in the 1990s that will demand the disciplined, motivated talent the military produces. Los Angeles is just the most obvious of a number of cities that might find it easier to repair community relations by hiring more cops who look like the citizens they serve. Only 36% of its force is black or Hispanic, vs. 57% of its population.

Also, military training leans toward science and engineering, disciplines in short supply in the inner city. Some of those discharged sergeants and captains should be turned into teachers. "What great role models they'd make for kids in East St. Louis," says Murray Weidenbaum, director of the Center for the Study of American Business at Washington University. "This could be the real peace dividend the country gets from defense cutbacks."

THE WAY to accomplish it, says Jehn, is for all states to imitate Florida, which allows instructors to start teaching before going through all the formalities of certification. One of Jehn's predecessors, Lawrence Korb, suggests an additional incentive. Currently those who leave the military before putting in 20 years receive no real pension. Let them count years spent in civilian teaching as part of their service, says Korb, now a senior fellow at the Brookings Institution.

Similarly, the contraction of the defense industry will push a lot of technical talent onto the commercial market—and none too soon. Japan, with only half the U.S. population, graduates about as many engineers. Moreover, the minuscule Japanese defense industry hires very few, unlike its U.S. counterpart, which in 1990 employed 342,000, or 18% of the nation's engineers.

Finding new jobs, particularly jobs that match their current wages, will be most difficult for blue-collar workers and middle managers. The Democrats want to spend $1.2 billion or more a year to help retrain them. President Bush in late May proposed a more modest $200-million-a-year program. In addition, some Democrats want to build two more Seawolf submarines, at about $2 billion each, even though the Navy doesn't need them. The prime reason is to support the economy of southeastern Connecticut.

But why should communities harmed by


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the loss of defense installations be treated more generously than those that suffer the shutdown of an auto or steel plant? True, unemployment will increase because Washington has changed a policy. But when the Fed raises interest rates, carpenters and bricklayers get tossed out of jobs as families stop buying homes. Government doesn't pay them top rates to do useless work.

**"None of us wants to make the military a high-tech Job Corps."**

Where both the Administration and Congress have fallen down is in their failure to design a military budget that answers the critical question: What does the U.S. need to guarantee national security? Washington is sure to spend billions more than necessary because Congressmen are guarding constituents' jobs and the Bush Administration is protecting generals' dreams. Despite its pledge to concentrate on R&D, for example, the Pentagon wants to proceed to full-scale production of the next generation of stealthy and souped-up fighter planes, the F-22. (The only prototype model so far crashed in an April test flight.) The cost of 650 planes could run to a staggering $100 billion. The project might have made sense when an ambitious Soviet aerospace industry seemed capable of matching the best in the U.S. It doesn't now.

Les Aspin (D-Wisconsin), chairman of the House Armed Services Committee, is a rare policymaker who has drafted a plan to shape the military to meet conceivable threats. The Bush Administration is proposing to shrink the military by 25% over five years—saving $43 billion above what would have been spent before the Soviet Union collapsed. Aspin would resize the Army, Navy, Air Force, and Marines to save an extra $48 billion over the same period.

He justifies his shrinkage by listing the countries that might challenge the U.S. military in the next decade: Iraq, Iran, Syria, Libya, North Korea, China, and Cuba. Only China has more soldiers than Iraq had on the eve of Desert Storm, and the Chinese have fewer tanks and artillery.

Aspin concludes that it is hard to imagine even a coalition of hostile forces that could not be leveled with a punch like the one the U.S. threw at Iraq. Adding all the potential calamities up and figuring in the might of America's allies, he calculates that the largest force the U.S. needs is this: nine active and six reserve Army divisions (compared with the current 16 and ten); two active Marine divisions and one reserve (vs. three and one now); 720 fighter planes with 570 in reserve (vs. almost 1,600 and 860 currently); and 340 ships (vs. 520 afloat now).

Overall, Washington is off to a reasonably good start at shrinking the military. Adopting the Aspin alternative would make the fit a lot better. There's little chance that will happen this year. But next year, if the economy continues to strengthen and the impulse to subsidize make-work defense jobs declines, who knows? For the first time ever the U.S. just might get demobilization right.

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## MESSAGE

FYI - Per our conversation please find fax which covers article written up on Aura.

Thank you for your interest and I will phone you soon.

**Total number of pages in this transmission including this cover page**
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# FLOATING ON AIR

## *Magnetics technology is starting to move into the factory. There's a lot riding on its performance.*

By DAVID J. JEFFERSON

EL SEGUNDO, CALIF.—A framed 1938 Dick Tracy cartoon hangs in the office of Aura Systems Inc. Chairman Harry Kurtzman. "The nation that controls magnetism will control the universe," reads the caption.

To which Mr. Kurtzman adds: "The company that controls magnetism will control the nation, and that's Aura."

Understated, he isn't. But neither are his plans. Using computer electronics to harness magnetism, Mr. Kurtzman's company is developing devices that he says could one day replace ball bearings and actuators in just about every machine. Conventional bearings and actuators generate heat, can wear out, need constant lubrication and are often noisy. Magnetic bearings and actuators float frictionless in an electromagnetic field, eliminating those problems.

"We're taking electronics and magnetics and creating the machines of the 21st century," says the 44-year-old Mr. Kurtzman, with a megalomaniacal flair befitting a scientist. With Aura and a handful of competitors just now moving into full production with their devices, it remains to be seen how well magnetics perform outside the laboratory and in the factory. Moreover, while manufacturers generally like the concept of low-maintenance magnetic parts, the devices are still too pricey for most applications.

### Convincing Manufacturers

"One of our biggest jobs in marketing this technology is convincing manufacturers of its benefits and helping them to apply it. And the other side of the problem is getting production quantities high enough so the costs can come down," says Crawford Meeks, president of Avcon Advanced Controls Technology Inc., a Northridge, Calif., competitor of Aura's that is developing lightweight magnetic levitation bearings for use in petrochemical and aerospace equipment.

"The application of magnetics has been fairly limited because of the cost," adds Ron Lawler, vice president and general manager of the Varian Vacuum Products division of Varian Associates, Palo Alto, Calif., which is using Aura's technology to develop magnetic levitation turbo pumps used in semiconductor production. "There's an economic issue, and people just haven't been able to get over that hurdle."

Waukesha Bearings Corp., for instance, has been trying to sell magnetic bearings for petrochemical compressors for the past year. But it hasn't had any takers. "In low-volume offering it's quite expensive," says Jerry Yochum, president of the Waukesha, Wisc., firm, which is the exclusive distributor of magnetic bearings made by MTI Mechanical Technology Inc. of Latham, N.Y. "For large turbo machinery, you're looking at a bearing price for two radial bearings and a thrust bearing of $200,000 to $250,000." By contrast, conventional bearings and a lubrication system would start as low as $100,000.

### More Reliable

So why would a manufacturer buy newfangled magnetics parts that cost double conventional ones?

"They are more reliable," says Mr. Lawler of Varian. Lubricant used on conventional bearings can gum up machines and cause breakdowns. "But with magnetic levitation, there are no bearing surfaces, so you don't need lubrication and there's no contamination," he says.

Adds Avcon's Mr. Meeks: "It has a lot of applicability to any kind of rotating machinery where conventional bearings are not reliable enough, don't have adequate life, or can't operate at super high speeds."

Exxon Corp., New York, plans to use Aura's bearings in pumps at a Baton Rouge, La., chemical plant in late 1992. "What we'll get with this technology is not only the advantages of no wear, but the digital systems which control the bearings will give me continuous, real-time monitoring of the operating condition and the health of the pump," says Ron Bierman, lead engineer for Exxon Chemical Co.'s performance-products group in Linden, N.J. The new pumps are expected to be so reliable that spare pumps won't be installed at the plant. "Typically in a chemical plant, you put in 100% backup because you know the pumps will fail," Mr. Bierman adds.

Magnetics technology has been around since the mid-1800s, but it wasn't until the advent of the microchip that magnetic forces could be controlled with precision and used to levitate parts in machines.

Ironically, when Mr. Kurtzman, a former scientist for General Motors Corp.'s Hughes Aircraft Co. division, and his colleagues began experimenting with commercial applications for magnetics in 1987, "we didn't know what to do with it," he says. Aura was using the technology in complicated weapons systems for Hughes, but when it came to commercial uses, "for a whole year, all we tried to do were toys," Mr. Kurtzman says. "Just toys." Aura's first product was a floating globe sold through the Sharper Image catalogue.

### Seeing the Future

Then one day, Mr. Kurtzman read an article about futuristic automobiles. "I said, 'Oh my God. This is where our technology can be used.'" The company soon began lining up research-and-development contracts with General Motors Corp., Toyota Motor Corp. and automotive-parts maker Eaton Inc., which signed a 17-year development agreement with Aura to develop and manufacture suspension systems, fuel injectors and other products using electromagnetic actuators.

Aura now has more than 40 projects under way, up from three just three years ago. Among the most radical are a magnetically-controlled cutting device for cataract surgery that it is developing in a joint venture with Nestle S.A.'s Alcon Laboratories Inc. unit, and a patented technology for use in digital television sets and movie projectors. . .

The contracts have raised Aura's revenue to about $14 million in the fiscal year ended Feb. 29 from just $2.8 million two years earlier, and the company turned its first profit this past year. So confident is Mr. Kurtzman of Aura's potential that he says three years from now the company's annual revenue will grow to half-a-billion dollars (including $200 million from the joint venture with Eichlin), pretax profit will be around $70 million, and the number of employees will grow to nearly 1,000 from 160 currently. "If we didn't get any new work coming in the door for the next few years, we would still get that," he says.

### Too Optimistic?

Mr. Kurtzman's projections may be more lofty than his floating ball bearings, however. Costs and development snags could prevent some manufacturers from proceeding from the research-and-development phase to full production. For example, Davis Engineering Ltd. contracted with Aura to develop electromagnetic actuators for its wave-making devices, which are used to simulate ocean conditions for engineering models. But the systems never made it into full production.

"They simply couldn't produce them in the time frame we needed," says Roby Davis, president of the Ottawa, Canada, firm. (Mr. Kurtzman says he decided not to move to the production phase because he was concerned about Davis's finances.)

"If you talk to Harry, he expects to do $50 billion in sales very shortly," says Ulf B. Heide, president of Technical Manufacturing Corp., Peabody, Mass., which has contracted with Aura to develop a system to eliminate vibrations in optical work tables. "If some of their products really work out, they will have great success."

Waukesha's Mr. Yochum is perhaps more realistic about the future of magnetics. "I've been in this business since 1984. It's been a long growth time, and it might take 10 more years before people start talking about using magnetic bearings in more industrial products," he says. "But I think you'll definitely see it growing." ■

MR. JEFFERSON IS A STAFF REPORTER IN THE WALL STREET JOURNAL'S LOS ANGELES BUREAU.

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# SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

# Form 10-Q

## QUARTERLY REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For Quarter Ended November 30, 1991 Commission File Number 0-17249

# AURA SYSTEMS, INC.

(Exact name of Registrant as specified in its charter)

| Delaware | 95-4106894 |
|---|---|
| (State or other jurisdiction of incorporation or organization) | (I.R.S. Employer Identification No.) |

2335 Alaska Ave.
El Segundo, California 90245
(Address of principal executive offices)

Registrant's telephone number, including area code: (310) 643-5300

Former name, former address and former fiscal year, if changed since last report: None

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days: YES X NO

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

| Class | Outstanding at January 9, 1992 |
|---|---|
| Common Stock, par value $.005 per share | 26,371,226 Shares |

AURA SYSTEMS, INC. AND SUBSIDIARIES

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AURA SYSTEMS, INC. AND SUBSIDIARIES
QUARTER ENDED NOVEMBER 30, 1991
PART 1. FINANCIAL INFORMATION

The financial statements included herein have been prepared by Aura Systems, Inc. (the "Company"), without audit, pursuant to the rules and regulations of the Securities and Exchange Commission (the "SEC"). As contemplated by the SEC under Rule 10-01 of Regulation S-X, the accompanying financial statements and footnotes have been condensed and therefore do not contain all disclosures required by generally accepted accounting principles. However, the Company believes that the disclosures are adequate to make the information presented not misleading. It is suggested that the financial statements be read in conjunction with the financial statements and notes thereto included in the Company's Form 10-K for the year ended February 28, 1991 as filed with the SEC, (file number 0-17249).

# AURA SYSTEMS, INC. AND SUBSIDIARIES
# CONDENSED CONSOLIDATED BALANCE SHEETS
## (Unaudited)

| Assets | November 30, 1991 | February 28, 1991 |
|---|---|---|
| **Current assets** | | |
| Cash and equivalents | $ 2,904,638 | $ 856,651 |
| Certificates of deposit-pledged | -- | 2,300,000 |
| Trade receivables and other | 6,744,067 | 2,846,069 |
| Contracts in progress and inventories | 970,129 | 788,392 |
| Other current assets | 277,687 | 214,307 |
| **Total current assets** | 10,896,521 | 7,005,419 |
| **Property and equipment, at cost** | | |
| Land and building | 8,840,477 | 8,835,659 |
| Machinery and equipment | 2,058,932 | 1,406,558 |
| Furniture, fixtures and leasehold improvements | 683,072 | 657,186 |
| | 11,582,481 | 10,899,403 |
| Less accumulated depreciation and amortization | (1,411,733) | (983,769) |
| Net property and equipment | 10,170,748 | 9,915,634 |
| Other assets | 2,551,369 | 1,852,165 |
| | $ 23,618,638 | $18,773,218 |

See accompanying notes to condensed consolidated financial statements.

# AURA SYSTEMS, INC. AND SUBSIDIARIES
## CONDENSED CONSOLIDATED BALANCE SHEETS
## (Unaudited)

| Liabilities and Stockholders' Equity | November 30, 1991 | February 28, 1991 |
|---|---|---|
| **Current liabilities:** | | |
| Current installments of notes payable | $ 288,705 | $ 325,804 |
| Notes payable secured by certificates of deposit | -- | 2,300,000 |
| Accounts payable and accrued expenses | 2,235,065 | 3,652,753 |
| Deferred Income | 946,283 | -- |
| **Total current liabilities** | 3,470,053 | 6,278,557 |
| **Other liabilities** | 280,000 | -- |
| **Convertible secured notes payable** | -- | 6,700,000 |
| **Stockholders' equity** | | |
| Common stock, issued and outstanding, 26,227,476 and 22,993,584 shares, respectively | 31,969,658 | 18,600,252 |
| Less: Common stock subscribed | (20,000) | (37,500) |
| Deferred compensation | (108,182) | (133,157) |
| Accumulated deficit | (11,972,891) | (12,634,934) |
| Net stockholders' equity | 19,868,585 | 5,794,661 |
| | $23,618,638 | $18,773,218 |

See accompanying notes to condensed consolidated financial statements.

AURA SYSTEMS, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
THREE AND NINE MONTHS ENDED NOVEMBER 30, 1991 AND 1990
(Unaudited)

| | Three Months | | Nine Months | |
|---|---|---|---|---|
| | 1991 | 1990 | 1991 | 1990 |
| Revenues | $3,163,446 | $2,263,676 | $9,656,533 | $ 6,041,825 |
| Gain on sale of investment | 996,283 | -- | 996,283 | -- |
| | 4,159,729 | 2,263,676 | 10,652,816 | 6,041,825 |
| Costs and expenses: | | | | |
| Operating expenses | 1,550,108 | 1,088,274 | 4,107,540 | 3,565,052 |
| General and administrative expenses | 1,674,533 | 1,728,567 | 3,981,095 | 4,539,290 |
| Research and development | 463,646 | 86,771 | 1,862,749 | 986,716 |
| Interest (income) expense, net | (26,590) | 140,394 | 39,389 | 387,847 |
| Total costs and expenses | 3,661,697 | 3,044,006 | 9,990,773 | 9,478,905 |
| Net income (loss) | $ 498,032 | $(780,330) | $ 662,043 | $(3,437,080) |
| Net income (loss) per Common share | $ .02 | $ (.03) | $ .03 | $ (.15) |
| Weighted average shares used to compute net income (loss) per share | 25,335,329 | 22,355,858 | 25,335,329 | 22,355,858 |

See accompanying notes to condensed consolidated financial statements.

# AURA SYSTEMS, INC. AND SUBSIDIARIES
# CONSOLIDATED STATEMENTS OF CASH FLOWS
# NINE MONTHS ENDED NOVEMBER 30, 1991 AND 1990
# (Unaudited)

| | 1991 | 1990 |
|---|---|---|
| **Cash flows from operating activities:** | | |
| Net income (loss) | $ 662,043 | $(3,437,080) |
| Add items not affecting cash: | | |
| Depreciation and amortization of property and equipment | 427,964 | 312,591 |
| Net increase in other assets | (699,204) | (142,633) |
| Changes in assets and liabilities: | | |
| Increase in trade accounts receivable | (3,897,998) | (239,569) |
| (Increase) decrease in inventories | (181,737) | 53,142 |
| Increase in other current assets | (63,380) | (138,219) |
| (Decrease) increase in accounts payable and accrued expenses | (1,418,488) | 473,690 |
| Increase in deferred income | 946,283 | -- |
| Increase in other liabilities | 280,000 | -- |
| Increase in income taxes payable | 800 | 600 |
| **Net cash used in operations** | (3,943,717) | (3,117,478) |
| **Cash flows from investing activities:** | | |
| Purchase of land, property and equipment | (683,078) | (272,329) |
| **Net cash used in investing activities** | (683,078) | (272,329) |

See accompanying notes to consolidated financial statements.

# AURA SYSTEMS, INC. AND SUBSIDIARIES
# CONSOLIDATED STATEMENTS OF CASH FLOWS, CONTINUED
# NINE MONTHS ENDED NOVEMBER 30, 1991 AND 1990
# (Unaudited)

| | 1991 | 1990 |
|---|---|---|
| **Cash flows from financing activities:** | | |
| Decrease in certificates of deposit securing notes payable, net | 2,300,000 | 2,300,000 |
| Repayment of short-term borrowings from bank secured by certificates of deposit | (2,300,000) | (2,300,000) |
| Proceeds from issuance of convertible secured notes | -- | 1,500,000 |
| Payables paid with common stock | -- | (250,000) |
| Proceeds from borrowings and other | 349,567 | 625,000 |
| Repayment of bank borrowings and other | (311,946) | (469,018) |
| Proceeds from issuance of common stock | 6,526,661 | 1,889,750 |
| Proceeds from issuance of warrants | 93,000 | 205,000 |
| Decrease in common stock subscribed | 17,500 | --- |
| **Net cash provided by financing activities** | 6,674,782 | 3,500,732 |
| **Net increase in cash** | 2,047,987 | 110,925 |
| Cash and cash equivalents at beginning of year | 856,651 | 425,187 |
| **Cash and cash equivalents at end of period** | $2,904,638 | $ 536,112 |
| Supplemental disclosures of cash flow information: | | |
| Cash paid during the period for: | | |
| Interest | $ 108,895 | $ 217,000 |
| Income tax | 800 | 600 |

**Supplemental disclosure of noncash investing and financing activities:**

In April 1991 the Company issued approximately 1,900,000 shares of common stock in exchange for $6,700,000 of 7% Convertible Secured Notes as required under the terms of the indenture.

See accompanying notes to consolidated financial statements.

# AURA SYSTEMS, INC.
# NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
# (Unaudited)

1) **Management Opinion**

The condensed consolidated financial statements include the accounts of Aura Systems, Inc. ("the Company") and subsidiaries from the the dates of acquisition. All material inter-company balances and inter-company transactions have been eliminated.

In the opinion of management, the accompanying condensed consolidated financial statements reflect all adjustments (which include only normal recurring adjustments) and reclassifications for comparability necessary to present fairly the financial position and results of operations as of and for the three and nine months months ended November 30, 1991.

2) **Trade Receivables and Other**

Receivables at November 30, 1991 and 1990 are comprised as follows:

| | 1991 | 1990 |
|---|---|---|
| Trade Receivables | $2,221,646 | $2,006,846 |
| Unbilled Costs | 2,552,786 | 616,798 |
| Sale of Aura Medical & Other | 1,969,635 | 222,425 |
| | $6,744,067 | $2,846,069 |

3) **Convertible Secured Notes Payable**

To finance the acquisition and completion of the Company's headquarters', the Company issued in 1989, $7,250,000 of notes due 1999 which were convertible into the Company's common stock at $3.50 per share. The notes were secured by the real estate acquired and were required to be converted into common stock if the market price of the common stock attained $7.00 per share for a period of ten trading days. By February 28, 1991, a total of $1,900,000 of this amount had converted into common stock leaving $5,350,000 as a remaining balance. In the first quarter of 1990 the Company issued $1,500,000 of junior notes due in the year 2,000 on substantially similar terms.

Due to voluntary conversions and because the price of the common stock exceeded $7.00 for ten consecutive trading days, the entire $6,700,000 of the then outstanding note balance was retired by conversion into approximately 1,900,000 shares of common stock in April 1991.

4) **Capital**

During the three months ended May 31, 1991 warrants to purchase 455,250 shares of common stock at $4.50 per share were exercised resulting in proceeds to the Company of $2,048,625. Additionally, employee stock options to purchase 135,000 shares of common stock at an average price per share of $3.48 were exercised resulting in $470,300 of proceeds to the Company. In the second quarter ended August 31, 1991 employee stock options were exercised to purchase 16,400 shares of common stock for total proceeds of $54,580. In the second quarter the Company also sold 552,000 units consisting of one share of common stock and one warrant to purchase one share of common stock at $10.00 until June 30, 1993. The units were sold at $6.00 each and resulted in proceeds of $3,312,000.

4) **Capital (continued)**

During the quarter ended November 30, 1991 warrants to purchase 286,000 shares of common stock at $2.00 per share were exercised resulting in proceeds to the Company of $572,000. Also, during the third quarter, employee stock options to purchase 22,600 shares of common stock were exercised resulting in $69,156 of proceeds to the Company.

5) **Revenue**

In August, 1991, the Company signed an agreement with Echlin, Inc., to manufacture and develop certain of Aura's magnetic technology for automotive applications. The Agreement calls for a non-refundable payment to Aura of $1,000,000 of which $600,000 has been reflected as revenue in the second quarter and $400,000 has been recorded in the third quarter. Subsequent to November 30, 1991, the balance due on this contract was paid to the Company.

6) **Aura Medical Systems, Inc.**

Pursuant to agreements entered into as of and subsequent to November 30, 1991 the Company has reduced its ownership in Aura Medical Systems, Inc.. ("Aura Medical") from 59.85% to 49.71% of total shares outstanding. Accordingly, the Company has elected to remove Aura Medical from the consolidated results for the current fiscal year and to account for its investment on the equity method. Aura Medical sales of $775,188 and net income of $53,263 were previously included in the Company's financial statements for the six months ended August 31, 1991. Aura's equity in the earnings of Aura Medical were immaterial at November 30, 1991.

Gross proceeds from the sales of Aura's interest in Aura Medical Systems, Inc. aggregate $4,000,000, of which $1,000,000 ($996,283 net of costs) has been included as income in the third quarter and nine months ended November 30, 1991, the date that portion of the sale was concluded.

## MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

**Results of Operations**

For the quarter ended November 30, 1991 the Company reported net income of $498,032 on total income of $4,159,729 as compared to a loss of $780,330 on total income of $2,263,676 for the comparable period last year. For the nine months ended November 30, 1991 the Company earned $662,043 on total income of $10,652,816 as compared to a loss of $3,437,080 on total income of $6,041,825 last year.

Total income for the three and nine month periods ended November 30, 1991, increased by $1,896,053 and $4,610,991 respectively, from the corresponding periods in the prior year. The increases are due to continued growth in commercial and industrial sales, revenues from development agreements and a gain resulting from the sale of an investment in Aura Medical Systems, Inc. ("Aura Medical"). Revenues from commercial sources comprised approximately 75% of sales as compared to 25% in the last fiscal year.

On an operating basis, the Company lost $498,251 as compared with the $780,330 loss reported in the prior year quarter. This loss reflects costs related to newly hired personnel required to staff new business that the Company will perform in future quarters.

The gain on the sale of the investment in Aura Medical included in the third quarter and nine month total income was $996,283 and represents the gain on the initial $1 million installment of a series of transactions which aggregate a total of $4.0 million and which has reduced the Company's investment in Aura Medical by approximately 10% of total shares outstanding to 49.7%. The balance of income on these transactions will be recorded in future quarters.

Included in the nine month total income is $1 million under a fee arrangement pursuant to a Development and Manufacturing Agreement with Echlin, Inc. Of this amount, $400,000 was recognized as income in the third quarter, and the balance of $600,000 was recognized earlier in the nine month period. The venture with Echlin, which was entered into in August, 1991, grants to Echlin rights to manufacture and distribute automotive products which utilize the Company's patented High Force Actuator.

Operating expenses for the three months and nine months ended November 30, 1991 increased $461,834 and $542,488 respectively, reflecting increased costs related to commercial and industrial sales.

Research and development costs increased $376,875 and $876,033 for the quarter and nine months ended November 30, 1991 as the Company increased its efforts to develop applications previously marketed to the military in new commercial and industrial applications.

General and Administrative costs decreased $54,034 and $558,195 for the three and nine months ended November 30, 1991. This reduction was achieved by an increase in the level of time charges to direct contract activities at all levels within the Company, coupled with efforts to reduce costs.

Interest cost declined by $348,458 for the nine months ended November 30, 1991, as a result of the first quarter conversion into Common Stock of the Company's Convertible Secured Notes Payable. Interest income of $26,590, net of expenses, was recorded in the third quarter as a result of the investment of the Company's cash funds.

**Results of Operations (continued)**

The Company's business previously has been centered around military research and development for the United States Government and government defense contractors. Recently the Company's business has shifted toward commercial, industrial and consumer use of products based in part on technologies developed earlier for the government. To the extent that future revenues will continue from government activities, revenue and profits may in part be subject to the availability of funding from Congress, which involves political and other considerations over which the Company has no control.

**Liquidity and Capital Resources**

Net working capital increased by $6,699,606, an increase of over nine times the fiscal year end level to $7,426,468. The principal differences in the Company's accounts since fiscal year end are an increase in cash of 2,047,987, an increase in receivables of $3,897,998 and a decrease in accounts payable of $1,417,688.

In the nine months ended November 30, 1991 the Company realized cash flows from financing activities from the exercise of warrants to purchase 455,250 and 286,000 shares of Common Stock at $4.50 and $2.00 per share respectively, resulting in total proceeds of $2,620,625. In addition, employee stock options to purchase 174,000 shares of Common Stock at an average price of $3.40 were exercised resulting in $594,036 of proceeds to the Company. Total secured short-term borrowings of $2,300,000 were reduced to zero and certificates of deposits are no longer pledged as compared to fiscal year end.

In the three months ended August 31, 1991, the Company completed an offering of units consisting of 552,000 shares of Common Stock and Warrants to purchase 552,000 shares of Common Stock, resulting in gross proceeds to the Company of $3,312,000. The Warrants are exercisable at an exercise price of $10.00 per share and expire on June 30, 1993. The proceeds from this offering were used for working capital purposes.

Net cash used in operations was $3,943,717 for the nine months ended November 30, 1991. The cash used was primarily the result of the large increase in accounts receivable and the decrease in accounts payable. Management believes that the cash flow from operating activities will improve in the future as profitable operations continue.

Collection of the $4.0 million proceeds resulting from the sale mentioned earlier, of a portion of Aura's ownership in Aura Medical Systems, Inc. represents additional future cash flows. Of this amount, $1.4 million is to be paid to the Company in the fourth quarter of the fiscal year, with the balance due within the next two years.

In the past, the Company's cash flow generated from operations has not always been sufficient to completely fund its working capital needs. Accordingly, the Company has also relied upon external sources of financing to maintain its liquidity, principally private and bank indebtedness and equity financing. As previously mentioned, the nature of the Company's business is shifting from predominantly government funded research and development to design and manufacture of commercial products with substantially higher margins. The extent of manufacturing undertaken by the Company versus the use of subcontractors or joint venture partners will influence the level of capital required for future expansion. The timing and availability of cash flow and profits from these products is not known at this time. Potential arrangements with certain of the parties may result in contracts or joint ventures that provide substantial up-front cash advances in exchange for the right to manufacture Aura's technology.

**Liquidity and Capital Resources (continued)**

As a result of the conversion of the Company's Convertible Secured Notes Payable into equity in April 1991, the Company's headquarters facility is now unencumbered by debt. This property is appraised at $9.6 million and provides a potential source of substantial borrowings. There is uncertainty however, that cash flow from future operations will be sufficient to continue to cover all the Company's short and long term capital needs. Accordingly, the Company continues to seek external sources of capital to maintain liquidity. Such sources include partnerships, debt and equity financing. Although the Company has been successful in raising capital to cover short and long term working capital needs, there are no assurances that such funds will be available at the times or in the amounts required by the Company. The Company's existing financial arrangements do not preclude or otherwise limit the Company's ability to incur additional long-term debt or to issue new equity.

## PART II - OTHER INFORMATION

ITEM 1 Legal Proceedings

**Coors Golden, Colorado Litigation**

In February 1991, Golden Technologies, Inc. ("GTC"), a subsidiary of Adolph Coors Company ("Coors"), filed a Complaint against Aura and Alcoa Packaging Machinery Company, Inc. ("Alcoa Packaging"), a subsidiary of Aluminum Corporation of America ("Alcoa"), in Colorado State Court, Golden, Colorado, alleging that Aura violated a confidentiality agreement with GTC by (i) entering into an agreement with Ball Corporation, a competitor of Coors, to develop and manufacture an electro-magnetic device for can-making equipment (the "Ball Agreement"), and (ii) filing a patent application for an improvement to a can-making machine. GTC's Complaint seeks to enjoin Aura from performing the Ball Agreement, the assignment of Aura's pending patent application for the can-making improvement, and unspecified compensatory and punitive damages.

Aura has filed an answer to the Complaint denying all of the allegations. Aura has also filed a Counterclaim against Coors and GTC in this proceeding. The Counterclaim alleges that Coors and GTC fraudulently induced Aura to divulge proprietary information and then wrongfully instituted this litigation as part of an unlawful scheme to obtain exclusive rights to Aura's proprietary electro-magnetics technology in the can-making industry. The Counterclaim seeks unspecified compensatory and punitive damages and injunctive relief.

On October 16, 1991, the Colorado State Court, Golden, Colorado, issued a preliminary injunction which temporarily enjoins Aura, until trial, from entering into or performing agreements with third parties which involve the application of electro-magnetics to can-making machinery, including the Ball Agreement. On January 13, 1992, Aura filed a petition in U.S. Federal District Court, Denver, Colorado, seeking removal of the Colorado State Court proceeding from the State Court in Golden, Colorado, to Federal District Court in Denver. Aura believes that Alcoa Packaging, a licensee of Coors, was improperly named by Coors as a co-defendant of Aura in the State Court proceeding solely to prevent Aura from removing the proceeding to Federal court.

Aura intends to vigorously defend against the action by Coors and GTC and prosecute its Counterclaim. This will include a motion to set aside the preliminary injunction prior to trial based upon evidence discovered by Aura which was not disclosed by Coors and GTC at the preliminary injunction hearing. The Company believes that it will ultimately prevail in these proceedings and that the outcome will not have a material adverse effect on the Company.

**Coors/Alcoa Antitrust Litigation**

On January 10, 1992, the Company filed a Complaint against Coors and Alcoa in the U.S. District Court, Central District of California. The Complaint alleges that Coors and Alcoa unlawfully conspired to restrain trade and monopolize the can-making machine industry in violation of Federal and state antitrust laws, including Sections 1 and 2 of the Sherman Act. The Complaint further alleges that through a series of fraudulent and illegal acts the defendants and their agents have sought to prevent Aura from commercializing its proprietary electro-magnetics technology in the can-making machine industry and performing the Ball Agreement. The Company believes that the potential market for the electro-magnetic device developed under the Ball Agreement exceeds $100 million. The Complaint seeks treble damages in an amount to be determined by a jury at trial, and injunctive relief. The law firm of Alioto & Alioto has been retained by the Company as legal counsel in this proceeding.

ITEM 6 Exhibits and Reports on Form 8-K

Reports on Form 8-K:

The following reports on Form 8-K (or amendments thereto) were filed by the Company during the quarter ended November 30, 1991.

1. Form 8-K dated November 15, 1991 reported the change in independent accountants who audit and report on the Company's annual financial statements from KPMG Peat Marwick to the firm Deloitte & Touche.

## SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

AURA SYSTEMS, INC.
(Registrant)

Date: January 13, 1992

By: /s/ Francis T. Phalen
**Francis T. Phalen**
Senior Vice President
Chief Financial Officer

Date: January 13, 1992

By: /s/ Joseph F. Bevacqua
**Joseph Frank Bevacqua**
Vice President Finance
Chief Accounting Officer

Aura Systems, Inc.
2335 Alaska Avenue
El Segundo, California 90245
Phone: (310) 643-5300
FAX: (310) 643-8719

*The Link between Problem and Solution.*

THE WALL STREET GROUP, INC.
32 East 57th Street
New York, New York 10022
(212) 888-4848

Summary: Aura Systems, Inc. (NASDAQ) issued U.S. Patent No. 5,085,497 for its actuated mirror array technology.

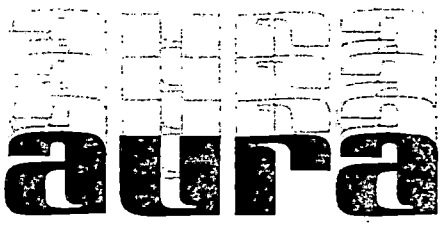
Company Contact:

Anthony T. Cascio
Chief Patent Counsel
(310) 643-5300 X 214

FOR IMMEDIATE RELEASE:

LOS ANGELES, CALIFORNIA, FEBRUARY 18, 1992.....AURA SYSTEMS, INC. (NASDAQ: AURA), has been awarded a patent directed to its actuated mirror array technology. The patent issued as U.S. Patent No. 5,085,497 on February 4, 1992. This importance of this patent is that it "secures a manufacturing technique which facilitates fabrication of the mirror array as a hybrid integrated circuit with video image processing circuitry carried by the same substrate," according to Anthony T. Cascio, Chief Patent Counsel for Aura.

The actuated mirror array is a primary subsystem of Aura's video projection technology which is a new generation of large screen NTSC and HDTV displays and digital movie projectors. Aura has recently announced that the U.S. Patent & Trademark Office has issued a Notice of Allowance on the company's patent application for its projector technology. In addition to the above, Aura has already been granted three other patents on its imaging technology.



*The Link between Problem and Solution.*

**Aura Systems, Inc.**
2335 Alaska Avenue
El Segundo, California 90245
Phone: (310) 643-5300
FAX: (310) 643-8719

THE WALL STREET GROUP, INC.
32 E. 57th Street
New York, NY 10022
(212) 888-4848

Summary: Martin Marietta purchases an Aura AMA projector for $2.1 million. Aura's AMA is heart of displays for military, TV and projection uses.

Company Contact:

Aura Systems, Inc.
Ms. Cipora Kurtzman
Senior Vice President
Investor Relations
(310) 643-5300
or
Martin Marietta
Electronics, Information
& Missiles Group
or
Mr. Roy Glisson III
Public Relations
(407) 356-2211

FOR IMMEDIATE RELEASE:

LOS ANGELES, CALIFORNIA, JANUARY 10, 1992.....AURA SYSTEMS, INC. (NASDAQ:AURA) has announced today that it has signed a contract with Martin Marietta Electronics, Information & Missiles Group in Orlando, Florida, to purchase an Infrared Image Projector for $2.1 million. The projector which will be delivered in 14 months will provide images with approximately the same resolution as broadcast television.

"Addition of the Aura projector to our Advanced Gudiance Simulation Laboratory will provide Martin Marietta with a state-of-the-art-hardware-in-the-loop testing capability for infrared seekers," said Jack G. Dart, Director of Engineering Operations, Martin Marietta Electronics, Information & Missiles Group.

"We are very excited to work with Martin Marietta on this project," Dr. Arthur Schwartz, Aura's Executive Vice President said. "This project will allow us to accelerate our commercial display development for large screen TV and AuraScope movie projector.

Aura Systems, Inc., is a world leader in magnetics and electrooptical display technology.

# # #

Aura Systems, Inc.
2335 Alaska Avenue
El Segundo, California 90245
Phone: (310) 643-5300
FAX: (310) 643-8719

*The Link between Problem and Solution.*

THE WALL STREET GROUP, INC.
32 E. 57th Street
New York, NY 10022
(212) 888-4848

Summary: Aura Systems, Inc. (NASDAQ) announces record results for third quarter, nine months.

Company Contact:

Harry Kurtzman
President
or
Frank Phalen
Senior Vice President
(310) 643-5300

FOR IMMEDIATE RELEASE:

LOS ANGELES, CALIFORNIA, JANUARY 7, 1992.....AURA SYSTEMS, INC.(NASDAQ:AURA), the world leader in magnetic suspension technology, reported record results for the third quarter and nine months ended November 30, 1991, "representing our third consecutive quarterly profit, each greater than the immediately preceding period. Additionally, nine month total income rose above $10 million for the first time in the Company's history". Harry Kurtzman, President, noted.

For the third quarter ended November 30, 1991, Aura's total income rose by 84% to a record $4,159,729 compared with $2,263,676 for the comparable quarter of the prior fiscal year. Net income was a record of $498,032, or $.02 per share on 25,335,329 weighted average shares, compares with a loss of $780,330, or $.03 per share on 22,355,858 weighted average shares, in last year's third quarter.

For the nine months ended November 30, 1991, Aura's total income rose by 76% to a record $10,652,816, compared with $6,041,825 in the first nine months of the prior fiscal year. Net income was a record $662,043, or $.03 per share on 22,335,329 weighted average shares, compared with a loss of $3,437,080, or $.15 per share on 22,355,858 weighted average shares in the first nine months of the prior year.

Total income for the three months and the nine months ended November 30, 1991 includes a $996,283 gain on sale of an investment.

(MORE)

Substantial improvement and growth are reflected in the balance sheet. Shareholders' equity rose by 243% from $5.8 million at fiscal year end to $19.9 million at November 30, 1991. Net working capital has improved by $6,740,000 over fiscal year end, an increase of nine times the year end level. Furthermore, long term debt of $6.7 million has been eliminated and the cash position of $2.9 million compares favorably with the $900,000 prior year end amount.

# # #

AURA SYSTEMS, INC. AND SUBSIDIARIES
SELECTED FINANCIAL INFORMATION
(UNAUDITED)

**OPERATIONS DATA:**

| | Three Months Ended | | Six Months Ended | |
|---|---|---|---|---|
| | November 30, 1991 | November 30, 1990 | November 30, 1991 | November 30, 1990 |
| Total Income* | $4,159,729 | $2,263,676 | $10,652,816 | $6,041,825 |
| Cost and Expenses | 3,661,697 | 3,044,006 | 9,990,773 | 9,478,905 |
| Net Income (Loss) | $ 498,032 | $ (780,330) | $ 662,043 | $(3,437,080) |
| Net Income (Loss) Per Share | $ .02 | $ (.03) | $ .03 | $ (.15) |
| Weighted Average Number of Shares Outstanding | 25,335,329 | 22,355,858 | 25,335,329 | 22,355,858 |

**BALANCE SHEET DATA:**

| | November 30, 1991 | February 28, 1991 | November 30, 1990 |
|---|---|---|---|
| Current Assets | $10,936,521 | $ 7,005,419 | $4,062,729 |
| Current Liabilities | 3,470,053 | 6,278,557 | 3,217,094 |
| Net Working Capital | $ 7,466,468 | $ 726,862 | $ 845,635 |
| Ratio | 3.15 | 1.12 | 1.26 |
| Total Assets | $23,618,638 | $18,773,218 | $15,734,975 |
| Total Liabilities and other | 3,750,053 | 12,978,557 | 10,425,396 |
| Shareholders' Equity | $19,868,585 | $ 5,794,661 | $ 5,309,579 |

*Total Income in the three and nine months includes $996,283 of gain on the sale of an investment in Aura Medical Systems, Inc.

*The link between Problem and Solution.*

**Aura Systems, Inc.**
2335 Alaska Avenue
El Segundo, California 90245
Phone: (213) 643-5300
FAX: (213) 643-8719

THE WALL STREET GROUP, INC.
63 East 57th Street
New York, New York 10022
(212) 888-4848

Summary: Aura Systems (NASDAQ) and Levitron settle litigation involving technology rights.

Company Contact: Harry Kurtzman
President and CEO
(213) 643-5300

FOR IMMEDIATE RELEASE

EL SEGUNDO, CALIFORNIA, September 6, 1991.....AURA SYSTEMS, INC. (NASDAQ-AURA) announced today that it had settled litigation brought by Levitron, Inc. of Dallas, Texas and a group associated with it "on favorable terms, " according to Harry Kurtzman, Aura President. The litigation, which challenged Aura's ownership of certain patents and technology rights, was settled by the cancellation of 360,000 Aura common shares which had been issued to the group at the founding of Aura in 1985, and the issuance to the group of 220,000 new shares. The net result is the return to the Aura treasury of 140,000 common shares. In turn, the group released all claims against Aura, Mr. Kurtzman said.

Said Mr. Kurtzman: "The conclusion of this litigation completely validates all of the company's technical rights and our patents, and reinforces our legal position."

Aura is the world leader in magnetics technology.

######

SPECIAL SITUATIONS LETTER
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April, 1991

*NEW BUY TODAY:*

# AURA SYSTEMS

## (OTC - AURA) $4 5/8

AURA SYSTEMS is a development stage company that is on the verge of commercializing a patented "electro-magnetic" technology capable of suspending objects in mid-air and precisely controlling their behavior with computers to create actuators and bearings that perform better, last longer, and cost less to make than current models. Virtually every machine on earth uses actuators and bearings. (Actuators put machines into motion. Bearings support, guide, and reduce friction between fixed and moving parts.) AURA's technology eliminates mechanical linkages and supports; and in so doing makes better performance possible while eliminating friction wear and vibration -- frequently with less weight and at a significantly lower cost.

Applications initially are being developed for automotive, industrial, scientific, and petroleum exploration markets. AURA already has landed two relatively small contracts with BALL CORP. (aluminum can manufacturing gear) and TECHNICAL MANUFACTURING (vibration isolation systems); and it has a potentially huge contract with a "Big Two" automaker (thought to be GENERAL MOTORS) to supply power steering units. That order is slated to go into production this year and then ramp up to the $100 million area in model year 1993. Even larger is a prospective engine mount program (to eliminate engine-generated vibration). Other potential automotive applications include engine valves, fuel injectors, air conditioning clutches, door locks, and "drive by wire" systems which eliminate the need for cumbersome and costly connecting linkages and hydraulics. AURA also has developed a magnetic suspension system that, while a $2,000 luxury, would let a Cadillac corner like a race car.

CAPITAL STRUCTURE (11/30/90)

Short-term debt: $ 342,758
Long-term debt: $ 7,208,302 <a>
Shareholders' equity: $ 5,309,579
Common shares out'g: 22,734,114

| Fiscal year (Feb.) <b> | 1986 | 1987 | 1988 | 1989 | 1990e | 1991e |
|---|---|---|---|---|---|---|
| Revenues ($ mill.) | 1.56 | .48 | 2.85 | 9.06 | 9.00 | 40 |
| Pretax Margin | - | - | - | - | - | 20% |
| Tax Rate | - | - | - | - | - | 35% |
| Earnings per share | (.06) | (.16) | (.09) | (.16) | (.20) | .20 |
| Avg. shares out'g (mill.) | 4.04 | 14.9 | 16.4 | 20.6 | 22.5 | 25.0 |
| Book Value per share | .08 | (.04) | .14 | .32 | .25 | .60 |
| Dividends per share | - | - | - | - | - | - |
| % Earned Capital | - | - | - | - | - | 26% |
| % Earned Net Worth | - | - | - | - | - | 33% |

<a> Includes $6.85 million of convertible notes ($3.00/share).
<b> Fiscal year ends in the following calendar year, i.e., FY'90 ended 2/91.

| | QUARTERLY EARNINGS PER SHARE | | | | | QUARTERLY REVENUES ($ mill.) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | May | Aug. | Nov. | Feb. | Year | May | Aug. | Nov. | Feb. | Year |
| 1989 | (.02) | (.01) | (.05) | (.08) | (.16) | 2.08 | 2.38 | 2.50 | 2.10 | 9.06 |
| 1990 | (.08) | (.04) | (.03) | | (.20)e | 1.57 | 2.20 | 2.26 | | 9.00e |

"Electro-magnetics" is not a new technology. In fact its basic principles have been well understood for a half century. Until now the technology was of minor practical value, though, because it was too difficult to control in real time. Funded originally by the Department of Defense, AURA has made electro-magnetics feasible, however, by overlaying the technology with a high degree of computer control that measures each component's position thousands of times every second and makes whatever adjustments are necessary to keep the suspended object where it belongs.

The potential market is pretty big, theoretically in the billions. We estimate sales will jump to about $40 million this fiscal year, and then climb to $100-$200 million the year following as the power steering contract goes into volume production and other applications come on line. Earnings are difficult to predict but if revenues reach our target we think they could hit $.20 a share this year and $.50-$1.00 a share next (fully taxed). Applying a P/E ratio of 27x to the midpoint of that range suggests a target price of $20 a share, appreciation of 300% from the current quote.

THE COMPANY

AURA is a technology development company with a large staff of professional engineers (in their 30's and 40's) who possess outstanding records of achievement at large think tanks and research centers. To date, most of the company's revenues have been provided by government contracts, including an electro-magnetic project related to "Star Wars."

The company has developed or acquired several technologies during the past four years. The most promising from a near-term commercial perspective are electro-magnetic actuators and bearings. Other technologies that could contribute significantly later in the decade include electro-optics for high definition television ("HDTV"), electronic distribution of movies, and visual military command and control systems; and a medical application of its core magnetics technology for the removal of cataracts. AURA also has CAD/CAM and micro-electronics manufacturing groups that both support the rest of the business and sell to external customers.

AURA's patented high-force actuators can be made in both linear and rotary form and are characterized by the ability to rapidly generate large amounts of force in very long strokes for small amounts of applied current. No existing actuator technology is believed to possess those capabilities. As a result many machines today are engineered to "compensate" for those shortcomings, frequently with a convoluted sub-system that boosts costs and reduces reliability.

The company's actuators can take any number of shapes depending on what they're supposed to do. In general, though, a collection of magnets surround a piston (or some such device), suspending it in mid-air. The device then is moved when electrical charges are received, the exact amount depending on the size of the charge. Besides power steering, potential automotive applications include variable valves which would eliminate camshafts, timing chains, and other components; and active suspension systems which would keep a car flat even in hairpin turns on a bumpy road. In industrial applications AURA's actuators can be used wherever hydraulics currently appear, without the need for compressors and related power lines. Other applications include elevator suspensions, truck seat and audio speaker supports, camera mounts for spy planes, and missile seekers.

Last August, AURA entered into a contract with a "Big Two" automaker to provide power steering actuators for 1.7 million cars, at an estimated price of $20-$25 apiece. That contract covers model year 1992. Production is scheduled to encompass the automaker's entire fleet the following year, or approximately four million vehicles. Pre-production tests essentially have been completed and AURA is winding up negotiations with a major automotive parts manufacturer to form a joint production venture.

Under the terms of that deal, which was aggressively pursued by two other auto parts makers, AURA is expected to receive a large cash payment upfront and then participate significantly in future profits. All sales will flow through AURA, which will serve as the first-tier supplier.

Reportedly a half dozen or so other electro-magnetic projects are being pursued with the same "Big Two" automaker. AURA also has an alternative fuels project underway at FORD; and TOYOTA is believed to be working with the company on its active suspension system.

While it is unlikely the auto industry will be nimble enough to incorporate all of AURA's potential applications overnight, we think sales theoretically could go to $250 million or more by the mid-1990s.

Non-automotive applications could prove to be as large if not even bigger. The company is likely to receive some Government orders at a future date, we think, and significant potential appears to exist in the petroleum exploration market. (Downhole tools and pumps). The company also has begun to receive unsolicited offers from companies who want access to the basic technology, and are willing to develop products employing it on their own. Then they would pay royalties.

AURA's other technologies provide an interesting kicker to the stock. Although none are likely to contribute meaningfully in the near term, the HDTV and cataract removal products have significant long-term potential.

During the fourth quarter (February) AURA sold a 5% interest in its (previously 2/3-owned) cataract unit to a subsidiary of NESTLE for $1.5 million. That operation, which is run by a world renowned eye surgeon who owns the other 1/3 of the stock, is developing a magnetic system that pulverizes and liquifies cataracts. Testing has begun on animals and if all goes well F.D.A. approval could occur by the middle of the decade.

The company's HDTV technology, which operates on light instead of electrons, is equally promising. AURA thinks it has identified a low-cost design, similar to making computer chips, and it has patents (6) on this technology as well. Most observors currently expect the Japanese to dominate HDTV, however, so the company probably will have its work cut out for itself in this area.

AURA has been granted approximately 10 patents and dozens more either have been applied for or are being prepared. Judging by the interest being expressed in the company's technology, and the size of the financial commitments being made, we believe AURA's technology position is extremely strong though not necessarily unassailable. Alternative approaches could crop up. We think AURA has the technical capability to take on any future competitors who may arise. For the company to realize its full potential, though, it probably will be necessary to preempt the competition by rapidly building up sales over the next 2-3 years.

## FINANCES

AURA is in relatively weak financial condition, although that should improve in the next few weeks once the joint manufacturing agreement is signed. Debt consists primarily of 7% notes which are convertible into common at $3.00 a share. If the stock trades above $7.00 a share for ten consecutive trading days, AURA can force conversion. Options covering 270,000 shares are outstanding. In addition, the company sold about 2.3 million warrants last year. Those warrants generally are exercizable at $2.00 a share through December 31, 1993, and then increase by a dollar a year until they expire in 1995.

Whether or not AURA will require more capital will depend primarily on how much manufacturing, if any, the company elects to perform. Right now the company is planning to joint venture its largest projects, produce medium-sized orders in house, and license its technology for smaller applications. So a public offering may be in the cards, although we think the company probably will wait until its automotive income is established.

## MARKET FACTORS

AURA's shares are traded in the over the counter market under the ticker symbol "AURA." Trading information appears in the "NASDAQ Bid & Asked Quotations" section of the Wall Street Journal. Trading volume recently has averaged more than 100,000 shares a day.

This stock involves a high degree of risk, and subscribers are advised to take a long-term perspective when taking positions. Although electro-magnetics is a large potential market AURA will have to beef up its management structure if it is to reap maximum success. So while theoretically AURA could become a billion dollar operation, we think subscribers should keep their sights at more realistic levels.

Limit orders are advised.

< President & C.E.O.: Zvi Kurtzman. Address: 2335 Alaska Ave., El Segundo, CA 90245. Telephone: (213) 643-5300. >

| BALANCE SHEET (ooo) | 11/30/90 | 2/28/90 | 2/28/89 | | 11/30/90 | 2/28/90 | 2/28/89 |
|---|---|---|---|---|---|---|---|
| Cash and securities | $ 536 | $ 2,725 | $ 3,261 | Current liabilities | $ 3,217 | $ 4,811 | $ 5,092 |
| Accounts receivable | 2,335 | 2,095 | 2,854 | Long-term debt | 7,208 | 5,646 | - |
| Inventories | 523 | 576 | 337 | | | | |
| Other current assets | 668 | 530 | 40 | Stock & paid-in capital | 16,410 | 14,704 | 7,002 |
| Total current assets | 4,063 | 5,927 | 6,491 | Retained earnings | (11,100) | (7,663) | (4,280) |
| Property and equipment | 9,907 | 9,947 | 706 | Total equity | 5,310 | 7,041 | 2,723 |
| Other assets | 1,766 | 1,623 | 618 | | | | |
| Total assets | 15,735 | 17,497 | 7,815 | Total liab's & equity | 15,735 | 17,497 | 7,815 |

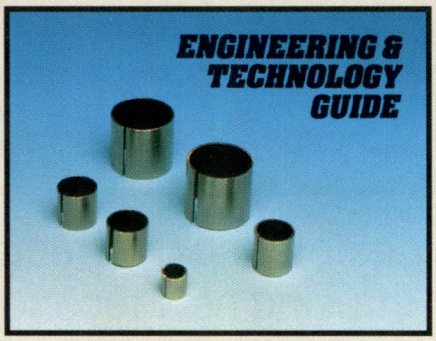
# MACHINE DESIGN

THE ONLY MAGAZINE OF APPLIED TECHNOLOGY FOR DESIGN ENGINEERING

A PENTON PUBLICATION

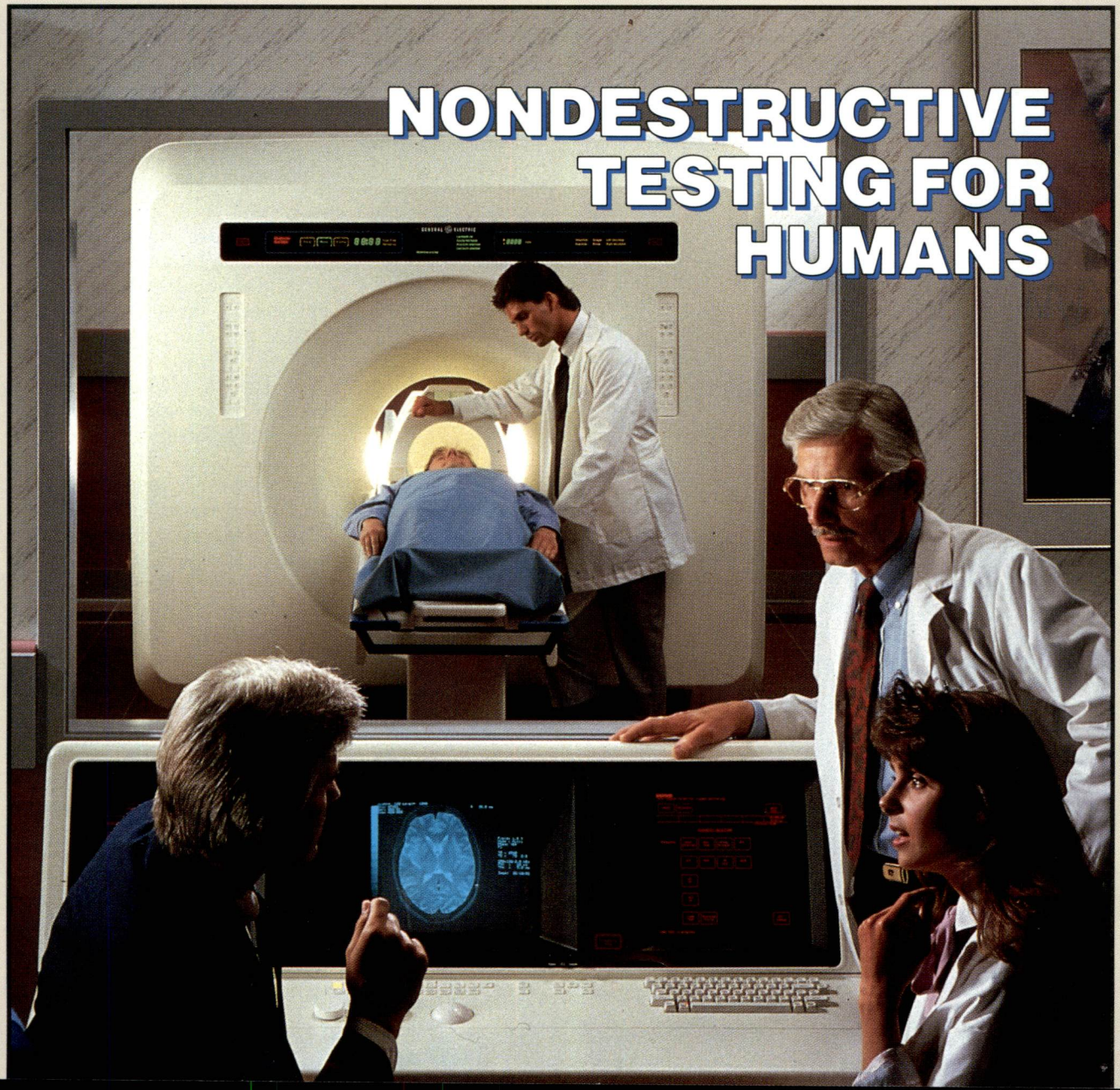
NOVEMBER 8, 1990

Electronics




PTFE Bearings

Plastics



# BATTLEFIELD TECHNOLOGY SETS PEACEFUL COURSE

Budget cuts are turning defense contractors toward commercial markets, infusing new technology into automotive, industrial, and medical products.

*Engineer at United Technologies' Hamilton Standard tests a processor module for a full-authority digital electronic engine control (FADEC) system. FADEC systems — deployed on both tactical fighters and commercial aircraft such as the Boeing 757 — optimize engine output and fuel efficiency, allowing pilots to "fly the plane instead of the engine."*

**LAWRENCE A. BERARDINIS**
Staff Editor

If there is any good news coming out of the Middle East lately, it can be only for the defense industry. Military muscle seems to be the only thing that can keep Iraq in check. The ensuing Gulf standoff and a Mideast buying spree, including a $25-billion rush order by the Saudi government for helicopters, tanks, missiles, and warplanes, will keep defense contractors busy for some time.

Nonetheless, defense programs are facing major cuts because of political change sweeping through the Soviet Union and Eastern Europe. The Cold War is over, and so, it seems, is the arms race.

Defense spending has fallen from a high of nearly $340 billion per year during the Reagan years to $290 billion in 1990. And according to the Electronics Industries Association, the budget will tumble to around $260 billion by the end of the decade. Even military electronics will be cut back by 10% over the next seven years.

The decline in spending has already chased close to 100,000 manufacturers out of the defense industry. Under 40,000 firms remain, and more are expected to drop out as bidding becomes more aggressive. While many contractors are trimming back and concentrating on niche areas, others are fighting

to sustain their revenues by diversifying into commercial markets.

## Survival course

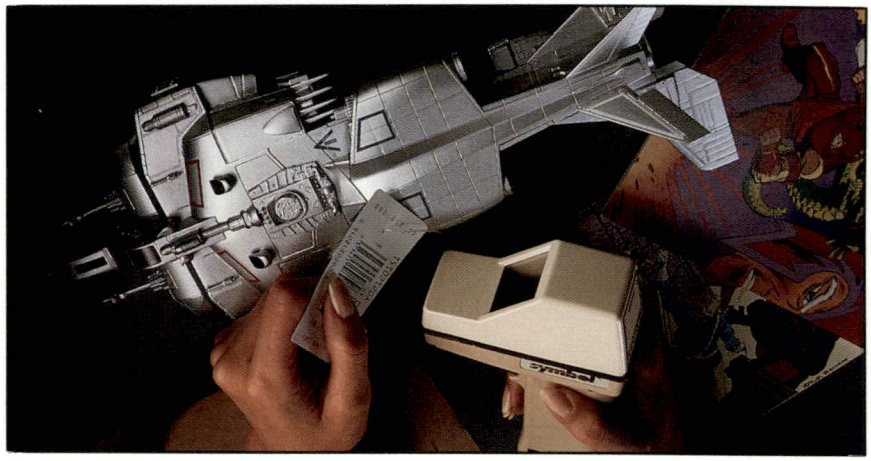
Despite vast differences between the military and commercial worlds, many contractors are finding ways to accommodate the switch. Some firms, such as Hughes Aircraft Corp., have gone the route of partnering.

Hughes is working with Hewlett-Packard Co., for example, to develop high-resolution military workstations that can also be used for industrial applications. Hewlett-Packard is trading Tempest technology to access Hughes' gateway into the military market. In turn, Hughes is carried into the commercial arena on the coattails of Hewlett-Packard.

Hughes is also embarking on a joint venture with Delco Electronics Corp., which became a subsidiary of Hughes when they were purchased by General Motors in 1985. The start-up firm, called HE Microwave, comes under Hughes' Radar Systems Group and is located at the Missile Systems facilities in Tucson, AZ.

HE Microwave — combining Hughes' radar technology with Delco's high-volume production capability — manufactures radar-sensing modules for military and automotive applications. The compact (¾ × ¼ × 5 in.) transmitter/receiver antenna is based on a GaAs detector array. In cars, the modules will be part of an obstacle detection system to warn drivers of objects alongside or behind them and to provide feedback for cruise controls. Military-qualified versions will fly on next-generation tactical aircraft, configured in elaborate sensing networks.

Another common business strategy is to buy into the commercial market by acquiring an established firm. Textron Inc., for example, owns several commercial businesses to which it transfers technology. Among its holdings are E-Z Go, known for its golf carts, Homelite, and Jacobsen. Raytheon Co. likewise holds numerous household-name firms such as Amana, Speed Queen, and Beech Aircraft Corp.



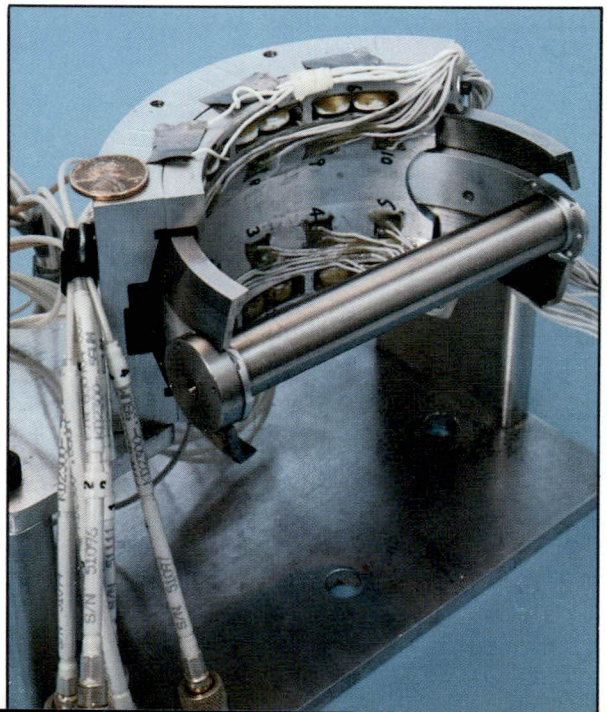

*From Star Wars to price wars, Raytheon chips are finding their way into all kinds of applications. Symbol Technologies uses Raytheon's semicustom linear-array ICs to combine both bar-code scanner and decoder functions in a handheld unit.*

Raytheon is particularly aggressive when it comes to industrial and aerospace business. The firm sees a large potential in the market for application-specific linear components. One of its recent offerings, a ground-fault interrupter IC, is aimed specifically at product designers. The IC can be integrated into hair dryers and other appliances to protect people from electrocution, especially around water.

A few defense firms, primarily subcontractors, enter the commercial market by brute force. Some even opt to manufacture products. Their strong suit, however, is typically a high-end design or process technology developed for a special military program.

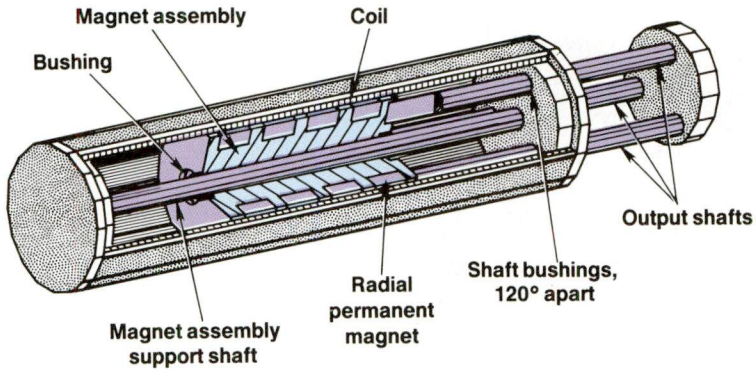
Magnavox Government & Industrial Electronics Co., owned by North American Philips Corp., jumped head first into the automotive market in the early 1980s. Although it took eight years to recover the initial investment, the division now operates in the black, producing solid-state distributors and ignition systems used on Harley-Davidson motorcycles and Buick V6 engines.

But even the automotive market offers no guarantees. A shift by carmakers to in-source major control systems is forcing Magnavox to di-



*Electromagnetic arc gimbal, made by Aura Systems, gives tracking missiles a ± 35° look angle on a 4-in. diameter for maneuvers up to 55 G. Although the technology was developed for General Dynamics' advanced air-to-missile program, it is also supporting commercial products such as magnetic bearings and linear actuators.*

### Linear high-force actuator (HFA)



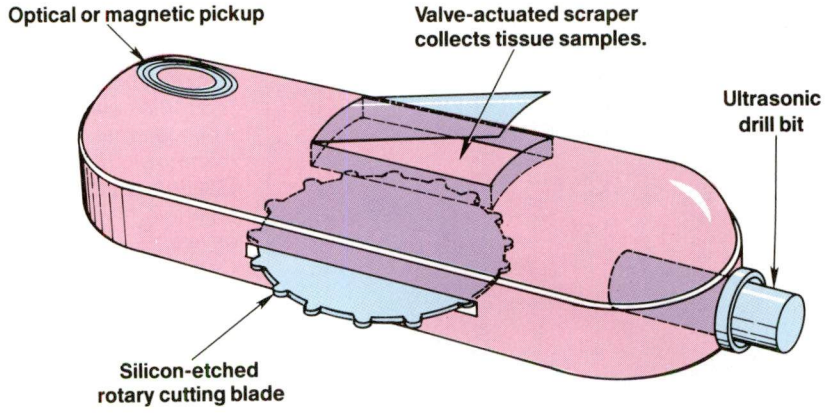

*Linear high-force actuator stacks several radial magnets along the rotorlike piston. A magnetic field induced by the outer-shell winding provides the force to move the actuator. Near homogeneous field distribution and the rotor's magnet stack produce almost maximum force between any two points along the stroke.*

## ARMING INDUSTRY WITH STATE-SPACE CONTROL

If it were not for digital state-space controllers, astronauts walking on the moon would still be science fiction and stealth fighters would be stuck on the drawing boards. What makes F-111s almost invisible to radar, its revolutionary shape, also makes it impossible to fly by conventional methods. Only state-vector-controlled fly-by-wire technology can get the stealth fighter off the ground. Pilots need only command the plane where to go and do not have to control the aircraft's complex surfaces.

State-space control is now ready for industry, and it is just in time to provide the critical push toward CIM. Sources at CSR (Control Systems Research), Pittsburgh, PA, a firm bringing the technology to the factory floor, claim that state-space control is an improvement over conventional PID control by a factor of ten. PID control theory was developed in the vacuum-tube days for op-amp-based analog computers. State-space control theory, however, is optimized for today's hardware such as 32-bit microprocessors and DSPs.

### Micromachined silicon surgical tool




*Future magnabit, micromachined from silicon, might deploy rotary cutting blades, ultrasonic drill bits, and valve-actuated scrapers to collect tissue samples. Optical or electromagnetic pickups would provide communication channels between surgeon and tool.*

versify once again. Electronic engine-control technology is being redirected to industrial manufacturers, while the firm develops sensor and actuator technology for automotive uses.

### Coming attractions

From lasers to GaAs computers, exotic military spin-offs are often taken for granted. Yet, many would be surprised at what military technology is doing in supposedly less glamorous areas such as electromagnetics. In the coming years, however, advances in this area may be mind boggling.

Aura Systems Inc., El Segundo, CA, another firm parlaying defense technology into profit on the commercial market, targets magnetics as one of its main areas of interest. Aura's game plan is to prove technology in the military and aerospace environment, then apply it to the commercial sector. Military and government contracts as well as awards from various research laboratories and aerospace firms fuel much of its foundational research and development.

The firm's electromagnetic experience stems primarily from gimbal development programs. Gimbals allow tracking sensors to stay fixed on targets despite system movement. Reconnaissance cameras on jet fighters, for example, are mounted on gimbals to isolate them from vibration and point them in a particular direction.

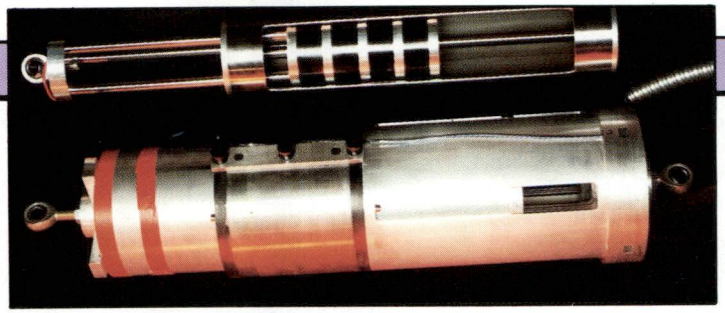
Aura is also developing magnetic-suspension thruster stand (MSTS) technology for the Boeing/Air Force LEAP (Light Exo-Atmospheric Projectile) program. The MSTS balances missiles in a magnetic field during rocket ignition to accurately measure thrust. In the civilian world, this technology is being used in futuristic surgical procedures to remove cataracts.

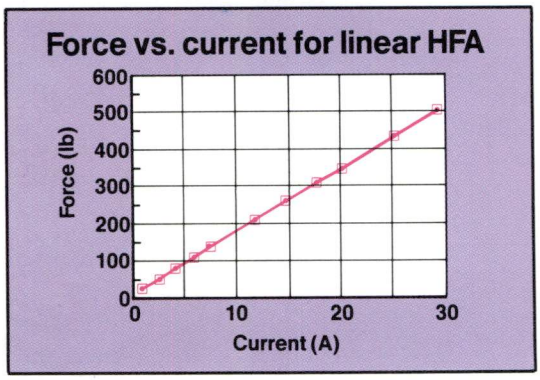
Working with Dr. Charles Kelman, a world-renown ophthalmological surgeon, Aura Systems is supplying the electromagnetic technology for a revolutionary surgical method called KELMAST (Kelman Magnetic-Assisted Surgical Technique). A tiny magnetic bit is injected by syr-

inge into the lens, and a magnetic field suspends it in place. Using a joystick, the surgeon drives the bit around the lens, destroying, or emulsifying, the cataract. The emulsified fluid and bit are then removed by syringe and a transparent material injected.

Future surgical techniques may replace the cutting bit with other payloads. Magnetic capsules, for example, can slowly release chemicals at internal sites without poisoning the entire system, and tiny elements can deliver heat to internal points without damaging protective tissues.

Active cutting bits, fashioned by micromachining techniques, might






*High-force electromagnetic actuators can match force and stroke with any hydraulic, pneumatic, or ball-screw actuator system. They are also faster and easier to use. Output force varies linearly with input current and response time is in milliseconds. The 30-lb unit (cutaway) can generate 500 lb continuously over an 8-in. throw.*

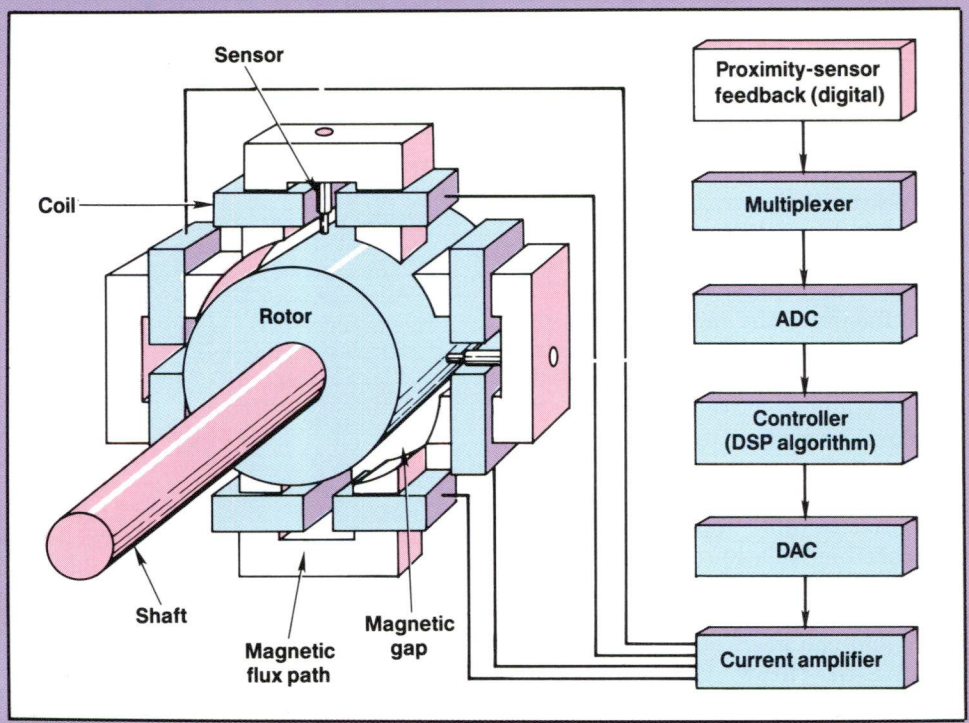
# GETTING THE BUSINESS ABOUT AIR BEARINGS

Electromagnetic bearings are moving from the laboratory to the manufacturing floor because of advances in electronics and computer-aided design. Key to the transition are accurate proximity sensors, high-speed DSP engines, smart power drivers, and finite-element techniques for modeling magnetic fields. Without these developments, it would be nearly impossible to design a controller for the complex task of balancing a piece of iron in a magnetic field.

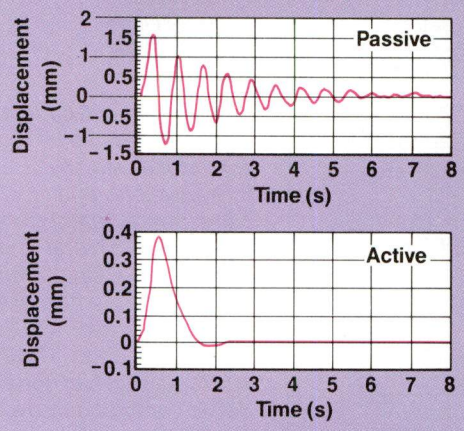
Controlling motion in one, two, and even three-dimensional free space is far easier than suspending an object in midair. Not only do all electromagnetic forces need to balance one another, they must also instantaneously balance any disturbance on the load. According to Earnshaw's Theorem, a Murphy's law of levitation, the free-body load is constantly slipping off center. The only way to keep it suspended is with dynamic control.

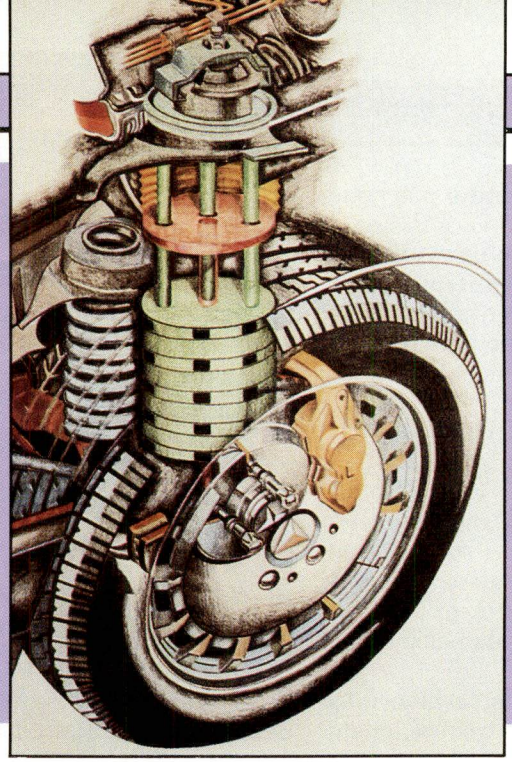
One firm working on electromagnetic bearings, Aura Systems Inc., El Segundo, CA, compares the magnetic-suspension control problem to balancing a pencil on the tip of your finger. Everything in the control system has to be fast: the sensor, the processor, and the field-current driver. Tired of being slowed by off-the-shelf proximity sensors that are also expensive and bulky, Aura has come up with design of its own. The new sensing device employs technology from angular "pickoff" sensors used in miniature navigational gyroscopes; it is tailor made for magnetic levitation.

Conditioning electronics integrated within the sensor convert measurements on-site to digital words. Signal corruption associated with transmitting analog signals is eliminated. Also, processor bandwidth is not spent on conditioning sensor feedback prior to executing the control algorithm. As a result, the bearing controller measures rotor position and adjusts current in all four electromagnets up to 5,000 times per second. This keeps the magnetic forces balanced and holds the rotor afloat.



### Comparing active and passive vibration cancellation



*Aura'a high-force actuators, based on military-related technology, are said to be the only linear actuator with adequate force and stroke to provide active suspension for cars. In tests, active systems reduce both the magnitude and settling time of an impulse response by a factor of four.*

someday roam the body like tiny space probes. Containing drills and rotating blades, they will be able to perform a variety of surgical and exploratory tasks. Microvalves will deploy scrapers to collect samples from deep inside the body without damaging surrounding tissue.

These tools will communicate with surgeons through electro-optic or electromagnetic antennae that transmit sensor signals and receive commands. Optical commands could be sent directly or via fiber, while magnetically coupled information could be passed on a high-frequency carrier.

## Lane change

Military electromagnetics are working their way into automotive and industrial design as well. Carmakers, for example, are looking at linear high-force actuators (HFAs) to facilitate the move to drive-by-wire. HFAs will control engine valves, provide steering functions, and support active-suspension systems. According to Aura Systems Inc., the new actuator technology is a spin-off from Strategic Defense Initiative (SDI) work on single-axis vibration-isolation equipment.

In their third generation, linear high-force actuators weigh only 30 lb and can exert 500-lb forces over an 8-in. throw. By comparison, standard solenoids typically throw 500 lb no more than 1/2 in. and weigh about 175 lb. Additionally,

## A CLOSER LOOK AT MAGNETIC-ASSISTED EYE SURGERY

Surgery patients often suffer more from invasive wounds than from the operational procedure itself. But magnetically assisted surgical techniques, made possible by research for military applications, can minimize invasive damage and speed recovery. Dr. Charles Kelman, a New York ophthalmologist credited for pioneering a cataract-removal method called phaecoemulsification, is one of the first to apply the new technology.

In phaecoemulsification, the surgeon uses an ultrasonic knife to liquefy the cataract. Although an artificial lens is transplanted into the eye, recipients are unable to focus it because the surgery destroys the capsular bag around the lens and severs the focusing muscles. As a result, people must rely on strong bifocal glasses. Another complication is that the 6-mm incision to insert the lens frequently causes astigmatic changes that are difficult to correct. Dr. Kelman hopes to reduce these side effects with electromagnetic technology.

Instead of breaking up the cataract with a knife, Kelman's new procedure, called KELMAST (Kelman Magnetic-Assisted Surgical Technique), relies on a tiny bit injected by syringe into the lens. The micro-surgical tool, called a magnabit, is driven by magnetic force. Using a joystick, the surgeon controls magnabit position and spin speed to mill out the cataract.

A digital signal processing (DSP) engine drives the servocontrol system. Joystick commands and magnabit-position feedback signals are compared to calculate field currents for several electromagnets. A special algorithm cancels the effect of mechanical vibrations on the sensors to keep bit position constant despite platform motion.

Kelman makes only a 1-mm incision in the eye to insert the magnabit. What's more, the capsular bag is spared in the emulsification process. The bit is removed through the original incision, as are the lens remains.

Prior to the surgery, a tissue sample is taken from the patient to grow a collagen-based material. A doping procedure matches the material's optical indices to those of the lens. Kelman uses the collagen to fill the capsular bag and synthesize a new lens. The liquid collagen is cross matrixed (solidified) with a laser.

Because the capsular bag and eye muscles are kept intact during the KELMAST process, the patient can focus the new lens, which eliminates the need for bifocals. Furthermore, the recovery period is short due to the small incision.

Kelman's new procedure, although performed only on animals so far, may also turn out to be an alternative to multifocal glasses. People wear bifocals and trifocals because their lenses stiffen with age and resist the eye muscles. Collagen-synthesized lenses, however, could restore youthful vision.

*Head-up displays are moving from jet fighters to the family sedan, allowing drivers to check their speed without taking their eyes off the road. The new option for many Oldsmobile and Pontiac owners is made possible by a technology transfer between Hughes Aircraft and Delco Electronics.*

HFAs are easy to use because they produce output forces that are linearly proportional to current and respond in under 20 ms.

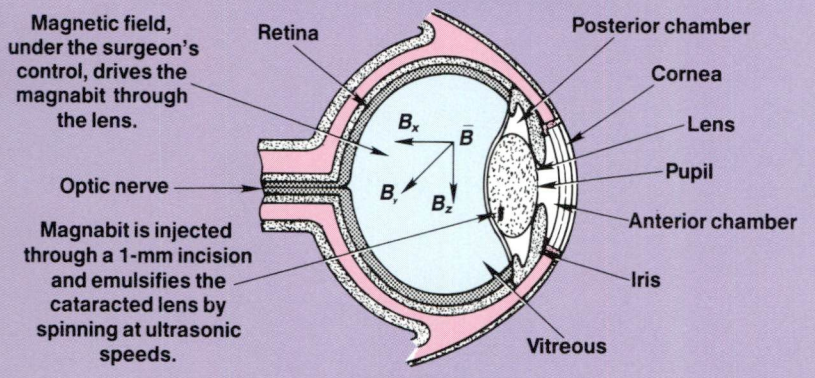
SDI work can also be traced to electromagnetic bearings. Manufacturers of semiconductor-processing equipment, for example, are testing magnetic bearings on vacuum-deposition systems. Turning on turbo-molecular pumps, the electronically controlled bearings support 25 lb at 60,000 rpm without friction, wear, or lubrication. These bearings will improve system uptime on equipment otherwise plagued by roller-bearing failure and vacuum-chamber contamination due to lubricant outgassing.

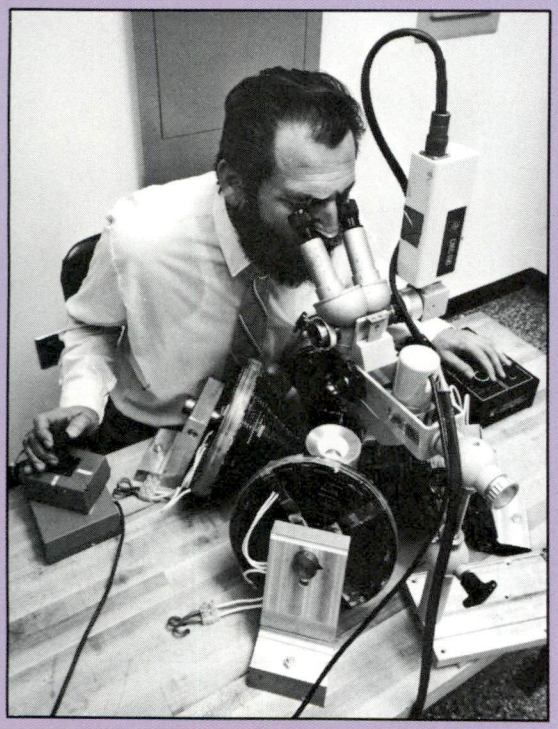
Top-gun technology in the form of head-up display (HUD) is another military innovation changing lanes. HUD displays project virtual images, such as instrumentation readings, in front of the cockpit windshield. These images allow fighter pilots to simultaneously watch events around the aircraft and keep an eye on critical readings. After 20 years of streaking through the sky, HUD displays are beginning to hit the highway.

General Motors plans to offer head-up display as an option on all 1991 coupe and sedan models in the Oldsmobile Cutlass Supreme International series, and some Pontiac Grand Prix models. In 1990, the system was installed in about 2,000 Cutlass Supreme Coupes, and came standard on nearly 7,000 Grand Prix Turbos.

HUD technology was adapted for use in automobiles by a team from Hughes Aircraft and Delco's Instrumentation and Air Controls unit. The group is also planning to roll out holographic brake indicators. When brakes are applied, holographic lights, transparent to the driver, will flash in the middle of the rear window. The holograms replace conventional rear-deck lights, which block too much of the view in newer sleeker cars. ■

## A bird's-eye view of KELMAST



*Experimental eye surgery is performed to test a new cataract-removal method called Kelman Magnetic-Assisted Surgical Technique (KELMAST). Four cone-shaped coils produce a magnetic field to drive a tiny cutting tool called a magnabit. The surgeon controls bit position and spin speed through the joysticks. Special sensors and digital signal processing algorithms provide sufficient control accuracy to maneuver the bit once it is injected into the lens.*

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