REVISED
SIGNATURE PAGE

(BIDDER TO COMPLETE AND PLACE IN FRONT OF PROPOSAL)

~~INDIVIDUAL~~/COMPANY: ORION BUS INDUSTRIES INC

ADDRESS: 350 HAZELHURST RD, MISSISSAUGA , ONTARIO, L5J4T8
(P.O. Box/Street) (City) (State) (Zip)

CONTACT PERSON: OLIA KUPYCZ

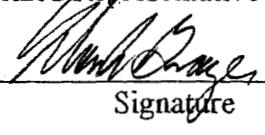
TITLE: EXECUTIVE ASSISTANT

TELEPHONE NO: (905)403-7286 FAX NO. (905)403-8808

E-MAIL ADDRESS: okupycz@orionbus.com

The undersigned hereby certifies that he/she is a duty authorized official of their organization and has the authority to sign on behalf of the organization and assures that all statements made in the proposal are true, agrees to furnish the item(s) and/or service(s) stipulated in this Request for Proposal at the price stated herein, and will comply with all terms and conditions set forth, unless otherwise stipulated.

MARK V. BRAGER — VICE PRESIDENT SALES & MARKETING
Authorized Representative – Name — Title



Signature — April 5, 2004
Date

Business License No: (Merced City))
(Merced County))
)

Should Orion Bus Industries be the successful bidder, it wil secure a business license number for the city & county if required.

Professional License No:

Taxpayer Identification No: 061425755

	35 FT. BUS	40 FT. BUS
Base Price per Specification:	309,044.00	317,044.00
Sales Tax @ 7.25%:	22,405.69	22,985.69
NON-TAXABLE ITEMS:	4,332.00	4,332.00
All ADA Equipment:	11,624.00	11,624.00
Total base price per Bus:	347,405.69	355,985.69
Days Required for Delivery – 1st Bus:	540 days	540 days
Date of Altoona Bus Test:	January 2002	January 2002
Vehicle Mfg. and Model:	Orion VII	Orion VII

April 6, 2004

Leon Teague
Deputy Director, General Services-Purchasing
Merced County Department of General Services
222 "M" Street, Room No.1
Merced, California
95340

Re: RFP 5890

Dear Mr. Teague

Orion Bus Industries is pleased to submit its proposal for the Orion VII CNG powered transit buses to Merced County. Orion has a long history of providing its customers with the highest quality transit buses, and is committed to continuing this level of service.

Orion will comply with the specification and addenda issued by Merced County in all areas with the exclusion of exceptions and clarifications found in Section A tab 2 of this proposal. Orion has more experience with CNG buses than any other manufacturer with over 2000 Orion CNG buses in service.

We are confident that our products will meet or exceed the needs of the Merced County. For any correspondence with respect to this procurement, please forward it to Orion at the following address:

Attention: Olga Kupycz, Executive Assistant
Phone: (905) 403-7286
Fax: (905) 403-8600
Email: okupycz@orionbus.com

Orion Bus Industries
350 Hazelhurst Road
Mississauga, Ontario L5J 4T8

Thank you for allowing Orion the opportunity to participate in this procurement.

Yours very truly,

ORION BUS INDUSTRIES

Henry Bekker
Manager Technical Sales

MERCED COUNTY
PROPOSAL TABLE OF CONTENTS

Section A: Proposal Main Items

Section B: Orion VII Low Floor Specifications

Section C: Warranty

Section D: Additional Required Items

Section E: Optional Exhibits and Attachments

Section F: Complete Bid Specification Package

EXECUTIVE SUMMARY

Orion Bus Industries submits its proposal to Merced California for the manufacture and delivery of Orion VII low floor CNG transit buses.

Orion offers a number of outstanding features:

- An established customer base with in service experience;
- A 12 year bus life based on Altoona Testing (Heavy Duty Bus);
- Full ADA compliance;
- Shaker testing at Bodycote Metal Technology have been completed and have been included under separate cover for your review;
- The use of established manufacturers/suppliers of the drive train components including Cummins, Allison, Meritor, and Thermo King.

Orion will comply with the specification issued by Merced County in all areas with the exception of approved RFA responses and exemptions or clarifications attached in Section A2 of the proposal.

Orion would be pleased to meet with Merced County to provide any additional information that is required regarding our proposed buses.

The vehicles proposed have the following features:

- Cummins C8.3 280 HP engine;
- Allison B400R 4-Speed Transmission;
- Luminator Horizon Front and Side Destination Signs;
- Recaro Ergo Metro Driver's Seat;
- Passenger seating are American Seating 6468;
- Diamond farebox and wiring for future use of an electronic farebox.
- 8 CNG tanks with a capacity of 18,904 SCF

Orion has been manufacturing city transit buses for the North American bus market since 1978. A detail history, background and experience of Orion bus has been attached in Section A Tab 3.

A preliminary schedule detailing our proposed production plan from execution of contract documents to completion and delivery of the buses has been attached in Section A Tab 4.

Orion has included the price proposal sheets (Section A Tab 6) with prices for the 35' CNG low floor bus, training, special tools and rear and front run boxes. The signature page has pricing information regarding both 35' and 40' buses.

Orion has engineering, management and service organizations with sufficient personnel and requisite disciplines, licenses, skills, experience, and equipment to complete the Contract as required, and satisfy any engineering or service problems that may arise during the warranty period. Orion has included the experience and qualifications of staff members assigned to this project and complete organizational charts for the company in Section A Tab 3.

Section B of the proposal has included specifications, photos and illustration of the Orion VII low floor CNG bus.

Orion warrants that each Bus shall be free from defects in material and workmanship under use and service for the period and on the terms and conditions specified in Section C of the proposal.

The entire bid specification has been attached in Section F of the proposal. Addendum No. 1 and No. 2 have been attached under Acknowledgment of Addenda in Section F3-2. Part 1 and Part 2 of Addendum No. 2 have been attached in Section F1 under Scope of Work as requested.

EXCEPTIONS

Orion is pleased to submit its proposal for Orion VII low floor 35' buses to Merced County in compliance with all sections of RFP NO. 5890 specifications for low floor CNG vehicles, with the exception of the attached.

EXCEPTIONS / CLARIFICATIONS

40' and 35' Orion VII CNG Heavy-Duty Transit Buses

Orion is pleased to submit its Proposal for Orion VII low floor buses to the County Of Merced in compliance with all sections of the City's specifications for low floor vehicles, with the exception of following:

PAGE	SECTION	TITLE	EXCEPTIONS TO TECHNICAL SPECIFICATIONS
18/19 /20	Exhibit A 2.9	Fuel System	Orion submits its proposal on the basis of providing buses with a fuel system that meets FMVSS 304, DOT, Title 13, NFPA 52, ASME, ASTM SAE, CGA, AGA, GFR all Federal and State Regulations. Orion advises that UL tested shut off valves have not been included as part of the fuel system due to the UL approved valves that Orion has used in bus service have failed. The valves that Orion uses have a proven reliability and have been supplied in over 1400 buses over the past 7 years.
PAGE	**SECTION**	**TITLE**	**CLARIFICATIONS TO TECHNICAL SPECIFICATIONS**
15, 17	Exhibit A 2.8.6	Engine Compartment Lines	Orion clarifies that all (Air, Fuel, Hydraulics) lines and fittings in the engine compartment will be Teflon/Stainless Steel unless pressures, flexibility and/or temperatures do not permit.
33	Exhibit A 4.12	Floor Covering	Orion clarifies RCA flooring will be provided as appropriate to the low floor design. Orion will provide details to Merced at Pre-production meeting. The specifications in section 4.12 describe the flooring as provided on a high floor bus.
47	Exhibit A 8.1.6 (1) 2nd paragraph	Extended Warranty Under Fleet Defects	Orion clarifies that for purchases greater than 10 buses the wording in section 8.1.6 (1) 2nd paragraph will be as follows: The warranty on items determined to be fleet defects shall be extended for the remaining time and/or miles of the original warranty, beginning on the date the fleet was determined to exist or on the replacement date for corrected item. However, should extenuating circumstances arise where OEM coverage is provided on a specific incident, it will be limited only to that as provided by the OEM.

HISTORY OF MANUFACTURER

Orion has been manufacturing city transit buses for the North American bus market since 1978. The Orion product line includes high floor buses, low floor buses, and para-transit buses. By 1983 the company had a new addition to its line – the ORION II, an innovative low-floor bus available in 21 and 25 foot lengths. The introduction of the company's first 40' x 96" model in 1984 was followed in mid 1989 by the ORION V 40' x 102" wide heavy duty city transit bus. After receiving a U.S. Department of Energy award in 1990 for energy innovation, the company launched the ORION VI Low Floor Program to provide greater access for mobility challenged passengers. There are thousands of ORION Vs and VIs in transit service in hundreds of cities in North America. This extensive experience coupled with Orion's commitment to recent market demands as well as technological foresight has ensured that the ORION VII will exceed the expected requirements of a true 12-year heavy duty transit bus. This bus is Orion's latest model, and is a result of Orion's vast experience in the manufacture of transit vehicles.

Orion's customers throughout North America enjoy the highest in-service reliability with our durable products. At transit authorities such as NYCTA and WMATA where detailed performance records are kept, the Orion buses achieve significantly higher mean-distance-between-failure numbers than any of our competitors.

Orion has also been a leader in the development of buses that utilize alternative fuels, including CNG and Hybrid technology. The first Orion transit bus specifically designed to operate on Compressed Natural Gas (CNG) was placed in revenue service in 1988. An Orion VI Hybrid was the first heavy-duty hybrid-electric transit bus sold to a Transit Authority and was placed into revenue service by NYCTA on September 1, 1998.

Orion employs a combination of bargaining and non-bargaining employees at its two manufacturing locations. There are 478 people employed at the Mississauga, Ontario plant and 571 at the Oriskany, New York plant.

In September 2000, Freightliner LLC acquired Orion Bus Industries. The parent company of Freightliner LLC, DaimlerChrysler A.G., is a world leader in the automotive industry and according to the Financial Times, one of the world's five most respected companies.

As of January 2003 the U.S. company operates as Orion Bus Industries Inc., and the Canadian company operates as Orion Bus Industries Ltd. Both companies are subsidiaries of DaimlerChrysler Commercial Buses North America. Orion's head office is located at the Mississauga facility.

With the purchase of Orion Bus Industries in September, 2000, DaimlerChrysler has embarked on a strategy to supply and service all aspects of the North American bus market. The addition of the Orion product line provides DaimlerChrysler with its first heavy-duty integrated chassis product in North America. DaimlerChrysler, through the Specialized Vehicle Division of Commercial Buses North America, is the only North American manufacturer to offer a complete range of bus products. The Orion product line offers a step up low floor in the Orion VII, a standard floor in the Orion V, and the industry's only heavy duty paratransit bus in the Orion II. All Orion products are designed to withstand the rigors of transit bus service and are Altoona tested for a twelve-year life.

PRODUCTS HISTORY:

1978	Orion I	30' x 96" high floor, heavy duty bus
1979	Orion I	35' x 96" high floor, heavy duty bus
1984	Orion I	40' x 96" high floor, heavy duty bus
1983	Orion II	21' – 24' lengths, low floor, paratransit bus : -offered in CNG (1989) -offered in Hybrid-electric (1993)
1986	Orion III	60' articulated bus, high floor for Canadian market
1985	Orion IV	75' tractor-trailer vehicle to transport tourists to Niagara Falls area.
1989	Orion V	40' x 96" or 102" high floor, CNG, Diesel heavy duty bus 35' x 96" or 102" high floor, CNG, Diesel heavy duty bus 30' x 96" high floor, CNG, Diesel heavy duty bus
1991	Orion VI	40' x 102" low floor, CNG or Diesel -offered in Hybrid-electric (1995)
2001	Orion VII	30', 35',40' x 102" low floor CNG, Hybrid-electric & Diesel

LAWSUITS / JUDGEMENTS

Orion advises that no lawsuits, claims, disputes, or judgements that are material to Orion's operations have arisen between Orion and any transit agency in the past five years.

ORION'S NEWEST PRODUCT OFFERING, THE ORION VII:

The Orion VII is the latest addition to the Orion family of quality transit buses. Offered in diesel, CNG, and hybrid-electric versions, the Orion VII provides an industry-leading 44 seats on its low-floor, 40-foot chassis. It is a 12 year, heavy-duty bus utilizing the latest innovations in modular construction to simplify maintenance tasks and make operating a fleet easier. Designed for ease of service and operation, Orion's goal is to provide to our customers a vehicle with the highest Mean Distance Between Failure and the lowest operating costs in the industry.

The new Orion VII has undergone more analysis and testing than any previous Orion model. Computerized design and performance simulations proceeded physical testing of components, subsystems, and whole buses. The Orion VII bus has completed road simulator tests on Ortech's "shaker table". The shaker table test simulates 500,000 miles of demanding transit duty in New York City.

As the leading innovator in alternative propulsion systems for transit buses, Orion is pleased to note that over 300 of the Orion VII's currently on order are to be hybrid-electric powered, while more than 500 others are to be powered by compressed natural gas (CNG).

Orion Re-Organizes its North American Sales Force

Orion's North American sales force has been realigned to serve customers better. Each Orion sales manager is responsible for both bus sales and parts sales in his region. The sales force has been significantly expanded to a total of nine regional sales managers. This results in smaller territories and allows the sales managers more time with each customer to ensure needs are being met. Mark Brager is Vice President Sales and Marketing and was recently appointed to over see all bids and contract administration activities. Mr. Brager is a professional engineer and has been with Orion for close to ten years. He led the hybrid development program for Orion prior to moving to our sales team.

Orion Engineering

The engineering team at Orion is proud of the quality of the Orion product, quality that is reflected in an industry leading Mean Distance Between Failures in challenging operating environments such as New York and Washington. How does Orion consistently produce the most reliable vehicles in the industry? It starts with design and the use of tools like Failure Modes and Effect Analysis and Pro-E. Failure Modes and Effects Analysis or FMEA was designed by reliability engineers to allow them to predict the reliability of complex products. FMEA is

done to reflect how the final product will operate, the problems that might be encountered in operation and failures that might occur. By performing these analyses in the design phase, Orion can design potential problem areas out of its products to ensure that our customers receive the most reliable buses.

Pro-E is a Computer Aided Design and Drafting system that allows the engineering team to drastically decrease the cycle time from product conception through production. We use solid modeling tools that enable our engineers to view components integrated as assemblies. This reduces the reliance on prototyping and greatly improves the design quality of the assembly.

Orion Lean Manufacturing

Lean manufacturing is a common sense, low cost manufacturing philosophy. Several techniques that are used within the framework of lean manufacturing are:

1. Just in Time/Kanban inventory management
2. Demand pull production flow
3. Kaizen or continuous improvement of quality and production processes
4. Multi skilled, empowered employee teams

We have rearranged our facilities in Mississauga and Oriskany to more closely align them with the techniques referenced above. You will notice the biggest physical change in Oriskany where we have completely revamped our main assembly and sub-assembly buildings.

We have embraced lean manufacturing in order to reduce our costs, continuously improve our quality and further enable us to achieve our delivery commitments.

Orion Parts Re-Organization

The Orion Parts organization was given a big boost with the acquisition of Orion by DaimlerChrysler. Orion Parts now utilizes the Detroit Diesel Corporation Parts Distribution Center in Canton, Ohio as our logistics center servicing our customers from a central location to reduce delivery times.

Orion Parts is available 24 hours a day seven days a week by e-mail or fax to receive parts inquiries or requests for quotes. Customer service representatives are standing by from 7:00 a.m. to 5:30 p.m. EDT Monday to Friday via a toll free number (1-800-786-8099). To better serve our growing market on the west coast, we have extended our hours to 7:30 EDT so as to have a customer service representative available until 5:30 Pacific Time. Orion stocks over 10,000 individual parts to service Orion and competitor buses.

Orion has a number of exciting and innovative parts programs designed to make purchasing parts from Orion easier. These programs provide services such as guaranteed availability of selected high demand items and pre-kitted maintenance packages for Orion components and system.

ATTACHMENT B-2
REFERENCE LIST

(BIDDER TO COMPLETE AND RETURN WITH PROPOSAL)

List Five (5) Reference where the same or similar Scope of Work were provided

REFERENCE NO. 1 - COMPANY NAME: SACRAMENTO REGIONAL TRANSIT DISTRICT

ADDRESS: 1400 29TH STREET, SACRAMENTO, CA

CONTACT PERSON: MIKE COOK TITLE: MAINTENANCE MANAGER

TELEPHONE NUMBER: 916-321-2980 FAX NUMBER: 916-444-2156

AMT. OF CONTRACT: $ 34,748,470 DATE AND TYPE OF SERVICE 11/2001 ORION VII LOW FLOOR

REFERENCE NO. 2 - COMPANY NAME: UNITRANS, CITY OF DAVIS

ADDRESS: ONE SHIELDS AVENUE, DAVIS, CA, 95616-8759

CONTACT PERSON: WALLY MELLOR TITLE: MAINTENANCE MANAGER

TELEPHONE NUMBER: 530-752-4560 FAX NUMBER: 530-752-5789

AMT. OF CONTRACT: $ 1,583,581 DATE AND TYPE OF SERVICE 02/02 ORION VII LOW FLOOR

REFERENCE NO. 3 - COMPANY NAME: YOLO COUNTY

ADDRESS: 352 INDUSTRIAL WAY, WOODLAND, CA 95776

CONTACT PERSON: ED REMLY TITLE: DIRECTOR OF MAINTENANCE

TELEPHONE NUMBER: 530-669-3514 FAX NUMBER: 530-661-1732

AMT. OF CONTRACT: $4,258,159 DATE AND TYPE OF SERVICE 11/01 ORION VII LOW FLOOR

REFERENCE NO. 4 - COMPANY NAME: FOOTHILL TRANSIT

ADDRESS: 100 N. BARRANCA AV. SUITE 100 WEST COVINA, CA 91791-1600

CONTACT PERSON: George Karbowski TITLE: DIECTOR OF OPERATIONS & MAINTENANCE

TELEPHONE NUMBER: 626-967-2274 FAX NUMBER: 626-915-1143

AMT. OF CONTRACT: $36,317,448 DATE AND TYPE OF SERVICE 9/01 ORION V HIGH FLOOR

REFERENCE NO. 5 - COMPANY NAME: UNION CITY TRANSIT

ADDRESS: 34650 7th ST. UNION CITY, CA, 94587

CONTACT PERSON: DAVID BROPHY TITLE: M V TRANSPORTATION/PROJECT MANAGER

TELEPHONE NUMBER: 510-441-0698 FAX NUMBER: 510-675-9798

AMT. OF CONTRACT: $712,698 DATE AND TYPE OF SERVICE 11/01 ORION V HIGH FLOOR

A3-7

RESUMES OF KEY PERSONNEL FOR MERCED COUNTY

Joe Nunez – Contract Administrator
Location: Mississauga, Ontario Canada

Sheri Calame – Regional Sales Manager
Location: Las Vegas, Nevada

Frank Rytych – Service Representative
Location: Fontana, California

Kim Lince – Customer Service Representative
Aftermarket Parts
Location: Oriskany, New York

These individuals will be responsible for the day to day activities for the duration of the contract. The complexities and the needs of the contract will determine the percentage of time spent on this contract.

Initially, Joe Nunez, Contract Administrator will devote 95% of his time reviewing the contract and preparing for the pre-production meeting. This meeting is held at the plant in Oriskany and is attended by representatives from Merced County, the regional sales manager and the contract administrator. Other key Orion staff (engineers, quality assurance, manufacturing engineering etc) will be called in to participate on an as needed basis. We would like to schedule this meeting within 4 weeks of contract award.

The pre-production meeting is a lengthy detailed review of the contract. During which time, things are clarified and open items will surface. It is Orion's goal to expend the amount of time necessary to close all open items within 4 weeks following the meeting. We ask that Merced County also work towards this goal.

It has been our experience that this meeting is critical to the successful completion of the contract. Therefore, we expend a large amount of time and energy in the preparation and follow up.

Joe Nunez - Joe has been with Orion since 1993. He has extensive experience in the production and after market parts. Joe was promoted to Contract Administrator in 2002. Since that time he has successfully managed multiple contracts i.e. Stanislaus County, MARTA, and Montgomery County.

Sheri Calame – Sheri has been with Orion for one year. She has been in the transit bus manufacturing business for over 14 years. During that time, she held several different positions; senior contract administrator, sales engineer, field sales representative, and director of sales administration.

Frank Rytych – Frank has been with Orion for two years. He has extensive experience in the service industry. Prior to joining Orion, Frank was a field service technician for Valley Detroit Diesel for five years. He was the service manager for Los Angeles Freightliner for two years and he spent twelve years as a foreman for Caterpillar Power Systems.

Kim Lince – Kim has been with Orion's after market parts division for six years. During this time, Kim managed the New York City account for two years and she managed all of the Midwest for two years. She currently manages the West Coast accounts and was recently promoted as Customer Service Supervisor.

EXECUTIVE STAFF

DR. ANDREAS STRECKER
President and CEO DaimlerChrysler Commercial Buses North Ameria

Andreas Strecker has more than 10 years experience in the world wide bus business. He was Head of Worldwide Bus Strategy and Product Planning of DaimlerChrysler - the largest manufacturer of buses worldwide with a revenue of 3.5 Billion US Dollars. His responsibilities also included the controlling of the worldwide DC bus activities in Latin America, Mexico and China, as well as the participation in major fleet bus sales in Europe and Overseas.
In his current position, he's responsible for all divisions which fall under the DaimlerChrysler Commercial buses North America.

PATRICK SCULLY
Chief Commercial Officer

Patrick Scully started in the bus business in 1988 in Toronto, Canada when he joined Ontario Bus Industries' (now Orion Bus Industries) service parts department as a Sales Supervisor. Mr. Scully joined the bus sales team at Orion in 1991 and rose to General Sales Manager in 1993. In 1994, Mr. Scully joined Detroit Diesel Corporation and after nine months was promoted to Vice President for Bus and Coach Sales Worldwide. In 2001, Mr. Scully joined Setra of North America as its President and CEO to lead the company in introducing a new motorcoach model to the U.S. market. Setra is a division of DaimlerChrysler and in early 2000, DaimlerChrysler also purchased Orion and Detroit Diesel Corporation. Mr. Scully is also on the Board of Management for DaimlerChrysler Commercial Buses North America which includes the divisions of Setra, Orion and Commercial Buses North Carolina. Mr Scully is responsible for all sales and service activities at Orion Bus Industries.

MARK V. BRAGER, P. Eng.
Vice President Sales and Marketing

Mark Brager is the Vice President Sales and Marketing at Orion Bus Industries, with responsibility for the field sales team's activities on both the bus and the parts sides of the business. Mr. Brager also oversees all activities related to bid's and contract administration. Previous to joining the Sales group, he was Engineering Manager. In that position Mr. Brager played key roles in development of various Orion models and subsystems. During his nine years at Orion, he also led the successful development and testing of several hybrid prototypes in conjunction with New York City Transit, and then managed Orion's rollout of the first heavy-duty transit buses powered by the BAE hybrid system. Mr. Brager's background

includes 22 years of project management experience in the manufacturing, construction, and automotive sectors. He is a Professional Engineer, and a graduate of the University of Calgary with a degree in Mechanical Engineering. He is located at Orion's Mississauga, Ontario facility.

DOUGLAS HEUMAN, B. COMM., C.A.
Director, Finance

Douglas Heuman joined Orion in September, 2003. He holds the position of Director, Finance. He is responsible for all aspects of the Finance and Accounting function at Orion. Mr. Heuman brings over 25 years experience leading the financial management, information technology, tax and treasury functions in international manufacturing, retail / distribution and truck leasing and maintenance organizations. Mr. Heuman previously held the position of Vice-President, Finance and Information Technology at ICI Canada Inc.

STEVE BATHO
Director, Customer Service

Steve Batho joined Orion in June of 1997. He holds the position of Director of Customer Service. He is responsible for all Field Service, Technical Training, Technical Publications and Warranty Administration for Orion. Mr. Batho brings over 17 years of transit operations and transit OEM experience to the company. Mr. Batho previously held positions as Director of Plant & Equipment for London Transit and as a Field Manager for a major transit rail vehicle supplier (UTDC).

BRUCE ROBERTS
Vice President, Engineering

Bruce Roberts joined Orion in April 1999. He holds the position of Vice President of Engineering. He is responsible for all aspects of Engineering in both the United States and Canada. Mr. Roberts brings over 20 years of experience in product development and manufacturing operations. Mr. Roberts previously held the position of Engineering Director with Troy-Bilt Mfg. Co.

CARL CRAMER
Director of Quality Assurance

Carl Cramer has 15 years experience at Orion Bus. He holds the position of Director of Manufacturing (Oriskany) and the position of Director of Quality Assurance for both the Mississauga and Oriskany plants. Mr. Cramer has 20 years experience in US Air Force Higher Headquarters Inspection Team, Strategic Air Command, (Quality Areas) and also has experience in the quality department at Boeing Air Craft Company.

LYNE POULIN
Manager, Contracts Administrator

Lyne Poulin joined Orion in July of 1999. Ms. Poulin previously held the position of Contract Manager for Dover Corporation (Canada) Limited, Turnbull Elevator Division responsible for all aspects of new elevators and maintenance contracts for Canada. Ms. Poulin is responsible for all aspects of bus purchase contracts for both Canada and the United States.

JERRY PELLEY
Engineering Manager

Jerry Pelley joined Orion in September 1995. Mr. Pelley has a Bachelor of Engineering (Mechanical) degree from Memorial University of Newfoundland and a Master of Business Administration degree from McMaster University. Prior to joining Orion, Mr. Pelley worked for an Engineering consulting firm.

ANDREW KEMPF
Engineering Manager

Andrew Kempf joined Orion in October 1999. He is currently responsible for all powertrain, HVAC, suspension, fire suppression and electrical design on all bus models. Previous to his current position at Orion, Mr. Kempf was the Engineering Manager at John Mezzalingua Associates in Syracuse, NY. Andrew has over 10 years experience in product design and development.

MANAGEMENT AND PHYSICAL RESOURCES

Management and Service Organizations

Orion has engineering, management and service organizations with sufficient personnel and requisite disciplines, licenses, skills, experience, and equipment to complete the Contract as required, and satisfy any engineering or service problems that may arise during the warranty period.

Orion operates Engineering, Product Support, and Customer Service departments that ensure efficient completion of contracts, and enables it to address all engineering and service issues that arise after delivery of buses. Orion's Engineering department includes both professional engineers and technical support staff who have a well-established record of achievement in the transit bus industry.

All departments have personnel located at both the U.S. and Canadian production facilities. Attached are complete organizational charts for the company, including senior management, engineering, production, warranty and customer service.

Engineering

The engineering department is made up of three groups:

- Product Engineering
- Engineering Systems and Administration
- Product Development/R&D

The Product Engineering group is responsible for all design issues related to current products, including new designs generated by customer orders. This group has staff in both the Mississauga, Ontario and Oriskany, New York locations. The location of staff is determined by the manufacturing activity at each location. Additional functions covered by the Product engineering group include compliance engineering (Federal Motor Vehicle Safety Standards and other industry requirements), service engineering (development of field fixes), production line liaison, and engineering support for bid reviews.

The Engineering Systems and Administration group is responsible for systems issues such as the bill of material and the CAD system, and for all procedures relating to ISO 9001 compliance. This group is primarily located in Mississauga but also maintains a group of bill of material and CAD personnel in Oriskany. Orion is currently in the process of introducing ProEngineer as a replacement for Autocad.

MANAGEMENT AND PHYSICAL RESOURCES

The Product Development/R&D group is located in Mississauga. This group is responsible for the development of new designs and products all finite element analysis and test programs. The design group is supported by an R&D manufacturing group which has the ability to manufacture prototype components and tooling as well as construct prototypes in a 10,000 square foot facility dedicated to R&D activities. Outside design support is utilized on an as required basis. Shaker tests are contracted to outside firms.

All recent projects undertaken by the Product Development group have used ProEngineer. Our goal is to move to virtual prototyping including vehicle simulations using Vehicle Dynamics software. Design reviews on current programs are conducted using a software program called Division Mock Up. This software allows viewing of a fully assembled vehicle to review design, styling, manufacturing, and serviceability issues in the absence of a prototype.

Quality Management Program / ISO 9001 Certified

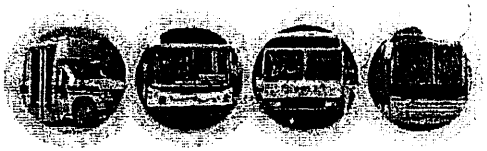
Orion is ISO 9001:2000 certified. The ISO 9001 quality management program ensures compliance with a recognized international standard that promotes continuous improvement in all aspects of the manufacturing and business operations.

As apart of its compliance with ISO 9001 requirements, Orion maintains an effective in-plant quality management program, including the maintenance of records and document control, a rigorous inspection system, internal and supplier audits, and ongoing testing. Orion works closely with its customers to ensure that buses are of the highest quality and meet each customer's individual requirements.

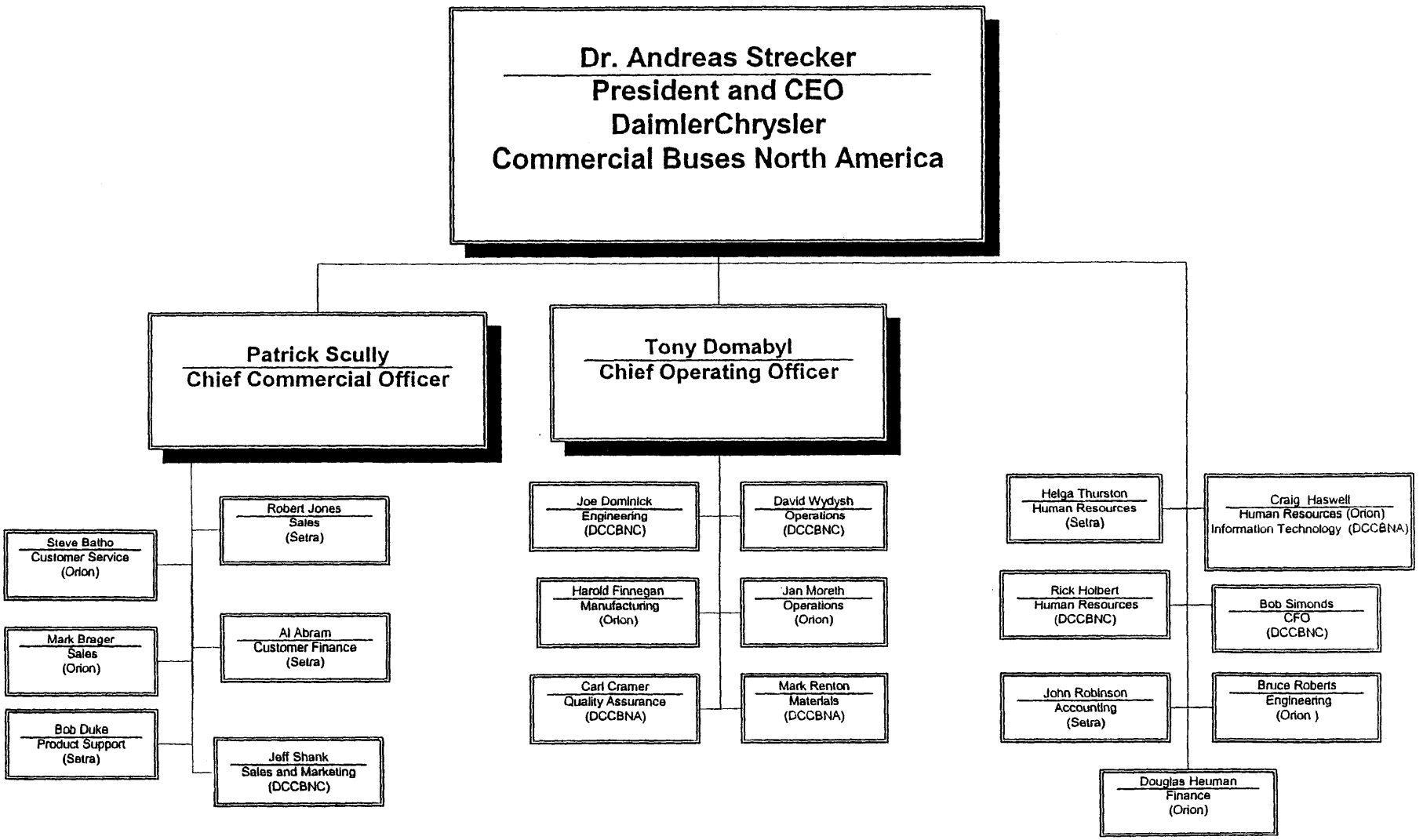
Aftermarket Parts / Service / Warranty

Orion has an After Market Parts division, a Customer Service Department, and a Warranty Department that ensure that service issues and parts requirements are addressed promptly for our customers. Orion's field service staff has extensive experience in the transit industry. The field service staff is supported by engineering and senior management. Orion updates and improves its service and warranty procedures on an ongoing basis, and implements and develops internal procedures and databases on that ensure that all service commitments are met.

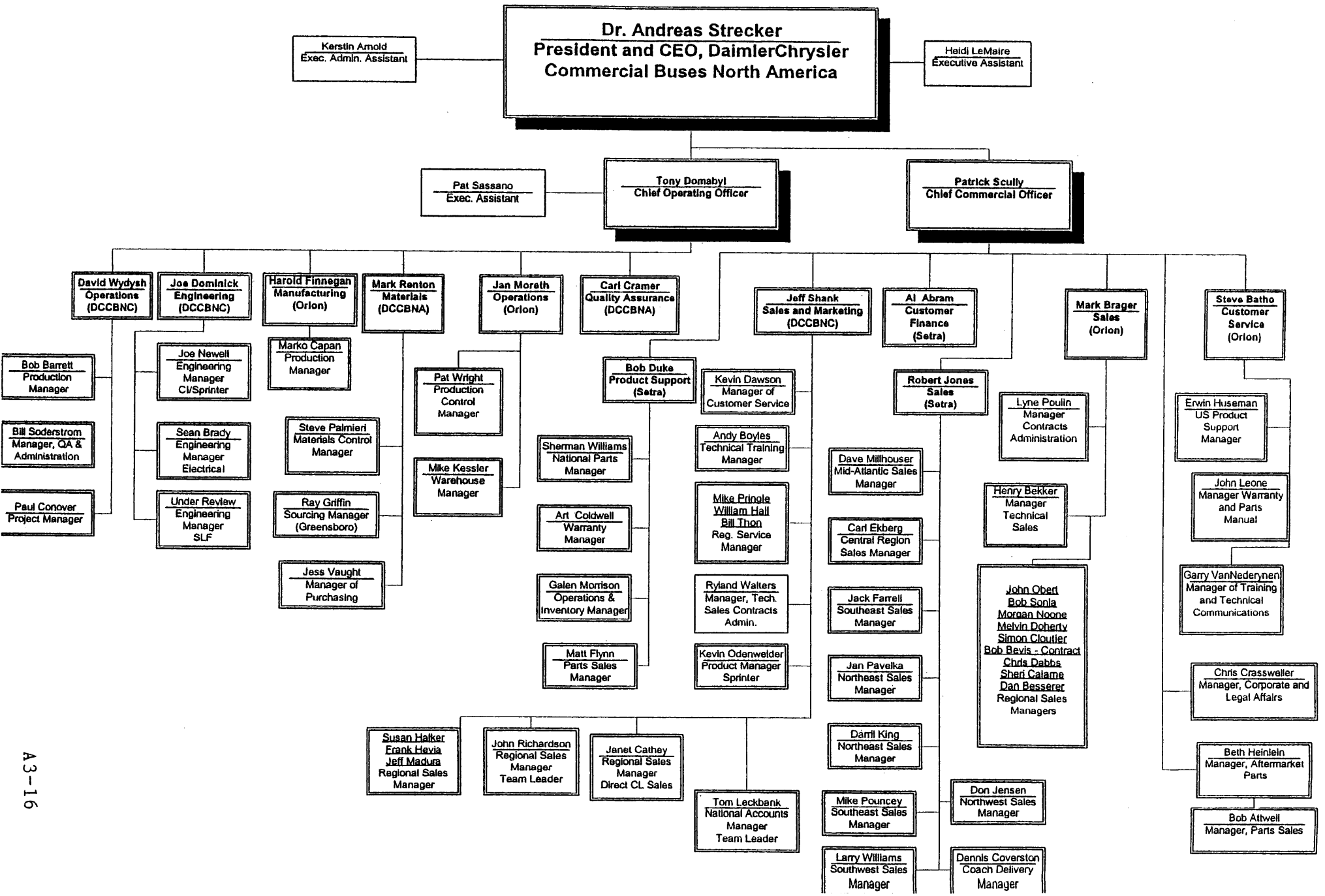
DAIMLERCHRYSLER
Commercial Buses North America



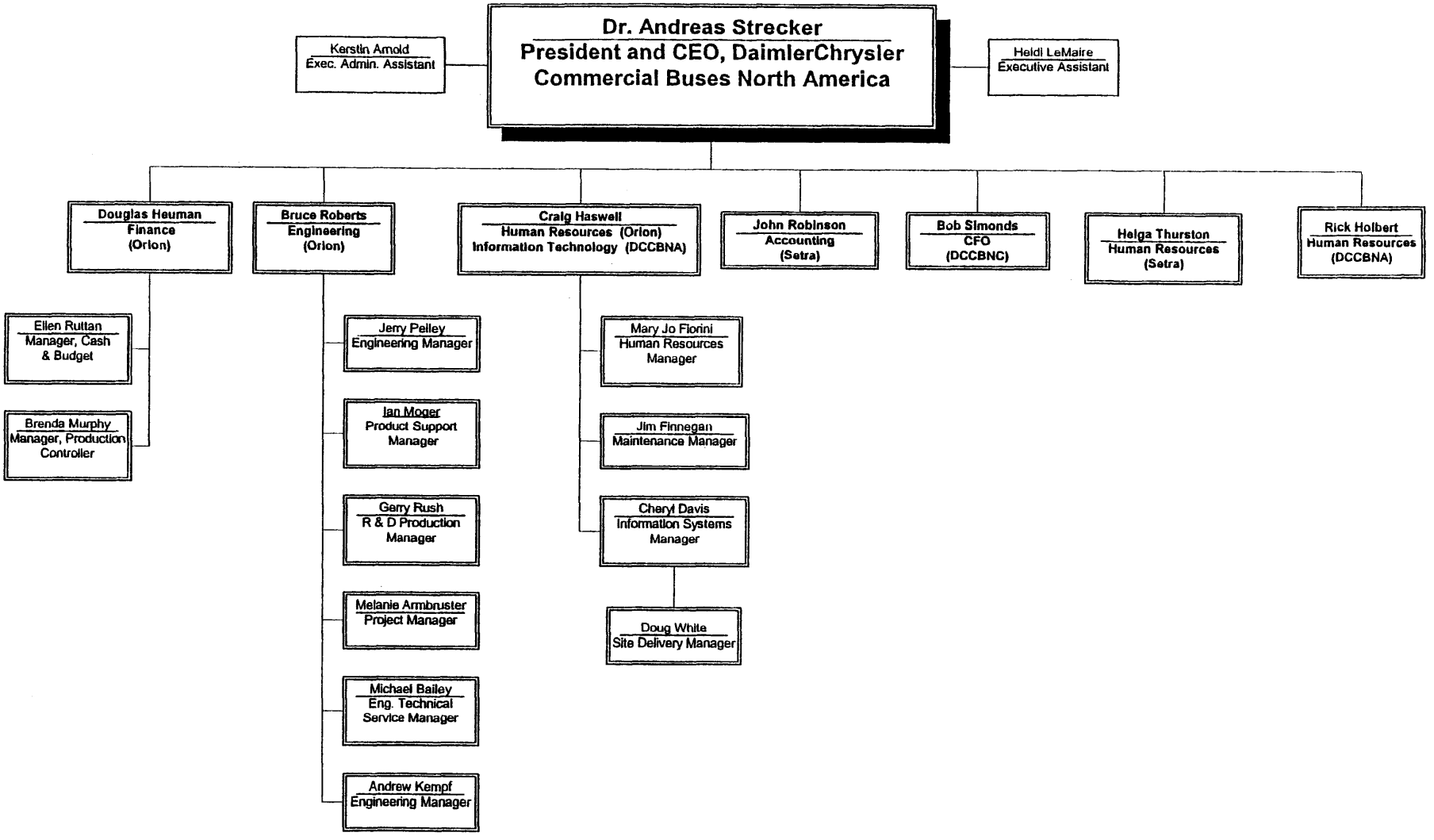
DAIMLERCHRYSLER COMMERCIAL BUSES NORTH AMERICA
EXECUTIVES/SENIOR MANAGEMENT



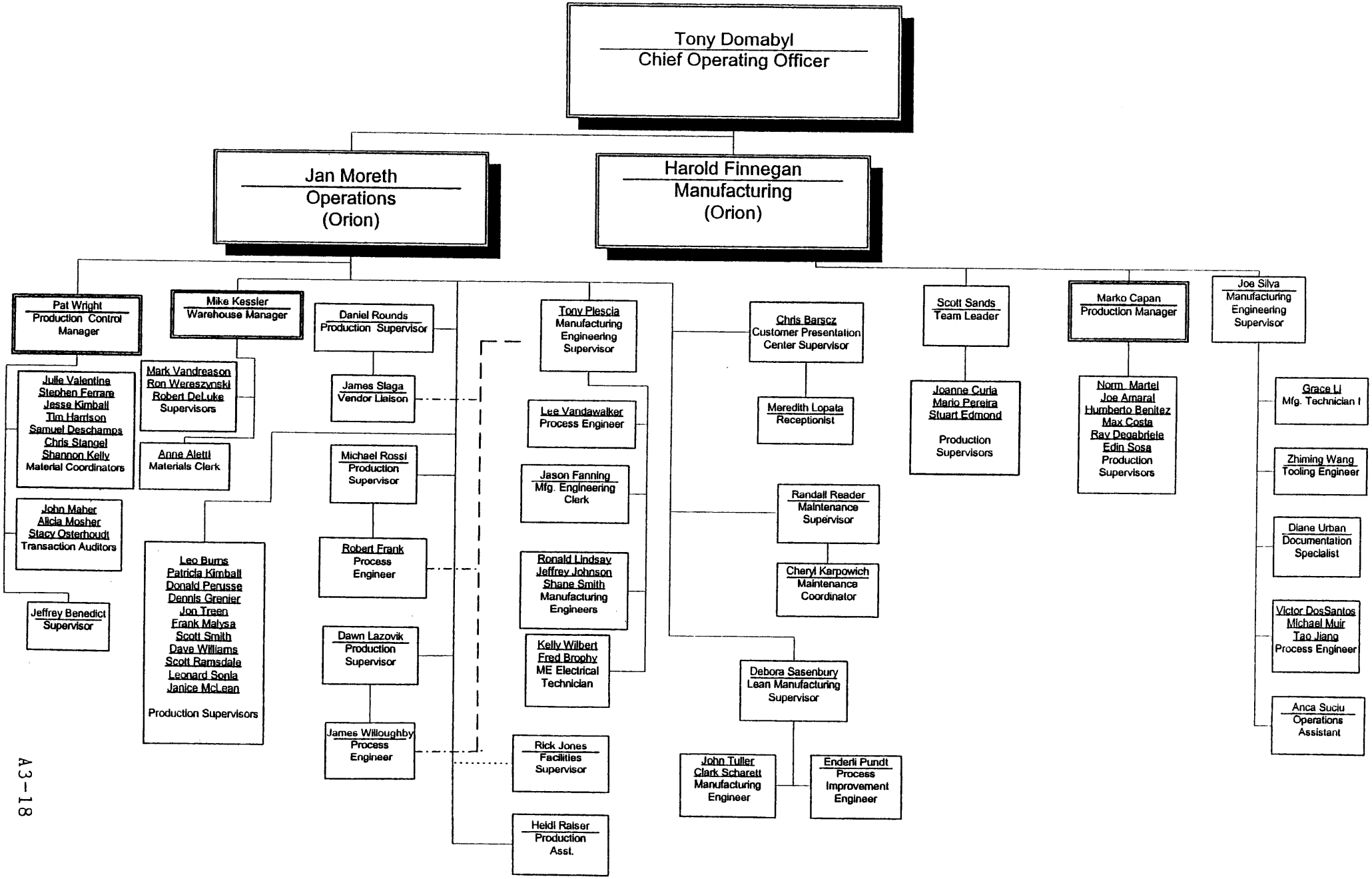
EXECUTIVES AND MANAGERS - Page 1 of 2



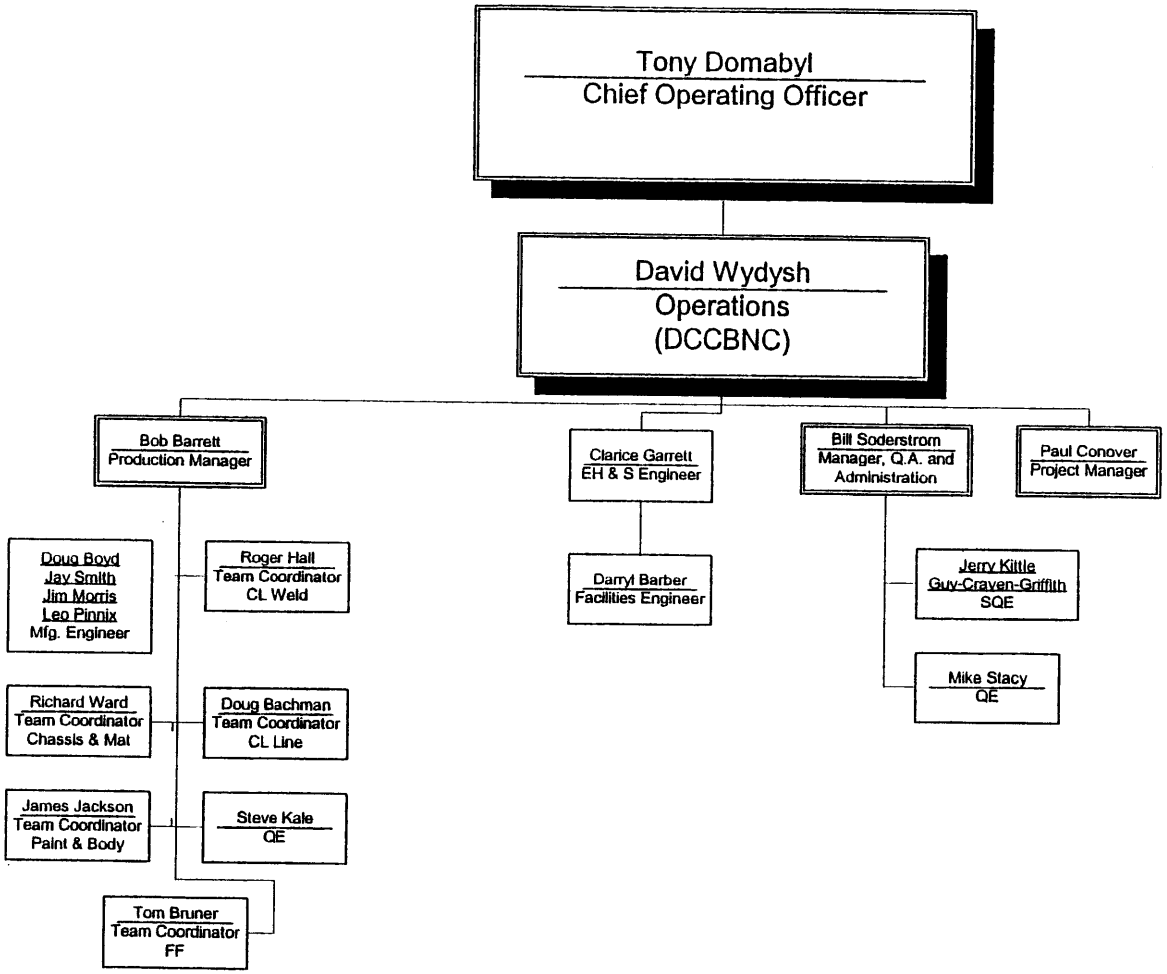
EXECUTIVE AND MANAGERS - Page 2 of 2



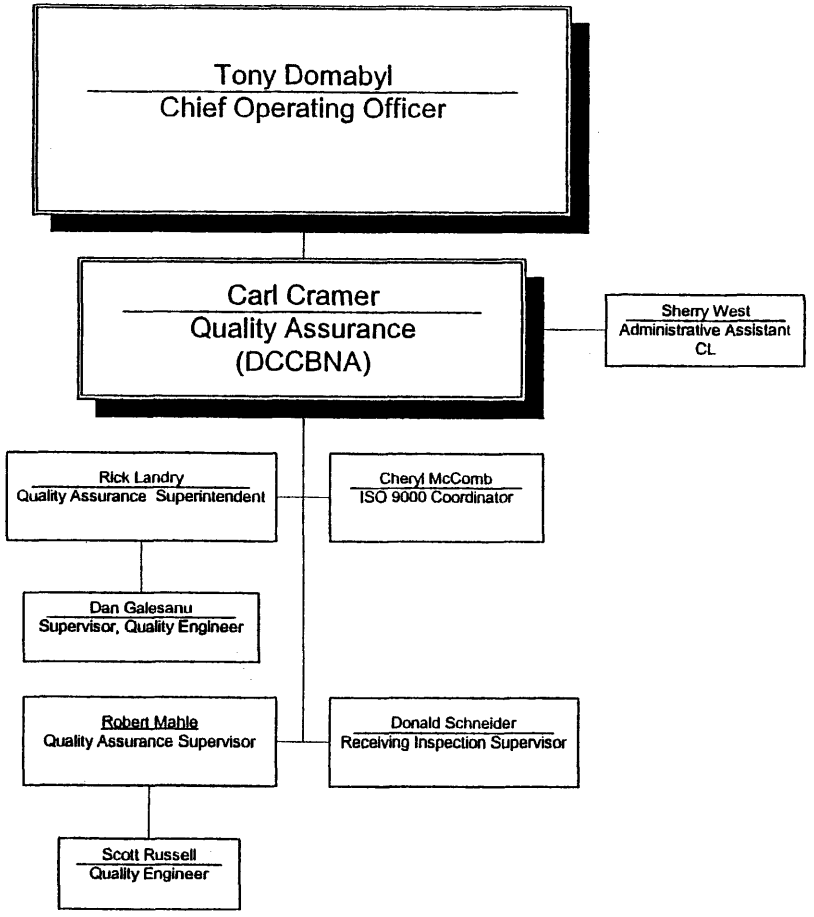
PRODUCTION AND MANUFACTURING ENGINEERING - Page 1 of 2



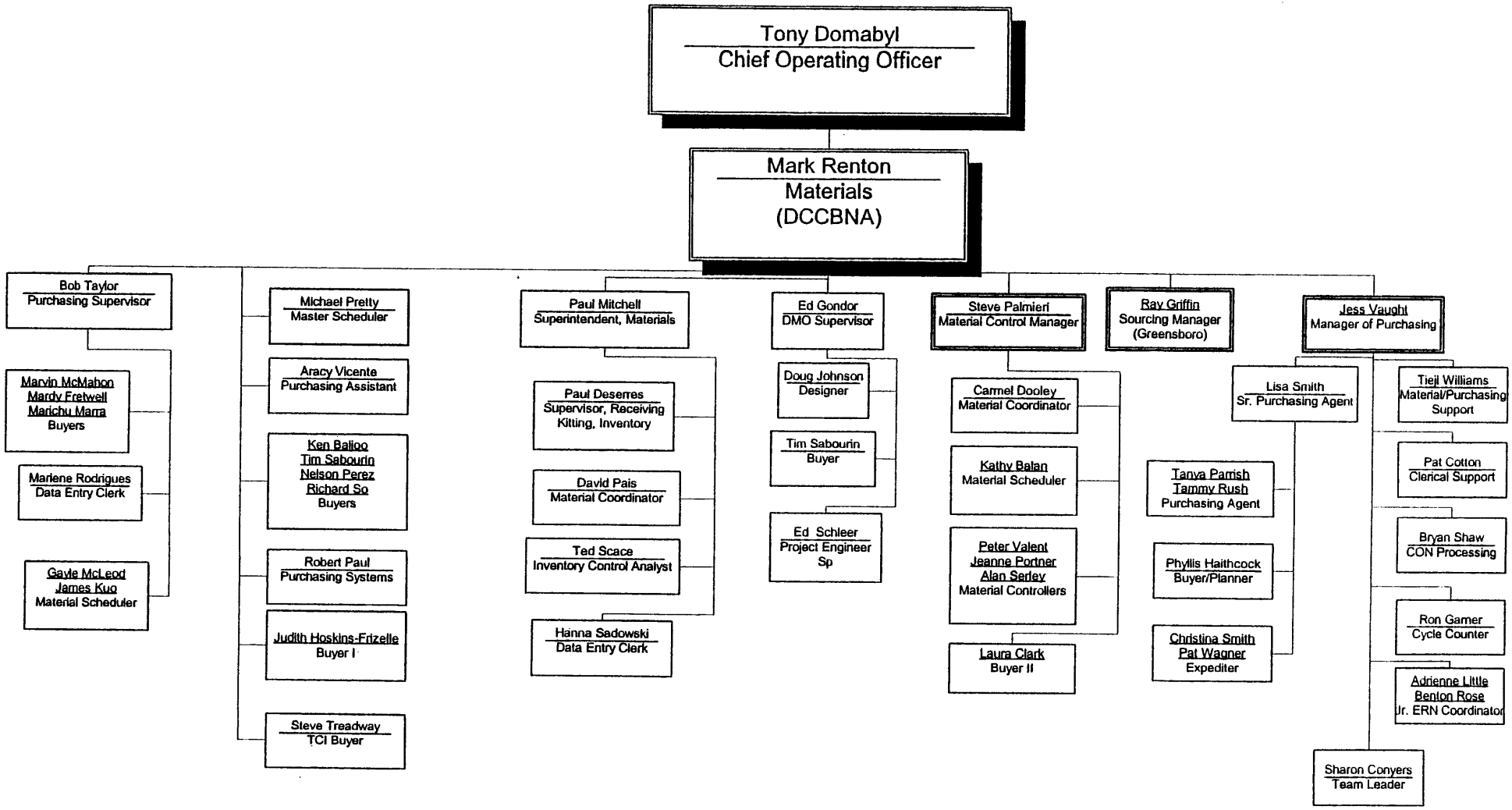
PRODUCTION AND MANUFACTURING ENGINEERING - Page 2 of 2



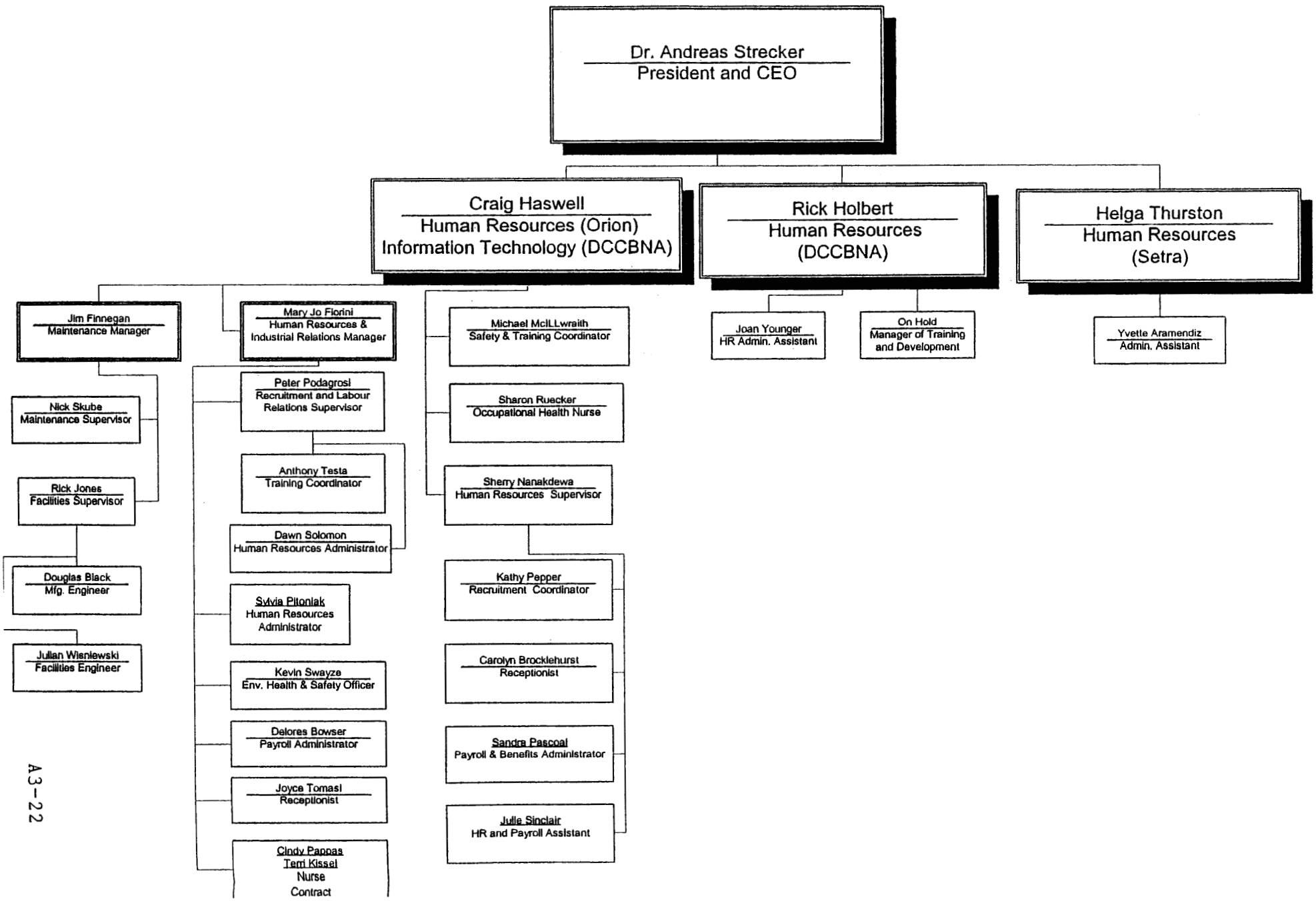
QUALITY ASSURANCE



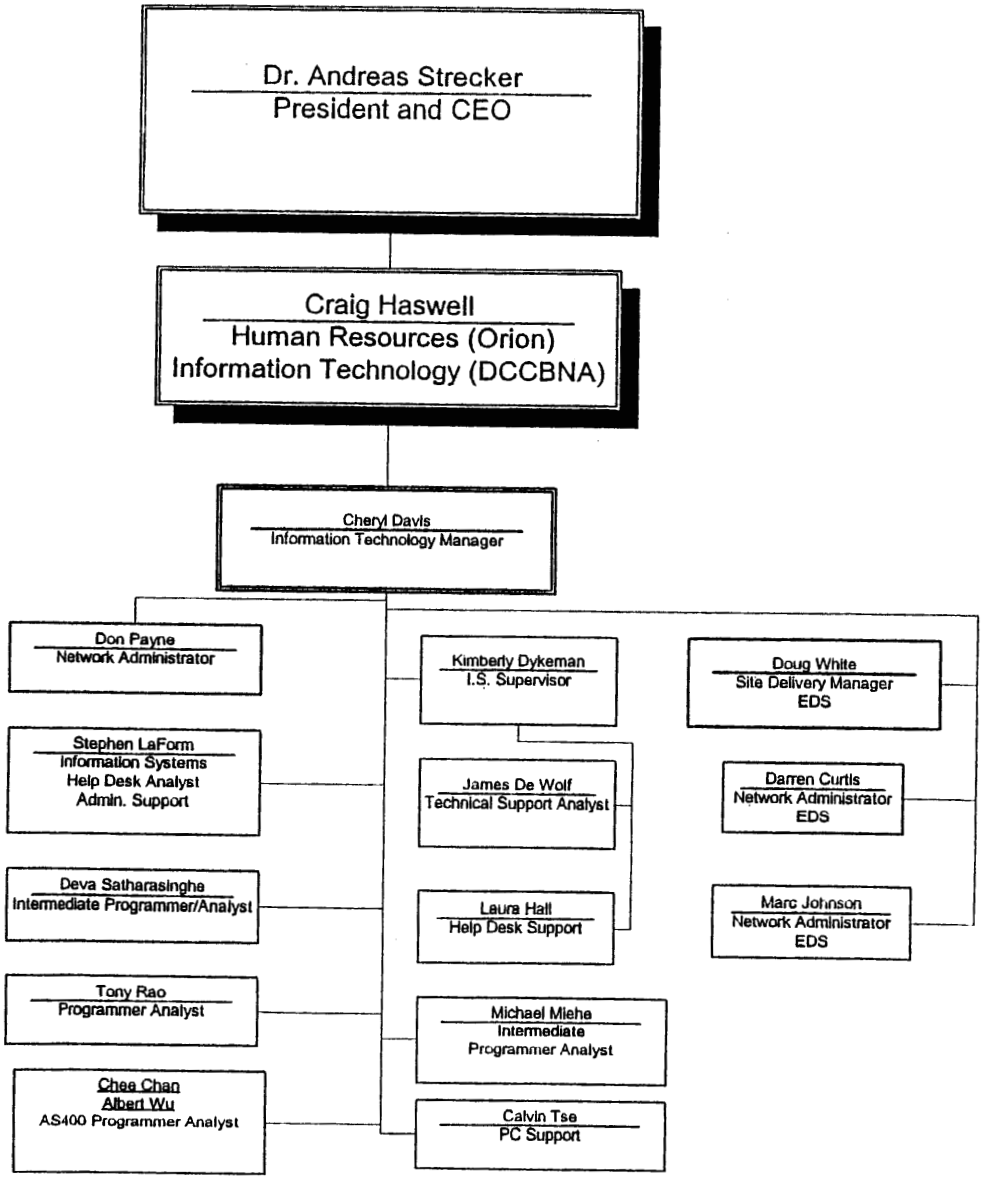
PURCHASING AND MATERIALS



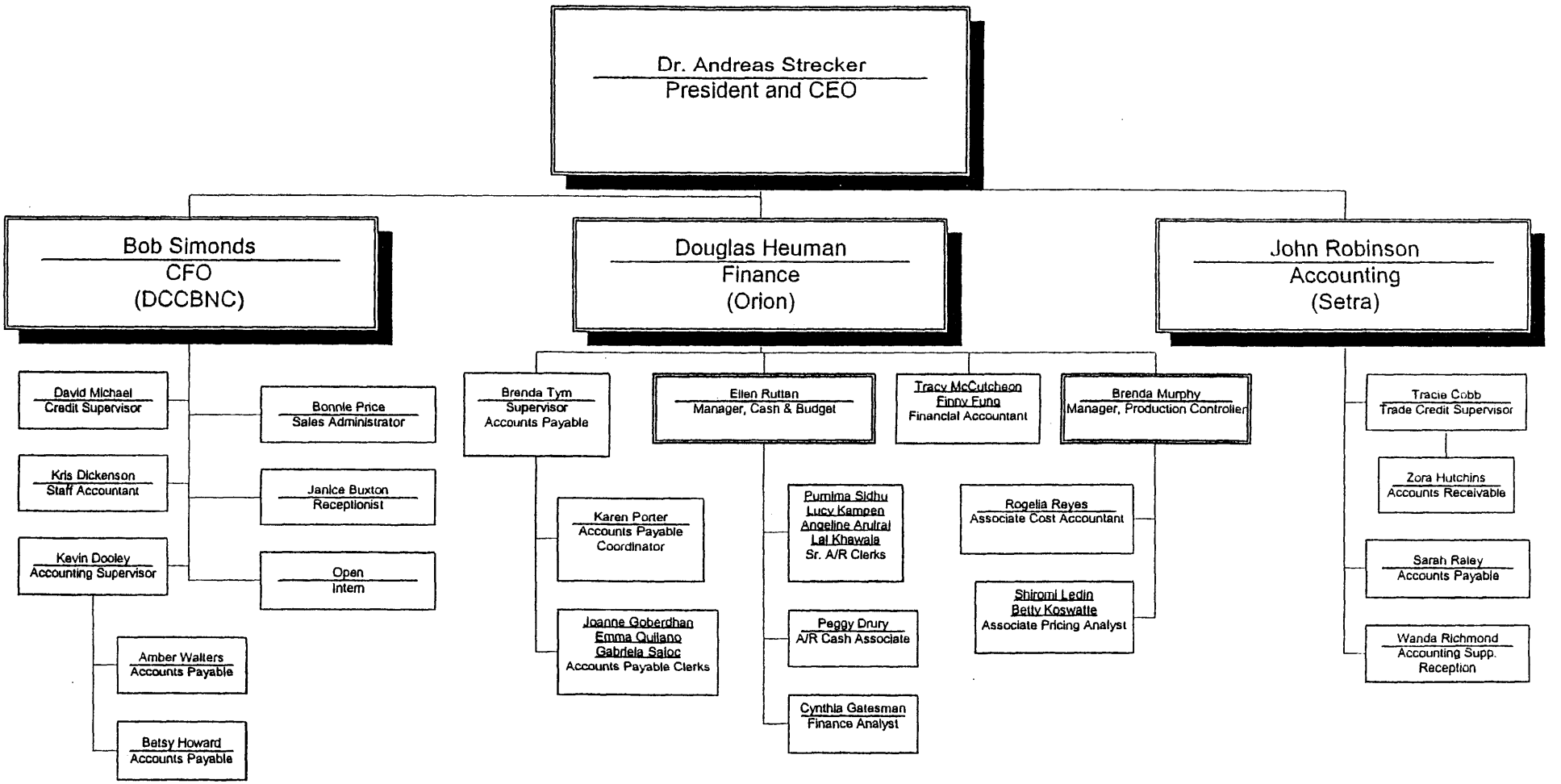
HUMAN RESOURCES, AND MAINTENANCE



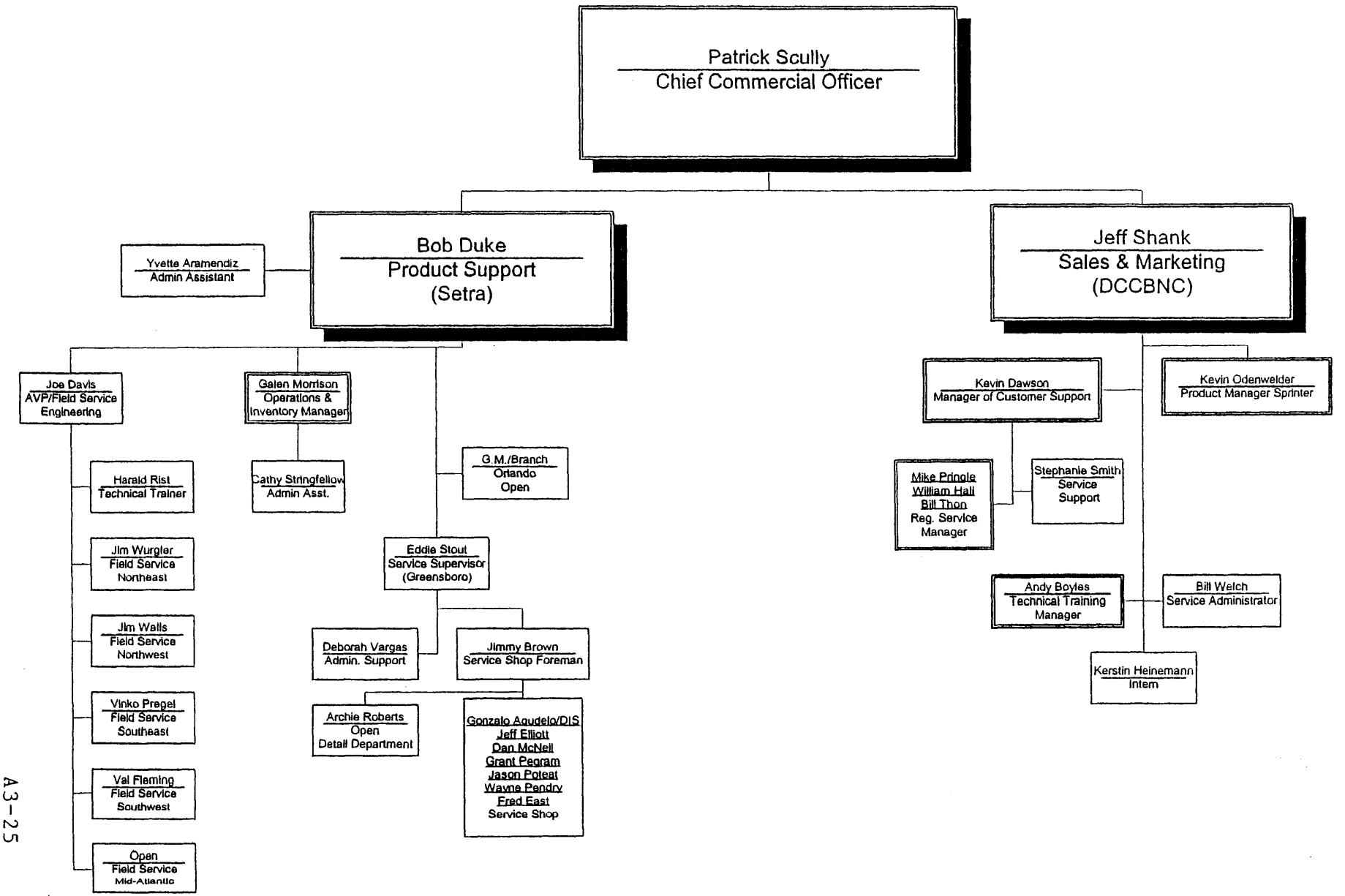
INFORMATION TECHNOLOGY



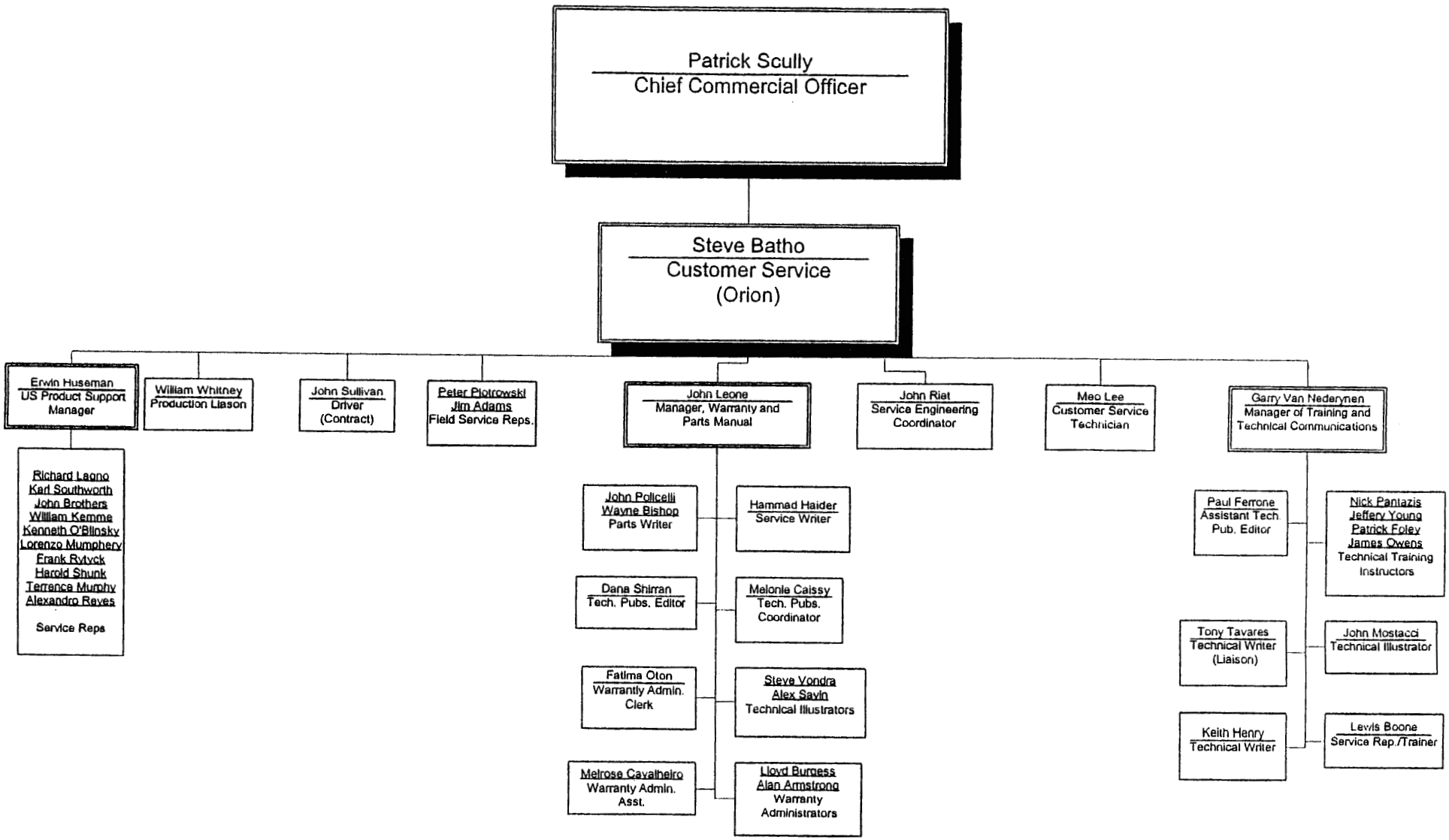
FINANCE


Dr. Andreas Strecker
President and CEO
Bob Simonds
CFO
(DCCBNC)
Douglas Heuman
Finance
(Orion)
John Robinson
Accounting
(Setra)
David Michael
Credit Supervisor
Kris Dickenson
Staff Accountant
Kevin Dooley
Accounting Supervisor
Amber Walters
Accounts Payable
Betsy Howard
Accounts Payable
Bonnie Price
Sales Administrator
Janice Buxton
Receptionist
Open
Intern
Brenda Tym
Supervisor
Accounts Payable
Karen Porter
Accounts Payable
Coordinator
Joanne Goberdhan
Emma Quilano
Gabriela Saloc
Accounts Payable Clerks
Ellen Ruttan
Manager, Cash & Budget
Purnima Sidhu
Lucy Kampen
Angeline Arulraj
Lal Khawala
Sr. A/R Clerks
Peggy Drury
A/R Cash Associate
Cynthia Gatesman
Finance Analyst
Tracy McCutcheon
Finny Fung
Financial Accountant
Rogelia Reyes
Associate Cost Accountant
Shiromi Ledin
Betty Koswatte
Associate Pricing Analyst
Brenda Murphy
Manager, Production Controller
Tracie Cobb
Trade Credit Supervisor
Zora Hutchins
Accounts Receivable
Sarah Raley
Accounts Payable
Wanda Richmond
Accounting Supp.
Reception

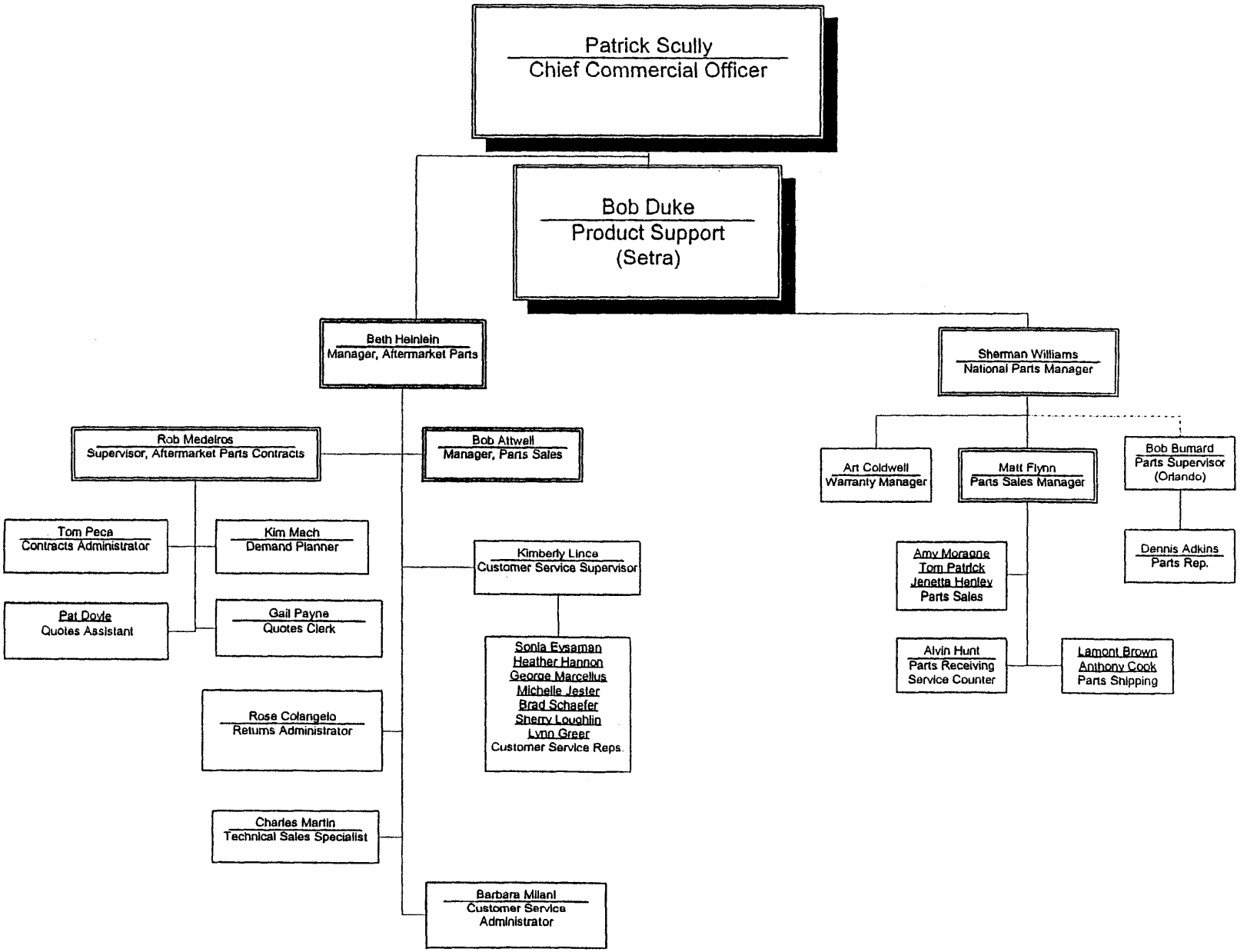
CUSTOMER SERVICE, WARRANTY AND TECHNICAL PUBLICATIONS - Page 1 of 2



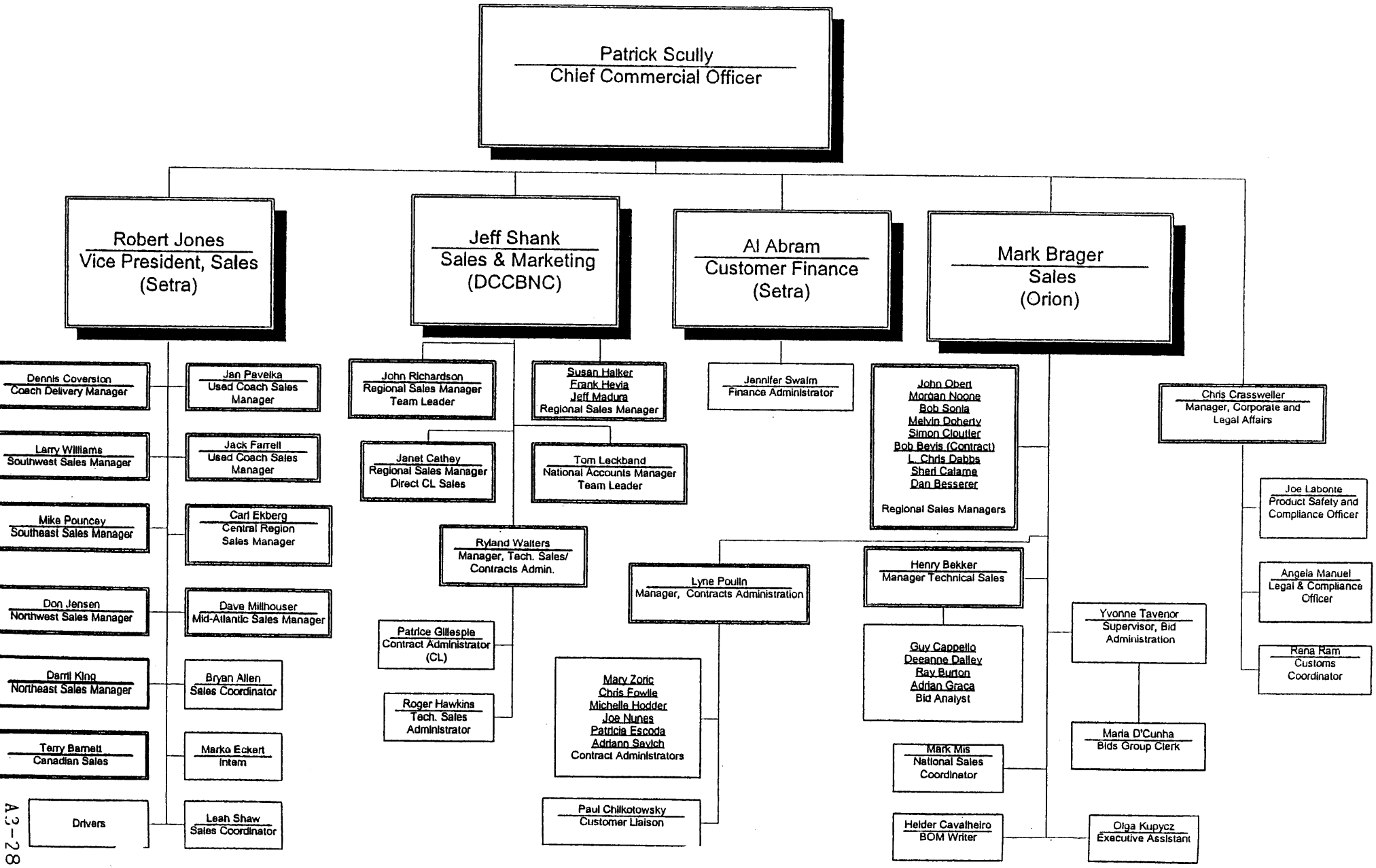
CUS MER SERVICE, WARRANTY AND CHNICAL PUBLICATIONS - Page 2 of 2



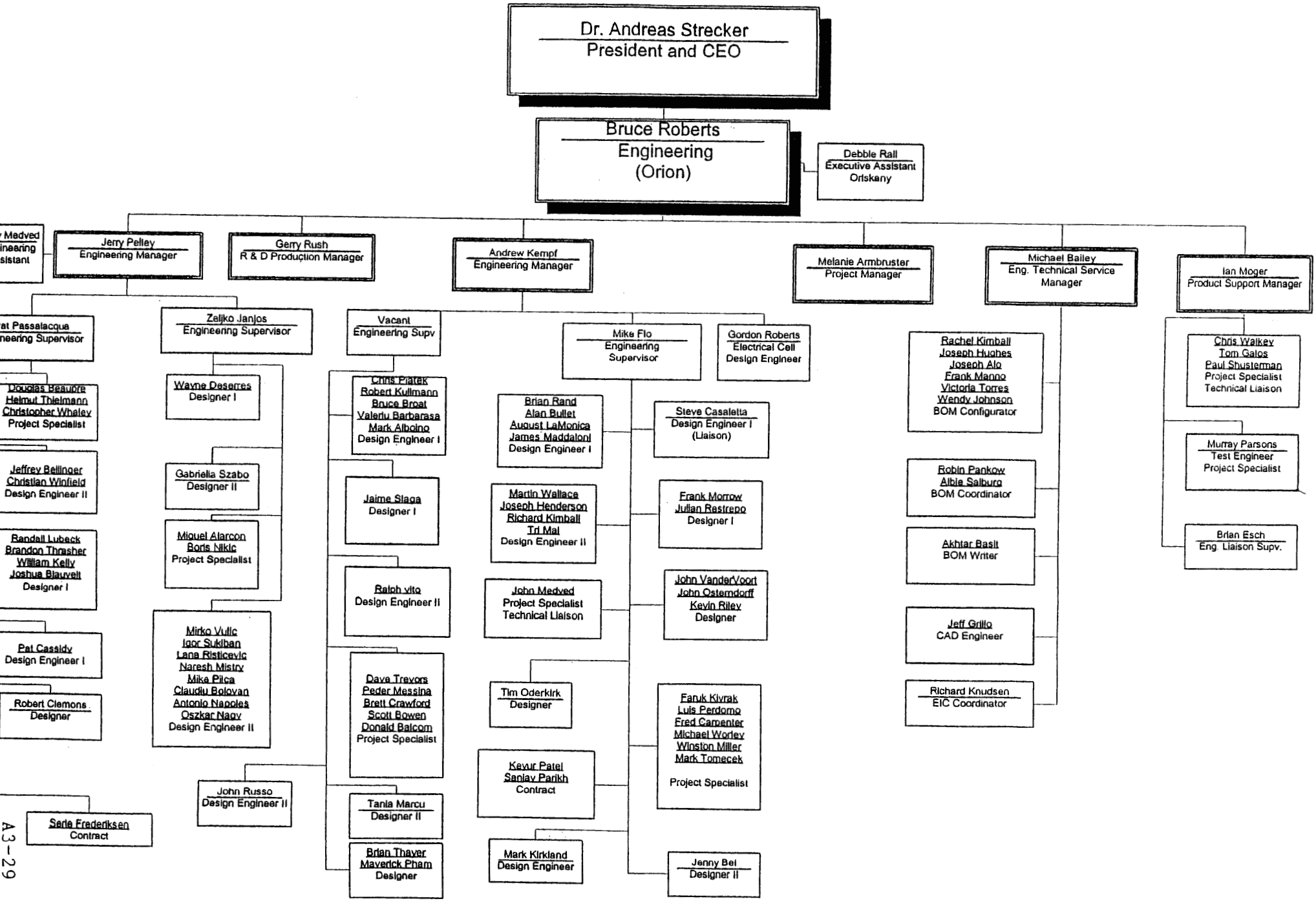
PARTS


Patrick Scully
Chief Commercial Officer
Bob Duke
Product Support
(Setra)
Beth Heinlein
Manager, Aftermarket Parts
Sherman Williams
National Parts Manager
Rob Medeiros
Supervisor, Aftermarket Parts Contracts
Bob Attwell
Manager, Parts Sales
Art Coldwell
Warranty Manager
Matt Flynn
Parts Sales Manager
Bob Bumard
Parts Supervisor
(Orlando)
Tom Peca
Contracts Administrator
Kim Mach
Demand Planner
Kimberly Lince
Customer Service Supervisor
Amy Moragne
Tom Patrick
Jenetta Henley
Parts Sales
Dennis Adkins
Parts Rep.
Pat Doyle
Quotes Assistant
Gail Payne
Quotes Clerk
Sonia Eysaman
Heather Hannon
George Marcellus
Michelle Jester
Brad Schaefer
Sherry Loughlin
Lynn Greer
Customer Service Reps.
Alvin Hunt
Parts Receiving
Service Counter
Lamont Brown
Anthony Cook
Parts Shipping
Rose Colangelo
Returns Administrator
Charles Martin
Technical Sales Specialist
Barbara Milani
Customer Service
Administrator

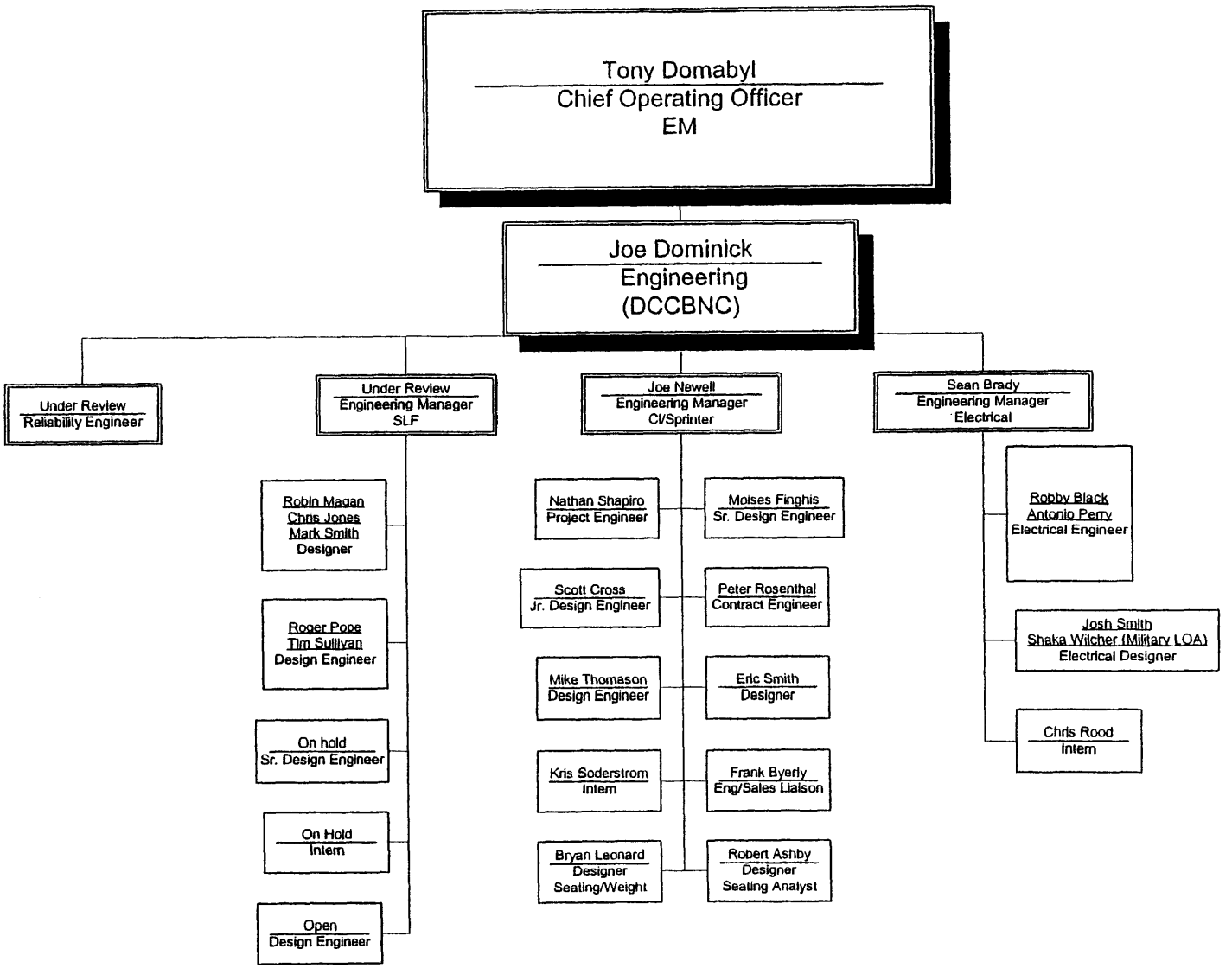
SALES, CONTRACTS AND CUSTOMER FINANCE



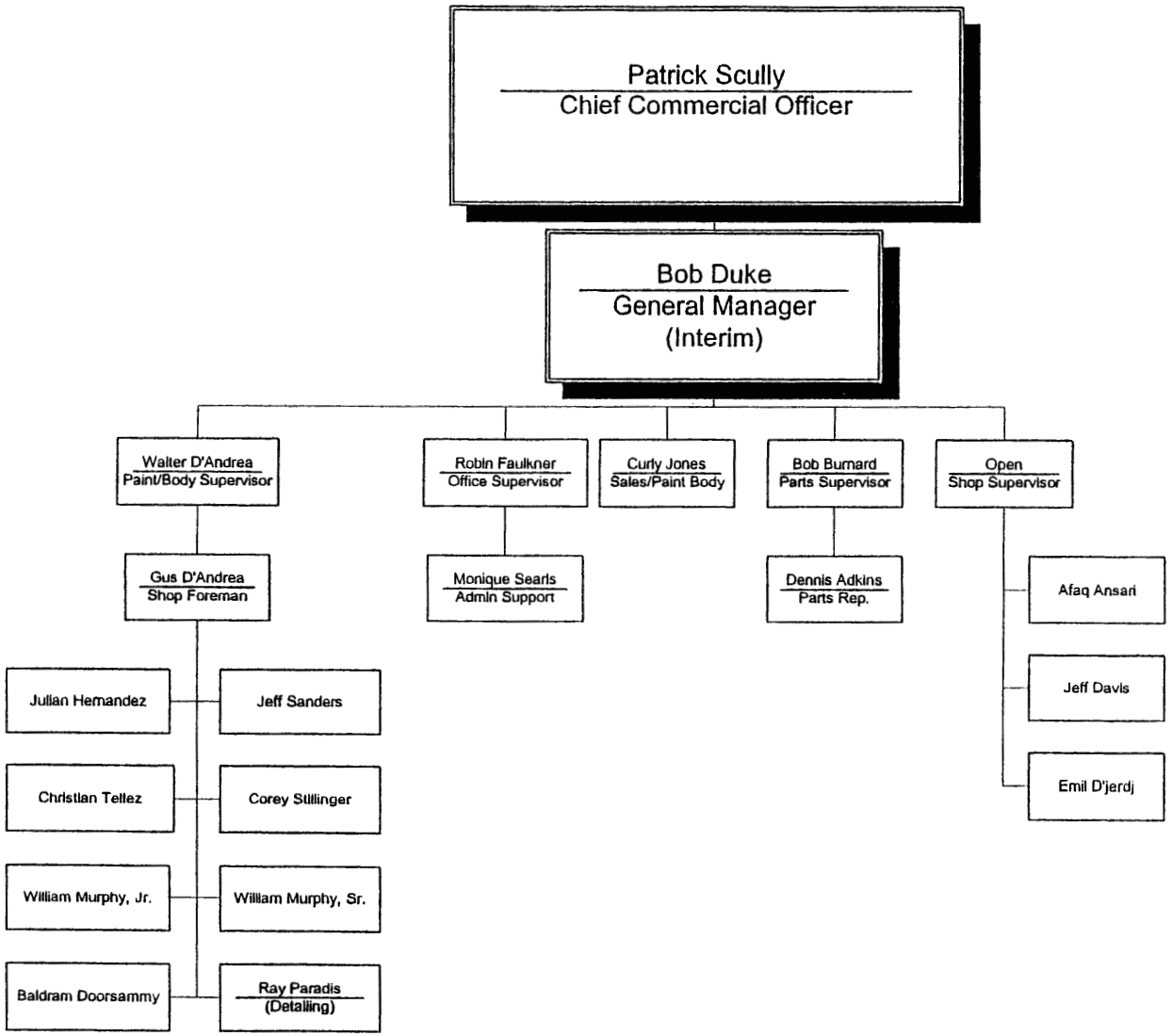
ENGINEERING



DESIGN ENGINEERING



Orlando


Patrick Scully
Chief Commercial Officer
Bob Duke
General Manager
(Interim)
Walter D'Andrea
Paint/Body Supervisor
Robin Faulkner
Office Supervisor
Curly Jones
Sales/Paint Body
Bob Burnard
Parts Supervisor
Open
Shop Supervisor
Gus D'Andrea
Shop Foreman
Monique Searls
Admin Support
Dennis Adkins
Parts Rep.
Afaq Ansari
Jeff Davis
Emil D'jerdj
Julian Hernandez
Jeff Sanders
Christian Tellez
Corey Stillinger
William Murphy, Jr.
William Murphy, Sr.
Baldram Doorsammy
Ray Paradis
(Detailing)

SCOPE OF WORK

Orion will provide Merced County 35'x102" and/or 40'x102" Orion VII low floor transit buses.

A preliminary schedule detailing our proposed production plan from execution of contract documents to completion and delivery of the buses has been attached in this section.

All Orion buses undergo extensive tests to ensure that all required FMVSS testing is completed; including Altoona, Shaker, braking, crashworthiness, noise and vehicle performance. The Orion VII is designed and tested to operate as a long life, 12-year, 500,000 New York City mile heavy duty transit vehicle. Please refer to Section E for details regarding Shaker testing completed at Bodycote Metal Technology (Ortech Laboratories).

A California customer reference list has been attached to Section A Tab 3. This will allow Merced County to contact and confirm Orion's performance and integrity in making contract deliveries on time, meeting specifications, warranty provisions and parts availability. In addition, Orion has provided additional references from other North American customers (Section E Tab 3).

Orion's Contract Management team will manage the contract with Merced County. Upon execution of an awarded contract, Orion will setup a pre-production meeting with Merced County to review and confirm the technical and other details of the bus configuration.

Orion's entire ***S***ervice, ***W***arranty, ***A***ftermarket Parts and ***T***raining Team (SWAT) looks forward to supporting your bus procurement by serving your needs. Please see details of this program attached in this section (Page A4-3).

UNIQUE QUALIFICATIONS

- As the leading innovator in alternative propulsion systems for transit buses, Orion is pleased to note that over 300 of the Orion VII's currently on order are to be hybrid-electric powered, while more than 500 others are to be powered by compressed natural gas (CNG).

- How does Orion consistently produce the most reliable vehicles in the industry? It starts with design and the use of tools like Failure Modes and Effect Analysis and Pro-E. Failure Modes and Effects Analysis or FMEA was designed by reliability engineers to allow them to predict the reliability of complex products. FMEA is done to reflect how the final product will operate, the problems that might be encountered in operation and failures that might occur. By performing these analyses in the design phase, Orion can design potential problem areas out of its products to ensure that our customers receive the most reliable buses.

- Furthermore, Orion's new MRP system has significantly improved its ability to accurately schedule material needs and eliminate shortages, which occur while buses are on line. This ensures that buses do not require work when they come off line, and can be delivered directly to the customer after final inspection.

- Designed for ease of service and operation, Orion's goal is to provide to our customers a vehicle with the highest Mean Distance Between Failure and the lowest operating costs in the industry. Please see attached MDBF Charts (Page A4-4).

- Orion's engineering department includes an R & D group that will resolve technical or design issues relating to the contract. The engineering department is made up of three groups:

  Product Engineering
  Engineering Systems and Administration
  Product Development/R&D

- Orion Bus Industries is pleased to offer Merced County a program we call ***SWAT.*** This term reflects ***S***ervice, ***W***arranty, ***A***ftermarket Parts and last but not least ***T***raining.

Orion will schedule a meeting with you at your location very early in the process to outline the different areas of the ***SWAT Team*** and how it will affect your related departments. The goal in mind is to assure you the Customer that we are thinking of your concerns from start to finish.

Service: You will be assigned a regional service representative who will be on site at time of delivery to assist in getting your new fleet in active service.

Warranty: The same service technician listed above will review the steps and forms to be followed by you when initiating a warranty claim.

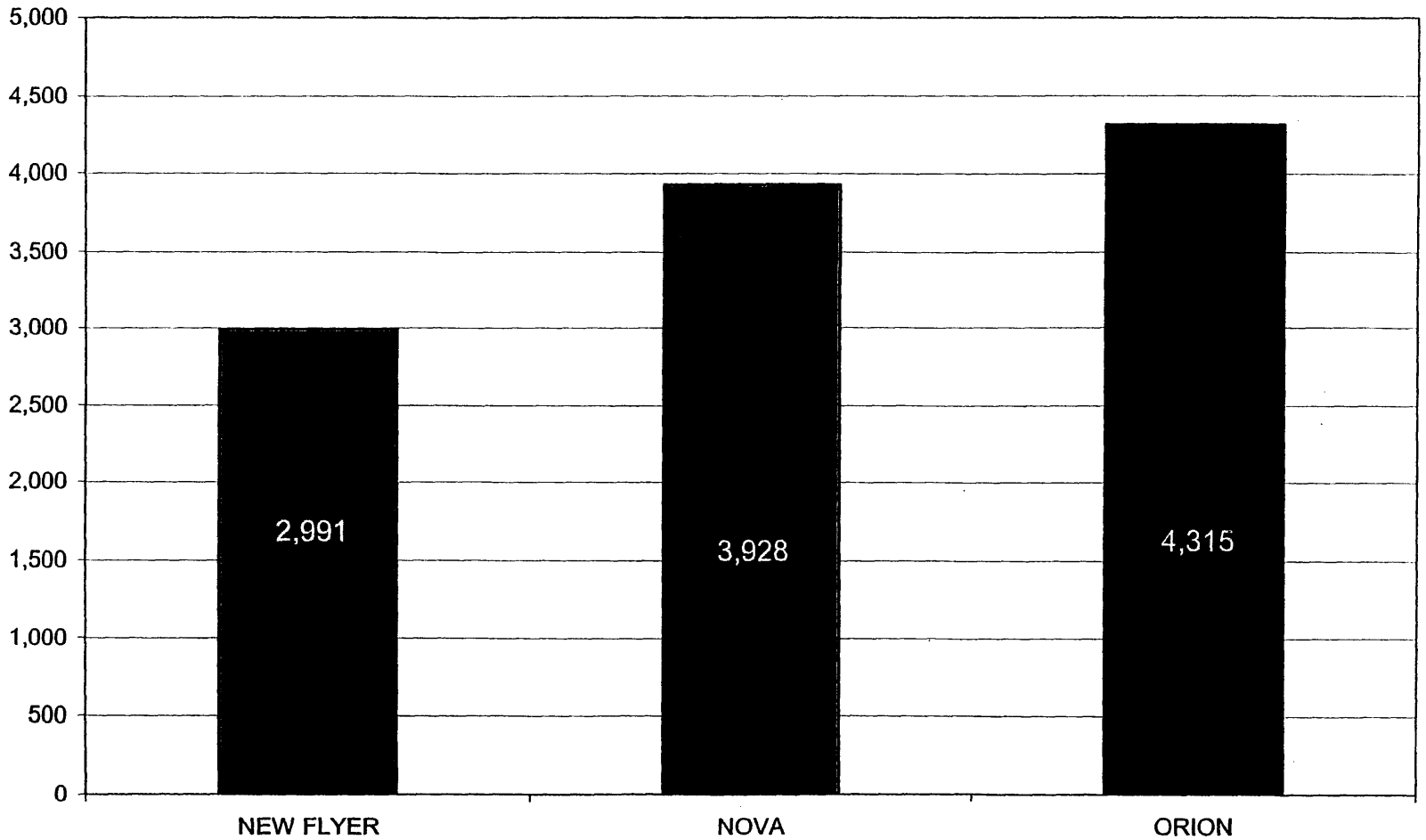
Aftermarket Parts: We will meet with your designated contact before and after new bus delivery. In the early stages it is very important for us to understand your inventory management operation; whether you fax quotes, buy as required or stock some inventory. After your Bill of Material has been determined and the parts book process has begun, a second meeting will be requested to determine your stocking requirements. In this step of the process we feel that customer participation and input is very valuable.

Training: Training is generally determined in the initial contract stages. A training representative will arrive on site at an agreed time to perform training requirements of your contract.

Orion's entire SWAT Team looks forward to supporting your bus procurement by serving your needs.

Our Training Personal is flexible in the meeting times, and recognized the importance timing critical training needs

NYCTA MDBF
(Weighted Average)
January 2003 - June 2003
(By Manufacturer for Vehicles <8 yrs)



SCOPE OF WORK SCHEDULE

Orion has provided a chart indicating all major tasks to be performed for this contract. Orion operates production facilities in Mississauga, Ontario and Oriskany, New York. The bus frame is manufactured at the Mississauga facility and shipped to Oriskany for completion. The Mississauga plant is a state of the art production facility that commenced production in 1997. It is the most advanced transit bus production facility in North America, with a manufacturing area of 220,000 square feet and production capacity of forty frames per week.

Final manufacturing, including the installation of the seating, engine, transmission axle and electrical system of the bus is completed at the Oriskany, New York assembly facility. This facility has four buildings with a total manufacturing area of 237,000 square feet and a production capacity of twenty-five buses per week. All pre-delivery testing and inspections are done on site at the Oriskany facility.

USA

ORION BUS INDUSTRIES INC.
165 Base Road,
PO Box 748
Oriskany, NY 13424-0748.

Tel: (315) 223-5100
Fax: (315) 768-6520

CANADA

ORION BUS INDUSTRIES
350 Hazelhurst Road
Mississauga, Ontario
L5J 4T8

Tel: (905) 403-1111
Fax: (905) 403-8800

Merced County Transit
Preliminary Production Schedule

Days		7	14	21	28	35		371	378	385	392	399	406	413	420	427	434	441	448	455	462	469	476	483	490	497	504	511	518	525	532	540	546	553	560	567
Date	7/5/2004	7/12/2004	7/19/2004	7/26/2004	8/2/2004	8/9/2004	~	7/11/2005	7/18/2005	7/25/2005	8/1/2005	8/8/2005	8/15/2005	8/22/2005	8/29/2005	9/5/2005	9/12/2005	9/19/2005	9/26/2005	10/3/2005	10/10/2005	10/17/2005	10/24/2005	10/31/2005	11/7/2005	11/14/2005	11/21/2005	11/28/2005	12/5/2005	12/12/2005	12/19/2005	12/27/2005	1/2/2006	1/9/2006	1/16/2006	1/23/2006
Contract Award	☒																																			
Pre-Production Meeting						🗀																														
Orion VII																																				
35'x102" (CNG) : Quantity (1)																																				
Frame Start															1																					
Mississauga Production Start																	1																			
Exterior Panel Installation																		1																		
Paint																			1																	
Finishing																				1																
Ship to Oriskany																					1															
Oriskany Production Start																						1														
Seat Installation																							1													
Paint																								1												
Alignment																									1											
Final Finish																										1										
Road Test																												1								
Presentation Center																													1							
Delivery																															1					

Note This Schedule is based on a contract award date 120 days from bid submission. Should Merced award the contract prior to this date, this schedule will be reviewed and possibly adjusted.

PRODUCT SUPPORT
FIELD SERVICE AND TECHNICAL TRAINING

Orion's service philosophy is to provide its customers with maximum product reliability and minimum vehicle downtime. Effective product support is achieved as a result of a dedicated Training Department, Field Service Department, and Warranty support program.

Orion's field service staff has extensive experience in the automotive and transit bus industries, and is supported by Orion's engineering department, after-market parts department, and senior management. Field Service Reports are circulated to all senior and technical staff in order to ensure resolution of service issues in a timely manner. The utilization of an ISO registered systematized process to field service issues ensures that product components are cross-referenced through Orion's customer base, and enables the department to address potential service issues before they develop. Field service is complemented by training programs and Orion's warranty department to ensure customer satisfaction.

Orion provides a comprehensive post delivery service program. Post delivery visits are scheduled and all service issues are fully documented and acted upon until a satisfactory resolution is implemented. Internal ISO registered procedures and databases are maintained to ensure that open service issues are resolved.

Orion's Field Service and Training Departments are fully supported by Engineering personnel. Service is provided at Orion's plant or the customer's facility, depending on the nature of the work required. The Engineering department supports and helps resolves field service issues, including onsite tests and repair procedures.

RESPONSE TIMES

Orion maintains an emergency phone line. The line provides the customer with the option to leave a message or to page Orion personnel. Response times for emergencies will be within 24 hours. Orion works extremely closely with its customers to ensure that service issues are coordinated with the transit authorities' maintenance facility.

FIELD SERVICE AND TRAINING PERSONNEL

The following personnel provide full time product support and training:

Field Service Personnel:

Erwin Huseman
Product Support Manager
- 4 years with Orion
- 20 years of OEM heavy equipment field support

William R. Whitney
Production Liaison
- 13 years with Orion
- 22 years specializing in propulsion hydraulic and electric systems

Harold Shunk
Field Service Expediter
- 10 years with Orion
- 26 years specializing in propulsion hydraulics and electrical systems

John Brothers
Field Service Representative
- 9 years with Orion
- 20 years specializing in sheet metal fabrication, welding and hydraulics

Kenneth O'Blinsky
Field Service Representative
- 6 years with Orion
- 15 years in maintenance and vehicle repair

Terry Murphy
Field Service Representative
- 5 years with Orion
- 35 years Transit Management experience

Bill Kemme
Field Service Representative
- 9 years with Orion

Jim Adams
Field Service Representative
- 11 years with Orion

Peter Piotrowski
Field Service Representative
- 9 years with Orion

Richard Lagno
Field Service Representative
- 6 years with Orion
- 25 Years of Transit Operations Experience

Karl Southworth
- 4 Years with Orion
- 10 Years of Transit Operation Experience

Lorenzo (Wren) Mumphries
Field Service Representative
- 2 year with Orion
- 15 years experience in heavy duty vehicle maintenance

The Following individuals will be assigned to Merced County:

Frank Rytch
Field Service Representative
- 2 year with Orion
- 20 years experience in Customer Service

Alex Reyes
Field Service Representative
- 1 Year with Orion
- 10 Years experience in heavy duty vehicle mechanics

Technical Training Instructors:

Garry Van Nederynen, Manager of Technical Training:
Employed with Orion Bus Industries since 1990. Degrees in Mechanical Engineering Technology and Automotive Technology. Natural Gas Instructor and Universal Certification for Refrigerant Recovery from Ferris State University. Automotive Service Excellence (ASE) Master Certified in Automotive, Heavy Truck, Engine Machinist, Body and paint, School Bus, and CNG categories.

Developed and implemented automotive instruction for adult education programs. Oversees day to day operations of the Orion Training Department. Orion certified Instructor for Orion II, V, VI and VII.

Nick Pantazis, Technical Instructor:
Employed with Orion Bus Industries since 1990. Bachelor of Science Degree in Occupational Education. Associate of Applied Science in Aircraft Electrical Technology, and Training Detachment Superintendent. Developed and implemented programs in aircraft electrical circuitry and troubleshooting techniques, systems schematics and various technical training for new recruits to the ground support crews. Awarded the first annual U.S.A.F. Superintendent of the Year Award, 1983. Training/Instructor certified by the U.S. Air Force. Cummins ISB training for maintenance and troubleshooting. Develops curriculum and student materials used in Orion training programs. Orion certified Instructor for Orion II, V, VI and VII.

Jeff Young, Technical Instructor:
Employed with Orion Bus Industries since 2000. Associate of Applied Science in Aerospace Ground Support Equipment. Trainer/Instructor certified by the U.S. Air Force. Developed and implemented training programs relating to internal combustion engines, generators, electronic systems, systems schematics and troubleshooting, OSHA, and various technical training for twenty-seven types of support equipment. Develops curriculum and student materials used in Orion training programs. Orion certified Instructor for Orion V, VI and VII.

Patrick Foley and James Owens, Technical Instructors:
The newest additions to the Orion training team. Both Instructors come with a strong technical and training background as certified trainer/instructors by the U.S. Air Force. Presently going through Orion Certification program.

Instructor Orion Certification

Instructors are internally trained in the systems and components used on the Orion buses. Initially, each instructor receives a minimum of 12 weeks training by a Senior Instructor. Training includes in the office instruction and attendance at customer training sessions taught by the Senior Instructor. After the initial training period, the Intern will begin teaching class supervised by the Senior Instructor. The Instructor then provides a complete customer training program attended by the Product Support Training Manager. Upon achievement of a satisfactory performance evaluation, Orion certifies the Instructor's ability to provide customer training.

The following personnel provide full time engineering support to field service and coordinates all service engineering issues with our Engineering Department:

John Riet
Service Engineering Coordinator

- 20 years with Orion in an Engineering Capacity
- 23 years at IHC design

ORION PARTS DIVISION

Orion's parts distribution system will ensure the supply of replacement parts for the design life of the bus. Currently, Orion continues to provide parts for Orion I, II, V, VI and VII buses. Orion's parts department not only supplies parts for its Orion buses, but also for most heavy duty transit buses in the market today.

Customer Service Tel. # 1-800-786-8099
Fax # 1-800-211-3760

This number will allow you to have direct access to our customer service center located in Oriskany, NY between the hours of 7:00 am to 5:30 pm EST Monday to Friday. The fully staffed location will assist you with all of your parts ordering needs.

To better serve our growing customer base in California, we have extended our Customer Service hours. We are in the process of hiring a Customer Service Representative who will work until 7:30 EST.

At the first of every month, we offer Monthly Specials for a variety of products. They are specials offered to us from our vendors, seasonal items and excess inventory at our plant.

We have 95% stocking levels at our parts warehouse in Canton, Ohio.

We also offer a "Bus Down Desk". This is a dedicated person that will help expedite parts for a bus that is out of service. We use several resources to locate needed parts: our own inventory, inventory at our production plants, inventory at our supplier and finally, we will contact other customers who have purchased the needed part to see if it is available.

Quotes Department Tel. # 1-800-668-2871
Fax # 1-800-297-5249

This number will allow you to have direct access to our Quotes and Formal Bids department located in Mississauga, Canada between the hours of 7:00 am and 4:00 pm EST five days a week.

Requests for quotes can be e-mailed to partsquotes@orionbus.com or faxed to 1-800-297-5249. For more information regarding parts quotes, please contact Manel DeMel by phone @ 1-800-668-2871.

All formal bids can be faxed to the attention of Tom Peca at 1-800-297-5249 or via e-mail to partsbids@orionbus.com. For more information regarding parts bids, please contact Tom Peca by phone @ 1-800-668-2871.

Physical Distribution

Orion Parts uses the Detroit Diesel Corporation Parts Distribution Center in Canton, Ohio as our logistics center.
515 11th St. SE
Canton, OH, 44707

All in-stock parts that are ordered from Orion will be shipped the following business day. Freight charges are included in the cost of goods for shipments across the continental United States and Canada, via the most economical routing. Overnight service is provided through our SOS (Special Overnight Service) program at an additional cost.

FINANCIAL STATEMENT

Orion advises that it is a wholly owned subsidiary of DaimlerChrysler AG. Orion has included the DaimlerChrysler AG consolidated annual report for 2001/2002 on CD-ROM with its bid. The financial statements are prepared in accordance U.S. Generally Accepted Accounting Principles and are audited by an independent auditor.

NOTE: Please refer to the original binder for the CD-ROM.

COST PROPOSAL FORMAT

As per approved RFA number 11, Orion will not provide cost data details with this proposal. The information requested is proprietary and is not necessary if prices are arrived at in a competitive bid process. Orion has included the price for the 35' and 40' CNG low floor bus under the signature page as requested. Training, special tools and run boxes have been priced as an option and information has been attached. Terms of payment will be as per Merced respond to Orion's RFA # 9. Producer Price Index (PPI) will be base as per Orion's approved RFA #64.

OPTIONAL PRICE
FOR TOOLS AND DIAGNOSTICS

Since the Orion VII is built with standard parts common to the North American transit bus industry no special tools are required to service this bus. The list below are the recommended special and have been price as an option.

Tools	Quantity	Price
Multiprotocal Cartridge J-38500-1500C	1	$619.00
6 Pin Adapter J-38500-60A	1	$106.00
Allison PC Software J-38500-1800A	1	$524.00
Prolink 9000 J-.8500-1A	1	$745.00
Hand Held Diagnostics and Readers for Cummins C8.3	1	$2,054.00
T2-MK-808-R7 (Test Equipment, Circuit Tester)	1	$1,538.00
T2-MK-Charger (Test Equipment, Program Loader)	1	$904.00
T2-MK-Program (Test Equipment, Program)	1	$396.00
T2-MK-IDWT (Test Equipment, ID Writer/Verification)	1	$248.00
T2-MK-232 (Test Equipment, RS232/RS485 converters)	1	$396.00
T-MK-CT-01-R7 (Test Equipment, Cable Tester)	1	$357.00
Intelligaire II Software diagnostic package.	1	N/C
Compartment door keys	1	$3.02
IPS Programming software for destination signs	1	$361.00
Flash Card for destination signs (PCMCIA Cards)	2	$417.00
Total Price		**$8668.02**

NO

OPTIONAL PRICE FOR TRAINING PROGRAM

Class Requirements for Orion Instructors	No. of Classes	Hrs/ class	Total Class Hrs	Total Cost
Module 1 - Orientation				
Module 2 - Electrical				
Module 3 - Chassis				
Module 4 - Air System				
Module 5 - Hydraulics				
Module 6 - Doors				
Module 7 - Alternate Fuels				
Module 8 - Power Module Removal				
Module 9 - Operator Orientation				
10 days from classes listed above	**10**	**8**	**80**	**$10,120**

Please see below for details on Orion's modular training program

Program Overview

Divided into a modular format, Orion's factory training provides the authority the opportunity for students to attend a full program or individual modules that best suit the technician classifications and abilities. Class hours are varied to match the bus specific options and systems, and student needs.

- **Module 1 - Vehicle Familiarization**
  Vehicle features, fluids and capacities, specifications, compartment and panel locations, driver's controls, wheelchair ramp operation, warranty information and service manuals.

- **Module 2 - Electrical System**
  Layout and location of electrical compartments, panels and controls, operation of major electrical systems, electrical components, harness routing, reading electrical schematics, troubleshooting and adjustments.

- **Module 3 - Steering, Suspension**

Location of all major components involved in the steering and suspension systems, specifications, operation, maintenance and adjustment of suspension and steering components.

- **Module 4 - Pneumatic System and Brakes**
  Layout and location of all major pneumatic system components, description of the air system schematics and their use, operations of the pneumatic brake system, ABS operation, and troubleshooting.

- **Module 5 - Hydraulic System**

  Location and operation of all hydraulic steering, cooling and mobility ramp system components, servicing, fluid flow to fan system hot and cold, maintenance and troubleshooting.

- **Module 6 - Entrance and Exit Doors**
  Mechanical operation of doors, location of components, adjustments and door system safety and maintenance.

- **Module 7 - Compressed Natural Gas Fuel System ***
  Location and function of all system components, fuel flow when fueling and when running, use of fittings, maintenance and safety procedures.

- **Module 8 – Powertrain Module Removal**
  Power module features; including drive train components and module mounted accessories, module removal and reinstallation. Requires purchase of proper support equipment.

- **Module 9 - Operator Orientation**
  Orientation includes a walk around of the bus, compartment and panel overviews and systems operation. We tailor the information to meet the transit authorities needs.

OPTIONAL PRICE
REAR AND FRONT DASH RUN BOX

Addendum number 2 has added information regarding destination signs and included details of a rear and front dash run box. Since it is unclear if a rear and front dash run box is required by Merced County, Orion has priced these items as available options.

ITEM DESCRIPTION	Quantity	Price
Rear Destination Sign	1	$762.00
Front Run Box	1	$933.00
Total Price		**$1695.00**

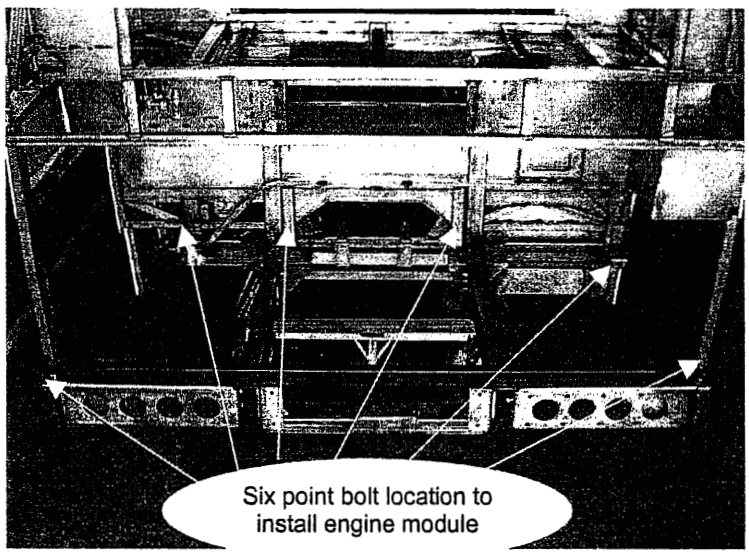
POWER-PLANT

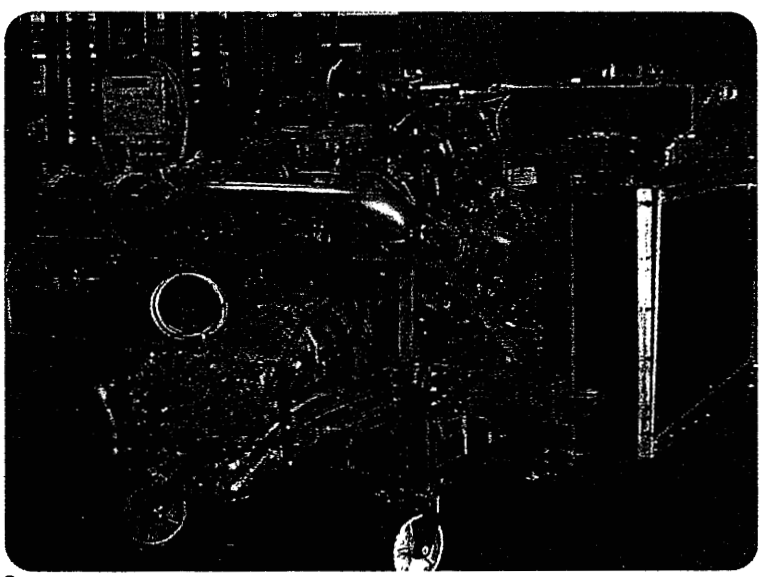
The Orion VII powertrain is mounted on an easily removable cradle. Quick disconnects are used for air, fuel, hydraulic and electrical. The power pack cradle includes the engine, transmission, cooling module, surge tank, transmission oil cooler, hydraulic tank with filters, air cleaner, exhaust piping up to muffler, oil filter, fuel filters, governor, A/C compressor, power steering pump, engine electrical panel, and rear bumper.

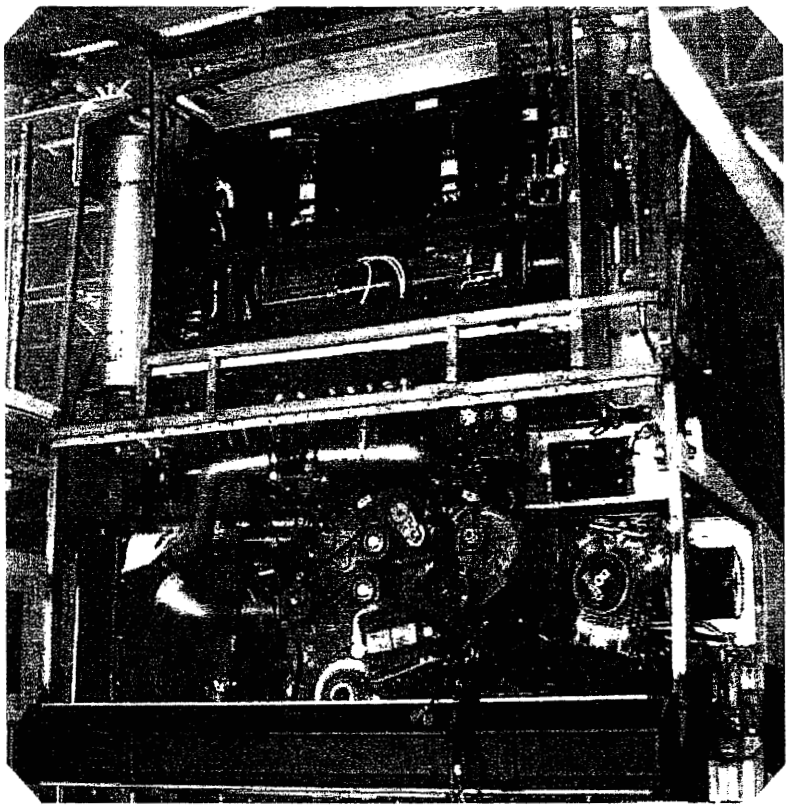
The Orion VII is designed with a state of the art engine(s) which is mounted longitudinally (in-line) with the transmission in a traditional T-drive configuration.

Engine and Transmission electronics are integrated such that if a malfunction occurs in one, the other will reduce power, or limit shifting in order to prevent or minimize damage to the affected component.

Engine Cradle







Engine: A **Cummins C8.3G 280HP** engine will be provided. This engine is mounted longitudinally (in-line) with the transmission in a traditional T-drive configuration. This engine is a six-cylinder, four-cycle, heavy-duty engine with a displacement of 8.3 liters. The C8.3G has the highest power-to-weight ratio in its class. Combined with third-generation electronic controls, this engine is capable of delivering smooth, low NOx power with exceptional durability and reliability. The ignition system on the C8.3G features coil-on-plug technology with multiple spark discharge. This eliminates spark plug wires, reducing maintenance and increasing spark plug life.

Transmission: An **Allison B 400R** transmission will be provided. The B 400R or "World" transmission is the leading transmission supplied in the bus and truck industry. This transmission is configured with five forward speeds, and includes electronic controls and an integral output retarder. A compact design makes the B 400R transmission an ideal choice for mid-range, T-drive transit and buses. The B 400R provides extremely smooth shifts, with no power interruption to the wheels. This not only provides a more comfortable ride for passengers, it helps improve acceleration and trip times. The transmission constantly monitors rpm, load and road conditions to adapt the shift schedule to keep the bus operating at peak performance. The retarder, virtually silent in operation, helps extend service brake life. Engine-driven PTOs efficiently drive auxiliary equipment like wheelchair lifts and give the driver precise control. Some of the B 400R features include:

- 4 Speeds
- Integral Hydraulic Retarder
- Hydraulic Torque Converter
- Externally accessible internal cartridge type Oil Filters
- Remote and rebuildable Oil Cooler

ORION VII
AIR SYSTEM COMPONENTS

Tanks, 4-Air tanks (used as follows):

- ❑ Supply tank, 460 cu. in. volume.
- ❑ 1 Rear brake tank, 2200 cu. in. volume total.
- ❑ Rear accessory tank, 2200 cu. in. volume.
- ❑ Front brake tank/Accessory split tank, 1784 cu. in./900 cu. in. volume each.
- ❑ Total air tank volume, 7544 cu. in.
- ❑ All tanks are fitted with manual drain cocks.
- ❑ Auto drain valve at supply tank.
- ❑ Compliance-FMVSS 121 Brake System, FHWA 393.82 Gauges
- ❑ SAE J844 Air Brake Tubing, SAE 1131 Air Brake Tubing

Manufacturer of Air System	Bendix (Allied Signal)
Safety Valve	On supply tank
Air Dryer	Haldex or Bendix AD9
Foot Pedals	Bendix – E10 P Brake Treadle
Low Pressure Switch	Bendix-Two, one on each circuit
Air Gauge	One Dual needle gauge on dash
Stop Light Switch	Bendix - Two, one on each circuit.
Quick Release Valve	Bendix, QRN-2 – One on supply to front axle brakes
Relay Valves	Bendix R12 DC for service and R-14 for parking
Inversion Valve	Bendix SR1 – One to assist spring brake in emergency conditions.
Shop Air Supply, Front	Located behind washer filler door.
Shop air Supply, Rear	Located in engine compartment.

ORION VII
AXLES

Meritor front and rear axles are provided as standard equipment on the Orion VII. The front axle is a FH series deep drop non-drive steer axle and a full floating axle is provided at the rear. Both axles come equipped with ABS.

Front Axle

- Model FH946
- Rating ..... 16,500 lb.
- Max steering angle ..... 48°
- ABS ..... WABCO
- Grease lubricated hubs

Rear Axle

- Model 71000
- Rating ..... 28,600 lb.
- Ratio (Standard) 4.56:1
- ABS ..... WABCO
- Oil lubricated hubs

Orion has an application approval #C-020885 from Meritor for a Front Axle GAWR rating of 16,500 lbs. and a Rear Axle GAWR rating of 28,600 lbs.

ORION VII
BRAKE SYSTEM

BRAKE TYPE

The Orion VII utilizes Meritor air brakes with S-Cam application and automatic slack adjusters. Brake data is as follows:

FRONT AXLE BRAKES

Manufacturer	Meritor
Type	S-Cam & Drum
Size	16.5" x 6.0"
Brake Chambers	Type 24, MGM
Slack Adjusters	Haldex, Automatic
Slack Adjuster Model Number	Left – 41910826 / Right – 41910825
Brake Block Manufacturer	Abex
Brake Block Identification	Forward ABB 931-162
	Rearward ABB 931-83
Brake Blocks Per Shoe	2
Brake Block Width	6.0"
Brake Block Length	7.81"
Brake Block Area Per Wheel	189 sq. in.
Brake Block Thickness	0.85"
Useable Brake Block Thickness	0.65"

REAR AXLE BRAKES

Brake Manufacturer	Meritor
Type	Air S-Cam & Drum
Brake Drum Size	16.5" x 8.63 "W"
Brake Drum Machining	3 times, 0.33 on diameter
Brake Block Manufacturer	Carlisle
Brake Block Identification	SOR 610
Brake Blocks Per Shoe	2
Brake Shoe	Cast Type
Nominal Lining Thickness	0.85"
Useable Lining Thickness	0.65"
Brake Block Width	8.63"
Brake Block Length	7.98"
Brake Block Area Per Wheel	271 sq. in.
Actuator Size	30"
Spring Brake Manufacturer	MGM
Size	36 in2 in spring / 30 in2 in service
Slack Adjuster Mfr	Haldex
Slack Adjuster Model	Left – 41910776 / Right – 41910777
Type	Automatic
Length of Arm	5.7"

ORION VII
ELECTRICAL SYSTEM

INTRODUCTION

The Multiplex Wiring System shall be I/O Controls Electrical Control System (ECS) which will advance the state-of-the-art of transit vehicle control techniques. Over the past several decades, transit vehicles have relied on proven, but cumbersome relay based control technology. Until now there has not been a reliable, cost effective alternative. I/O Controls offers its distributed intelligent network control system as the alternative, for multiplex control, monitoring and data acquisition in the transit vehicle.

I/O Controls is a microprocessor-based system, which uses multiplexed data-bus architecture. Although microprocessors and bus architecture are not new to transit vehicle control systems, the proposed approach is unique.

I/O Controls uses a small but powerful module to perform full computer functions. At the center of the I/O Controls system is a family of standard electrical control modules. These modules are small enough to fit in the palm of your hand, weigh less than 1 pound, and provide complete microprocessor based control and monitor functions.

I/O Controls is a proven technology with demonstrated performance in transit applications.

SYSTEM OVERVIEW

Distributed control and multiplexed communication reduces wiring and bulky control hardware. Typically transit vehicles use relays and switches slaved to a central processor as the method for control. This approach requires a large number of relays and substantial amounts of wiring throughout the vehicle. Distributed processors with higher output capability reduce the number of relays and wiring.

To achieve maximum performance, I/O Controls employs a dual data bus concept. The data bus concept, along with the distributed controllers, can greatly reduce the amount of wiring in the vehicle. The data communication bus for the system is a simple twisted, shielded pair that is routed throughout the vehicle. Wire lengths are minimal because the control modules are located into zones, in the vehicle as shown in **Figure 10.1**, near the point of control.

Some I/O Controls modules are programmable so that a single module type can be programmed to perform in several different applications. Additionally, modules that have been programmed can be re-programmed. Common modules can be procured to minimize the type and number of modules required for spares.

Each module is small and compact. Control modules have full computer functions, including CPU, ROM, RAM EEPROM, power control, communication and signal handling capabilities. Typical modules monitor 8 inputs and control 8 outputs.

In addition to providing system-level diagnostic, each module has self-diagnostic capability. The use of connectors helps to ensure module replacement is quick and easy. Each module switching a load has an externally removable fuse for circuit protection.

I/O Controls can be adapted to interface with any subsystem protocol. An important feature of the I/O Control modules is the simple yet advance Reduced Instruction Set Computer (RISC) architecture. An open protocol is used so subsystem suppliers can provide a compatible interface. I/O Controls can provide an optional interpreter or gateway module to interface with a non-standard protocol. The I/O Controls gateway module is currently compatible with SAE J1708/J1939.

SYSTEM COMPONENTS

The following item descriptions are for the basic ECS. The basic ECS provides interfaces for digital I/O points (on/off state devices) and does not include analog functions.

The multiplex ECS can optionally be expanded to provide additional functions and hardware for interfacing to other specific I/O points.

Item	Description
1.	**BATTERY POWER CONDITIONER SYSTEM** The system includes a Battery Power Conditioner module (T-BPC) with sleeper and is used to avoid unstable power inputs for jump starting, external charge or other external electric sources, by delaying the application of system power. The system has a second stage filter function to reduce additional unwanted power line noise on the computer power line.
2.	**DIGITAL I/O DRIVER MODULES** The digital I/O driver directly connects to the Bus Controllers and provides 8 input points, 8 output points with feedback monitoring points. The maximum output load handling is 10A continuous per point.
3.	**MULTI-ELEMENT LED DISPLAY MODULE** The LED display module provides up to 32 warning and fault status indicators on the dashboard.

4. **BUS CONTROLLER MODULES**

The zone bus controller modules are network controllers which directly control and monitor the digital load drivers (I/O) and provide input interfaces.

HARDWARE DESIGN

Each I/O Control Module circuit shall be capable of providing a current load of up ten amperes. Each module shall be contained in a metallic housing designed to withstand rugged vehicle service. The system components shall be capable of reliable operation in an environment ranging between minus thirty degrees centigrade through plus 80 degrees centigrade while encountering mobile shock and vibrations. Wiring associated with the vehicle level control system shall not be affected, have its operation degraded, interrupted, nor stopped by interference from electromagnetic interference (EMI). The isolated power management system requirement for the distribution control nodes shall utilize the following parameters:

a) Isolated 12 volts +/- 1 volt
b) Are regulated
c) DC powered 10-36 VDC input
d) Avoid unnecessary battery power waste by providing a programmable electrical control system sleeper function that will perform as a master switch employing a delay timer whereby, when placed in the off position after a preset time period, all power is cutoff to the Multiplex system. The electrical control system should remain in the "sleep" mode until the driver turns the master switch to the "run" position or the light switch on and then the Multiplex system shall be activated for service within five seconds.

MEMORY AND PROCESSING SPEED

The I/O Controls Controller provides the following performance:

a) Program capability of up to 4000 lines of user coding area
b) A stack Machine Structure is used
c) The CPU runs at 20 MHz speed using RISC Structure

I/O MODULE STATUS INDICATORS

Each module shall contain built-in diagnostic LED's indicating input/output circuit operating condition. Depending on the function of the module (controller or monitor) the following indicators shall be provided:

a) Dedicated red LED's which indicates when a module output circuit, signal or load is activated.
b) Dedicated amber LED's which continually monitor the output circuit.
c) Separate green LED's which indicate an on/off input signal condition.

COUNTY OF MERCED
WARRANTY

Orion warrants that each Bus shall be free from defects in material and workmanship under use and service for the period and on the terms and conditions specified below:

Components	Years*	Miles*
Overall Bus Warranty (excluding consumables)	1	50,000
Engine (See attachment for details)	2	Unlimited
Transmission (See attachment for details)	2	Unlimited
Meritor Axles	2	Unlimited
Basic Body Structure	3	150,000
Destination Signs (labor)	1	50,000
Destination Signs (parts only)	3	Unlimited
Radiator	2	100,000
Air Compressor	2	100,000
Alternator	2	unlimited
Passenger Seating (frame and shells)	5	Unlimited
Driver Seat	2	Unlimited
Air Conditioning	2	Unlimited
Structural Integrity Corrosion	7	350,000

* whichever occurs first

Individual warranties not listed above assume the basic vehicle warranty of 1 year, 50,000 Miles (whichever occurs first).

Warranty coverage is not provided for:

- Consumables, including filters, circuit breakers, light bulbs, headlights, wiper blades, belts, and brake friction material, tires, etc.
- Consequential damages, operator abuse, or the failure to follow preventative maintenance guidelines in accordance with the Contractor's instructions.
- Towing, service or road calls, overtime premium.
- Components supplied by the customer and installed by Orion or components, which are warranted directly to the Customer by component manufacturer.

Extended warranties for specific components may be available, at an additional cost, if provided by the component manufacturer.

Warranty claims will be administered in accordance with the Orion Warranty Procedure Manual. Major Component manufacturers have their own network of distributors and dealers that perform and administer warranty repairs. This is necessary due to the specialized training and tools required to correctly diagnose and correct variances in these components. The following warranties are administered directly by the local service representative of the component manufacturer: Engine, Transmissions, Axle, AC System and Batteries.

Basic Body Structure Warranty of 3 Years or 150,000 Miles

The basic body structural warranty is 3 years or 150,000 miles (whichever occurs first). The warranty covers any inner or outer body sheet metal panel, which develops a hole from the inside out that is, caused by corrosion. Body sheet metal surface corrosion is covered for 1 year or 50,000 miles (whichever occurs first). Floor rot is covered for 3 years or 150,000 miles (whichever occurs first). The undercoat and sealing systems must be maintained in accordance with the Orion Maintenance Manual. Failure to follow maintenance requirements will void the warranty. Accident repairs must be done in a manner, which is compatible with OEM coating systems.

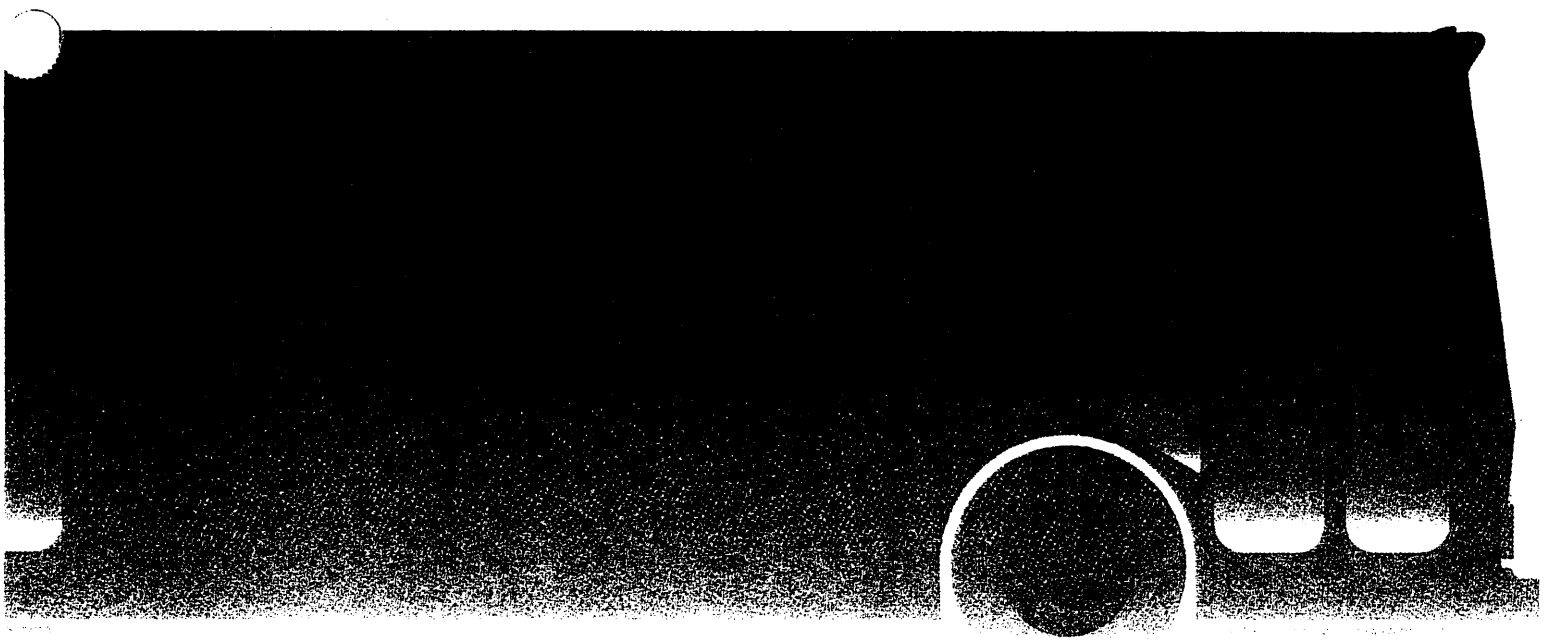
Structural Integrity Corrosion of 7 years or 350,000 miles

The structural integrity warranty is 7 years or 350,000 miles (whichever occurs first) and warrants failures that compromise the structure of the bus, including materials, workmanship, corrosion, and fatigue. The warranty covers load bearing frame members and major equipment mounts. Coverage is not provided for sheet metal panels and minor brackets.

Structural integrity is warranted provided that the customer maintains the undercoat and sealing systems according to Orion procedures. Also, accident repairs must be performed in a manner compatible with the OEM coating systems.

Cummins Warranty

All Bus Categories
(Except U.S./Canada Diesel Powered School Buses)
Worldwide



Coverage

Products Warranted

This warranty applies to new diesel, LPG, compressed or liquid natural gas fueled engines sold by Cummins and delivered to the first user on or after January 1, 1999, that are used in all bus categories, except (U.S./Canada diesel powered school buses) worldwide.

Base Engine Warranty

The Base Engine Warranty covers any failures of the Engine which result, under normal use and service, from a defect in material or factory workmanship (Warrantable Failure). This coverage begins with the sale of the engine by Cummins and continues for two years from the date of delivery of the Engine to the first user.

Extended Major Components Warranty

The Extended Major Components Warranty applies to all except B and ISB series Engines and covers Warrantable Failures of the engine cylinder block, camshaft, crankshaft, connecting rods and Cummins fan clutch (Covered Parts).

Bushing and bearing failures are not covered.

This coverage begins with the expiration of the Base Engine Warranty and ends three years or 300,000 miles (482,805 kilometers) or 10,800 hours of operation, whichever occurs first, from the date of delivery of the Engine to the first user.

Emission Warranty

Additional coverage is outlined in the Emission Warranty on the back page.

Consumer Products

This warranty on Consumer Products in the United States is a **LIMITED** warranty. **CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.** Any implied warranties applicable to Consumer Products in the United States terminate concurrently with the expiration of the express warranties applicable to such products. Some states or countries do not allow the exclusion of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the limitations or exclusions herein may not apply to you.

These warranties are made to all Owners in the chain of distribution and Coverage continues to all subsequent Owners until the end of the periods of Coverage.

Cummins Responsibilities

During The Base Engine Warranty

Cummins will pay for all parts and labor needed to repair the damage to the Engine resulting from a Warrantable Failure.

Cummins will pay for the lubricating oil, antifreeze, filter elements, belts, hoses and other maintenance items that are not reusable due to the Warrantable Failure.

Cummins will pay for reasonable labor costs for Engine removal and reinstallation when necessary to repair a Warrantable Failure.

Cummins will pay reasonable costs for towing a vehicle disabled by a Warrantable Failure to the nearest authorized repair location. In lieu of towing expenses, Cummins will pay reasonable costs for mechanics to travel to and from the location of the vehicle, including meals, mileage, and lodging, when the repair is performed at the site of the failure.

During The Extended Major Components Warranty

Cummins will pay for the repair or, at its option, replacement of the defective Covered Part and any Covered Part damaged by a Warrantable Failure of the defective Covered Part.

Owner Responsibilities

During The Base Engine Warranty

Owner is responsible for the cost of lubricating oil, antifreeze, filter elements and other maintenance items replaced during warranty repairs unless such items are not reusable due to the Warrantable Failure.

During The Extended Major Components Warranty

Owner is responsible for the cost of all labor needed to repair the Engine, including the labor to remove and reinstall the engine. When Cummins elects to repair a part instead of replacing it, Owner is not responsible for the labor needed to repair the part.

Owner is responsible for the cost of all parts required for the repair except for the defective Covered Part and any Covered Part damaged by a Warrantabie Failure of the defective Covered Part.

Owner is responsible for the cost of lubricating oil,

antifreeze, filter elements and other maintenance items replaced during the repair.

During The Base Engine and Extended Major Components Warranties

Owner is responsible for the operation and maintenance of the Engine as specified in the applicable Cummins Operation and Maintenance Manuals. Owner is also responsible for providing proof that all recommended maintenance has been performed.

Before the expiration of the applicable warranty, Owner must notify a Cummins distributor, authorized dealer or other repair location approved by Cummins of any Warrantable Failure and make the Engine available for repair by such facility. Except for Engines disabled by a Warrantable Failure during the Base Engine Warranty, the Owner must also deliver the Engine to the repair facility. Locations in the United States and Canada are listed in the Cummins United States and Canada Sales and Service Directory.

Owner is responsible for communication expenses, meals, lodging and similar costs incurred as a result of a Warrantable Failure.

Owner is responsible for non-Engine repairs and for "downtime" expenses, passenger delays, fines, cargo damage, all applicable taxes, all business costs, and other losses resulting from a Warrantable Failure.

Limitations

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine. Cummins is also not responsible for failures caused by incorrect oil or fuel or by water, dirt or other contaminants in the fuel or oil.

This warranty does not apply to accessories which bear the name of another company. Such non-warranted accessories include, but are not limited to: alternators, starters, fans, air conditioning compressors, clutches, filters, transmissions, torque converters, vacuum pumps, power steering pumps and air compressors.

Excessive oil consumption for B series engines is covered for the duration of the coverage or 100,000 miles (160,935 kilometers) or 7000 hours from the date of delivery of the Engine to the first user, whichever of the three occurs first. Before a claim for excessive oil consumption will be considered, Owner must submit adequate documentation to show that consumption exceeds Cummins published standards.

Failures of belts and hoses supplied by Cummins are covered for the first year from the date of delivery of the Engine to the first user.

Parts used to repair a Warrantable Failure may be new Cummins parts, Cummins approved rebuilt parts, or repaired parts. Cummins is not responsible for failures resulting from the use of parts not approved by Cummins.

A new Cummins or Cummins approved rebuilt part used to repair a Warrantable Failure assumes the identity of the part it replaced and is entitled to the remaining coverage hereunder.

CUMMINS DOES NOT COVER WEAR OR WEAROUT OF COVERED PARTS.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

THESE WARRANTIES AND THE EMISSION WARRANTY SET FORTH HEREINAFTER ARE THE SOLE WARRANTIES MADE BY CUMMINS IN REGARD TO THESE ENGINES. CUMMINS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state or country to country.

Emission Warranty

Products Warranted

This emission warranty applies to new diesel, LPG, compressed or liquid natural gas fueled engines marketed by Cummins that are used in the United States* in vehicles designed for transporting persons or property on a street or highway. This warranty applies to Engines delivered to the ultimate purchaser on or after January 1, 1999.

Coverage

Cummins warrants to the ultimate purchaser and each subsequent purchaser that the Engine is designed, built and equipped so as to conform at the time of sale by Cummins with all U.S. Federal emission regulations applicable at the time of manufacture and that it is free from defects in material or factory workmanship which would cause it not to meet these regulations within the longer of the following periods: (A) Five years or 100,000 miles (160,935 kilometers) of operation,

whichever occurs first, as measured from the date of delivery of the Engine to the ultimate purchaser, or (B) The Base Engine Warranty.

If the vehicle in which the Engine is installed is registered in the state of California, a separate California Emission Warranty also applies.

Limitations

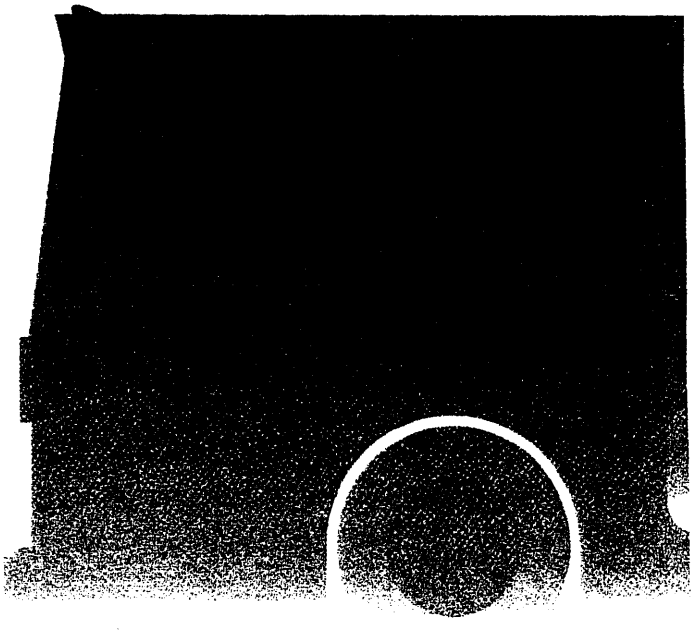
Failures, other than those resulting from defects in material or factory workmanship, are not covered by this warranty.

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine. Cummins is also not responsible for failures caused by incorrect oil or fuel or by water, dirt or other contaminants in the fuel or oil.

Cummins is not responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs, and other losses resulting from a Warrantable Failure.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

* United States includes American Samoa, the Commonwealth of Northern Mariana Islands, Guam, Puerto Rico, and the U.S. Virgin Islands.



Cummins Engine Company, Inc.
Box 3005
Columbus, IN 47202-3005
U.S.A.

Bulletin 3381278
Printed in U.S.A. Rev. 1/99

NEW PRODUCT WARRANTY

(Effective 1-1-96)

Allison Transmission
Division of General Motors Corporation

PARTICIPATING OEM SALES
DISTRIBUTOR SALES

LIMITED WARRANTY ON NEW ALLISON AUTOMATIC TRANSMISSIONS USED IN TRANSIT BUS APPLICATIONS

Allison Transmission Division, General Motors Corporation will provide for repairs or replacement, at its option, during the warranty period of each new Allison Transmission, listed below, that is installed in a Transit Bus in accordance with the following terms, conditions and limitations.

WHAT IS COVERED

- **WARRANTY APPLIES** – This warranty is for new Allison Transmission models listed below installed in a Transit Bus and is provided to the original and any subsequent owner(s) of the vehicle during the warranty period.
- **REPAIRS COVERED** – The warranty covers repairs or replacement, at Allison Transmission's option, to correct any transmission malfunction resulting from defects in material or workmanship occurring during the warranty period. Needed repairs or replacements will be performed using the method Allison Transmission determines most appropriate under the circumstances.
- **TOWING** – Towing is covered to the nearest Allison Transmission Distributor or authorized Dealer only when necessary to prevent further damage to your transmission.
- **PAYMENT TERMS** – Warranty repairs including parts and labor, will be covered per the schedule shown in the chart contained in section "APPLICABLE MODELS, WARRANTY LIMITATIONS AND ADJUSTMENT SCHEDULE".
- **OBTAINING REPAIRS** – To obtain warranty repairs, take the vehicle to any Allison Transmission Distributor or authorized Dealer within a reasonable amount of time and request the needed repairs. A reasonable amount of time must be allowed for the Distributor or Dealer to perform necessary repairs.
- **TRANSMISSION REMOVAL AND REINSTALLATION** – Labor costs for the removal and reinstallation of the transmission, when necessary to make a warranty repair, are covered by this warranty.
- **WARRANTY PERIOD** – The warranty period for all coverages shall begin on the date the transmission is delivered to the first retail purchaser or, if the transmission is first placed in service as a demonstrator prior to sale at retail, on the date the transmission was first placed in such service. The warranty period for all coverages shall end at the expiration of the coverage set forth below.

APPLICABLE MODELS, WARRANTY LIMITATIONS AND ADJUSTMENT SCHEDULE

	Months	Miles or Kilometers		
	0-36	0-150,000 Miles 0-240,000 Kilometers	No Charge	No Charge
	0-24	0-100,000 Miles 0-160,000 Kilometers	No Charge	No Charge
	0-24	0-100,000 Miles 0-160,000 Kilometers	No Charge	No Charge
	0-24	0-100,000 Miles 0-160,000 Kilometers	No Charge	No Charge
	0-24	No Limit	No Charge	No Charge

WHAT IS NOT COVERED

- **DAMAGE DUE TO ACCIDENT, MISUSE, or ALTERATION** – Defects and damage caused as the result of any of the following are not covered:
  - Flood, collision, fire, theft, freezing, vandalism, riot, explosion or objects striking the vehicle;
  - Misuse of the vehicle;
  - Installation into unapproved applications and installations;
  - Alterations or modification of the transmission or the vehicle and;
  - Anything other than defects in Allison Transmission material or workmanship.

  NOTE: This warranty is void on transmissions used in vehicles currently or previously titled as salvaged, scrapped, junked or totaled.

- **CHASSIS, BODY and COMPONENTS** – The chassis and body company (assemblers) and other component and equipment manufacturers are solely responsible for warranties on the chassis, body, component(s) and equipment they provide. Any transmission repair caused by an alteration(s) made to the Allison transmission or the vehicle which allows the transmission to be installed or operated outside of the limits defined in the appropriate Allison Installation Guideline is solely the responsibility of the entity making the alteration(s).

- **DAMAGE CAUSED by LACK of MAINTENANCE or by the USE of TRANSMISSION FLUIDS NOT RECOMMENDED in the OPERATOR'S MANUAL** – Defects and damage caused by any of the following are not covered:
  - Failure to follow the recommendations of the maintenance schedule intervals applicable to the transmission;
  - Failure to use transmission fluids or maintain transmission fluid levels recommended in the Operator's Manual.

- **MAINTENANCE** – Normal maintenance (such as replacement of filters, screens, and transmission fluid) is not covered and is the owner's responsibility.

- **REPAIRS by UNAUTHORIZED DEALERS** – Defects and damage caused by a service outlet that is not an authorized Allison Transmission Distributor or Dealer are not covered.

- **USE of OTHER-THAN GENUINE ALLISON TRANSMISSION PARTS** – Defects and damage caused by the use of parts that are not genuine Allison Transmission parts are not covered.

- **EXTRA EXPENSES** – Economic loss and extra expenses are not covered. Examples include but are not limited to: loss of vehicle use; inconvenience; storage; payment for loss of time or pay; vehicle rental expense; lodging, meals or other travel costs.

OTHER TERMS APPLICABLE TO CONSUMERS AS DEFINED by the MAGNUSON-MOSS WARRANTY ACT

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Allison Transmission does not authorize any person to create for it any other obligation or liability in connection with these transmissions. **ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THESE TRANSMISSIONS IS LIMITED IN DURATION TO THE DURATION OF THIS WRITTEN WARRANTY. PERFORMANCE OF REPAIRS AND NEEDED ADJUSTMENTS IS THE EXCLUSIVE REMEDY UNDER THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (SUCH AS, BUT NOT LIMITED TO, LOST WAGES OR VEHICLE RENTAL EXPENSES) RESULTING FROM BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY.****

** Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

OTHER TERMS APPLICABLE TO OTHER END-USERS

THIS WARRANTY IS THE ONLY WARRANTY APPLICABLE TO THE ALLISON TRANSMISSION MODELS LISTED ABOVE AND IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALLISON TRANSMISSION DOES NOT AUTHORIZE ANY PERSON TO CREATE FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH TRANSMISSIONS. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OF THIS WARRANTY OR ANY IMPLIED WARRANTY.

QUESTIONS

If you have any questions regarding this warranty or the performance of warranty obligations, you may contact any Allison Transmission Distributor or Dealer, or write to:

Allison Transmission Division,
General Motors Corporation
P.O. Box 894
Indianapolis, IN 46206-0894
Attention: Warranty Administration

January 1996
Form SE0611

ACORD CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YY): 02/27/2004

PRODUCER
Frenkel & Co., Inc.
1740 Broadway
New York, NY 10019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED
Orion Bus Industries, Inc.
PO BOX 748
165 Base Road
Oriskany New York 13424

INSURERS AFFORDING COVERAGE

INSURER A:	Allianz Insurance Company
INSURER B:	Daimler Chrysler Insurance Compnay
INSURER C:	American Home Assurance Company
INSURER D:	
INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY	CGL2001134	04/01/2003	04/01/2004	EACH OCCURRENCE	$ 1,000,000
	[X] COMMERCIAL GENERAL LIABILITY				FIRE DAMAGE (Any one fire)	$ 1,000,000
	[ ] CLAIMS MADE [X] OCCUR				MED EXP (Any one person)	$
					PERSONAL & ADV INJURY	$ 1,000,000
					GENERAL AGGREGATE	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:				PRODUCTS - COMP/OP AGG	$
	[ ] POLICY [ ] PRO-JECT [ ] LOC					
B	AUTOMOBILE LIABILITY	CCP0000003	08/01/2003	08/01/2004	COMBINED SINGLE LIMIT (Ea accident)	$ 2,000,000
	[X] ANY AUTO					
	[ ] ALL OWNED AUTOS				BODILY INJURY (Per person)	$
	[ ] SCHEDULED AUTOS					
	[ ] HIRED AUTOS				BODILY INJURY (Per accident)	$
	[ ] NON-OWNED AUTOS					
					PROPERTY DAMAGE (Per accident)	$
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
	[ ] ANY AUTO				OTHER THAN AUTO ONLY: EA ACC	$
					AGG	$
A	EXCESS LIABILITY	ULA 2001133	04/01/2003	04/01/2004	EACH OCCURRENCE	$ 1,000,000
	[X] OCCUR [ ] CLAIMS MADE				AGGREGATE	$ 1,000,000
						$
	[ ] DEDUCTIBLE					$
	[ ] RETENTION $					$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	3592347 RA	06/01/2003	06/01/2004	[X] WC STATU-TORY LIMITS [ ] OTH-ER	
					E.L. EACH ACCIDENT	$ 1,000,000
					E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
					E.L. DISEASE - POLICY LIMIT	$ 1,000,000
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS

County of Merced, and its officers, employees and agents are included as additional insureds under the General Liability policy as required by contract.

CERTIFICATE HOLDER | ADDITIONAL INSURED; INSURER LETTER: | CANCELLATION

County of Merced, Dept of General Services
Attn: Leon Teague, Deputy Director
eral Services-Purchasing
M Street
ced, CA 95340

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE
JOSEPH DE MEO

D1-1

CONFLICT OF INTEREST

The Bidder covenants that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of this proposal. Bidder shall make all reasonable efforts to ensure that no conflict of interest exists between its officers, employees or subcontractors , and the County. Bidder shall make all reasonable efforts to ensure that no County officer or employee, whose position in the County enables them to influence any award of this proposal or any competing offer, shall have any direct or indirect financial interest resulting from any contract that may be derived from this proposal or shall have any relationship to the Bidder or officer or employee of the Bidder, nor that any such person will be employed by Bidder in the performance of any contract that may be derived from this proposal without immediate divulgence or such fact to the County.

PLEASE SEE ATTACHED

ATTACHMENT B-3

SUBCONTRACTOR LIST

(BIDDER TO COMPLETE AND RETURN WITH PROPOSAL)

SUBCONTRACTOR NO. 1 - COMPANY NAME: _____

ADDRESS:_____

CONTACT PERSON:_____TITLE:_____

TELEPHONE NUMBER:_____ FAX NUMBER: _____

AMT. OF CONTRACT:_____DATE AND TYPE OF SERVICE_____

SUBCONTRACTOR NO. 2 - COMPANY NAME: _____

ADDRESS:_____

CONTACT PERSON:_____TITLE:_____

TELEPHONE NUMBER:_____ FAX NUMBER: _____

AMT. OF CONTRACT:_____DATE AND TYPE OF SERVICE_____

SUBCONTRACTOR NO. 3 - COMPANY NAME: _____

ADDRESS:_____

CONTACT PERSON:_____TITLE:_____

TELEPHONE NUMBER:_____ FAX NUMBER: _____

AMT. OF CONTRACT:_____DATE AND TYPE OF SERVICE_____

SUBCONTRACTOR NO. 4 - COMPANY NAME: _____

ADDRESS:_____

CONTACT PERSON:_____TITLE:_____

TELEPHONE NUMBER:_____ FAX NUMBER: _____

AMT. OF CONTRACT:_____DATE AND TYPE OF SERVICE_____

SUBCONTRACTOR NO. 1 - COMPANY NAME: _____

ADDRESS:_____

CONTACT PERSON:_____TITLE:_____

TELEPHONE NUMBER:_____ FAX NUMBER: _____

AMT. OF CONTRACT:_____DATE AND TYPE OF SERVICE_____

Orion Bus Industries

SUBCONTRACTORS AND SUPPLIERS

Orion does not utilize the services of subcontractors in the manufacturing process. Component suppliers are committed to Orion's MacPac order processing system. This system provides Orion with the ability to forecast all required components to their suppliers. Once Orion receives an order, a release for all components is issued to the appropriate supplier. This sophisticated purchasing system has been in use at Orion since February of 1999, and has proven to be a valuable tool in assessing and controlling supplier competency.

ORION BUS INDUSTRIES INC
Name of Firm

165 BASE ROAD
Address

ORISKANY, NEW YORK, 13424
City, Country, Zip/Postal Code

Authorized Signature

APRIL 5, 2004
Date

BOND NO: 38917

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we

ORION BUS INDUSTRIES, INC.

As Principal, hereinafter called the Principal, and

DAIMLERCHRYSLER INSURANCE COMPANY

A Corporation duly organized under the laws of the State of Michigan as Surety, hereinafter called the Surety, are held and firmly bound unto

MERCED COUNTY DEPARTMENT OF GENERAL SERVICES
2222 M STREET MERCED, CA 95340

As Obligee, hereinafter called the Obligee, in the sum of

10% PERCENT OF THE BID

For the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for

ONE TO FIFTY ORION VII 35' CNG
RFP NO. 5890

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal identified above, and the Principal, within the period specified therein for acceptance (sixty (60) days if no period is specified), executes the further contractual documents and gives the bond(s) required by the terms of the bid as accepted within the time specified (ten (10) days if no period is specified) after receipt of the forms by the Principal; or in the event of failure to execute such further contractual documents and give such bonds, pays the Obligee for any cost, not to exceed the penalty hereof, of procuring the work which exceeds the amount of the bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this 3RD day of MARCH, 2004

ORION BUS INDUSTRIES, INC.

By: _____
Principal
Christopher Crasswaller
Manager, Corporate & Legal Affairs

DAIMLERCHRYSLER INSURANCE COMPANY

By: _____
Surety
M. B. Tate, Attorney-In-Fact

ACKNOWLEDGEMENT FOR ANNEXED INSTRUMENT

STATE OF MICHIGAN
COUNTY OF OAKLAND } ss

On this 3RD day of MARCH, 2004, before me personally came M. B. Tate who, being by me duly sworn, did depose and say that she is an Attorney-in-Fact of DAIMLERCHRYSLER INSURANCE COMPANY, and knows the corporate seal thereof; that the seal affixed to said annexed instrument is such corporate seal, and was thereto affixed by authority of the Power of Attorney of said Company, of which a Certified Copy is hereto attached, and that she signed said instrument as an Attorney-in-Fact of said Company by like authority.

S. B. Leggieri
Notary Public, Wayne County, Michigan
Acting in Oakland County
My Commission Expires January 11, 2008

Acknowledged and Sworn to before me on the date above.

S. B. Leggieri

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that DAIMLERCHRYSLER INSURANCE COMPANY, a Michigan corporation, having office at 27777 Inkster Road, Farmington Hills, Michigan does hereby constitute and appoint

M. B. TATE

each its true and lawful Attorney-in-Fact to execute

in its name and to affix its corporate seal to and deliver for and on its behalf as surety thereon or otherwise, bonds of any of the following classes:

1. Bonds on behalf of contractors in connection with bids, proposals or contracts to or with the United States of America, any State or political subdivision thereof or any person, firm or corporation.
2. Surety Bonds to the United States of America or any agency thereof, including those required or permitted under the laws or regulations relating to Customs or Internal Revenue, License and Permit bonds or other indemnity bonds under the laws, ordinances or regulations of any State, City, Town, Village, Board or other body or organization, public or private; bonds to Transportation Companies, Lost Instrument bonds, Lease bonds, Workmen's Compensation bonds, Miscellaneous Surety bonds and bonds on behalf of Notaries Public, Sheriffs, Deputy Sheriffs and similar public officials.
3. Bonds and Undertakings required or permitted by law to be given or filed in any suit, matter or proceeding in any Court of the United States, or any State or other Court, or given to or filed with any Sheriff or Magistrate within any State, for the doing or not doing of anything specified in such Bond or Undertaking, in which the penalty of the bond or liability incurred under such undertaking does not exceed with respect to Fiduciary Bonds the sum of _____ _____ Dollars ($_____), and with respect to all other types of Court Bonds the sum of _____ Dollars ($_____).

IN WITNESS WHEREOF, DAIMLERCHRYSLER INSURANCE COMPANY has caused these presents to be signed, pursuant to its By-Laws, by its Vice President and Secretary and its corporate seal to be hereto affixed this 3RD day of MARCH, (yr.) 2004.

DaimlerChrysler Insurance Company CORPORATE SEAL MICHIGAN

DAIMLERCHRYSLER INSURANCE COMPANY

By _____
James S. Haan
Its Vice President

By _____
T.L. Hackman
Its Secretary

STATE OF MICHIGAN
COUNTY OF OAKLAND } SS.:

On this 3RD day of MARCH, (yr.) 2004, before me personally came T.L. Hackman, to me known and by me known to be Secretary of DAIMLERCHRYSLER INSURANCE COMPANY, the corporation described in and which executed the foregoing Power of Attorney and the said T.L. Hackman being by me duly sworn, did depose and say that she resides in the City of Bloomfield Hills, in the State of Michigan; that she is Secretary of DAIMLERCHRYSLER INSURANCE COMPANY and knows the corporate seal thereof; that the seal affixed to the forgoing Power of Attorney is such corporate seal and that she signed said Power of Attorney as Secretary of said Company by authority of the By-Laws of said Company; that she is acquainted with James S. Haan and knows him to be a Vice President of said Company, and that the signature of said James S. Haan subscribed to said Power of Attorney is in the genuine handwriting of James S. Haan and was thereto subscribed by authority of said By-Laws and in deponent's presence.

DAWN M. OMILION NOTARY PUBLIC OAKLAND COUNTY, MICHIGAN

Acknowledged and Sworn to before
me on the date above written

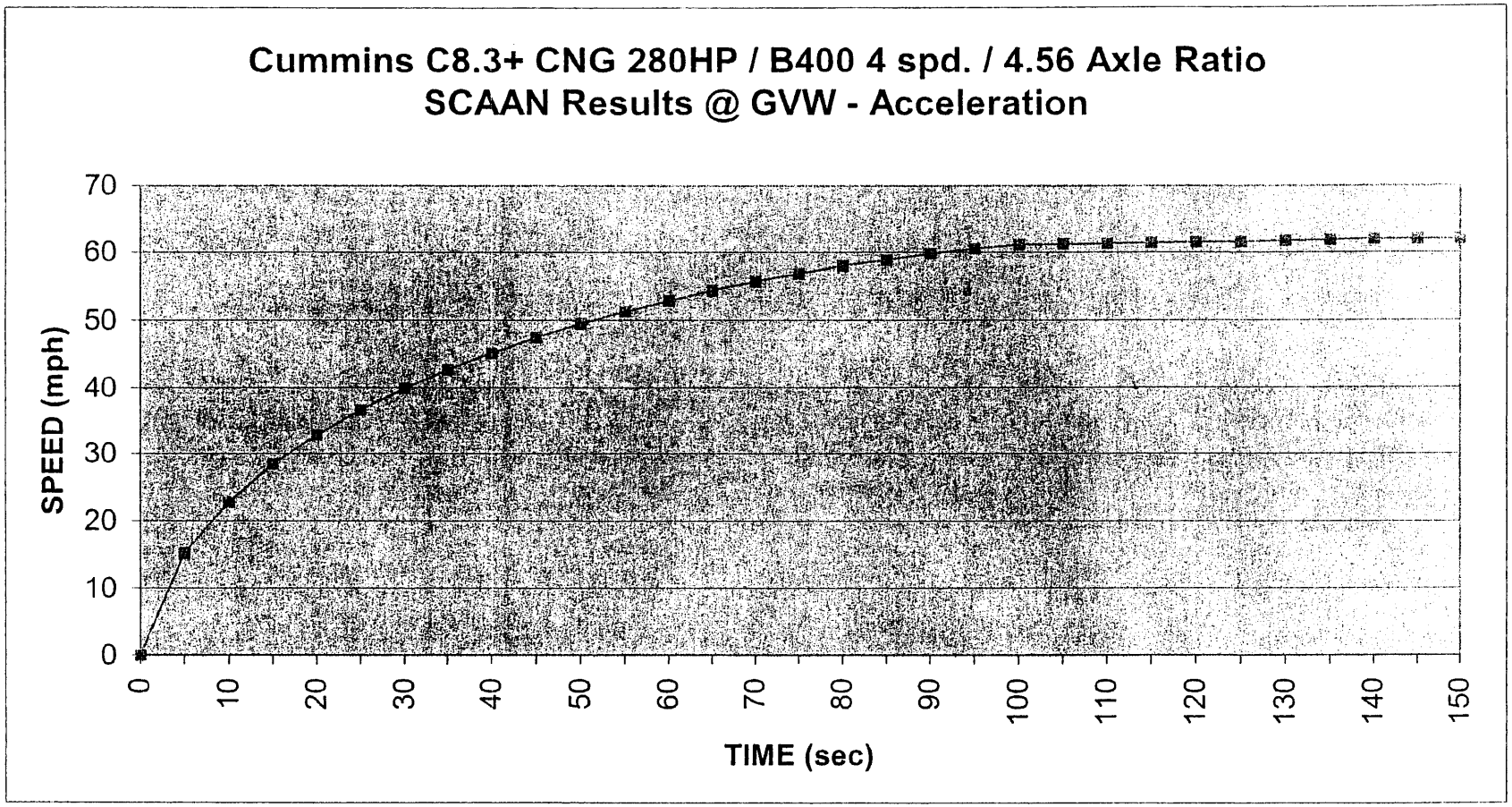
_____ Notary Public
DAWN M. OMILION
Notary Public, Oakland County, MI

My Commission Expires April 29, 2006

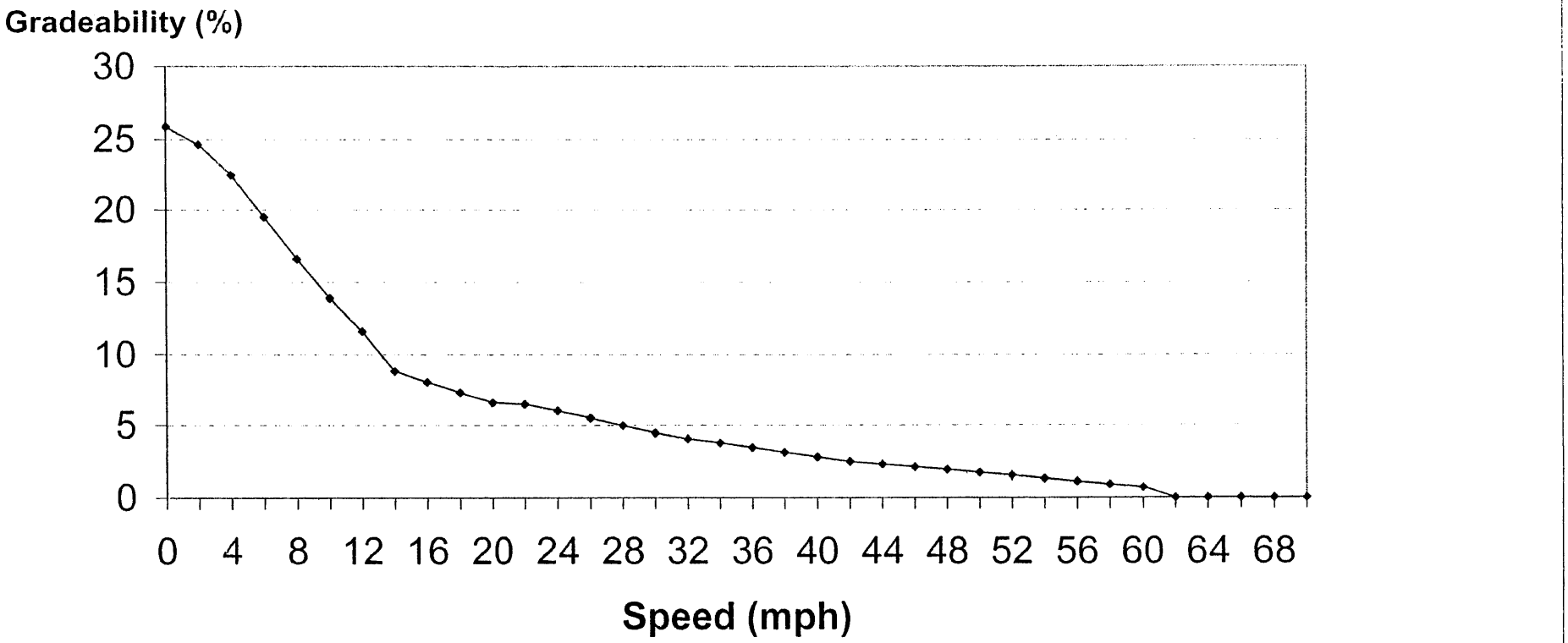
D4-3

ORION VII
VEHICLE PERFORMANCE

Orion has included Performance SCAAN, which outlines the performance capabilities of an Orion VII with a Cummins C8.3 Engine 280 HP and Allison B400 4 Speed Transmission. Orion has provided SCAAN results for the 35' bus.


Cummins C8.3+ CNG 280HP / B400 4 spd. / 4.56 Axle Ratio
SCAAN Results @ GVW - Acceleration
SPEED (mph)
0
10
20
30
40
50
60
70
TIME (sec)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150

CUMMINS C8.3 280HP / B400 4 spd. / 4.56 Axle Ratio
SCAAN Results @ GVW - Gradability



SCAAN No 741596

date: 3/30/04, 9:26am edt

tm887738, ORION BUS INDUSTRIES

ALLISON TRANSMISSION DIV

SCAAN Application Information

==========

CALCULATED ESPECIALLY FOR MERCED, CA

ORION BUS INDUSTRIES-ORION VII

POWERED WITH CUMMINS C8.3+ 280G ULEV CY01;850/2400;NAT.GAS;8-00

ALLISON TRANSM. B400R(1-4),"1300/500"RETARDER CAPACITY , TC-418 conv.

2620 vocation file no., TRANSIT/AIRPORT SHUTTLE BUS-N.AMER.

42600. lbs. gross vehicle weight

29394. lbs. weight on drive wheels (69.0 percent)

19.467 in. radius, wheel- bias tires (ATD rolling resist)

518.00 wheel rev/mile

6 total tires in contact with road

4.560 driveline reduction ratio, total

driveline: propeller shaft, single axle

96.13 % driveline efficiency

43.32 lb.ft.sec.2 driveline equivalent inertia

0.700 traction limit coefficient

1.0000 road surface factor (smooth concrete)

10.50 x 8.50 ft. vehicle height x width

0.5500 air resistance coefficient

HI-TORQUE RISE DIESEL: CUMMINS C8.3+ 280G ULEV CY01;850/2400;NAT.GAS;8

NOTE: ENGINE RATING/VOCATION COMPATIBILITY

SUBJECT TO ENGINE MFGRS. REVIEW.

PERFORMANCE BASED ON PUBLISHED "LUG-BACK" ENGINE DATA. ENGINE "ACCEL"

CHARACTERISTICS MAY INFLUENCE PERFORMANCE AS OUTLINED IN TD115.

504.0 in3 engine displacement

20921 engine library file number

280.0 gross horsepower @ 2400. rpm

deductions- (hp. at 2400. rpm)

25.0# hp fan (clutch engaged)

0.0 hp fan (clutch disengaged)

10.0# hp alternator/generator

15.0# hp air compressor

6.0# hp steer pump

25.0# hp air cond. compressor

(deduction value responsibility: ORION BUS INDUSTRIES)

199.0 net horsepower @ 2400. rpm

eng rpm	1300.	1400.	1500.	1600.	1800.	2000.	2200.	2400.	2710.
gross hp	207.9	226.6	235.9	244.3	258.8	269.2	276.5	280.0	0.0
net hp	169.0	184.8	191.1	196.3	203.7	206.4	205.0	199.0	-97.9
net torque	682.9	693.2	669.0	644.2	594.4	542.1	489.5	435.5	-189.8
friction hp	13.5	15.2	16.9	18.7	22.3	26.8	32.2	38.2	48.5

(max. net engine torque of 693.9 lb ft occurs at 1380. rpm)

(max. gross engine torque of 850.0 lb ft occurs at 1400. rpm)

1.388 lb.ft.sec.2 engine inertia

SCAAN No 741596

date: 3/30/04, 9:26am edt

tm887738, ORION BUS INDUSTRIES

ALLISON TRANSMISSION DIV

SCAAN Application Information (cont)

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VEHICLE: TRANSIT/AIRPORT SHUTTLE BUS-N.AMER.

MERCED, CA ORION BUS INDUSTRIES-ORION VII

CONVERTER: ALLISON TC-418 REF. TC-19136, 12-1-92

TRANSMISSION: ALLISON B400R(1-4),"1300/500"RETARDER CAPACITY

RETARDER: 1300 LBFT/500HP

4049. lb.ft. max transm output torque, 1st range conv stall

5718. lb.ft. max transm output torque, rev range conv stall

TRANSM. APPLICATION- B400(P)R (1-4), RETARDER

15337 transm application library file number

Shift Calibration: 2400. rpm, B400 S1 PERFORMANCE

upshift	mph	downshift	mph
1C-2C	13.11	2C-1C	12.60
2C-2L	21.92	2L-2C	18.95
2L-3L	30.99	3L-2L	30.48
3L-4L	41.45	4L-3L	40.95

THIS SCAAN INFORMATION SUBJECT TO

THE DISCLAIMER SET FORTH IN THE SCAAN USER'S MANUAL

SCAAN No 741596

date: 3/30/04, 9:26am edt

tm887738, ORION BUS INDUSTRIES

ALLISON TRANSMISSION DIV

SCAAN Summary

==========

Vehicle TRANSIT/AIRPORT SHUTTLE BUS-N.AMER.

MERCED, CA ORION BUS INDUSTRIES-ORION VII

Engine CUMMINS C8.3+ 280G ULEV CY01;850/2400;NAT.GAS;8-00

(Clutch fan ENGAGED)

Transmission ALLISON B400R(1-4),"1300/500"RETARDER CAPACITY

Retarder 1300 LBFT/500HP

Converter ALLISON TC-418 REF. TC-19136, 12-1-92

	recommendation or rating	appli-cation status
ENGINE:		
--->ENGINE RATING/VOCATION COMPATIBILITY <------		
---> SUBJECT TO ENGINE MFGRS. REVIEW <------		
CONVERTER:		
Stall turbine torque, lb.ft.	1370.max	1262. O.K.

Engine rpm, conv. stall	(----)	1740.
Converter stall torque ratio	(----)	1.980
Eng peak torque rpm vs min. rpm	1380.+100.min	1740. O.K.
Conv. SR at 2400. gov rpm	0.800/1.000	0.929 O.K.

TRANSMISSION:

Input horsepower	270.max	228. O.K.
Input torque, lb.ft. (lockup)	870.max	749. O.K.
Input rpm (gov.)	2000./2800.	2400. O.K.
Transm output rpm, range 4 l.u.		
at 60.96 mph	3600.max	2400. O.K.

VEHICLE/DRIVELINE:

Vehicle GVW, lbs.	45000.max	42600. O.K.
1st gear conv. stall gradeability	(----)	25.87%
1st conv. 70% eff. gradeability	(----)	19.88%
1st conv. 80% eff. gradeability	16.00%min	17.26% O.K.
1st conv. 70% eff. transm BTU/min (at 1815. eng rpm)		2838.
1st conv. 80% eff. transm BTU/min (at 1869. eng rpm)		2043.
Geared mph @ gov rpm, range 4 l.u.	(----)	60.96

SCAAN No 741596

date: 3/30/04, 9:26am edt

tm887738, ORION BUS INDUSTRIES

ALLISON TRANSMISSION DIV

SCAAN Summary (cont)

Vehicle TRANSIT/AIRPORT SHUTTLE BUS-N.AMER.

MERCED, CA ORION BUS INDUSTRIES-ORION VII

Engine CUMMINS C8.3+ 280G ULEV CY01;850/2400;NAT.GAS;8-00

(Clutch fan ENGAGED)

Transmission ALLISON B400R(1-4),"1300/500"RETARDER CAPACITY

Retarder 1300 LBFT/500HP

Converter ALLISON TC-418 REF. TC-19136, 12-1-92

	recommendation or rating	appli-cation status
VEHICLE/DRIVELINE: (cont)		
DOT "ADB" Spec., Sept 79:	std power/(low power)	
Gradeability @ 60.0mph (std power)	0.25/(---)%min	0.72% O.K.
Gradeability @ 50.0mph (low power)	--- /(0.25)%min	1.76% O.K.
Mph on 0.25% grade, range 4 l.u.	60.00/(50.00) min	61.56 O.K.
---> Mph on 2.50% grade	44.00/(34.00) min	42.35 <-?-(C)
Mph on 12.00% grade	--- /(7.00) min	11.66 O.K.
Mph on 16.00% grade	7.00/(---) min	8.42 O.K.
Accel. time, sec: (full throttle, vehicle brakes locked start)		
0-10.0 mph	5.60/(6.00) max	2.50 O.K.
0-20.0 mph	10.10/(12.00) max	7.99 O.K.
0-30.0 mph	19.00/(24.00) max	16.70 O.K.
0-40.0 mph	34.00/(45.00) max	30.07 O.K.
0-50.0 mph	60.00/(---) max	51.26 O.K.

ALL TRANSMISSION APPLICATIONS require submittal to

PRODUCT ENGINEERING DEPARTMENT

NOTE: Symbols indicate:

--->For REVIEW by VEHICLE MANUFACTURER <---(C)

SCAAN No 741596

date: 3/30/04, 9:26am edt

tm887738, ORION BUS INDUSTRIES

ALLISON TRANSMISSION DIV

Vehicle Full Throttle Performance

Clutch Fan Engaged

veh mph	engine rpm	tr effort	drawbar pull	wheel hp	net % grade	tran ht BTU/min	
Reverse 1, ratio= -5.027 -start, converter operation							
0.00	1740	15450	15179	0.0	38.14	8564	
-2.00	1761	14384	14108	76.7	35.10	5207	
-3.99	1815	12150	11869	129.4	29.01	2949	70% CONV. EFFICIENCY
-4.00	1816	12141	11859	129.5	28.98	2943	
-5.21	1869	10670	10385	148.2	25.14	2165	80% CONV. EFFICIENCY
-6.00	1910	9773	9484	156.4	22.84	1830	
-8.00	2023	7726	7429	164.8	17.71	1486	

-9.58 2147 6345 6041 162.1 14.33 1578

-10.00 2201 6157 5852 164.2 13.87 1452

-11.26 2400 5430 5119 163.1 12.10 1244

-12.00 2470 3401 3087 108.8 7.26 791

-13.00 2585 320 0 11.1 0.00 461

Forward 1, ratio= 3.487 -drive range start, converter operation

0.00 1740 10940 10670 0.0 25.87 8564

2.00 1758 10465 10189 55.8 24.63 6125

4.00 1780 9634 9352 102.8 22.50 4083

5.75 1815 8590 8306 131.9 19.88 2838 70% CONV. EFFICIENCY

6.00 1822 8444 8155 135.1 19.50 2702

7.51 1869 7540 7246 151.0 17.26 2043 80% CONV. EFFICIENCY

8.00 1886 7262 6965 154.9 16.57 1880

10.00 1962 6184 5879 164.9 13.93 1473

12.00 2044 5235 4920 167.5 11.63 1367

13.11 2103 4754 4433 166.2 10.46 1416

Forward 2, ratio= 1.864 -auto upshift, converter operation

13.11 1853 4216 3895 147.4 9.18 2189

14.00 1868 4068 3743 151.9 8.82 2002

16.00 1906 3748 3411 159.9 8.03 1672

18.00 1946 3441 3091 165.2 7.28 1458

20.00 1989 3154 2791 168.2 6.56 1333

21.92 2031 2897 2521 169.4 5.93 1285

auto lockup shift

21.92 1609 3126 2749 182.7 6.47 279

22.00 1615 3118 2741 182.9 6.45 281

24.00	1761	2934	2541	187.7	5.98	308
26.00	1908	2743	2334	190.2	5.49	337
28.00	2055	2547	2121	190.2	4.98	366
30.00	2202	2351	1907	188.1	4.48	397
30.99	2274	2252	1799	186.1	4.23	413

Forward 3, ratio= 1.409 -auto upshift, auto lockup shift

30.99	1719	2259	1805	186.6	4.24	297

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veh mph	engine rpm	tr effort	drawbar pull	wheel hp	net % grade	tran ht BTU/min
32.00	1775	2205	1741	188.1	4.09	309
34.00	1886	2095	1612	190.0	3.79	334
36.00	1997	1982	1478	190.3	3.47	359
38.00	2108	1870	1344	189.5	3.16	386
40.00	2219	1757	1208	187.4	2.84	414
41.45	2300	1673	1107	184.9	2.60	435

Forward 4, ratio= 1.000 -auto upshift, auto lockup shift

41.45	1632	1666	1100	184.1	2.58	261
42.00	1653	1651	1078	184.9	2.53	266
44.00	1732	1596	999	187.3	2.35	288
46.00	1811	1541	918	189.1	2.16	310
48.00	1890	1485	835	190.0	1.96	333

50.00	1968	1427	750	190.2	1.76	358
52.00	2047	1369	663	189.8	1.56	384
54.00	2126	1311	576	188.7	1.35	411
56.00	2205	1253	487	187.0	1.14	440
58.00	2283	1193	397	184.6	0.93	470
60.00	2362	1134	305	181.4	0.72	502
60.96	2400	1105	260	179.6	0.61	518
61.98	2440	862	0	142.4	0.00	534

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tm887738, ORION BUS INDUSTRIES

ALLISON TRANSMISSION DIV

Vehicle Retardation Performance

Clutch Fan Engaged

==========

engine braking- (hp at 2400. rpm)

38.2 engine friction

25.0 fan (clutch ENGAGED)

10.0 alternator/generator

15.0 air compressor

6.0 steer pump

25.0 air conditioner compressor

<--------retarder OFF--------> <------retarder full ON------>

veh mph	engine rpm	equilib % grade	transm BTU/min	decel G	wheel hp	equilib % grade	transm BTU/min	decel G	wheel hp
Forward 1, ratio= 3.487, conv. operation									
5.82	798	-0.90	116	-0.008	1.5	-0.90	116	-0.008	1.5
8.00	854	-2.26	260	-0.021	14.2	-2.26	260	-0.021	14.2
12.00	986	-5.48	1225	-0.050	64.5	-5.48	1225	-0.050	64.5
12.70	1013	-6.16	1507	-0.056	77.9	-6.16	1507	-0.056	77.9
12.84	1019	-6.30	1567	-0.051	80.7	-9.74	3599	-0.079	130.5
16.00	1671	-6.68	1374	-0.053	106.8	-13.16	6105	-0.104	222.8
20.00	2326	-7.65	1479	-0.062	154.0	-16.30	9309	-0.131	346.1
20.40	2388	-7.77	1498	-0.063	159.6	-16.56	9615	-0.133	358.7
Forward 2, ratio= 1.864, conv. operation									
10.89	798	-0.80	93	-0.008	0.9	-0.80	93	-0.008	0.9
12.00	814	-1.01	107	-0.010	3.7	-1.01	107	-0.010	3.7
12.70	823	-1.14	124	-0.011	5.7	-1.14	124	-0.011	5.7
16.00	869	-1.77	293	-0.017	17.8	-8.18	5024	-0.079	133.8
20.00	937	-2.70	735	-0.026	42.0	-11.22	8565	-0.108	234.0
24.00	1018	-3.81	1486	-0.036	78.6	-13.44	12061	-0.125	338.0
24.01	1019	-3.81	1490	-0.036	78.8	-13.44	12074	-0.124	338.4
24.53	1088	-3.83	1446	-0.035	80.7	-13.55	12356	-0.121	348.2
lockup operation									
10.87	798	-0.80	93	-0.007	0.9	-0.80	93	-0.007	0.9
12.00	881	-1.87	109	-0.018	15.4	-1.87	109	-0.018	15.4
12.70	932	-2.54	119	-0.024	25.8	-2.54	119	-0.024	25.8
13.88	1019	-3.66	138	-0.034	45.6	-8.27	3084	-0.077	117.9
16.00	1174	-3.71	163	-0.035	52.9	-10.14	4894	-0.094	168.9
20.00	1468	-3.84	212	-0.036	67.8	-12.38	8041	-0.115	259.8

24.00	1761	-4.04	267	-0.038	84.8	-13.67	10842	-0.127	344.1
28.00	2055	-4.31	330	-0.040	105.1	-14.45	13297	-0.134	423.1
32.00	2349	-4.66	404	-0.044	129.5	-14.94	15410	-0.138	497.5
32.70	2400	-4.72	418	-0.044	134.2	-15.00	15744	-0.139	510.0
36.00	2642	-5.04	482	-0.047	157.4	-15.21	17173	-0.141	566.7
38.15	2800	-5.25	526	-0.049	173.5	-15.29	17980	-0.142	601.5

Forward 3, ratio= 1.409, lockup operation

14.38	798	-0.82	93	-0.008	0.9	-5.90	3468	-0.056	83.7
16.00	888	-1.71	110	-0.016	16.7	-8.12	4841	-0.078	132.8
18.36	1019	-3.01	136	-0.029	45.6	-10.84	6740	-0.103	207.5
20.00	1110	-3.05	151	-0.029	49.8	-11.57	7981	-0.110	241.8

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			<--------retarder OFF-------->			<------retarder full ON------>			
veh	engine	equilib	transm	decel	wheel	equilib	transm	decel	wheel
mph	rpm	% grade	BTU/min	G	hp	% grade	BTU/min	G	hp
24.00	1332	-3.15	190	-0.030	60.7	-12.76	10765	-0.121	320.0
28.00	1553	-3.28	231	-0.031	72.6	-13.40	13198	-0.127	390.6
32.00	1775	-3.45	279	-0.033	85.9	-13.70	15284	-0.130	453.9
36.00	1997	-3.66	331	-0.035	101.1	-13.79	17022	-0.131	510.4
40.00	2219	-3.91	389	-0.037	118.8	-13.84	18562	-0.131	564.4
43.26	2400	-4.13	445	-0.039	134.9	-13.91	19792	-0.132	609.3
44.00	2441	-4.18	457	-0.040	138.7	-13.93	20056	-0.132	619.3
48.00	2663	-4.47	524	-0.043	160.4	-13.97	21368	-0.133	671.5
50.47	2800	-4.65	568	-0.044	174.5	-13.99	22091	-0.133	702.3

Forward 4, ratio= 1.000, lockup operation

20.27	798	-0.90	95	-0.009	0.9	-9.49	8118	-0.092	197.7
24.00	945	-1.97	119	-0.019	28.4	-11.55	10694	-0.111	287.8
25.88	1019	-2.51	132	-0.024	45.5	-12.39	11874	-0.119	333.4
28.00	1102	-2.55	147	-0.025	49.4	-12.65	13114	-0.122	367.4
32.00	1260	-2.66	178	-0.026	57.1	-12.89	15184	-0.124	425.1
36.00	1417	-2.78	211	-0.027	65.3	-12.89	16902	-0.124	474.6
40.00	1575	-2.92	246	-0.028	74.1	-12.83	18420	-0.124	519.7
44.00	1732	-3.08	288	-0.030	83.6	-12.79	19886	-0.123	564.2
48.00	1890	-3.25	334	-0.032	94.1	-12.73	21177	-0.123	605.3
52.00	2047	-3.45	384	-0.033	105.9	-12.64	22294	-0.122	643.2
56.00	2205	-3.67	438	-0.036	118.9	-12.39	22819	-0.119	667.7
60.00	2362	-3.90	502	-0.038	133.1	-11.98	22732	-0.116	678.2
60.96	2400	-3.96	518	-0.038	136.6	-11.87	22642	-0.115	679.2
64.00	2520	-4.15	568	-0.040	148.4	-11.54	22279	-0.111	680.8
68.00	2677	-4.40	637	-0.043	164.5	-11.36	22343	-0.110	696.7
71.12	2800	-4.61	696	-0.045	177.6	-11.28	22469	-0.109	711.5

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tm887738, ORION BUS INDUSTRIES

ALLISON TRANSMISSION DIV

Vehicle Full Throttle Acceleration

Start With Brakes Locked

Clutch Fan Engaged

(on 0.00 percent grade)

speed mph	time sec	dist ft	accel mph/sec	eng rpm	gear range
1.00	0.19	0	5.126	1753	1C
2.00	0.39	1	5.021	1758	1C
3.00	0.59	1	4.843	1762	1C
4.00	0.81	2	4.539	1780	1C
5.00	1.04	4	4.256	1798	1C
6.00	1.28	6	3.935	1822	1C
7.00	1.55	8	3.615	1852	1C
8.00	1.84	12	3.328	1886	1C
9.00	2.15	16	3.057	1922	1C
10.00	2.50	20	2.794	1962	1C
11.00	2.87	26	2.560	2001	1C
12.00	3.29	33	2.323	2044	1C
13.00	3.74	42	2.081	2097	1C
13.11	3.80	43	2.055	2103	1C- 2C
14.00	4.26	52	1.873	1868	2C
15.00	4.81	64	1.788	1887	2C
16.00	5.39	77	1.705	1906	2C
17.00	5.99	91	1.624	1926	2C
18.00	6.62	107	1.545	1946	2C
19.00	7.29	126	1.467	1968	2C
20.00	7.99	146	1.394	1989	2C

21.00	8.73	168	1.322	2010	2C
21.92	9.45	190	1.255	2031	2C- 2L
22.00	9.51	192	1.324	1615	2L
23.00	10.28	218	1.277	1688	2L
24.00	11.08	245	1.229	1761	2L
25.00	11.91	275	1.179	1835	2L
26.00	12.78	308	1.129	1908	2L
27.00	13.69	343	1.078	1982	2L
28.00	14.64	382	1.026	2055	2L
29.00	15.64	423	0.975	2128	2L
30.00	16.70	469	0.923	2202	2L
30.99	17.81	519	0.870	2274	2L- 3L
31.00	17.82	519	0.890	1720	3L
32.00	18.97	572	0.861	1775	3L
33.00	20.15	629	0.829	1831	3L
34.00	21.39	689	0.797	1886	3L
35.00	22.67	754	0.764	1942	3L
36.00	24.01	824	0.731	1997	3L
37.00	25.42	899	0.698	2053	3L
38.00	26.89	981	0.664	2108	3L

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speed	time	dist	accel	eng	gear
mph	sec	ft	mph/sec	rpm	range

39.00 28.44 1068 0.631 2164 3L

40.00 30.07 1163 0.597 2219 3L

41.00 31.80 1265 0.563 2275 3L

41.45 32.62 1315 0.547 2300 3L- 4L

42.00 33.63 1376 0.541 1653 4L

43.00 35.51 1494 0.521 1693 4L

44.00 37.48 1619 0.501 1732 4L

45.00 39.52 1753 0.481 1772 4L

46.00 41.65 1895 0.461 1811 4L

47.00 43.88 2047 0.440 1850 4L

48.00 46.21 2209 0.419 1890 4L

49.00 48.67 2384 0.398 1929 4L

50.00 51.26 2573 0.376 1968 4L

51.00 54.01 2776 0.355 2008 4L

52.00 56.93 2997 0.333 2047 4L

53.00 60.05 3237 0.311 2087 4L

54.00 63.40 3499 0.289 2126 4L

55.00 67.01 3788 0.267 2165 4L

56.00 70.93 4108 0.245 2205 4L

57.00 75.24 4465 0.223 2244 4L

58.00 80.01 4867 0.200 2283 4L

59.00 85.36 5326 0.177 2323 4L

60.00 91.46 5859 0.154 2362 4L

61.00 98.58 6490 0.131 2401 4L

62.00 137.70 10035 0.006 2441 4L

61.98 = maximum speed 4L

(on 0.00 percent grade)

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tm887738, ORION BUS INDUSTRIES

ALLISON TRANSMISSION DIV

Transmission Output Performance

Clutch Fan Engaged

Forward 1 ratio= 3.4872

Converter Operation

speed ratio	.engine.. rpm	hp	.transm output. hp	rpm	torque	transm. BTU/min	
0.0000	1740	201.9	0.0	0	4049	8564	
0.1000	1755	202.4	37.8	50	3942	6982	
0.2000	1757	202.4	73.2	101	3815	5483	
0.3000	1778	203.1	104.5	153	3588	4182	
0.4000	1803	203.8	129.6	207	3292	3146	
0.4352	1815	204.1	137.2	227	3180	2838	70% conv eff
0.5000	1843	204.7	149.1	264	2962	2361	
0.5514	1869	205.2	157.1	296	2791	2043	80% conv eff
0.6000	1897	205.6	163.3	326	2627	1796	
0.6500	1927	206.0	168.1	359	2459	1606	
0.7000	1962	206.3	171.6	394	2288	1473	
0.7500	1997	206.4	173.6	430	2123	1391	

0.8000 2038 206.5 174.3 468 1957 1366

0.8830 2147 205.8 171.0 544 1652 1476 coupling

0.9000 2204 205.0 173.3 569 1600 1345

0.9250 2368 200.3 172.5 628 1443 1178

0.9269 2384 199.7 172.2 634 1427 1165

0.9288 2400 199.0 171.8 639 1412 1153 governed rpm

0.9395 2421 178.8 155.0 652 1248 1009

0.9500 2443 158.2 137.4 665 1084 884

0.9750 2513 90.7 75.4 703 563 648

0.9900 2566 40.4 27.3 728 197 553

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Forward 2 ratio= 1.8643

Converter Operation

speed .engine.. .transm output. transm.

ratio rpm hp hp rpm torque BTU/min

0.5000 1843 204.7 150.1 494 1594 2317

0.5514 1869 205.2 158.2 553 1503 1993 80% conv eff

0.6000 1897 205.6 164.6 611 1416 1741

0.6500 1927 206.0 169.6 672 1326 1545

0.7000 1962 206.3 173.2 737 1235 1405

0.7500 1997 206.4 175.4 804 1146 1317

0.8000 2038 206.5 176.2 875 1058 1283

0.8830 2147 205.8 173.2 1017 895 1382 coupling

0.9000 2204 205.0 175.6 1064 867 1247

0.9250 2368 200.3 175.0 1175 782 1073

0.9269 2384 199.7 174.7 1185 774 1059

0.9288 2400 199.0 174.3 1196 766 1046 governed rpm

0.9395 2421 178.8 157.5 1220 678 902

0.9500 2443 158.2 139.9 1245 590 777

0.9750 2513 90.7 77.8 1314 311 544

0.9900 2566 40.4 29.7 1363 115 451

Lockup Operation

.engine.. .transm.output. transm.

rpm hp hp rpm torque BTU/min

1300 169.0 163.8 697 1234 222

1400 184.8 179.1 751 1252 243

1500 191.1 184.9 805 1207 260

1600 196.3 189.7 858 1161 278

1800 203.7 196.3 966 1068 316

2000 206.4 198.1 1073 970 355

2200 205.0 195.7 1180 871 397

2400 199.0 188.6 1287 769 441 governed rpm

2478 125.0 114.8 1329 454 433

2555 50.9 40.8 1370 156 426

Forward 3 ratio= 1.4093

Lockup Operation

.engine.. .transm.output. transm.

rpm hp hp rpm torque BTU/min

1300 169.0 164.0 922 934 213

1400 184.8 179.3 993 948 234

1500 191.1 185.1 1064 913 253

1600 196.3 189.8 1135 878 272

1800 203.7 196.3 1277 807 314

2000 206.4 197.9 1419 733 360

2200 205.0 195.4 1561 657 409

2400 199.0 188.1 1703 580 462 governed rpm

2478 125.0 114.1 1758 341 464

2555 50.9 39.9 1813 115 467

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Forward 4 ratio= 1.0000

Lockup Operation

.engine.. .transm.output. transm.

rpm hp hp rpm torque BTU/min

1300 169.0 164.6 1300 665 186

1400 184.8 179.9 1400 675 207

1500 191.1 185.7 1500 650 229

1600 196.3 190.3 1600 625 252

1800 203.7 196.5 1800 573 307

2000 206.4 197.7 2000 519 368

2200 205.0 194.7 2200 465 438

2400 199.0 186.8 2400 409 518 governed rpm

2478 125.0 112.0 2478 238 550

2555 50.9 37.1 2555 76 584

Reverse 1 ratio= -5.0265

Converter Operation

speed ratio	.engine.. rpm	hp	.transm output. hp	rpm	torque	transm. BTU/min	
0.0000	1740	201.9	0.0	0	5718	8564	
0.1000	1755	202.4	37.0	35	5568	7014	
0.2000	1757	202.4	71.7	70	5389	5545	
0.3000	1778	203.1	102.4	106	5069	4270	
0.4000	1803	203.8	127.1	143	4654	3252	
0.4352	1815	204.1	134.6	157	4497	2949	70% conv eff
0.5000	1843	204.7	146.3	183	4190	2479	
0.5514	1869	205.2	154.2	205	3949	2165	80% conv eff
0.6000	1897	205.6	160.4	226	3719	1920	
0.6500	1927	206.0	165.2	249	3482	1730	
0.7000	1962	206.3	168.7	273	3242	1596	
0.7500	1997	206.4	170.8	298	3010	1512	
0.8000	2038	206.5	171.6	324	2777	1481	
0.8830	2147	205.8	168.6	377	2348	1578	coupling
0.9000	2204	205.0	170.9	395	2275	1446	
0.9250	2368	200.3	170.3	436	2053	1271	
0.9269	2384	199.7	170.0	440	2031	1257	
0.9288	2400	199.0	169.7	443	2010	1244	governed rpm
0.9395	2421	178.8	153.3	453	1779	1081	
0.9500	2443	158.2	136.2	462	1549	935	
0.9750	2513	90.7	75.8	488	817	630	
0.9900	2566	40.4	29.0	505	302	480	

SHAKER TEST

The Orion VII has been designed to operate in bus service as a long life, 12-year, 500,000 New York City mile heavy duty transit vehicle. An Orion VII bus has completed Shaker testing at Bodycote Metal Technology (Ortech Laboratories) in Mississauga, Ontario. The testing conducted at Bodycote simulates and confirms the vehicle's life cycle of 500,000 miles in a New York City operating environment.

A copy of this test has been provided in a separate package.

CUSTOMER REFERENCES

In addition to California customer references, Orion is pleased to providing additional references from customers through out North America. The following customers have purchased Orion VII low floor buses.

Mr. Bill Brown
Toronto Transit Commission
1138 Bathurst Street
Toronto, ON M5R 3H2

Telephone: (416) 393-3162

Mr. John Walsh
New York City Transit
25 Jamaica Avenue
Brooklyn, NY 11207

Telephone: (718) 927-7648

Mr. Frank Clark
Gwinnett County
620 Swanson Drive
Lawrenceville, GA 30044

Telephone: (770) 822-7446

Mr. Denis Ronan
Salem Area Mass Transit
555 Court Street NE, Suite 5230
Salem, OR 97301

Telephone: (503) 588-2424

Mr. Jerome Parker
Georgia Regional Transit Authority
45 Peachtree Center Avenue
Atlanta, GA 30303

Telephone: (404) 848-4363

Ms. Lori Van Beek
City of Moorhead
500 Center Ave. 4th Floor
Moorhead, MN 56560

Telephone: (218) 299-5378