

IRTEZ

Technology 2000

BARRY DEGENHARDT

COMPUTERS:
IDENTIFYING TRANSPORT COSTS

AUSTRALIA
POST

TECHNOLOGY 2000 **IRTEENZ**

How Computers reduce maintenance



They do, but not as much as people do.

Name: Barry Degenhardt

Position: Manager Transport (Technical)
Australia Post HQ

Functions: Fleet Management
Fleet Vehicle Specification
Fleet Purchasing
Technical Issues
Maintenance & Service Policy
Industry Technical Liaison
Fleet Systems

OVERVIEW OF AUSTRALIA POST

- **Australia Post is a Government Business Enterprise wholly owned by the Australian Government.**
- **Self funding since 1975.**
- **Fully taxed since mid eighties.**
- **Operates on a balance sheet returning a dividend to the Australian Government.**
- **Australia Post operates in an “open competitive” environment except for Standard Letters (Social reasons)**
- **One of the top Postal Administrations constantly performing in the top 5 in performance, cost & profits.**
- **Facing change - continual deregulation & possible privatisation, International trading, the Internet and the increased number of local and international competitors.**

OVERVIEW OF AUSTRALIA POST

Australia Post is a fully taxed Government Business

- Enterprise wholly owned by the Australian Government.
- Operates on a balance sheet returning a dividend to the Australian Government.

REVENUE IN 1998/99 - \$3.45B WITH A PROFIT OF \$373M.

4.5 BILLION ARTICLES PROCESSED LAST YEAR TO 18 MILLION CUSTOMERS AT 8.5 MILLION DESTINATIONS.

PROVIDE MORE THAN 20,000 POSTING POINTS; 12,000 SPBS, 4,500 RETAIL OUTLETS AND AGENCIES, 3,400 ROAD MAIL CONTRACTORS.

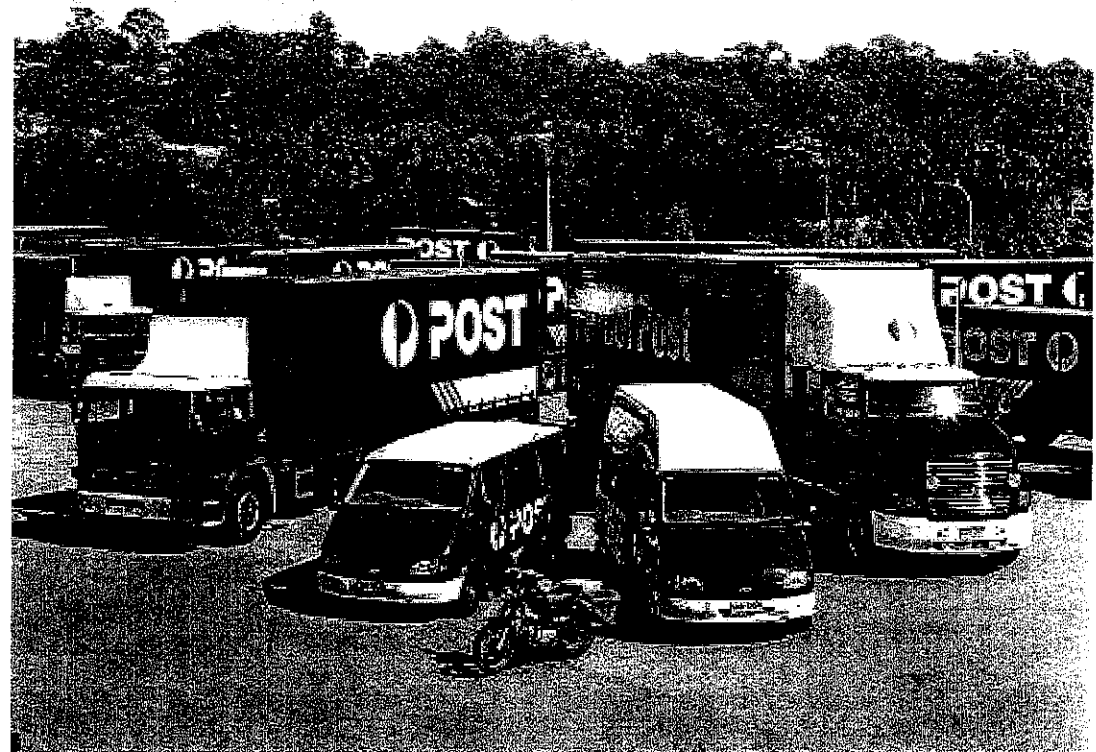
ALSO OPERATE 260 MAIL, PARCEL & DELIVERY CENTRES & WE COLLECT FROM CUSTOMERS.

LARGE RANGE OF PRODUCTS(physical & electronic)

35,961 EMPLOYEES +8,500 CONTRACTORS.

FLEET SIZE & MAKE-UP

- **10,390 VEHICLES** (176m)
- **6,950 MOTOR CYCLES** (53m)
- **1,450 VANS** (40m)
- **670 TRUCKS** (36m)
- **50 LINEHAUL** (14m)
- *1000 CARS* (28m)
- *200 OTHERS* (5m)

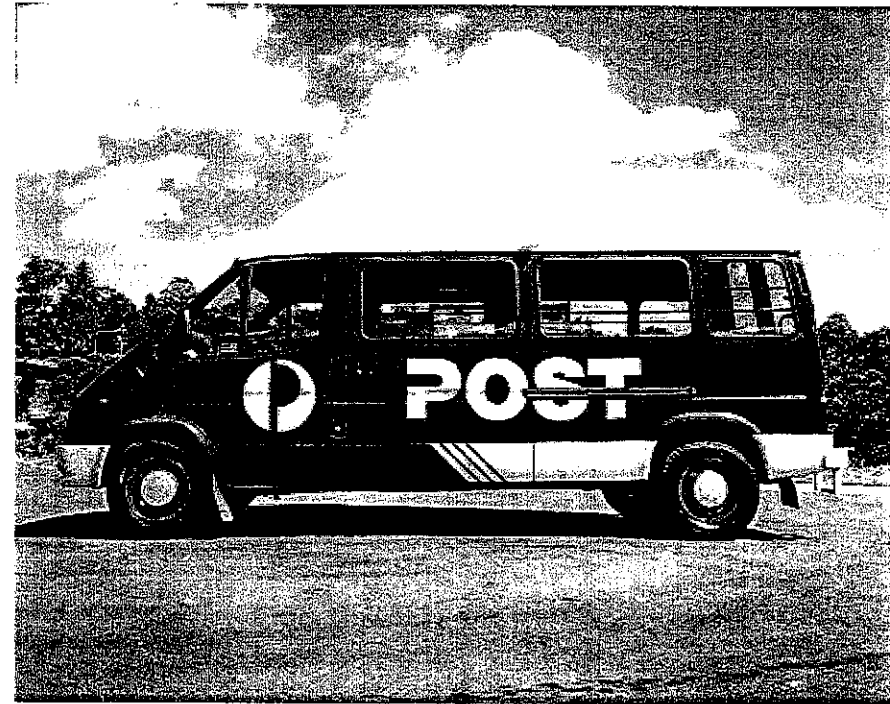




- ☛ **6,950 Motor Cycles**
- ☛ **Travel 7,600km per year**
- ☛ **Contact with the most customers**
- ☛ **Located at many remote locations**
- ☛ **Very difficult to manage**
- ☛ **High cost.**



- **Mail Van**
- **1 ULD**
- **1344 vans**
- **25,000 km per year**
- **1 tonne & 5 cum capacity**
- **Mail and parcel pick up & delivery**



- **Large Mail Van**
- **2 ULD**
- **106 vans**
- **30,000 km per year**
- **1.5 tonne & 10 cum capacity**
- **Mainly parcel pick-up & delivery**



- 10 ULD or 7 tonne
- 13 tonne GVM
- 294 trucks
- 180 hp
- 6 speed transmission
- 40,000 km per year
- mostly metropolitan distribution
- with some short distance country destinations.



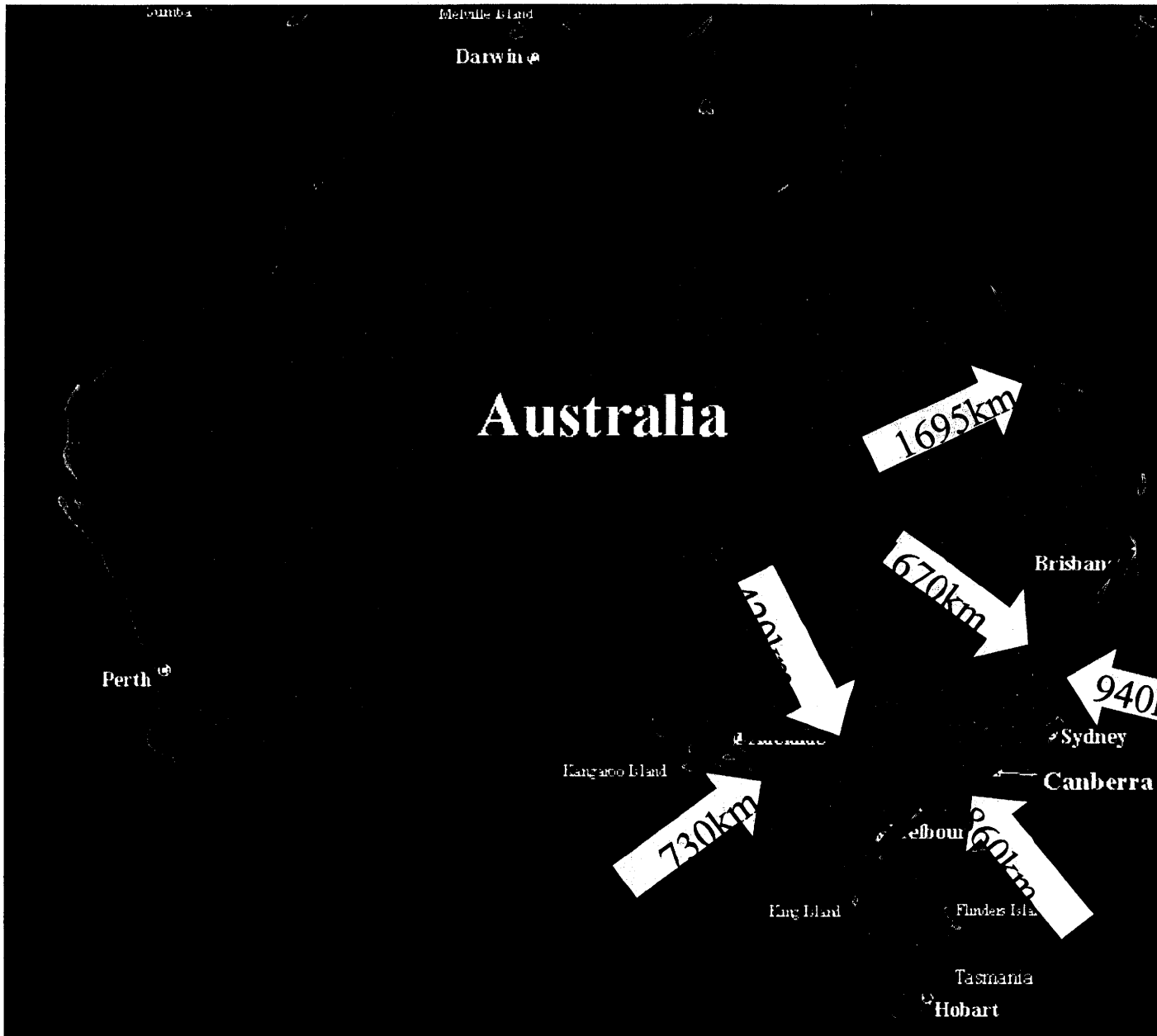
LARGE TRUCKS

- 28 ULD or 12 tonne
- 22.5 tonne GVM
- 206 trucks
- 260 hp
- 9 speed transmission
- 80,000+ km per year
- mainly long distance with some metropolitan delivery.



- Prime mover and trailer
- 60 ULD capacity
- 25 tonne load
- 40 vehicles
- 42.5 tonne GCM
- 430 hp
- 18 speed transmission
- 270,000 km per year
- Long distance linehaul
- Some local work

- B-Double vehicle (Prime mover & 2 trailers)
- 90 ULD capacity
- 35 tonne load
- 10 vehicles
- 62.5 tonne GCM
- 460 hp
- 18 speed transmission
- 270,000 km per year
- Long distance linehaul



Rostered drivers

270,000 km per week

Ave speeds >92kph

Ambient temp >40c

Road temp >70c

Loads >62.5t

Distances

Driving hours

I want my delivery to be fast and reliable

I want to present my products in a professional and friendly manner

Understand the

customer and

I want convenience, reliability and security

I want my cost

the wants



WHY NOT?

WHAT IS WANTED FROM A FLEET MANAGER



BASIC, GOOD FLEET MANAGEMENT



Australia Post's **COMPUTER TOOLS**

Staff with desk top & lap top computers
Mobile phones

Embedded computers

Engine management computers

Vehicle diagnostic computers

SAPFleet - Fleet Management System

TIS - Transport Information System

OBTC - On Board Truck Computers

LOAD - Load distribution



Engine Management System

- fuelling
- engine protection
- events history

AMT Transmission

- gear selection
- change inhibitor
- controlled clutching



Engine Management System

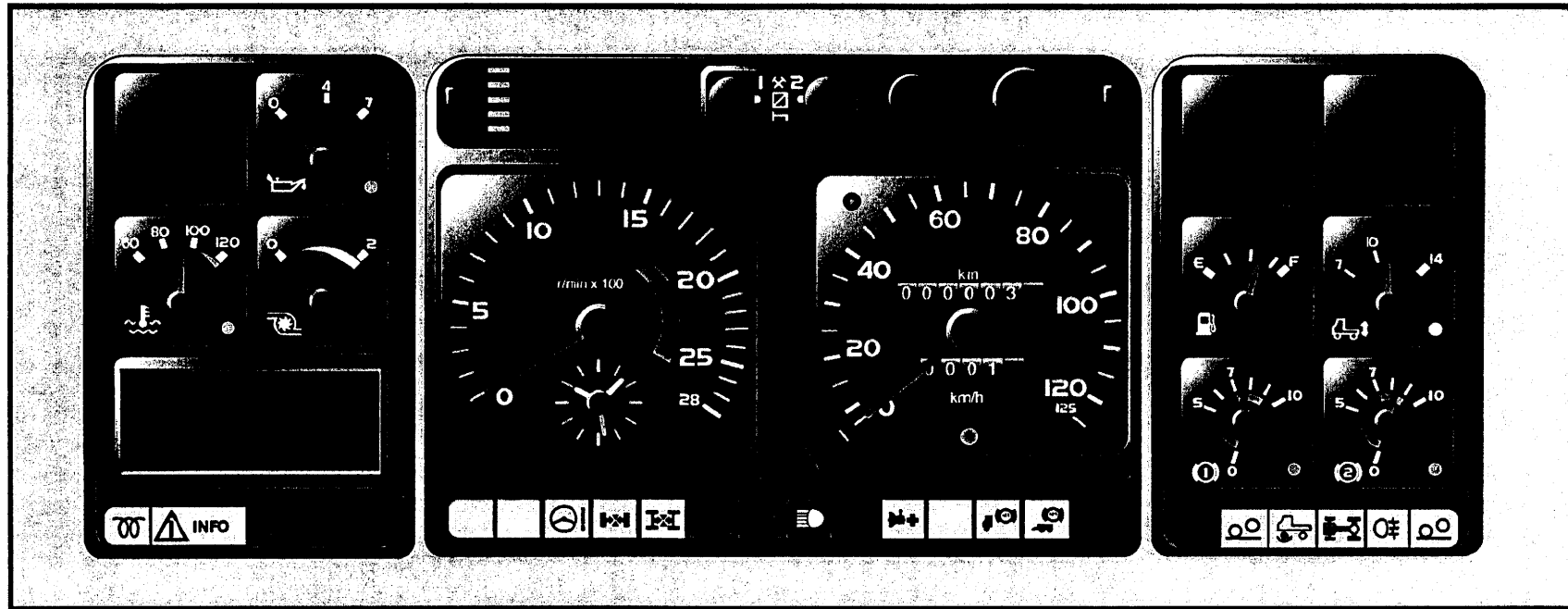
- fuelling
- fault recognition
- engine power down
- faults history
- re-calibration



AMT Transmission

- gear selection
- change inhibitor
- controlled clutching

”Driver check items”



2 Fluid and component checks on start-up

Driving

Gauge mode

Fuel economy

Clock/dist

Fault message

Powertronic

Ambient air temp

Engine oil temp

Gearbox oil temp

Volt and amps

Fuel economy

Trip fuel

Clock

Clock alarm

Trip odometer

Average speed

Message 1

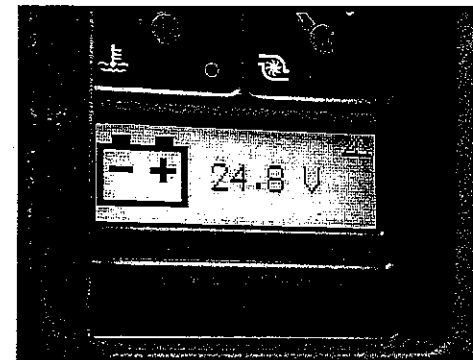
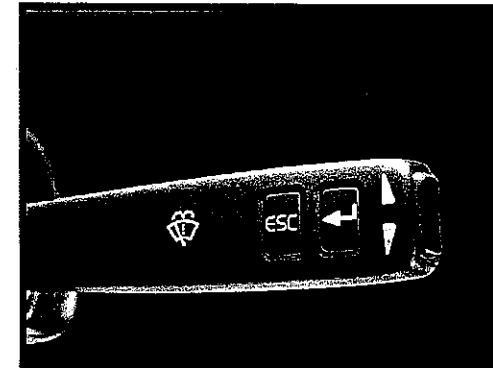
Message 2

Message ...

Reset

Reset

Reset



SYSTEMS HISTORY AND RECALIBRATION



- **Diagnostics, event and fault history.**
- **Recalibration of engine and system parameters.**

Engine Management System

- fuelling
- fault recognition
- engine power down
- faults history

AMT Transmission

- gear selection
- change inhibitor
- controlled clutching

Brake by Wire

- brake effort
- brake wear balance
- combination brake adjustment

Maintenance & Service

- service monitoring
- service prediction
- component replacement



HOW TO USE COMPUTERS TO OBTAIN THE CORRECT MAINTENANCE COSTS

It is paramount that the correct maintenance costs are known.

A good Fleet Management System is essential but may result in costs apparently rising.

Vehicle costs have to be related to the task.

Transport Information System - TIS

TIS is an operations system

It will save maintenance costs because it:

- selects the right vehicle for the task*
- selects the appropriate route for the function*
- optimises the fleet and staff utilisation*
- provides an audit trail*
- has “what if” feature for planning & costing*

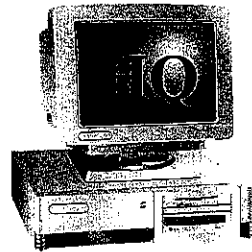
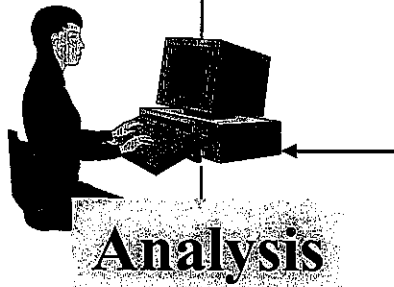
TIS is still in development.

On Board Truck Computers - OBTC

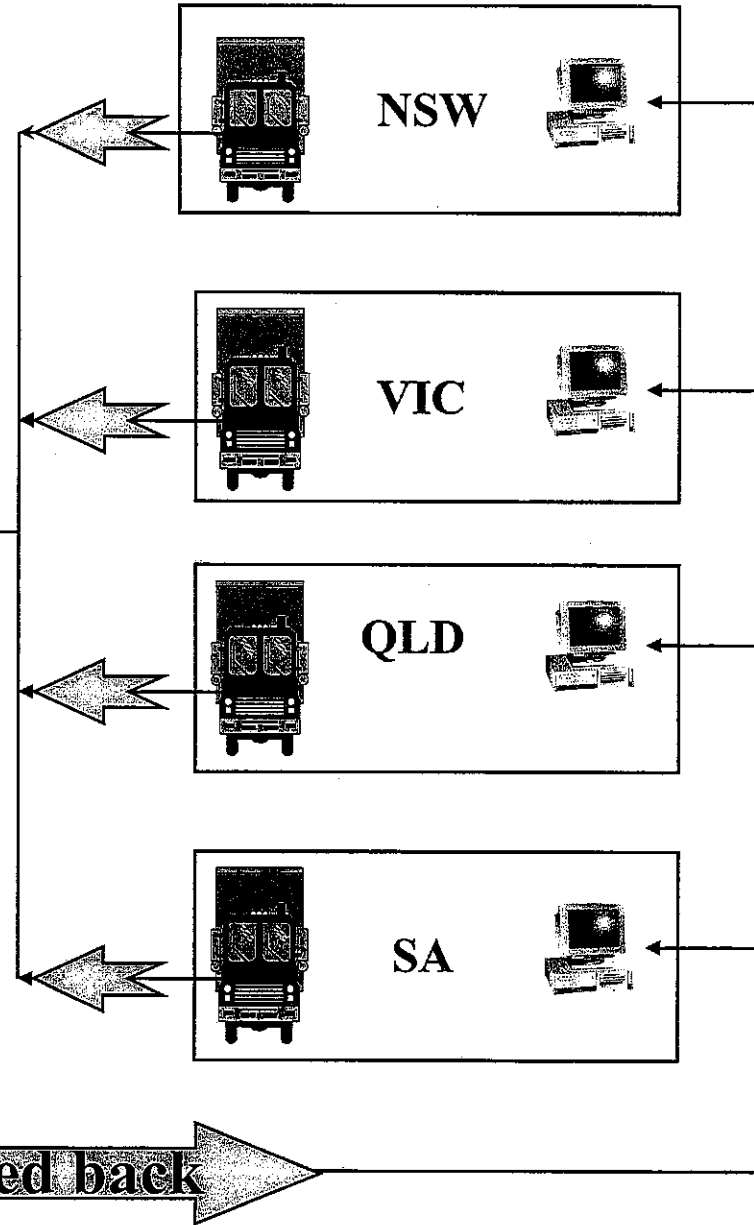


**Savings in:
maintenance,
trip times,
safety, and
equipment**

State Operations



**Data
Collection
Checking
Collating**



Load Management System

In house development that enables axle load distributions to be calculated

Provides for maximisation of load distribution for:

- legal load limits**
- optimising load distribution for better handling and better braking**

Gains are:

- reduced brake wear,**
- reduced suspension and tyre wear**
- drivers are also much happier.**

TOTAL LOAD(KG):		31870			
AXLE LOADINGS	STEER	DRIVE	A TRAILER	B TRAILER	GCM
Calculated(KG)	5849	16435	19341	16778	58403
Maximum(KG)	6000	16500	20000	20000	62500
Difference(KG)	151	65	659	3222	4097
% of capacity	97	100	97	84	93

Fleet Management

SAPFleet

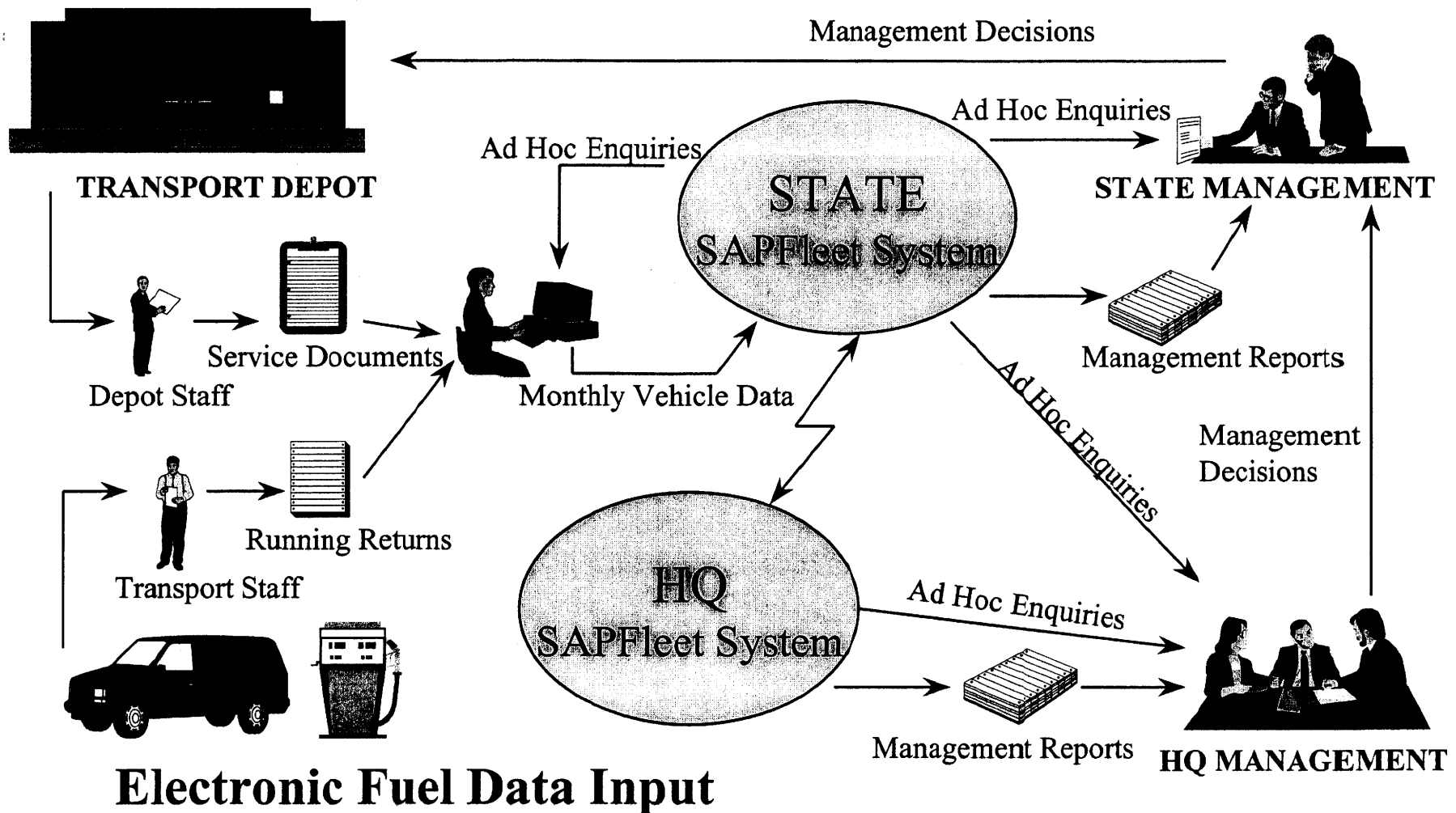
Australia Post's Fleet Management System

☛ SAPFleet OBJECTIVES

- ☛ Provide a quality Fleet Management System for Australia Post by:**
- ☛ maintaining information on Australia Post Vehicles in each State & HQ**
- ☛ standard & ad hoc reports for State and headquarters managements to assist in overall operations of Australia Post's Fleet**
- ☛ data base for costing fleet operations**

SAPFleet System Overview

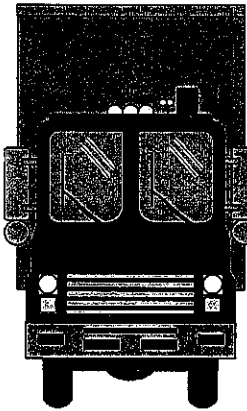
Workshop Module



Vehicle Information

Vehicle Asset Detail

- responsibility
- replacements
- decommission/sold



Vehicle

Running Detail

- repair returns
- fuel

Vehicle History

- operating details to date
- repair details to date
- running details - by month

Vehicle Registration

- registration
- insurance

Vehicle Statistical Data

- reports by category
- operations by location

Vehicle Repair

Details

- fault report
- repair centre details
- cost

Key Performance Indicators

☛ prime indicators of fleet performance

☛ 6 KPI's including:

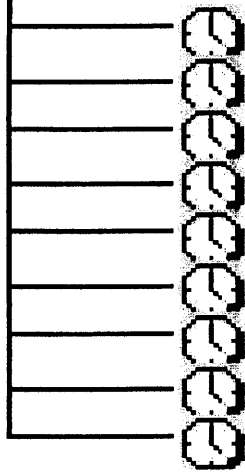
- Fixed Costs
- Fuel Consumption
- Tyres Usage
- Repair/Maintenance Cost
- Accident Costs

☛ KPI targets assigned on a State, Area or Individual Work Centre basis

☛ appears on Operations Report

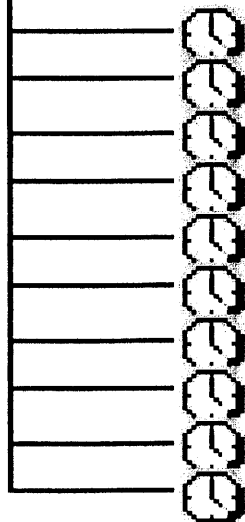
FLEET MANAGEMENT IS A COMPROMISE

- Fleet Management is not black & white, so one should aim for the darkest grey.
- Fleet costs are dependent on the operations.
- Be sure that Management and Operations staff are aware of the effect of usage on costs.
- some samples of reports needed to manage a fleet
- don't forget "REWARD for EFFORT"



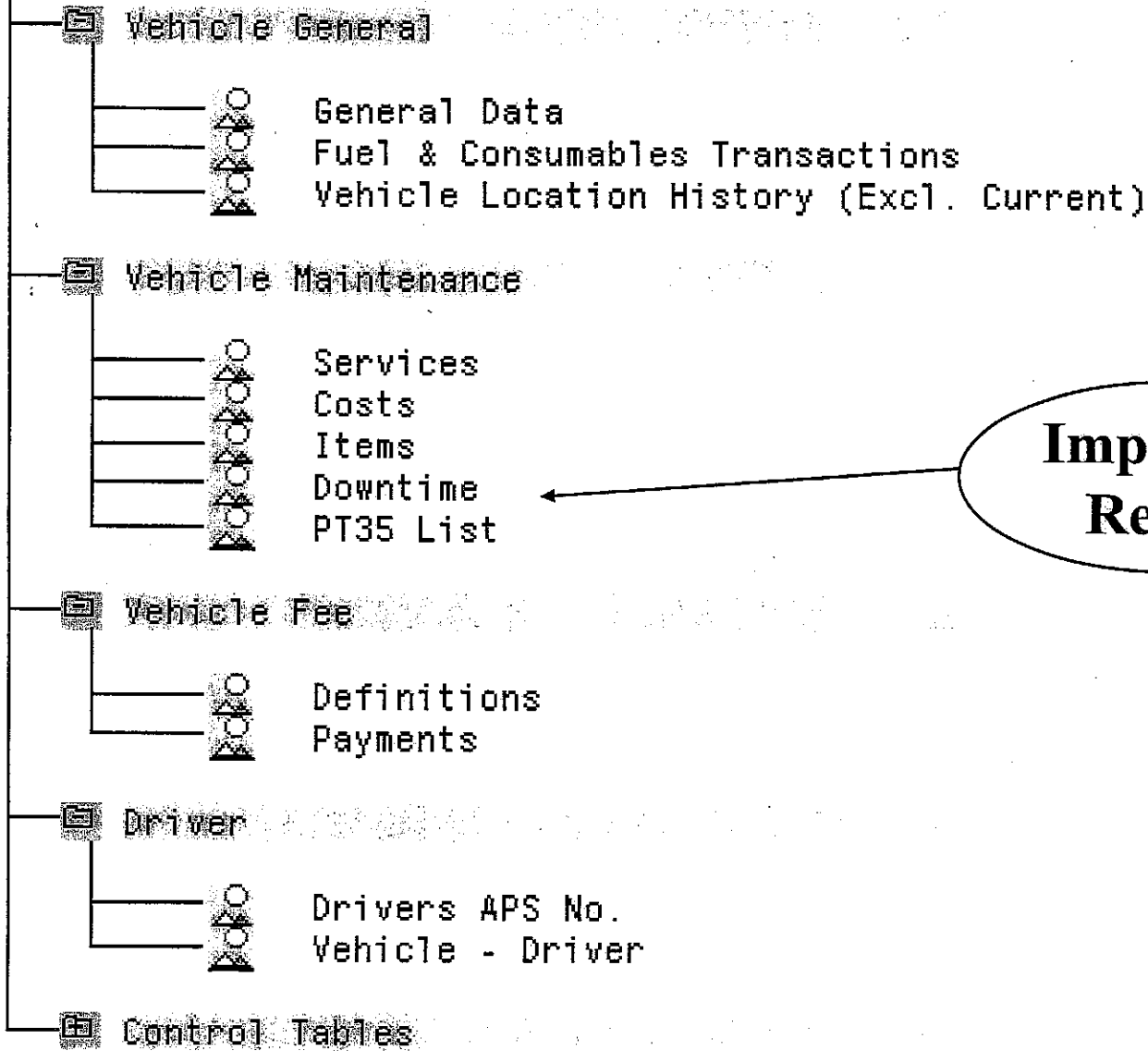
- Services Due
- Replacements Due
- Warranty
- Maintenance Cost
- Vehicles at Location
- Repair Analysis
- Downtime
- No. in Groups by Age and Distance
- c/Km in Groups by Age and Distance

Operations Analysis
 Exception



- Missing Fuel Returns
- Vehicles With Low Fuel Usage
- Abn. High Dist. Trav. / Group
- Abn. High Dist. Trav. / Detail
- Abn. Low Dist. Trav. / Group
- Abn. Low Dist. Trav. / Detail
- Excess Repair Costs (\$) / Group
- Excess Repair Costs (\$) / Detail
- Abn. Maint. Costs (c/Km) / Group
- Abn. Maint. Costs (c/Km) / Detail

Other



Important Report



Veh. Fleet No. 24631

Status:

In service

/ Leased

TECHNOLOGY 2000 IRTENZ

N Sedan/Wagon

Rego. No. : 0ZI874

N9 Large Wagon

Search Field : 01/DNH225

GM General Motors Holden

Location : 126113 15.07.1998

9C1 Commodore

Transport

Vehicle

Date Commis. : 15.07.1998

Date In Serv. : 15.07.1998

Warranty Exp. : 10,000 Km or 24 months or 15.07.1999

Replacement : 40,000 Km or 24 months

Downtime

Travelled : 29,790 Km

Date Recorded : 05.04.2000

Odometer : 29,791 Km

Initial Odom. : 1 Km

Report

Total Downtime: 89.00 Hours Occured : 4 Times

Downtime (H)

Km Traveled

Start

End

7.00

21,538

18.08.1999

09:00:00

18.08.1999

16:00:00

2.00

4,000

09.04.1999

09:30:00

22.01.1999

11:30:00

79.00

79,000

19.11.1998

09:00:00

19.11.1998

16:00:00

1.00

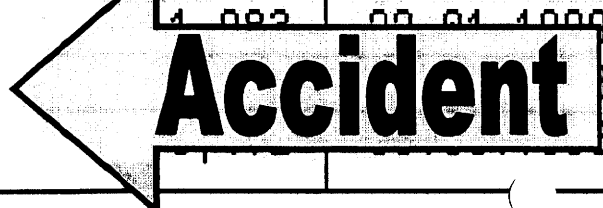
1,000

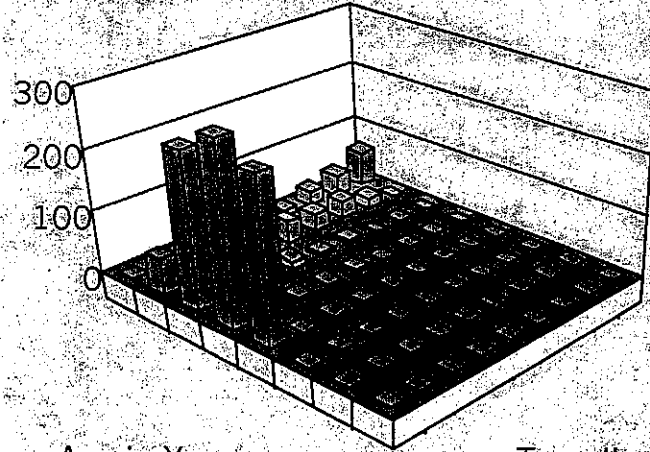
03.09.1998

09:00:00

03.09.1998

10:00:00





**Mail Vans
251 Vans
2 - 3 years old
40,000+ kms**

Age in Years

Travelled 1000Km

Travelled 1000Km

00 - 00

00 - 01

01 - 01

01 - 02

02 - 02

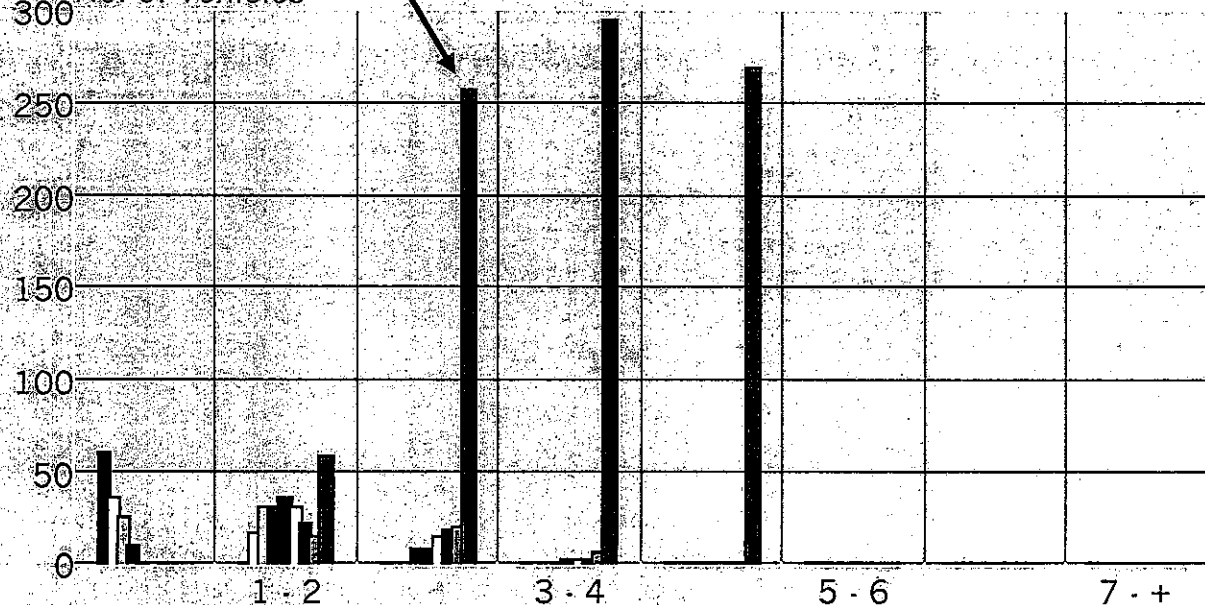
02 - 03

03 - 03

03 - 04

04 - +

No. of Vehicles



Travelled 1000Km

0 - 1

1 - 2

2 - 3

3 - 4

4 - 5

5 - 6

6 - 7

7 - +

00 - 00

01 - 02

03 - 03

00 - 01

02 - 02

03 - 04

01 - 01

02 - 03

04 - +



VEH. FLEET NO. 24631

Status: In service / Leased

N Sedan/Wagon Rego. No. : OZ1874 **TECHNOLOGY 2000** **IRTENZ**
 N9 Large Wagon Search Field : 01/DNH225
 GM General Motors Holden Location : 126113 15.07.1998
 9C1 Commodore Transport

Date Commis. : 15.07.1998 Date In Serv. : 15.07.1998

Odometer : 29,791 Km Initial Odom. : 1 Km
 Travelled : 29,790 Km Date Recorded : 05.04.2000
 Total Fuel : 4,212.57 l Total Fuel \$ 2,884.42
 Total Oil : 0.00 l Total Oil \$ 0.00
 Fuel 1/100Km : **14.14** Fuel : **9.68** c/Km Total Car
 Fuel+Oil : 9.68 c/Km Total Admi
 Maximum Trav. : 3,000 Km Total Othe
 Minimum Cons. : 6.00 1/100Km

Km Travel.	Period	S	DeltaKm	Fuel l	Fuel \$	l/100Km	F c/Km	Oil l	Oil \$	F+O c/Km	Location
29,790	2000/10	S	440	50.00	40.82	11.36	9.28			9.28	Transport
29,350	2000/09	S	951	136.34	111.61	14.34	11.74			11.74	Transport
28,399	2000/08	S	900	113.52	88.81	12.61	9.87			9.87	Transport
27,499	2000/07	S	340	51.00	37.94	15.00	11.16			11.16	Transport
27,159	2000/06	S	940	144.37	108.78	15.36	11.57			11.57	Transport
26,219	2000/05	S	1,660	208.75	152.76	12.58	9.20			9.20	Transport
24,559	2000/04	S	1,245	166.19	124.79	13.35	10.02			10.02	Transport
23,314	2000/03	S	1,198	176.63	132.39	14.74	11.05			11.05	Transport
22,116	2000/02	S	1,335	214.06	152.43	16.03	11.42			11.42	Transport
20,781	2000/01	S	1,784	193.96	131.98	10.87	7.40			7.40	Transport
18,997	1999/12	S	923	154.08	101.35	16.69	10.98			10.98	Transport



Fleet No. 24631

Status: In service / Leased

N Sedan/Wagon
N9 Large Wagon
GM General Motors Holden
9C1 Commodore

Rego. No. : 02I874
Search Field : 01/DNH225
Location : 126113 15.07.1998
Transport

TECHNOLOGY 2000 IRTENZ

Date Commis. : 15.07.1998
Odometer : 29,791 Km
Travelled : 29,790 Km
Date In Serv. : 15.07.1998
Initial Odom. : 1 Km
Date Recorded : 05.04.2000

Warranty Exp. : 100,000 Km OR 01.07.1998
Replacement : 40,000 Km OR 24 Month
Max. Allowed Tr: 40,000 Km
Service Group : N1 Sedans/Wagons

**Check Service
& Maintenance
history**

Date	Km. Travel	Activity Code & Description	Tyre Qty	Costs Total \$	ATy	WT	PT35 No.	Loca
24.02.2000	28,399	WASH Wash at Shell		0.00	FN	FU	200008001	Tran
18.08.1999	21,538	B B & Trailer Service		233.78	FN	FS	4866	Tran
25.07.1999	20,781	WASH Wash at Shell		0.00	FN	FU	200001001	Tran
22.01.1999	11,983	A A & Motorcycle service		103.42	FN	FS	2474	Tran
16.11.1998	7,899			1,617.84	FA	FU	2160	Tran

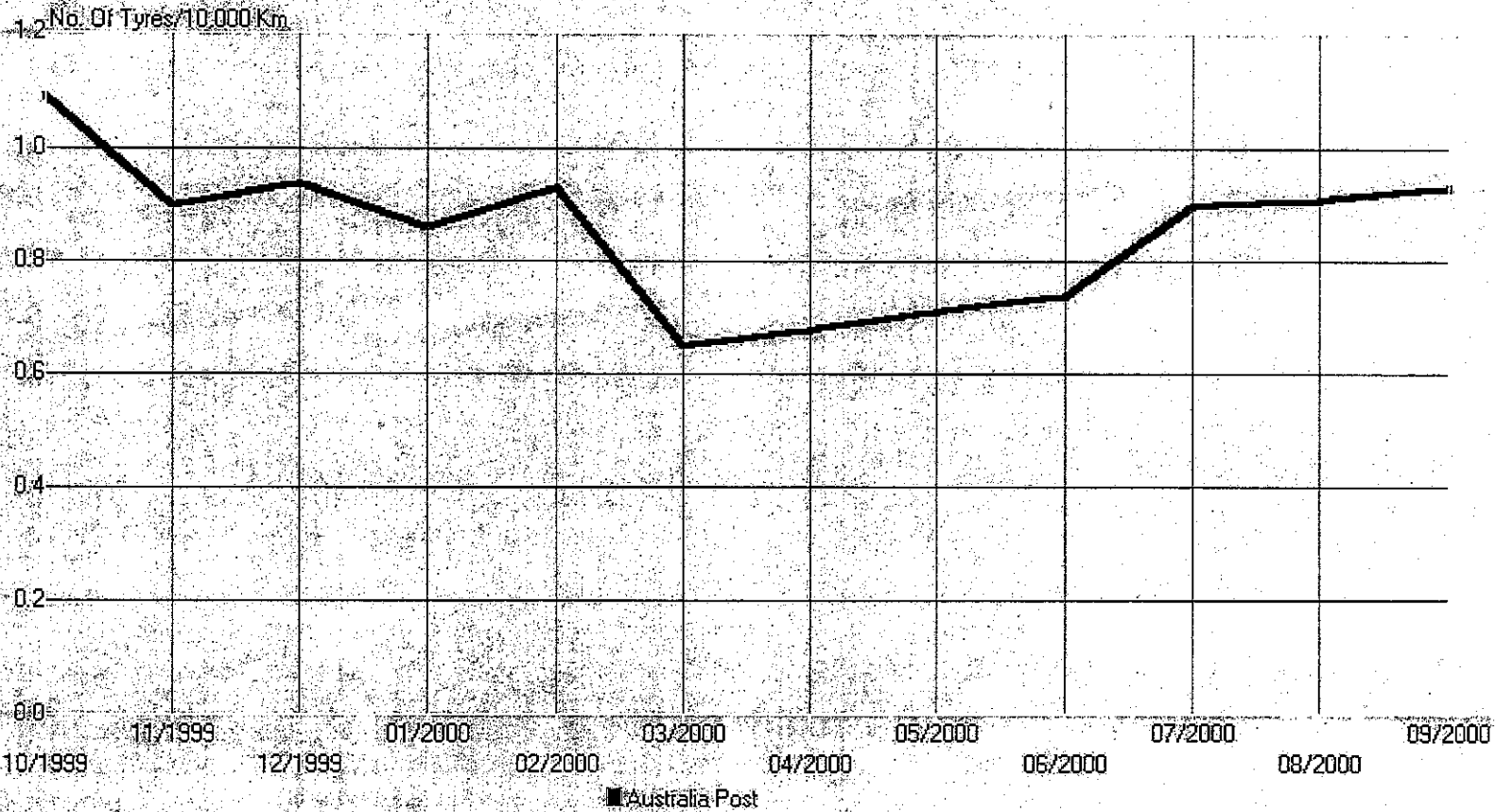


Graphic Edit Goto Options Extras Help



Overview Page up Page down

Tyre Consumption Trends 10/1999-09/2000 - Large Truck



PRD 45B R/3 R/3



HOW TO ACHIEVE SAVINGS

- 1. Correct Vehicle and Maintenance Specification**
- 2. Extended Maintenance Schedules**
- 3. Hidden Costs**
- 4. Perfect Target. (Bench Marking)**
- 5. Key Performance Indicators (KPI's)**

EXTENDED VEHICLE SERVICE INTERVALS

VEHICLE TYPE	No. OF VEHICLES	SERVICES	COST \$	DOWNTIME HOURS	FILTERS	OIL (LITRES)
MOTORCYCLES	6800	81600	\$2,500,000	244800	52000	82000
CARS	1000	2750	\$495,000	11000	2600	16500
VANS	1600	3990	\$1,280,000	24000	6000	24000
TRUCKS	760	3550	\$1,420,000	21500	10000	78100
LINEHAUL	50	700	\$490,000	5600	3000	24500
OTHERS	220	320	\$96,000	2000	300	1920
TOTAL AS PER POLICY	10430	92910	\$6,281,000	308900	73900	227020
DOUBLE INTERVAL	10430	46455	\$3,140,500	154450	36950	113510

Hino - 15,000km intervals (+50%) now 20,000kms

MAN - 30,000km intervals (+300%)

**Volvo - 30,000km intervals & working towards
40,000km (+50 - 100%) is 40,000km**

**Working with Isuzu to achieve a
target of 20,000km (+100%)**

**Working with UD in field trials to achieve
15,000km (+50%). 15,000 achieved going for 20,000**

Remember to tailor safety checks to suit operations

SUMMARY

7,000 downtime hours

26,000 litres of oil

9,300 filters

\$500,000+

Computers in Transport

Only Tools

Management

Perseverance

Use the right KPIs

Target Wastage

Efficient data

Right Costs

Suitable System

Problems encountered

- **OBTC & Transponders - Feedback & interference problem**
- **Fuel Transponders - loop recognition**
- **Programming issues with Chassis specific data**
- **Change in Corporate financial policy**
- **Smaller systems providers not being able to support or continue development of systems.**
- **Electronic communications “dropping out” during data transmission which crashes systems.**
-





QUESTIONS