

ROVER

ROVER GROUP

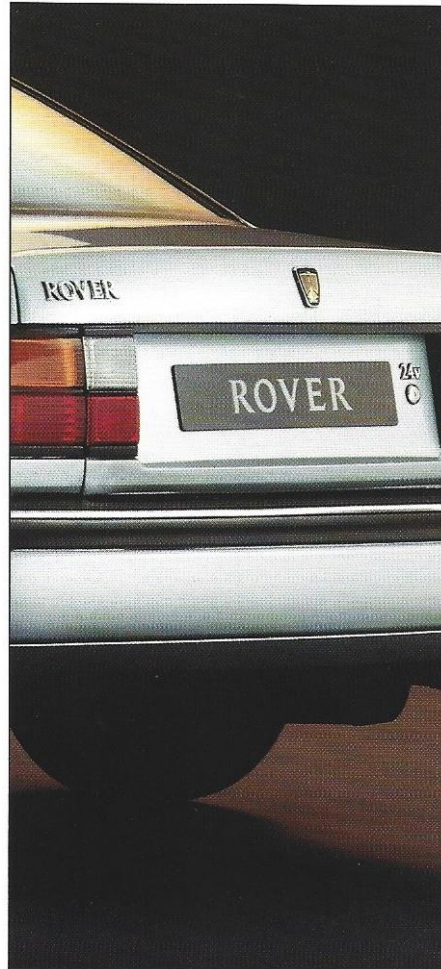


ROVER BODY AND PRESSINGS

ROVER GROUP



Company in Brief



The Rover Group is Britain's largest motor manufacturer producing half a million vehicles a year. The group designs, manufactures, markets cars in the small, medium and executive sectors; car derived vans and specialist four wheel drive vehicles. Rover Body & Pressings is an integrated Business Unit within the Rover Group, offering the customer a full engineering, toolmaking and product manufacturing service in automotive and other related areas. Rover Body & Pressings strategy is to develop and expand upon our wealth of experience in automotive body engineering and manufacturing, and to maintain a centre of excellence in a high quality and technologically demanding industry. The manufacture of high quality tooling, pressed panels and sub-assemblies benefits from our significant capital investment in high technology modern transfer presses, robotics and multi-axis numerically controlled machining processes. We believe our most important asset is our people who we actively encourage to seek continuous improvement, develop their own personal skills and have an affinity with the complete business.

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Structure



Crossbar-Cup-Feed-Tranifer (CCFT) Press

Welcome to Rover Body and Pressings Tri-Axis Manufacturing. In order to keep ahead of increased performance by our competitors, Rover Group has initially invested £56 million in a new manufacturing facility.

This investment, in the most up to date technology available is part of our continuing commitment to meet increasing customer demands and quality requirements.

To maximise the skills, efficiency and dedication of the Tri-Axis team we have created the following mission statement to define our goals and beliefs for the success of our business.

TRI-AXIS MISSION STATEMENT

TRI-AXIS IS TOTALLY COMMITTED TO PROVIDING THE CUSTOMER WITH THE PRODUCT IT DEMANDS, WHILE MAINTAINING THE HIGHEST POSSIBLE STANDARDS OF TEAMWORK AND PRODUCT QUALITY. ACHIEVING THIS THROUGH A POSITIVE ATTITUDE AND A COMMITMENT TO TEAM DEVELOPMENT, WHILE MAXIMISING THE SKILLS AND ABILITIES OF ALL OUR PEOPLE WITHIN AN ATTRACTIVE WORKING ENVIRONMENT. WE WILL RUN AN EFFICIENT BUSINESS WHICH GENERATES PROFIT FOR FUTURE DEVELOPMENT AND CONTINUE TO EVOLVE OUR TECHNOLOGY AND ORGANISATION TO WORLD LEADING STANDARDS, TO PROVIDE EXTRAORDINARY CUSTOMER SATISFACTION.

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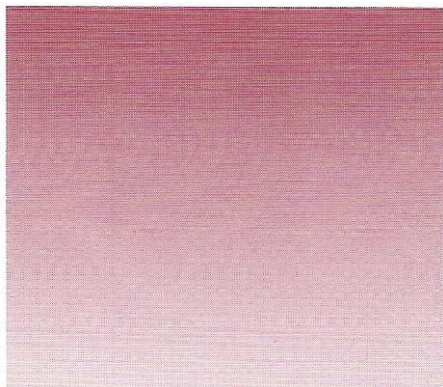
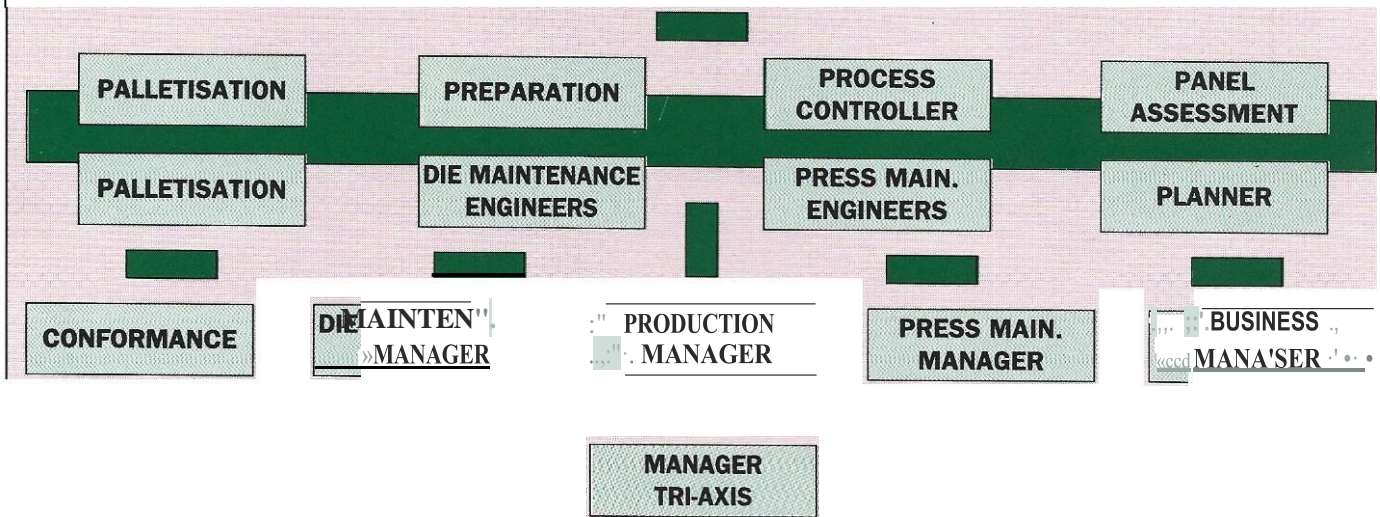
Culture



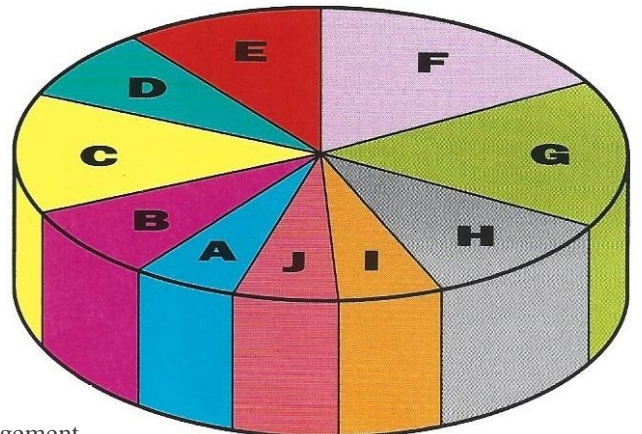
Within the Tri-Axis unit, teamwork and communication are of paramount importance. Working on a multi-shift system, skills and efficient practices are incorporated to produce an environment that will identify with a world leading company. Rover Groups philosophy is to continually improve its entire

working culture. To achieve this the company is promoting Total Quality Leadership (TQL) and Total Quality Initiative (TQI) to generate a new era in automotive manufacture. This is being implemented to its full extent on the Tri-Axis project to meet the goals set by our manufacturing strategy.

Teamwork

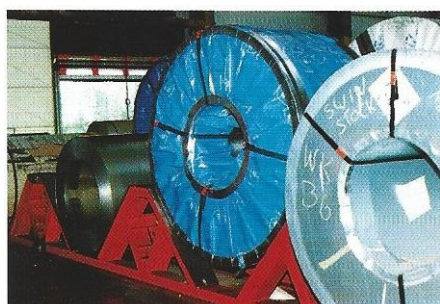
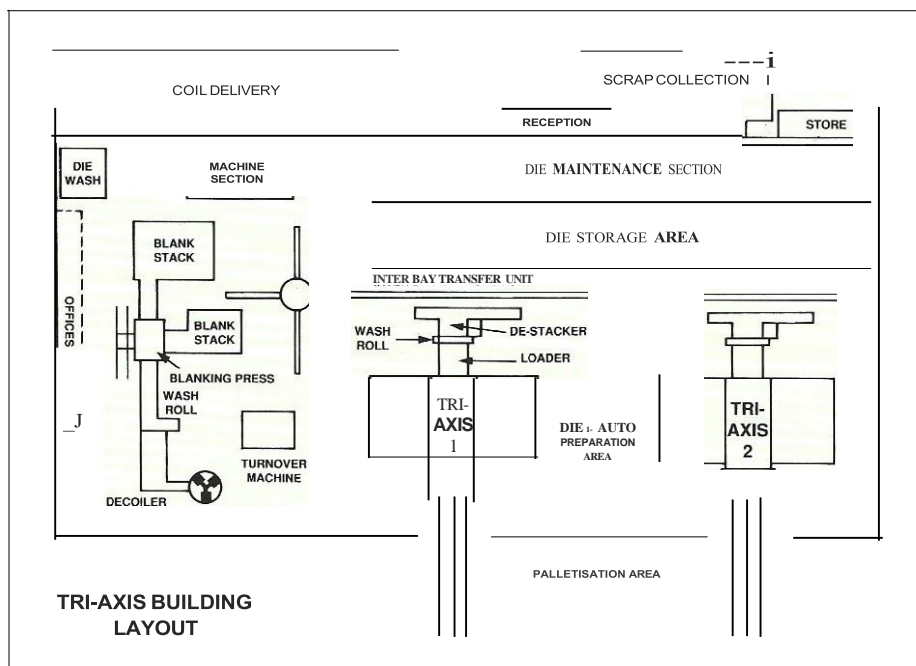
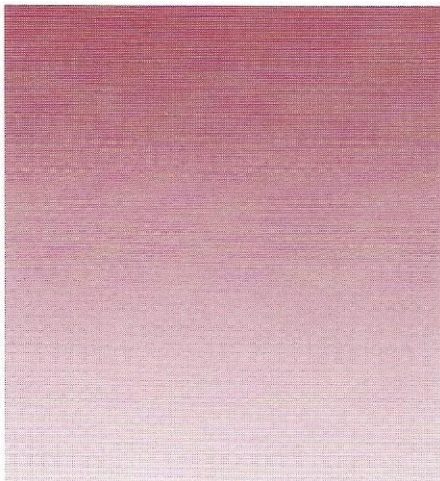


- A** Machine and Plant Maintenance
- B** Management Team
Die Maintenance
- D** Process Controller
- E** Preparation
- f** Panel Assessment
- G** Palletisation
- N** Coil and Stillage Management
- I** Float
- J** Facilitator





Facility



The steel arrives in large coils ready to be processed

As part of Rovers continued commitment to product quality, the company has invested in the following facilities:

- An 8000m² Pressurized Building
- 9 Overhead Cranes
- 4 Interbay Transfer Bogies
- 1 Blank Turnover Unit
- 1 Die Washing Facility
- 2 Hitachi Zosen 5000 Ton Cross Bar Cup Feed Transfer (CCFT) Presses and associated equipment
- 1 Bronx Blanking Feedline with Unico Drives

Tri-Axis



When the facility is fully operational the equipment will process some 80,000 tonnes of steel per year at a cost of £45 million.

This will be used to manufacture high quality car body panels for Rover Group as well as external customers.

Tri-Axis

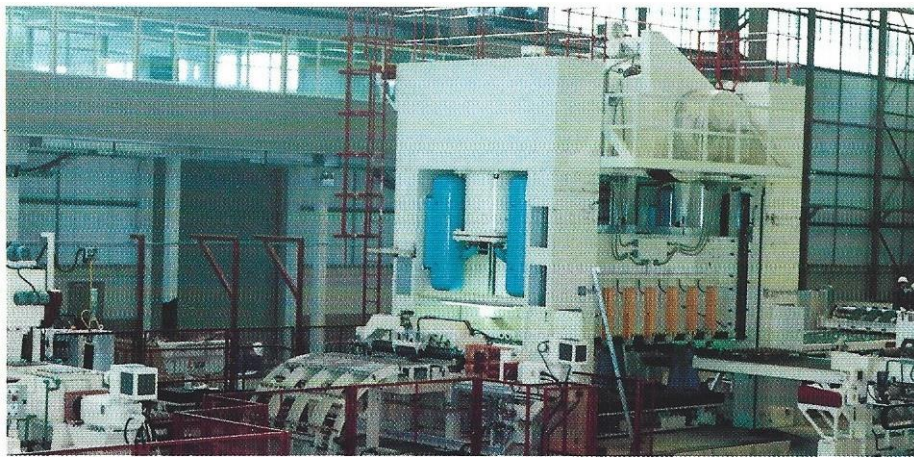


Facility



Once the steel arrives it is processed through the Bronx feedline. This operation cuts the steel into the desired dimensions for a particular panel.

These blanks are stacked on stillages ready for the next operation.



Having been cut to length, the blanks are transferred to the Destack Feeder and are then automatically fed through a washing process capable of removing particles down to 5 microns then into the Hitachi Zosen Press. This press is capable of producing high quality car body panels every four seconds.

Verson Wilkins Blanking Press:

Press capacity ; 600 tons

Slide stroke ; 300 mm

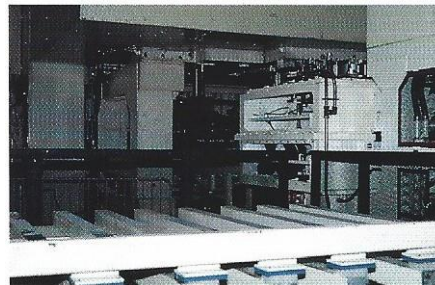
Strokes per minute ; 15-60

Press weight ; 236 tonnes

2 independent moving bolsters

Bronx feedline facilities:

- 1 Roll feed unit
- Leveller
- 1 Wash and brush unit
- 1 Hydraulic clamping shear
- 1 off 3 roll coil entry flattener
- 1 Uncoiler
- 1 off 3 arm capstan
- 2 Telescopic conveyors
- 4 Automatic stacking units



Hitachi Zosen 5000 ton cross bar cup feed transfer press:

- Capacity
 - No. 1 slide - 2300 ton
 - No. 2 slide - 2700 ton
- Slide stroke
 - No. 1 slide - 1095 mm
 - No. 2 slide - 1100 mm
- Strokes per minute
 - -15 s.p.m. max
- Transfer feed unit
 - Feed stroke - 2500 mm
 - Lift stroke - 220 mm
- Associated equipment
 - 1 x Destack sheet feeder
 - 1 x Delivery conveyor





Manufacturing Strategy

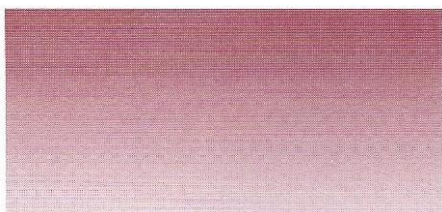


The manufacturing strategy of the Tri-Axis project details the route to the individual aims required for complete success as an operating business. Manufacturing targets have been set to be achieved over a three year time scale to measure this success.

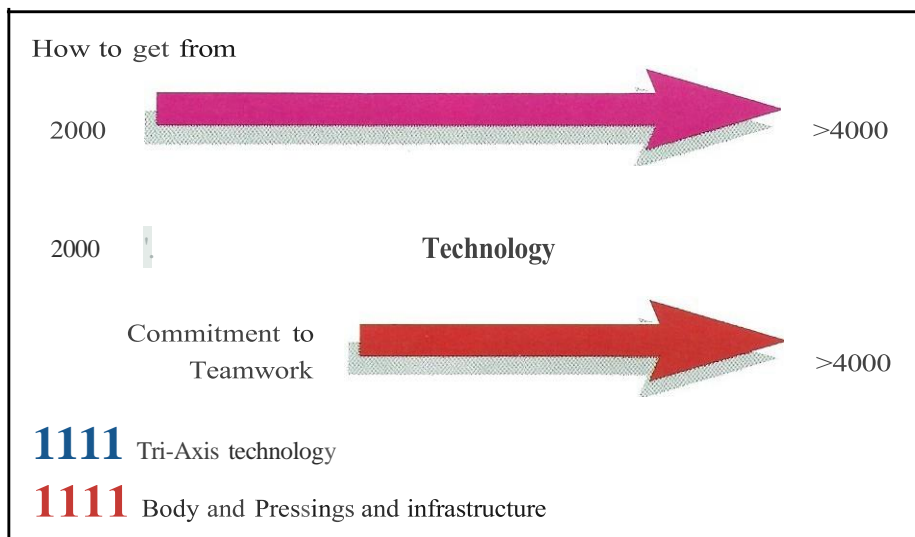
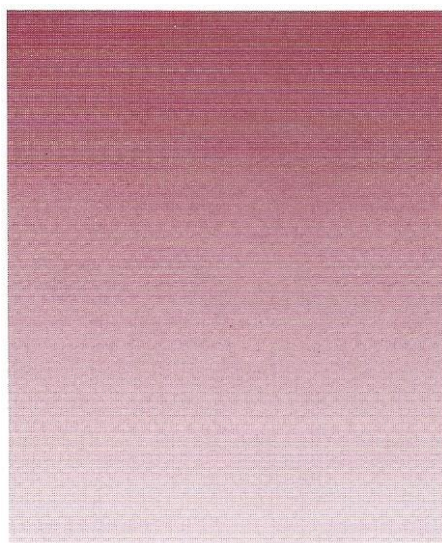
Targets

Die change	< 5 minutes
Press running efficiency	> 70%
Die preparation time	40 minutes
Average inventory	= run length
Average run time	= 2 hours

These targets when reached will be a good measure of the performance of Tri-Axis technology and the Body and Pressings infrastructure.



Tri-Axis Strategy Review

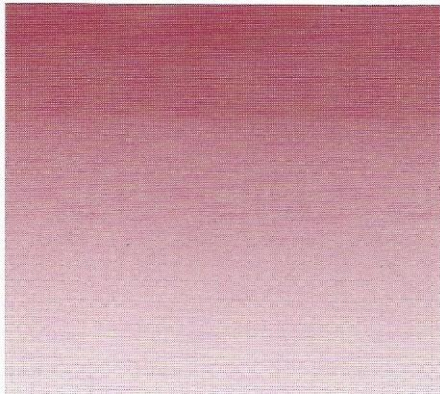


There is a strong recognition within the team that a full commitment to teamwork and flexibility is the basis of Tri-Axis success.

Advanced technology, working practices and continuous improvement will enable us to reach in excess of 4000 panels per shift.

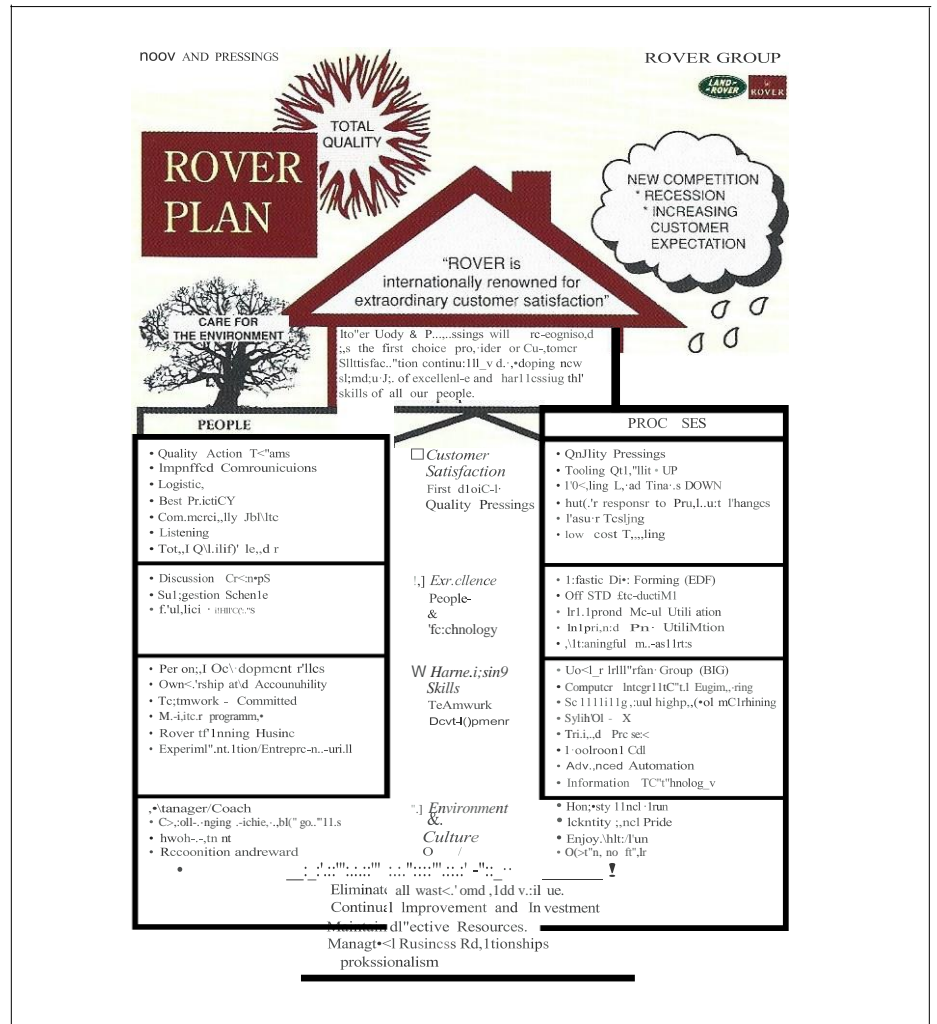
There are many progressive ideas

utilised in the manufacturing strategy such as reduced run lengths, minimum inventory, use of all steel as delivered and the exact number of blanks prepared for each run. This strategy will save time and money therefore increasing production efficiency.



Training

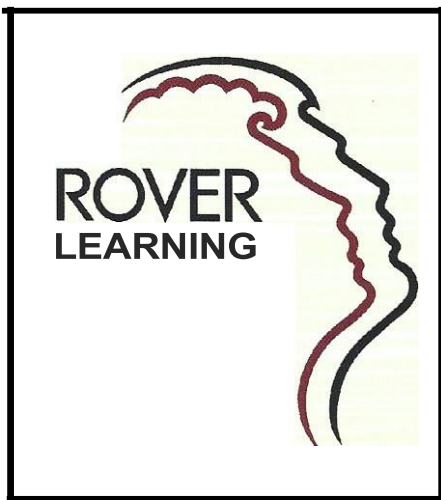
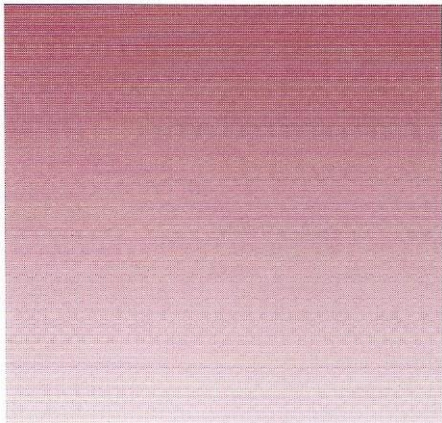
Training on Tri-Axis will be conducted with a view to the aspirations and abilities of individuals. Intensive training will be given in each different area required for particular needs and capabilities to satisfy job requirements. Skills required for different areas are as follows:



.._P.O.W.E.R.P.R.E.S.S.R.E.G.S.C.A.R.D.I.	ADVANCED PNEUMATICS	TOOL ENGINEERING
SAFETY	..B.A.S.I.C.P.N.E.U.M.A.T.I.C.S..	..MACHINING
IPRESS TOOL MANUFACTURE	ADVANCED ELECTRO(MECHANICAL)	SAFETY REGS- MACHINERY
PRESS TOOL TRY-OUT	BASIC ELECTRO/MECH.	PERSONNEL G.OVERNMENT OP.
IPRESS TOOL MAINTENANCE	ADVANCED WELDING	CONFORMANCE
POWER PRESS SETTING	BASIC WELDING	PRODUCTION MANAGEMENT
AUTOMATION SETTING	P.L.C. CONTROL SYSTEMS	MANUFACTURING MANAGEMENT
AUTOMATION MANUFACTURE	P.L.C. PROGRAMMING	ENGINEERING MANAGEMENT
ADVANCED HYDRAULICS	CRANE DRIVING	PRODUCTION ENGINEERING
BASIC HYDRAULICS	FORK LIFT DRIVING	CUSTOMER AWARENESS



Training



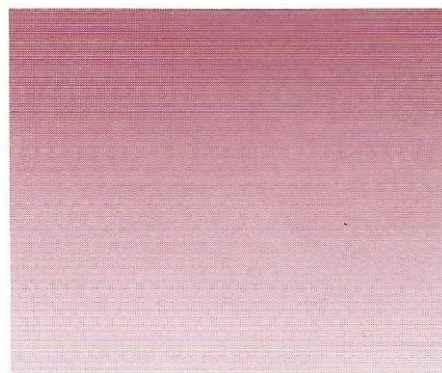
New skills created through training will be utilised to their fullest extent to create job satisfaction for each employee and to benefit the company by continually improving efficiency.

To enable this improvement and to maximise personal abilities; a wide range of equipment and training resources are available within the company and within Tri-Axis itself. Progression within Tri-Axis manufacturing is dependent on the

personal ambition of the individual and through opportunities arising. Rover Groups comprehensive training programmes will assist employees in this respect. This training will include:

The Open Learning Programme
Rover Learning
College - Further Education

These courses are a major part of Tri-Axis development and all employees are encouraged to improve their skill levels.





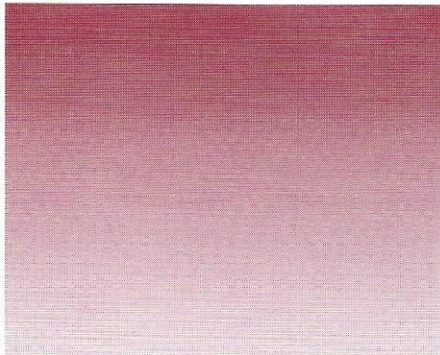
Health & Safety

Fundamental to operations within the Tri-Axis, manufacturing area is the importance of safety, each member of the team will be conversant with the 1974 Health and Safety at Work Acts and will behave in accordance with these rules at all times. Each individual will be given full safety training in his or her relevant area training will be given in the following base areas as required.

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- I.E.E. Regulations.
- Electricity at work regulations.
- Power Press regulations.
- Unfenced machinery.
- Fire regulations.
- Rover safety regulations.
- The Office, Shops and Railway Premises Act 1863.
- Control of substances hazardous to health (COSHH).
- Noise at work.
- Pressure regulations.
- Factory regulations.

Social Activities

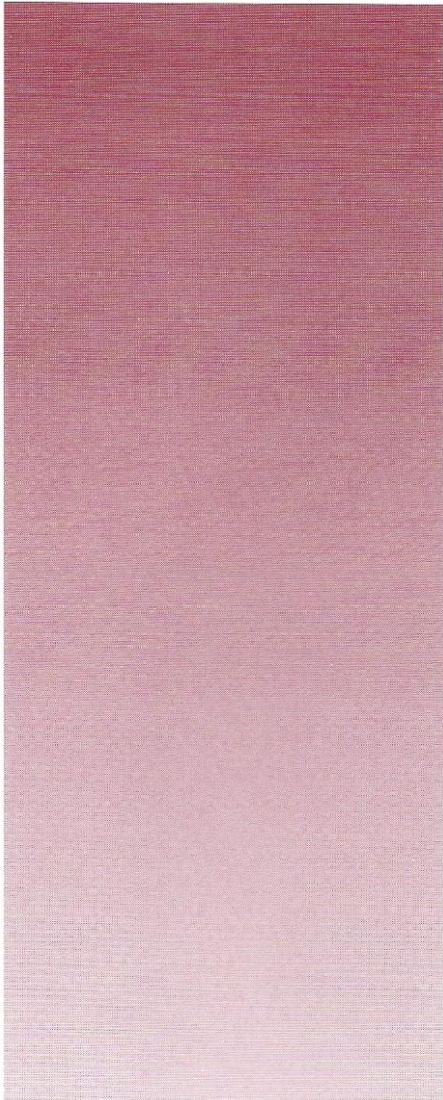


The benefits of being a part of the Tri-Axis team extends beyond working hours. Many sports are enjoyed by team personnel comprising of a wide range of indoor and outdoor activities.

Evening entertainment is also provided at the Sports and Social club. In addition to this, Swindon plant organises a regular open day which includes fund raising events and social activities.



Team Spirit



I pray success of training!
17 JULY 91 M. YANAI DANI

I am pretty sure that you guys are really gentleman even if you taught me a lot of slangs. So, My English has been terrible now.

Let's pray Britnicon again when we both in new letters.

Thank you very much for giving a lot of time while you are busy. I'm looking forward to seeing you again next year. Love to you and Jeff.

JAPAN TRAINING AT HONDA SUZUKA
(10. JUN. 1991 TO 17. JUL. 1991)

OT&E
TOG-ETHER
Ourucs-t''''

fflll YZF

From friends of stamping

I think you have got some feeling how to operate the machine.

Let's see how you can do it.

果敢に挑戦!

As part of Rover's relationship with Honda, two groups of experienced qualified engineers visited Japan on an initial six week induction course for the Hitachi Zosen Press.

Training was carried out at Honda in Suzuka. Both teams gained valuable knowledge and formed good working relationships with Honda Personnel.

Let's... re-... "

In looking forward to seeing you again next year.

3 shift all members.

THANKS FOR BRILLIANT TIME.

JAPAN TRAINING AT HONDA SUZUKA
-22 JUL 1991 TO 2 AUG 1991-

4000 一日も早く達成されることを祈る宮本

I @11@1

Let's see how you can do it.

more than you parts production not only 2500 parts production. If you not only 2500 parts production. I'm looking forward to seeing you again next year. Love to you and Jeff.

耐

JPNトレーニングの成果を期待します。柳井谷



Rover Body and Pressings

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