3D RELEASE PACKAGE
USER FRIENDLY INTERFACE
DESIGN CONFORMS TO IEC STANDARD

STATE OF THE ART IN MANUFACTURING OF ELECTRICAL POWER SWITCHBOARD

BUILT IN FEATURES INCLUDE :

FLAWLESS QUANTITY ESTIMATION

ARTIFICALLY INTELLIGENTDESIGN

BRILLIANT VISUAL PRESENTATION

UNIT COSTING SYSTEM

LOWER DRAWING & PRODUCTION COST

OPTIMATION TECHNIQUES EMPLOYED

UNIFORM DOCUMENTATION & RECORD (ISO)

STANDARDIZATION OF ALL METAL PARTS (CKD)

To The Ultimate Answer

The Panel Trax Expert System was developed by a group of engineers with many of years of experience in manufacturing type - tested low voltage switchboards in compliance with IEC 439 Part 1 1991.

Essentially, the System consists of 2 interdependent subsystems, namely:

PANEL VIGOR - The heart of its intelligence

PANEL ARMOR - A complete knock down form of its modular parts

The conventional method of manufacturing switchboard consists of 7 processes, viz.

- Manual design with computer aided drafting package
- Cubicle fabrication (welding method)
- Assembly
- Painting
- Busbar fabrication (piece work)
- Electrical wiring
- Testing

The above manufacturing process gives rise to a number of grey areas in terms of material usage, manufacturing time , misunderstanding between suppliers and clients. A better system of manufacturing is therefore necessary to eliminate these grey areas and shorten the manufacturing process.

Having the above two principles in mind, we have revolutionised the state of art in manufacturing low voltage (<1000 volts) switchboards in compliance with IEC 439. With the help of **PANEL VIGOR** and **PANEL ARMOR** the manufacturing process is shortened from 7 to 3 stages , and 98% of the grey areas (subject to human errors) can be eliminated.

APPLICATIONS

PANEL VIGOR and **PANEL ARMOR** are specially tailored to meet the needs of manufacturers / electrical contractors/ consultants and tertiary institutions in the manufacturing of low voltage (< 1000 volts) switchboard.

Special Features

Flawless quantity estimation

PANEL VIGOR has built-in intelligence to enable it to record all components and quantities used in a switchboard such as main electrical components, main structures and internal brackets, busbar lengths (including number of bends , cuts, material shrinkages), weight and labour time spent to build a switchboard

Artificially intelligence design

Based on its built-in rules of manufacturing and the user's specifications such as System Fault Level, Ambient Temperature, Specified Components and Space Constraint, **PANEL VIGOR** determines the most economical way the size, general layout & arrangement, busbar sizing and support spacing.

Brilliant visual presentation

The results from **PANEL VIGOR** design will be transmitted to AutoCAD rel. 12 for a true and accurate 3 Dimensional drawing via an interface which provides user friendly menus automatically. Subsequently these menus are used for the generation of:

- Single Line Drawing
- Busbar Fabrication Drawing (individual busbars)
- General Arrangement which covers:
  - 3D Full Layout
  - 3D Frame Layout
  - 3D Cover Layout
  - 3D Inner Mounting
  - 3D Busbar and Equipment
  - 3D Busbar Only
  - 3D Top Cover
  - 3D Side Cover
  - 2D Layout
  - 2D Front Cover
  - 2D Base Markings
  - 2D Busbar & Equipment
  - 2D Busbar Supports
  - Front View Termination
  - Back View Termination
  - Top View Termination

Unique costing system

With **PANEL VIGOR** built-in features, individual switchboard can be truly modelled and therefore costs can be determined accurately.

Low drawing and production cost

As opposed to the conventional/manual CAD drafting, **PANEL VIGOR** provides an obvious saving since it only requires user input data specifications to produce drawings instantaneously limited only by computing hardware performance.

Optimization techniques employed

Through the years of research and collaborations with universities and with ongoing projects experience on type-tested switchboards , rules and techniques of optimization in design have been perfected. Much consideration has been given to the standard required under ASTA UK (The Association of Short Circuit Testing Authority) in developing **PANEL VIGOR**.

Uniform documentation and records (ISO)

Documentation reports produced are:

Bill of Materials -Main Components
-Busbar, Cu required
-Time Required (ie. Time taken to assemble all parts, incl.busbar fabrication)

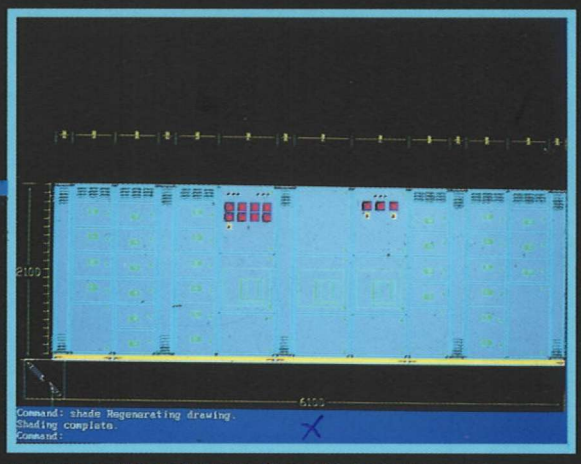
Switchboard Specifications-reflecting general and specific individual feeder configurations in convenient TEXT/ASCII format for import to any word processor for further enhancement in presentation.

With this system, the manufacturing process is reduced to only 3 stages, covering Assembly, Electrical Wiring and Testing. The other 4 stages are now taken care of by **PANEL VIGOR** and **PANEL ARMOR**. Viz.

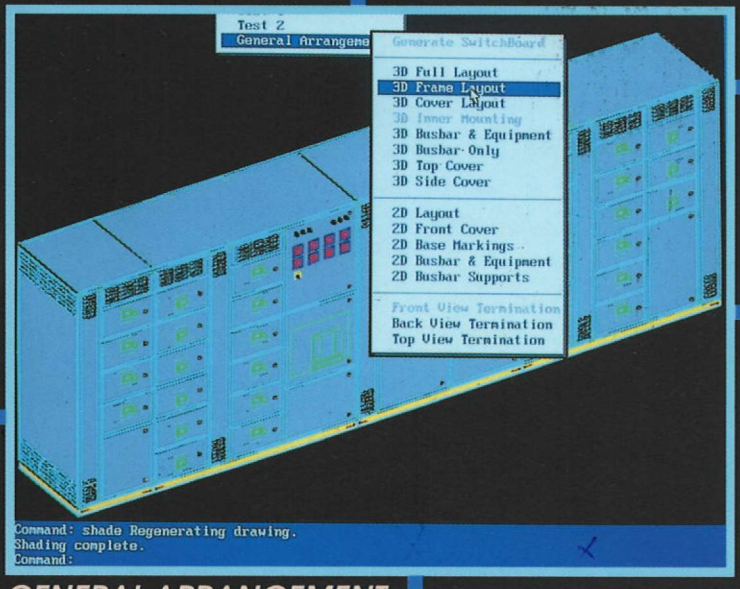
Manual design with CAD	• **PANEL VIGOR**
Cubicle Fabrication	• **PANEL ARMOR** (standard parts)
Painting	• **PANEL ARMOR** (standard parts)
Busbar Fabrication	• **PANEL VIGOR** (standard parts)

All records concerning individual switchboard can be archived in computer storage media for necessary reference.

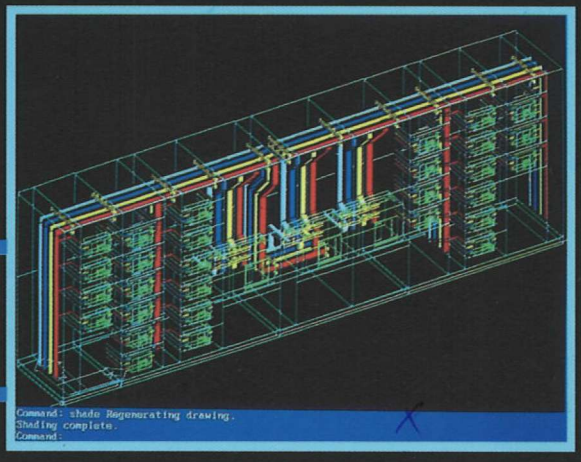
INTERNAL BRACKETS



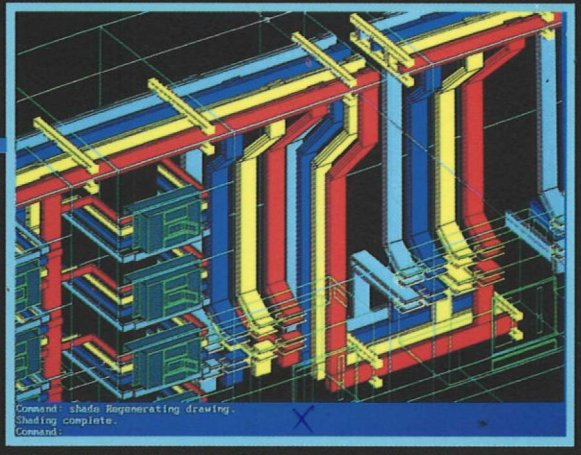
2-DIMENSIONAL SHOP DRAWING



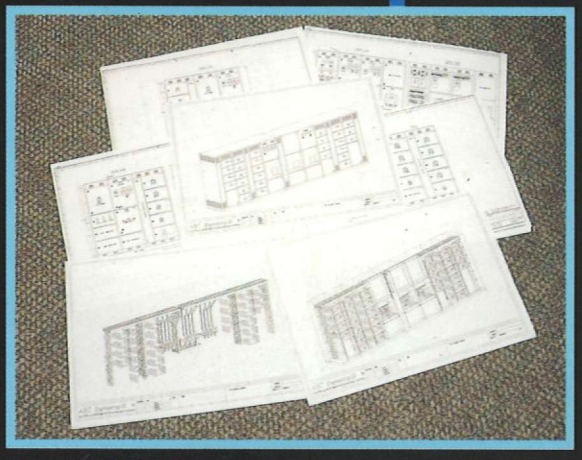
GENERAL ARRANGEMENT



OVERALL BUSBAR LAYOUT

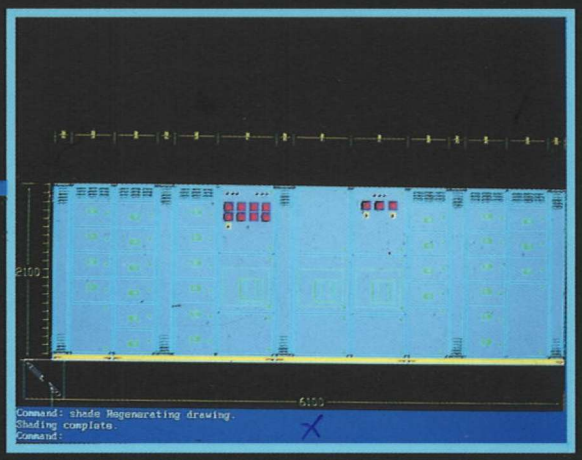


CLOSE-UP OF BUSBAR LAYOUT



OUTPUT DRAWING

INTERNAL BRACKETS



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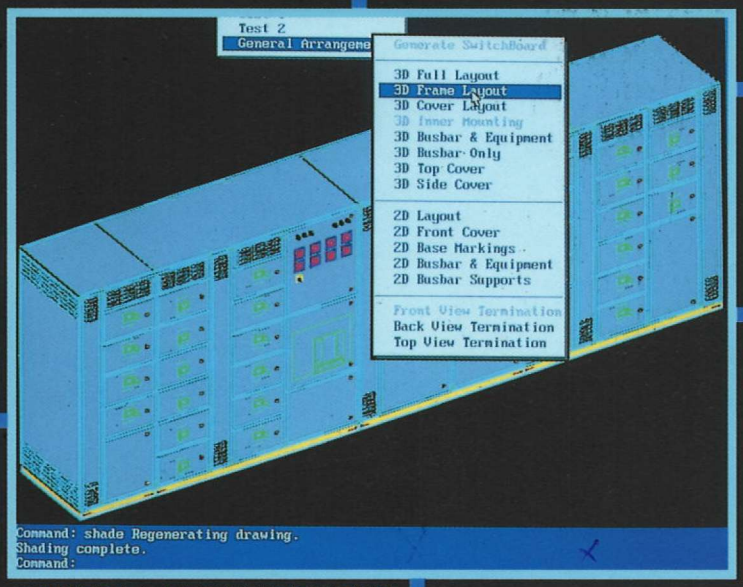

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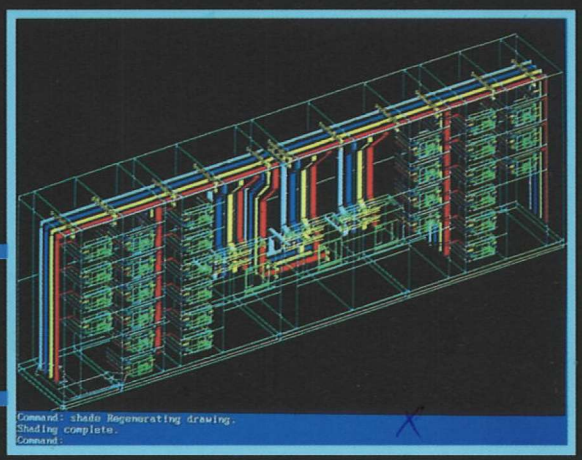

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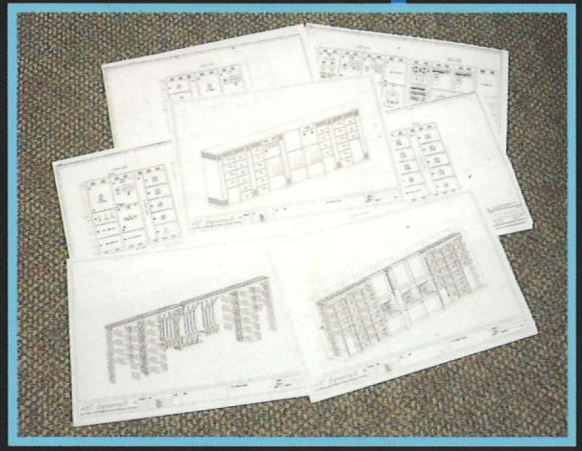

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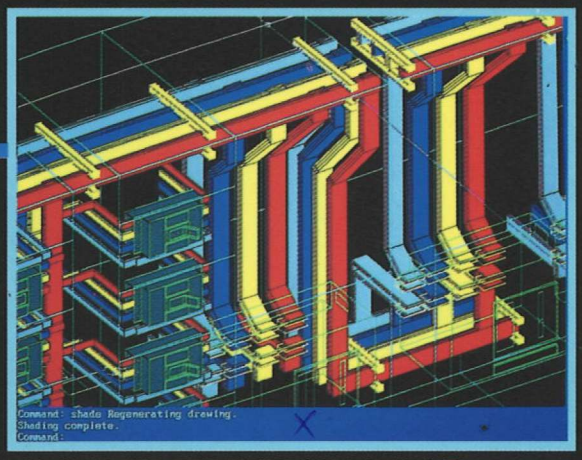
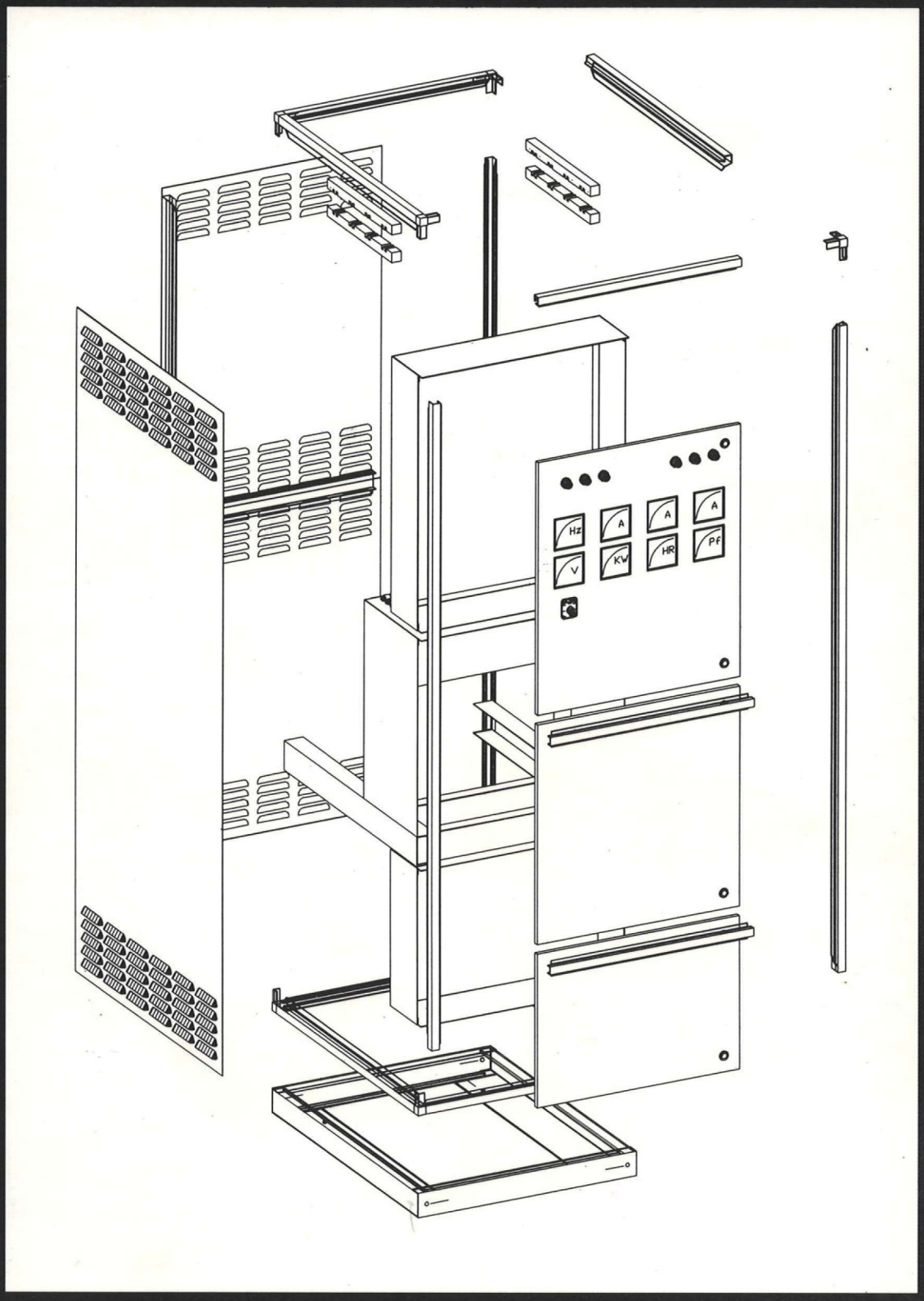


CLOSE-UP OF BUSBAR LAYOUT

Standardisation of all metal parts (CKD)

PANEL ARMOR has in its design, modular with complete knock down features resulting in extremely good quality and precision cubicle structure. Special considerations have been given to interchangeability, strength and durability of parts. Furthermore, all **PANEL ARMOR** parts are fabricated from electro-galvanised sheet steel, degreased , chemically treated against rust and sprayed with high quality epoxy dry powder spray and oven baked with a minimum thickness of 50 microns all round.



ARMOR