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Yugoslavia

FINAL REPORT

ADVISE ON THE ORGANIZATION AND MANAGEMENT OF A VALUE ANALYSIS SCHEME IN THE "14 OKTOBAR" FACTORY AT KRUSEVAC, YUGOSLAVIA

Job Description: YUG-101-H SIS

01097

By
Pentti Söderlin
H.B. MAYNARD AND COMPANY AS
September 1970

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LIST OF ANNEXES

THE PURPOSE OF THE REPORT

The subject of the report is to describe:

- the project as stated
- the practical execution
- the recommendations made for future activities

THE PROJECT AS STATED

The purpose of the project was to provide "Expert Advise on the Organization and Management of a Value Analysis Scheme in the "14 Oktobar" Factory at Krusevac, Yugoslavia".

The Job Description YUG-101-H SIS, the paragraph 1.02 contains the following information:

Under the terms of this Contract set forth hereinafter, the Contractor's expert shall act as a member of a team of management consulting specialists (consisting of two UNIDO experts), and shall report to the General Director of "14 Oktobar" factory. The responsibilities of the Contractor's expert shall include but not necessarily be limited to:

(a) Phase I (Duration 2 weeks)
Collection of background information required for:

i) the establishment of the organization for the value analysis scheme and

ii) the outlining of specific value analysis functions and procedures.

(b) Phase II (Duration 2 weeks)

i) development of the proposal for the organization and procedures for a value analysis scheme for the "14 Oktobar" factory;

ii) presentation of the proposal and final design of the scheme and

iii) selection of some pilot projects for practical introduction of the value analysis scheme in the "14 Oktobar" factory.

(c) Phase III (Duration 3 weeks)

i) indoctrination of the staff concerned with the selected pilot projects in the organization procedures of the value analysis scheme and

ii) start-up of the pilot projects

(d) Phase IV and Phase V (Duration 2 weeks each)

i) Assistance to the management of the "14 Oktobar" factory in the systematic application and control of the value analysis scheme based on the experience gained from the pilot projects.

THE PRACTICAL EXECUTION

1. The five stages of the project:

STAGE 1. (Duration 3 weeks)

Collection of the background information required for:

a. The establishment of the organization for the value analysis scheme.

b. The outlining of a specific value analysis function

c. The management information of value analysis concept and approach

d. The selecting of the personnel to be trained in Value Analysis concept and the selection of the pilot projects for the Value Analysis seminar

e. The providing of a suitable overlapping with the UNIDO cost expert.

STAGE 2. (Duration 2 weeks)

a. Development of the proposal for the organization and procedures for a value analysis scheme for the factory

b. Value analysis seminar (Basic Workshop Seminar, duration 1 week).

STAGE 3. (Duration 2 weeks)

a. Indoctrination of the staff concerned and the follow-up of the seminar projects

b. Development of a Value Analysis program for other projects.

STAGE 4. and 5. (Duration 2 weeks each)

a. Assistance of the management in the application and control of the Value Analysis scheme to other projects.

b. Follow-up and control of the projects.

The project was realized according to the time schedule in annex 1.

2. Background information

A brief background information for the reader of the "14 Oktobar" company is in annex 4 which states the history of the company, the production program etc.

3. The Value Analysis Basic Workshop Seminar

From the point of view of the total program this is the shortest one in time scale but is very essential part in the installation of Value Analysis. The purpose of a Basic Workshop Seminar is to:

- inspire the climate of creative atmosphere
- encourage a new way of thinking
- create a team work attitude
- teach the participants the V.A. philosophy and methodology
- give experience in applying V.A. principals in real projects
- create a pool of practitioners for the project work

The duration of the seminar was five days and was divided between lectures and practical work. The main topics were:

- introduction
- definition of Value Analysis
- history and development of V.A.
- tracing unnecessary costs
- aspects of value
- tests of value
- problem solving techniques
- job plan
- the functional approach
- cost analysis
- function/cost analysis
- promotion of creative abilities
- a case study
- V.A. in the organizational structure
- documentation and control

For the seminar participants a comprehensive Value Analysis Seminar Book was prepared consisting of 29 pages in Serbian. The main topics of the book are the same as listed above. During the seminar various topics were illustrated by case studies, slides and flip-over-charts. The list of the seminar participants are listed in annex 3. For the practical team work they were divided into four teams and for each team two real projects were prepared before the seminar. The list of the seminar projects are in annex 4.

In the end of the seminar the results of the seminar were presented to an audience consisting of top management.

A practical example of a seminar project illustrating various steps during the study and with a summary sheet are in annex 5. The proposed results of the projects are in annex 6.

After the seminar for practical V.A. work a V.A. Work Book of 25 pages in Serbian was made consisting of the main steps of the Job Plan and Check lists for each step.

4. Information

One outmost part of the training is the management appreciation. The training purpose is to tell top management about V.A., their responsibility involvement and expected profits. Further to tell where it fits in and the necessity of management backing.

The name list of the information participants is in annex 7.

Further information was given to the "Professional Board" (See below "Organization") to tell them their role in the practical V.A. work. They have also received Job Descriptions in Serbian.

5. Organization

The V.A. function is located in the "Organization center" thus providing independent location and possibility to inter-departmental cooperation being the general duty of the "Organization Center" to introduce new techniques and to

coordinate work. See annex 8 for the organization scheme. The practical project work is carried out as stated in the "Project Work Organization of Value Analysis", see annex 9.

The V.A. Coordinators, the V.A. Steering Committee (or Professional Board) and the team members will work as stated in their Job Descriptions. See annex 10, 11 and 12 respectively.

The V.A. Coordinators will among other things perform the V.A. Change Proposals for decision making process to the Professional Board once a month which among other duties acts as a Steering Committee for V.A. work.

In some cases where V.A. Change Proposals might engage large scale investments or have influence in the general product policy and when the Professional Board is not authorized to make such decisions the proposal is submitted to the "Central Managerial Board" being the General Manager of "14 Oktobar" the Chairman of the Board.

For members of the "Professional Board" and the "Central Managerial Board", see annex 13.

6. Procedure

The practical V.A. work will be carried out according to the six phase Job Plan. The various duties of the V.A. Coordinator, V.A. Team and the ordinary organization during the cycle of the Job Plan is illustrated in annex 14.

The duty of the V.A. Coordinator is to act as project manager thus ensuring the progress of the projects. His duties are among other things to schedule and control the entire project cycle, being the control the outmost important in the points where information or tasks are transferred to others concerned. See annex 15 for the "V.A. Coordinator Weekly Schedule" For various forms to be used in connection with the practical project work, see annex 16-24.

7. Follow-up

The follow-up status of various seminar pilot projects is stated in the annex 25. Further to illustrate the progress of one seminar project, a completed [illegible] V.A. Change Proposal is in annex 26. As stated in the annex this project will result in 570.000 din. or $ 45.500.- annually beginning January 1, 1971.

8. Total program for V.A. work

For a continuous V.A. work it is necessary to have a carefully planned total program which consists of projects and related time schedule.

In selecting projects for V.A. work there are some facts to be considered. These facts are listed in annex 27.

However, careful consideration is necessary because these criterias might conflict being the outmost important criteria anyhow the monetary value of the project. No one single right criteria or analytical criteria does exist, therefore it is necessary to review all the things concerned. In annex 28 there are some projects which are priorated according to the rules for the nearest future V.A. activities. Proposed time schedules are in annex 29, and so the target for cost reduction as stated later is to gain 10:1 ratio in savings versus invested costs.

The project covers over 60% of the Company's annual sales and 65% of the Business Contribution.

9. Persons involved during the assignment

As counterparts during the field activities several people were appointed. See annex 31. However, when it became obvious that the primary counterpart Mr. Kostić Milivoje after the stage 4 of this assignment will leave the Company for a task in Algeria, Mr. Veljković Radojica was nominated to be primary counterpart. See annex 32.

During the assignment due to other duties these persons have been able to cooperate, besides their normal duties, only part time for this project.

RECOMMENDATIONS

To ensure that V.A. activities do happen in the company and that the savings which were proposed during the Basic Workshop Seminar can be realized in the near future, som recommendations have been made to the General Manager of "14 Oktobar". These are:

- Appoint Mr. Veljković Radojica immediately 100% time Value Analysis Cordinator No. 1 (VAC-1)
- Appoint Mr. Momir Savić 50% time from October 1, 1970 to VAC-2.
- Authorize V.A. Coordinators to release 3 teams. (12 team members) 20% of their time to V.A. work (2 teams for VAC-1 and 1 team for VAC-2) to complete the seminar pilot projects and to start additional projects to gain more experience.
- If possible send VAC-1 and VAC-2 abroad for additional training courses to acquire foreign experience.
- Start the V.A. Project as stated in the "Draft Project Order or Direktiva" see annex 33, from January 1, 1971, full steam with three 100% time Coordinators and 9 teams and 2 100% assistants to meet the target saving of 7.000.000 dinars annually (for more precise information see above mentioned annex 33, which overlaps this report partially).
- If feasable hire regular follow-up consultation by Mr. Pentti Söderlin, 2 weeks in January, 2 weeks in March/ April and 2 weeks in September 1971. This will be of course on separate contract basis.
- Start promotional work after January 1, 1971 to create and maintain enthusiasm.
- Start additional Basic Workshop Seminar.

The total investment during the first year is 717.000 din. which is approx. 0.14% from the annual sales value being a recommendation from 0.1-0.5% of the sales value for the first year activities. The savings target may range from 3:1 ratio to 15:1 ratio. Based on the pilot projects a ratio of 10:1 is considered to be reasonable.

SUMMARY

The primary task to "Advise on the organization and management of a Value Analysis Scheme in the "14 Oktobar" factory at Krusevac - Yugoslavia" has been completed according to the plan.

The field activities have resulted in the form of Draft Project Order or "Direktiva" which describes in detail how to organize, how to manage and how much is to be invested in these activities and how great expected savings are.

Further during the assignment the personnel engaged with the project have received a basic training in the V.A. methodology, especially V.A. Coordinators.

As a result of the pilot project the company will gain monetary savings during next years.

Further due to good results during such a short assignment the management of "14 Oktobar" has been convinced that this kind of activity is profitable and thereafter gives its full backing of future activities.

BACKGROUND INFORMATION OF THE "14 OKTOBAR" COMPANY

14 OKTOBAR Industry, which manufactures agricultural, construction and mining machinery and metal structures was developed from former Railway Wagons Factory founded in 1923. In 1946 the factory changed the name and developed new capacities changing also the production programme. During the past ten years the development of 14 OKTOBAR was particularly fast and remarkable and the output increased by more than ten times. The output value was 278,1 million dinars in 1967, and fixed assets 163,4 million dinars. The total personnel 4169.

The 14 OKTOBAR Industry includes the following factories:

Tractor Factory
Construction Machinery Factory
Processing Industry and Mining Equipment Factory
Automation Factory

The Industry manufactures: machinery and equipment for complete mechanization of works in agriculture, water regulation, forestry, building construction and civil engineering and mining; then machinery and equipment for processing industries, components of engineering automation; all kinds of metal structures, and within the PROGRESS INVEST Association, the complete industrial plants and projects.

Common research, development, designing and other specialized departments of 14 OKTOBAR Industry, and laboratories for testing of new machines and components are located in Kruscvac and Beograd. These departments and laboratories employ hundreds of eminent experts.

The Industry has own test grounds for checking and testing of standards machines from its production programme. The most modern electronic equipment is used for obtaining informations about these tests.

The 14 Oktobar Industry cooperates on long-term basis with nearly all Yugoslav scientific research institutes and with other scientific institutions in the field of agriculture, forestry, water regulation, building construction and civil engineering,

mining and chemical industry. Technical cooperation with the best known machine building factories in the country and abroad is also well developed.

In all factories the production process is mechanized and automation has been introduced. The commercial service of the industry uses the most modern data processing equipment and an electronic computer center is planned to be developed.

All these factors have contributed to the quality of products which compete to the similar products of renown world manufacturers. Owing to this products of 14 OKTOBAR are in high demand in the home and foreign markets.

14 OKTOBAR Industry appears every year on the market with a number of completely new products.

14 OKTOBAR participates regularly at more than ten international fairs of highest importance achieving outstanding commercial results and winning high recognitions for the quality of products. The highest recognition was gained at the Leipzig International Fair in 1966, when TG-160 ANGLEDOZER of 14 OKTOBAR make was awarded Gold Medal for design and quality.

At the competitions of tractor operators which are held very one year the operators of 14 OKTOBAR Industry lead as a rule. They keep the top placements as champions of Yugoslavia in ploughing with crawler tractor of 14 OKTOBAR made.

14 OKTOBAR Industry is one of the biggest exporters of machines. Its products - machinery and equipment - crawlers tractors, crawler loaders, excavators, motor rollers and other products are exported to 26 countries; German Democratic Republic, Hungary, Poland, Rumania, USSR, Spain, Italy, Turkey, Greece, Algeria, Ethiopia, UAR, Ghana, Sudan Tanganyika, Colombia, Brazil, Paraguay, Chile, Iran, Saudi Arabia, India, Pakistan, Thailand, Cambodia and Indonesia. The Industry exports 50 per cent of its annual output.

PRODUCTION PROGRAMME MASS PRODUCED MACHINES

TRACTORS

TG 50 HA crawler tractor-angledozer (50 HP)
TG 80 HA, TG-90 SH, and TG-160 HDA tractors
Crawler tractor-angledozer type TG-90 SM and TG-160 MA
TG-75 P crawler tractor
UL-90 and UL-90 - tilting loading shovels
RATAR-90 wheeled tractor

MACHINES FOR GROUND STABILIZATION - ROLLERS

Statistic rollers; motor rollers type MVH-7 and MVH-11
selfpropelled roller type STV-6
Vibration rollers: drawn vibration roller type VVV-4;
drawn sheep-leg roller type VVJ-4; self-propelled
vibration roller type SVV-6
Rollers with rubber; wheels type VGV.P-2 and VGV.N.5.,

UNIVERSAL EXCAVATORS

Universal excavators type UB-550, UB-600, UB-1000,
UB-1250, UB-2500 UB-600-T universal wheeled excavator
Excavator-cranes type BD-10 and BD-20

MACHINERY AND EQUIPMENT

Mills with balls and rods
Crushers with smooth surface rollers or serrated rollers
Floatation machines; Agitaire, Fagergrem and Denver
Rotary separators (air)
Spiral classificators
Hydrocyclones and cyclones
Filters
Feeders (vibration and star types)
Granulators
Refining mills
Mixers
Washing machines
Rubber vulcanization presses (simples, duplex, and with
bleeders)
Worm like transporters

Conveyor belts (belt width B-400 to 1600; length up to 1.800 km)
Speed reducers
Liquid mixers - mechanical (ball, propeller, turbine or special type)
Vessels and tanks

ENGINEERING AUTOMATION

Hydraulic distributors (direct control by electromagnetic systems or with manual control)
Valves (safety valves, overflow valves, valves-pressure regulators, non-reversible valves and control valves)
Hydroaggregates (families: 40,63,160 and 200 l)
Electric magnets
Servo-control systems
Pumps
Hydrodynamic couplings
Pneumatic systems (hand operated, electromagnetic, mechanical and pneumatic)

NONSERIAL PRODUCTION

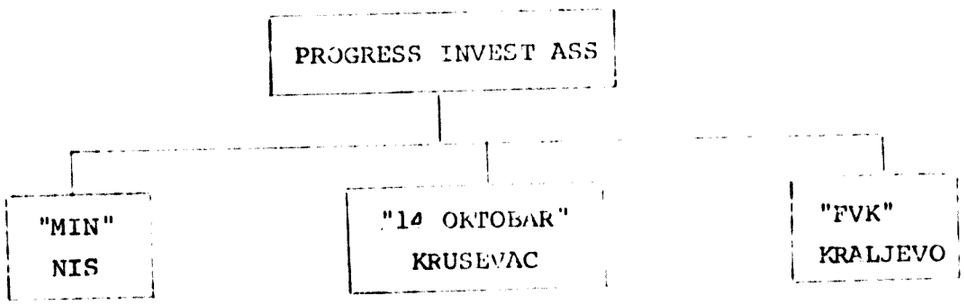
Bridges (Beily system) and suspension bridges
Universal scaffolds
Channel linings
Eaves
Steel structures

14 OKTOBAR offers a number of new products each year. In jubilee 1968 year the following products have been put in the market:

RATAR-90 wheeled tractor
MVH-7 and MVH-11 motor rollers
TG-70 HA hydraulic angledozer
TG-160 HDA hydraulic angledozer (with power shift transmission)
UB-550 universal excavator
UP-1250 universal excavator, and some other machines

"14 OKTOBAR"
KRUSEVAC

ORGANIZATION CHART FOR "PROGRESS INVEST ASS"



Locomotives	Tractors	Vagons
Bridges	Excavators	Springs
Steel Structures	Roll Rollers	Steel Struct.
Process Ind. Mach.	Process Eq. (Mining)	Boilers
Presses	-"- (Processes)	Install. of Pipes
Wagons (Railway)	Steel structures	
Overhauling (Locom.)	Forgery Products	
	Foundry "	
Total 7000 Workers	Total 4000 Workers	Total 2500-300 Workers

ANNEX 3.

LIST OF V.A. BASIC WORKSHOP SEMINAR PARTICIPANTS

S P I S A K

Ucesnika seminara ANALIZE VREDNOSTI

Red. br.	Prezime i ime	Organ. jedin.	Radno mesto i zvanje
1.	Zarecki Djordje	Razvoj	Konstruktor - inzenjer
2.	Veljkovic Radojica	-"-	-"- -"-
3.	Kovacevic Sava	-"-	-"- -"-
4.	Djordjevic Petar	-"-	-"- tehnicar
5.	Stojanovic Ljubinka	Cent.za org.	Sef proj.sistema ekonomista
6.	Dimitrijevic Bozidar	sektor plana	Analit.cena -"-
7.	Zivancevic Milija	-"-	Sef grupe za ang.sred.- -"-
8.	Arsic Zorica	fabr. "T"	tehnolog inzenjer
9.	Stojanovic Milan	-"-	-"- tehnicar
10.	Vesic Jovan	fabr. "G"	-"- inzenjer
11.	Vranjanac Miodrag	pogon A	-"- -"-
12.	Rapajic Svetomir	kontrola	Sef kontrole PO -"-
13.	Nikolic Radomir	-"-	-"- T -"-
14.	Mihajlovic Srba	-"-	-"- G -"-
15.	Jelenic Momcilo	-"-	biro kontrole ekonomista
16.	Kalicanin Srboljub	fabr. "T"	ekon.u proiz."T" -"-
17.	Vasic Bozidar	pog.T T.obr.	Sef pripreme metalurg.
18.	Sudimac Dragoljub	fabr. "G"	-"- inzenjer
19.	Aleksandrov Milutin	fabr. "T"	Sef kl.5 -"-
20.	Milosavljevic Bozidar	fabr. "T"	st.planer MD -"-
21.	Savic Dusan	fabr. "T"	pom. sefa MD -"-
22.	Kostic Milivoje	fabr. "T"	pom.uprav.fabr."T" -"-

LIST OF SEMINAR PROJECTS

1. HYDRAULIC COUPLING
2. BRAKE SYSTEM
3. TG-90 EQUALIZER SPRING
4. CABIN OF UB-1250
5. GEAR-BOX CONTROL SYSTEM
6. LINE OF TRACK LINKS FLOW
7. TRACTOR BODY
8. TRACK FRAME

PRACTICAL EXAMPLE OF A

SEMINAR PROJECT

Assembly Description
Opis sklopa

Information
Informacija
1

Hydraulic Couplings D-370

Approach

Pristup

Do you intend to study?

Imate li nameru studirati

a) Complete Assembly
Celi sklop

b) Functional Approach
Funkcionalne oblasti po redu

c) Part Approach
Pojedine delove po radu

Research

Svrha

Scope

Odredite granicu studije:

What will remain unchanged

Navedite sto cete prihvatiti i ostaviti neizmenjeno:

Target: - saving 5%

Funkcionalni prilar Functional approach				Informacije 3
Description Opis: Hydraulic Coupling consists of two basic elements, the pump and the turbine of which the turbine is connected to the transmission and the pump to the shaft of the engine directly.				
List of functions Spisak funkcija		Basic Bazicna	Secondary Sekundara	Specifikacija Specification
Verb Glagol	Noun Imenica			
Transmit	power	+		
Protect	transmission	+		
Exercise	flexibility	....	+	
Absorb	vibrations	....	+	
Protect	engine	+		
Ease	utilization	....	+	
Ease	maintenance	....	+	
Ease	mounting	....	+	
Ease	replacement	....	+	

Cost Data Slom troskova:	Information 2 Informacija 2

Opis:
Description: The Hub is a part of the turbine of Hydraulic Coupling which transmits power from the turbine to transmission shaft.

Functional area Funkcionalna oblast dela	Function Funkcija		Cost Trosak	% ukup. Total troska cost %
	Basic Osnov-na	Secondary Sekun-darna		
Carries turbine	+			
Transmits power	+			
Joins turbine to the engine shaft		+		
Carries bearings		+		
		Total cost Ukupni trosak:		

Ideas Evaluating
Procenite ideje
Idea
Ideja

Evaluation I
Procena
I

Write down the idea
Dole upišite ideju
Prvo nabrojite dobre osobine, zatim lose. List down the good and then the bad features of the idea.

Hydraulic Coupling Hub D-370

Dobre Good	Lose Bad	Aktivnost Activity
(1) The part to be made by forging		
- Less material	Expensive dies	
- Reduced time for machining		
- Less consumption of tools		
- Released capacities		
- Reduced number of operations		
(2) The part to be made of casting		
	- Increased possibilities for scraps	
- Less material		
- Shorter time of processing		
- Released capacities for other operations		
- Less tools engaged in machining		
- Low cost of casting mold		

Attempt to minimize or eliminate the bad features
Nastojite savladati ili svesti na minimum lose osobine.
Choose the best ideas for further development
Odaberite najbolje ideje za dalji razvoj.

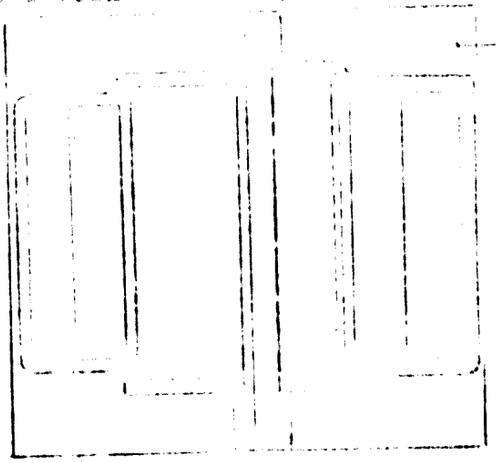
Prvate [illegible]

Sumarni prikaz ušteda

Naziv projekta:

Funkcija:

Predlozi (Pre[illegible]



Sadašnji trošak		Predloženi trošak
[illegible]	Materijali	[illegible]
[illegible]	R a d	[illegible]
[illegible]	Režija	[illegible]
[illegible]	Ukupno	[illegible]
Jedinica uštede		
Količina godišnje		[illegible]

Godišnja ušteda [illegible]

Trošak za izmenu [illegible]

Ušteda u prvoj godini

Predložio: [illegible] Datum [illegible]

SUMMARY OF THE PRESENTED RESULTS OF THE V.A. BASIC WORKSHOP SEMINAR, MAY 20, 1970

1. Hydraulic coupling hub
   I year saving 116.000.--
   40%

2. Brake lever
   I year saving 54.000.--
   35%

3. Brake pedal
   I year saving 95.000.--
   71%

4. TG-90 Equalizer spring
   I year saving 227.000.--
   25%

5. Cabin of UB-1250
   I year saving 40.000.--

6. Gear box control lever
   No direct savings specified -

7. Line of Track Links Flow
   I year saving 754.000.--

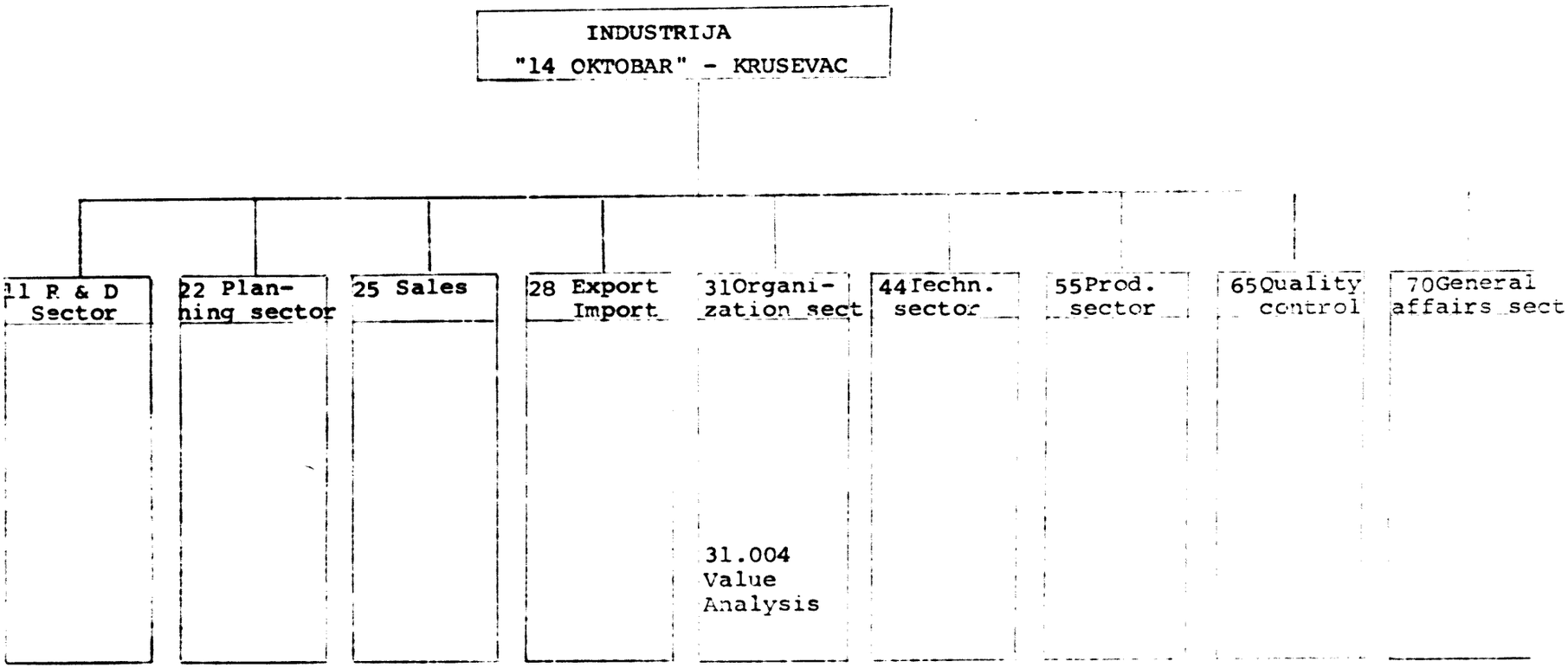
8. Tractor body
   Not started -

TOTAL EXPECTED SAVINGS FOR I YEAR 1.286.000.-- din
or US $ 103.000.-

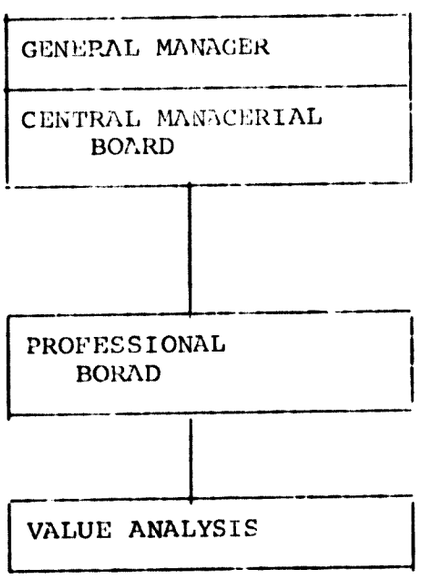
LIST OF NAMES OF THE MANAGEMENT INFORMATION

1.	NOVAKOVIC RADOSAV	engineer	managing director (Ass.)
2.	RADOVANOVIC SRETEN	engineer	technological development manager
3.	STOJANOVIC LJUBINKA	grad.ecc.	cheef, system designing
4.	KOVACEVIC MILORAD	engineer	processing equipment department manager
5.	DIMITRIJEVIC BOZIDAR	grad.ecc.	cheef, planning and analitical department
6.	DJURDJEVIC DUSAN	engineer	assistent managing director
7.	KOSTIC MILIVOJE	engineer	assistent tractor department manager
8.	VULOVIC ALEKSANDAR		personnel manager
9.	LUKIC RADOSAV	engineer	assistent production manager
10.	NIKOLIC ZIVORAD	engineer	manager of the factory "G"
11.	STOJANOVIC MILUTIN	engineer	remont department manager
12.	JOHN FOGELHOLM	M.Sc. (Eng.) M.A. (Pol.Sc.) UNIDO	
13.	SAVIC MOMIR	interpreter	
14.	PENTTI SÖDERLIN	M.Sc. (Mech.Eng.) UNIDO	

THE FORMAL ORGANIZATION SCHEME OF "14 OKTOBAR" AND THE LOCATION OF VALUE ANALYSIS FUNCTION IN THE ORGANIZATION



THE PROJECT WORK
ORGANIZATION OF
VALUE ANALYSIS



ANNEX 10.

"14 OKTOBAR"
KRUSEVAC

JOB DESCRIPTION

JOB TITLE: VALUE ANALYSIS COORDINATOR

DEPARTMENT: ORGANIZ.

REPORTS TO: STEERING COMMITTEE DATE: MAY 17,1970

SUMMARY:

Coordinates Value Analysis and Value Engineering job to satisfy the Sttering Committee requirements.

Duties:

Holds weekly meetings with Shop, Design, Work Study and Technology concerning the project under study. (Other members of the organization on part time basis). Select the team members to suit the project concerned.
Prepares the meetings to satisfy all necessary information is given to the team. Makes various analysis to illustrate the project under study.
Leads the meetings according to the Job Plan. Holds tight discipline during the meetings. Keeps records concerning the meetings. Prepares minutes after the meeting to be distributed after the following day. Distributes "Action sheets" to those concerned. Prepares when project finished "Value Analysis Change Proposal" (VACP) to be presented to the Steering Committee with all necessary cost data, summary of savings and detailed skizs concerning products or services to be modified.
Prepares preliminary schedule for the implementation of the VACP . Serves as the secretary of the Steering Committee during the meetings.
Keeps record concerning decisions made by the Steering Committee. Controls the process of implementation. Secures that the modofications made are according to the VACP thus ensuring the savings proposed.
Holds record on the cost of the VA effort and the proposed savings versus actual savings. Prepares time schedules for the Total Program to be approved by the Steering Committee.
Prepares Detailed Schedules for the VA work thus ensuring high return on investment in the projects.
Informs other personnel about VA work.
Promotes V.A. activities by articles in the Company PR-papers, public lessons etc.
Holds his personnel knowledge about V.A. up to date by reading and participating matters concerned with V.A.

Trains company personnel to the V.A. concept thus enlarging the pool of practitioners.
Holds application meetings to the management.
Acts in the enterprise level as a professional Value Analysis/ Engineering Specialist.

"14 OKTOBAR"
KRUSEVAC

JOB DESCRIPTION

JOB TITLE: VALUE ANALYSIS STEERING COMMITTEE

REPORTS TO: MANAGING DIRECTOR

DATE: May 17.70

SUMMARY:

Acts as a decision making organ concerning Value Analysis/ Value Engineering activities in the company.

Duties:

Holds monthly meetings concerning V.A. work.
Establishes the overall program for V.A. effort.
Priorites and sets the targets for each project under study. Reviews the plan every six months on basis of the V.A. coordinator reports.
Gives support to the V.A. coordinator in his work running V.A. project and implementing the VACP.
Acts as a decision making organ concerning VACP's.
Approves the implementation plans made by V.A. coordinator.
Approves and promotes the suggestions of new project proposals, priorites them and sets targets for the V.A. team.
Sets overall targets concerning V.A. training, PR-work etc. Steers in the company level the overall activities in the field of Value Analysis.
Enlarges the concepts and the principles of V.A. to apply managements all sectors: administration, purchasing, service, marketing, maintenance etc.
Develops polices, administration, education, allocation of resources, overall programme, control and assistance to those who perform the function.

"14 OKTOBAR"
KRUSEVAC

JOB DESCRIPTION

JOB TITLE: VALUE ANALYSIS TEAM MEMBER

REPORT TO: VALUE ANALYSIS COORDINATOR DATE: MAY.7,1970

SUMMARY:
Acts as a team member during Value Analysis weekly meetings.

Duties: Provides information and further investigations before teamwork and during the project according to the tasks given by the V.A. coordinator.
During the meetings acts as an idea generator and evaluates the ideas during the evaluation phase.
Acts as a specialist in the team concerning his own profession. Helps and promotes the implementation of the VACP's during the implementation and development phases.

LIST OF CENTRAL MANAGERIAL BOARD MEMBERS

1. Milosav Drulovic, Managing Director
2. Steva Markovic, Chief, Design Engineer
3. Mile Nedeljkovic, Sales Manager
4. Pata Veljkovic, Export - Import Manager
5. Radoslav Lukic, Production Manager
6. Dragan Kovacevic, Technical Sector Manager
7. Bogdan Vucetic, Quality Control Manager
8. Dorde Petrovic, Planning Sector Manager
9. Occasional Members and Report Submitters

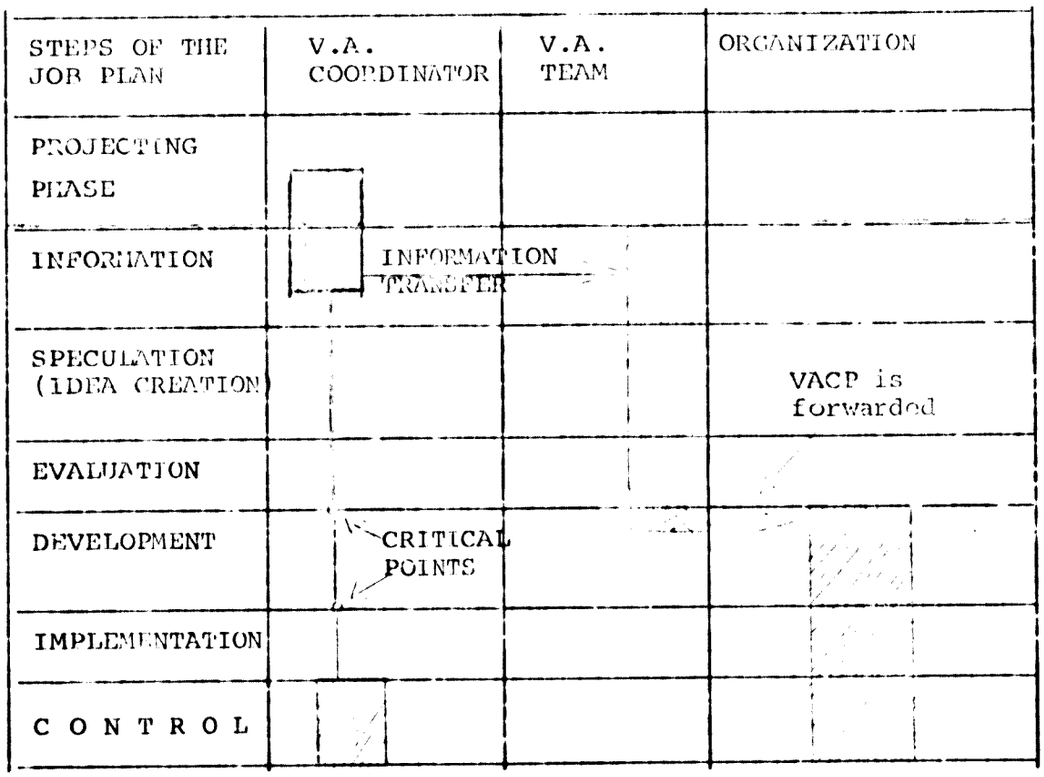
LIST OF PROFESSIONAL BOARD MEMBERS

1. Steva Markovic, Chief, Design Engineer
2. Slavoljub Cimpl, Development Department in Beograd
3. Sava Kovacevic, Chief Metal Structure Design Department
4. Radoslav Lukic, Production Manager
5. Bogdan Vucetic, Quality control Manager
6. Dorde Petrovic, Planning Manager
7. Lazar Radivojevic, Chief Technology Department
8. Dorde Milovanovic, Chief Development Dept. - A-Section -Kruseva
9. Bozidar Dimitrijevic, Financial Planning Department Chief
10. Dragan Jovanovic, Market Research Department Chief
11. Mile Petrovic, Sales Representatives Manager
12. Misa Stojanovic, Overhauling Center Manager
13. Stojan Nesić, Department for Design Documentations
14. Dragan Kovacevic, Technical Sector Manager
15. Aleksandar Jevtic, Service Department Manager

THE WORKING AREAS OF V.A. COORDINATOR,

THE TEAM AND THE LINE ORGANIZATION

THROUGH THE JOB PLAN



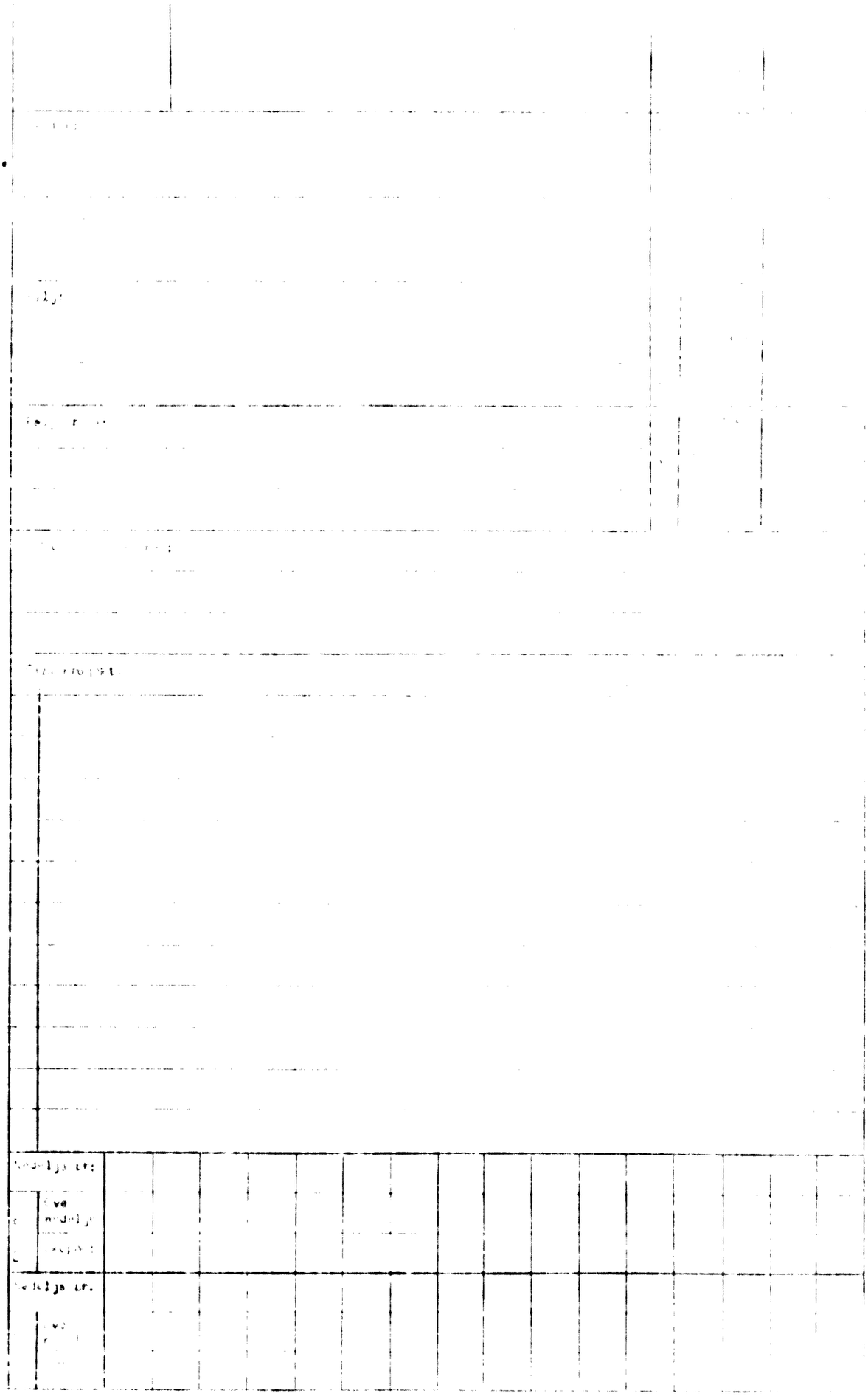
THE V.A. COORDINATOR

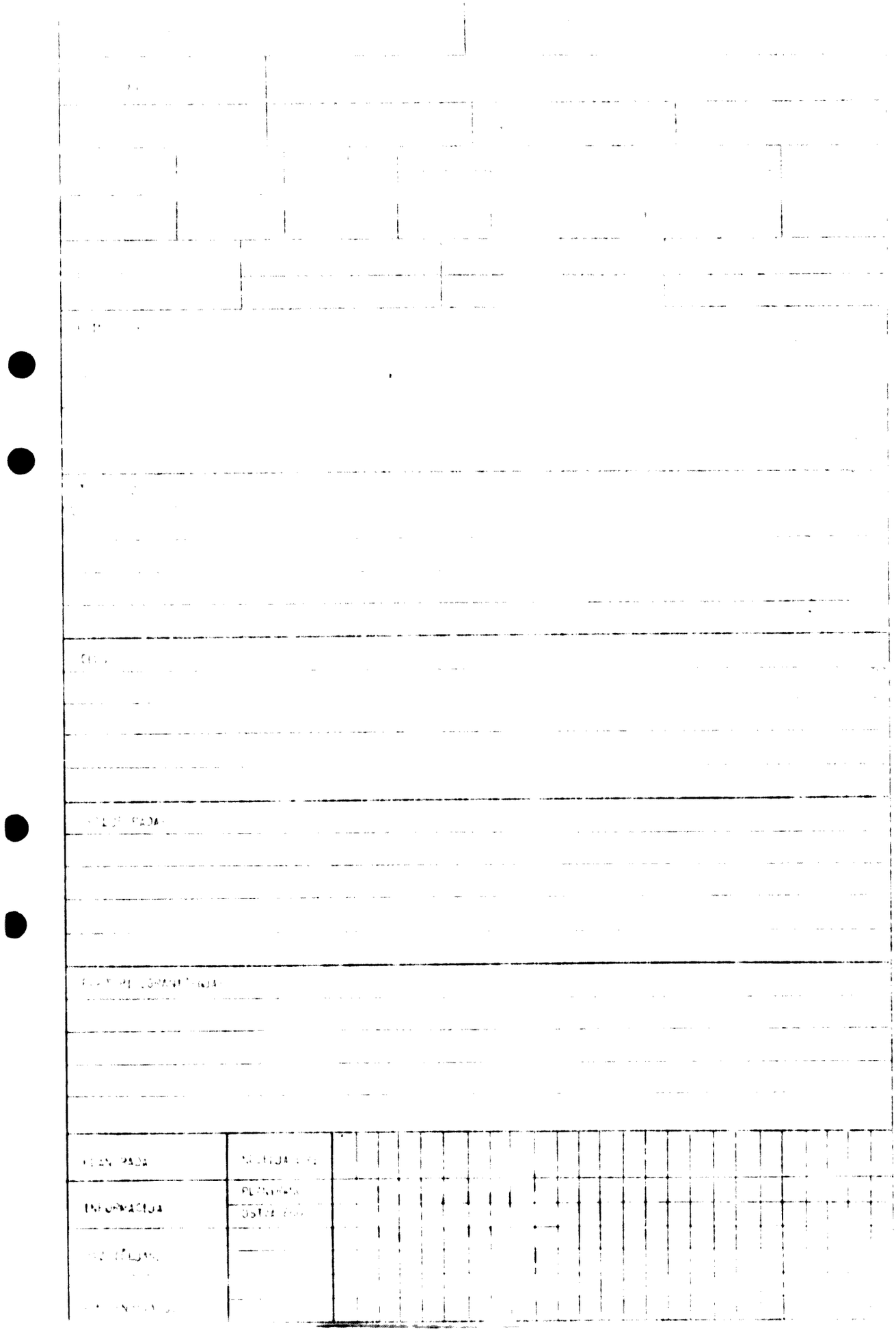
WEEKLY SCHEDULE

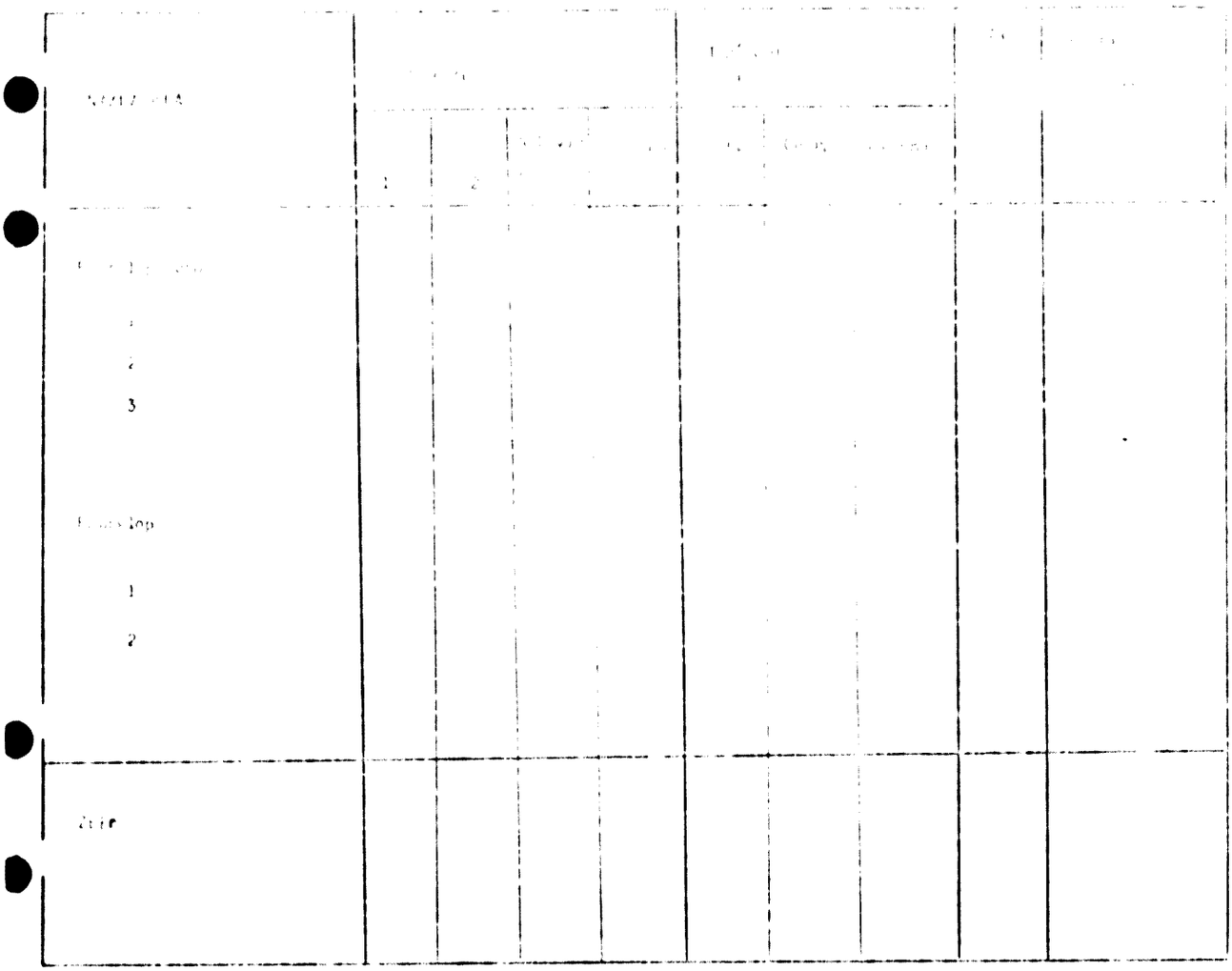
	MON.	TUES.	WED.	THURS.	FRID.
AM			TEAM MEETING		TEAM MEETING
PM	TEAM MEET-ING				

TEAM MEATINGS

COORDINATOR DUTIES (PREPARATION, PLANNING, INFO GATHERING ETC.)







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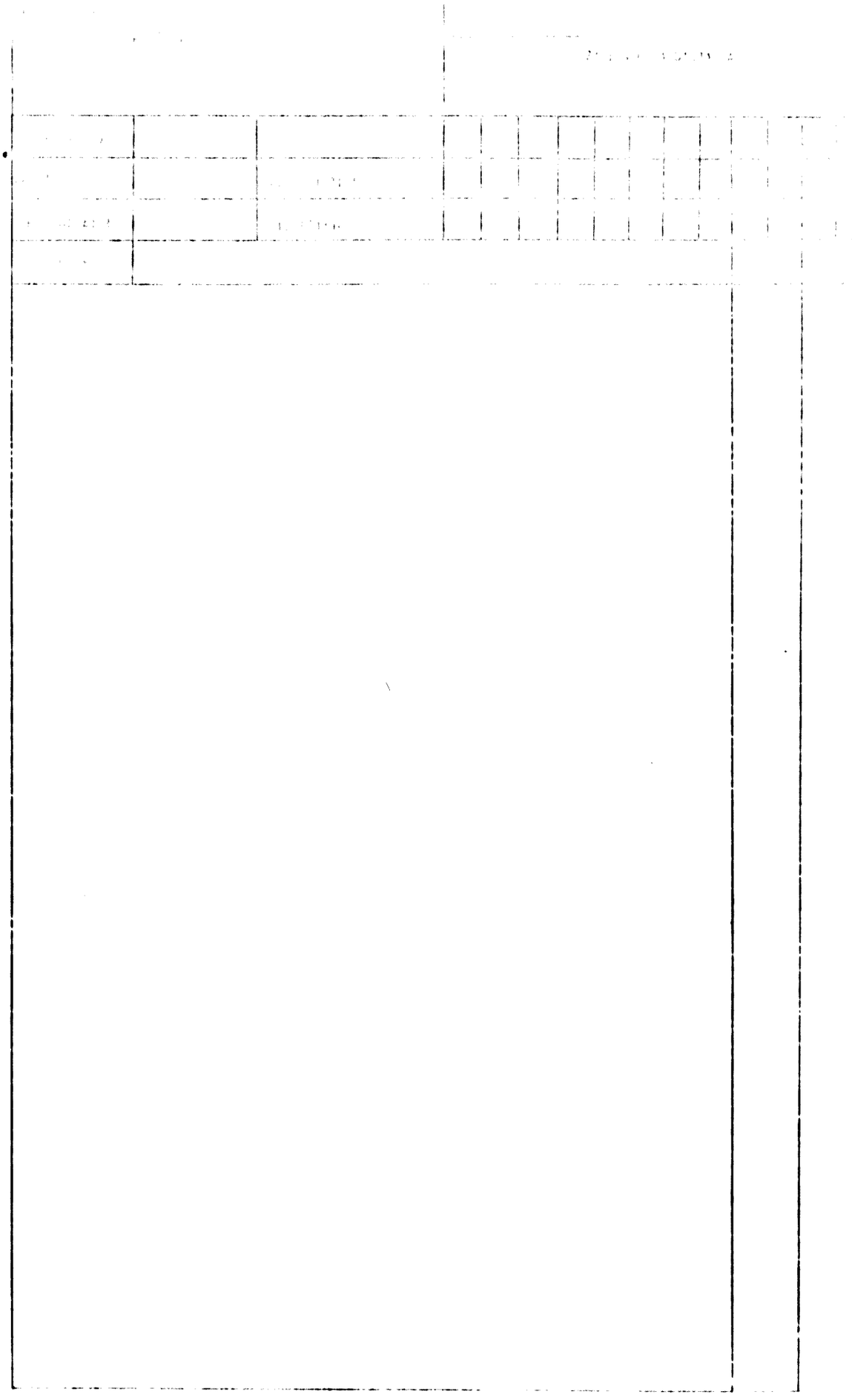
Ranija konstrukcija	Nova konstrukcija



FOLLOW-UP OF THE SEMINAR PROJECTS
SEPTEMBER 11, 1970

1. HYDRAULIC COUPLING HUB

Since the V.A. Basic Workshop Seminar this project that was proposed to result savings to 116.000.- dinars/year has progressed further. There are the following documents ready:

- Final V.A. change proposal concerning forged hubs for the Professional Board for approval to be applied in the production. It contains the following documents:
- Before and after description
- Cost of present design
- Cost of proposed design
- Drawings for the new hubs
- Drawings for new tooling
- Implementation cost
- Potential savings
- Suggested implementation schedule

This will result after January 1, 1971 in savings of

166.627.- dinars/annually

being mainly material savings.

Analogical change proposal to other similar components made of castings with the same documentation as above has been made and approved and has been implemented since May 25, 1970.

- This will result savings of

37.728.- dinars/annually

As fringe benefits these changes will result in savings in the form of released capasity and savings in cutting and other tooling worth

365.645.- dinars/annually

Totaling together all previous items this seminar pilot project will result in savings of

570.000.- dinars/annually, or US $ 45.500,-

Being these documents all in Serbian these are still included as annex.

2. BRAKE LEVER

This project is still on the stage where it was after the seminar.
The proposed savings are

54.000.- din/annually or 35%

The coordinator will restart the project.

3. BRAKE PEDAL

This project has not advanced since the seminar.
The proposed savings are

95.000.-/dinar/annually or 71%

The design office has accepted the solution, but due to lack of resources it has not proceeded.
The coordinator will restart the project.

4. TG-90 EQUALIZER SPRING

The design office has started the design work. Tests to be made within 2 months.
Proposed savings are

227.000.- din/annually or 25% plus fringe benefits in service and field operations.

5. CABIN OF UB-1250

The project has to be reconsidered due to inaccurate cost information
Proposed savings were

40.000.- din/annually or 30%

6. GEAR-BOX CONTROL LEVER

The proposed idea does not result in direct savings.
Savings will result in the form of released capacity which has to be calculated more accurately.
The coordinator will restart the project and produce more accurate calculations of the savings.

7. LINE OF TRACK LINKS FLOW

The project was selected originally to check the existing modification plans and to "try" the Value Analysis method without the knowledge of the UNIDO expert.
The proposed savings were

754.000.- din/annually.

Because of existing plans these savings are not considered as a result from the seminar projects although slight improvements to the existing plans were proposed.
The implementation of these plans has been postponed due to large scale investments involved.

8. TRACTOR BODY

This project was not started during the seminar due to time compression.
This project is included in the new project list.

9. SUMMARY

Totaling all expected savings from the seminar projects

986.000.- din/annually or
US $ 78.500.-/annually.

If the project No. 7, Line of Track Links Flow is included the figures were

1.740.000 din/annually or
US $ 140.000.-/annually.

COMPREHENSIVE VALUE ANALYSIS

CHANGE PROPOSAL IN SERBIAN

CRITERIAS IN SELECTING POTENTIAL
VALUE ANALYSIS PROJECTS

CONTRIBUTION TO SALES (Monetary value)
" " PROFIT
LONG DESIGN AGE
FUTURE PROSPECTS OF LIFE
RELIABILITY OR FIELD PERFORMANCE
ESISTING DESIGN CAPACITY AND PLANS FOR DEVELOPMENT
COMPLEXITY OF DESIGN
PRODUCTION LEAD TIME
REQUESTED INCOME
-SHORT
-MEDIUM OR
-LONG TERM

VALUE ANALYSIS PROJECTS PROPOSAL

PRIO-RITY No.	PRODUCT	ASSEMBLY OR SUBASSEMBLY	ANNUAL VOLUME DIN	PLATE NO.
1	TG-90S	Hydraulic System	4.600.000.-	88
2		Ripper	3.160.000.-	--
3		Tracks	2.550.000.-	68
4		Driving Sprocket with Final Drive	2.500.000.-	45
5		Chassis	2.220.000.-	51
6		Attachment, moldboard	2.000.000.-	--87
7		Track Frame	1.970.000.-	61
8		Track Rollers	1.440.000.-	65 and 67
9		Transmission	1.200.000.-	33 and 34
10		Main Clutch	1.130.000.-	31
11		Bevel Gear and Shaft) Steering Clutch)	890.000.-	44 37
12		Front Idler	400.000.-	63
13		Universal Joint	339.000.-	16
14		Drawbar	190.000.-	52
15		Main Clutch Controls	51.600.-	32
16		Throttle Control	22.000.-	84
-		Transmission Controls	185.000.-	33
-		Steering Clutch Controls	570.000.-	38, 39, 40
-		Brakes) Brake Lock)	155.000.-	42 43
-		Equalizer Spring	460.000.-	53
-		Tractor Body	620.000.-	83
1	TG-170	Hydraulic System	1.771.000.-	
2		Ripper	6.000.000.-	
3		Tracks	807.000.-	
4		Driving Sprocket with Final Drive	1.833.000.-	
5		Chassis	928.000.-	
6		Moldboard Attachment	1.233.000.-	
7		Track Frame	1.160.000.-	
8		Track Rollers (2)	656.000.-	
9		Transmission	-------	

10		Main Clutch	-------	
11		Bevel Gear and Shaft) Steering Clutch)	567.000.-	
12		Front Idler	278.000.-	
13		Universal Joint	-------	
14		Drawbar	182.000.-	
15		Main Clutch Controls	-------	
16		Throttle Control	44.200.-	
-		Transmission Controls	69.956,-	
-		Steering Clutch Controls	331.000.-	
-		Brakes	110.000.-	
-		Brake Lock	-------	
-		Equalizer Spring	310.000.-	
-		Tractor Body	282.000.-	
1	TG-50	Hydraulic System	2.800.000.-	
3		Tracks	940.000.-	68
4		Driving Sprocket with Final Drive	580.000.-	45
5		Chassis	990.000.-	51
7		Track Frame	930.000.-	61
8		Track Rollers	625.000.-	65 and 67
9		Transmission Housing) Transmission)	570.000.-	33 34
10		Main Clutch	284.000.-	31
11		Bevel Gear and Shaft	170.000.-	44
12		Front Idler	480.000.-	63
13		Universal Joint	132.000.-	--
14		Drawbar	91.000.-	52
15		Main Clutch Controls	182.000.-	32
16		Throttle Control	39.000.-	--84
17		Electrical Equipment	320.000.-	installation 85/1,2,3
-		Steering Clutch	250.000.-	37
-		Steering Clutch Controls	300.000.-	38
-		Brakes	165.000.-	42
-		Tractor Body	400.000.-	83
-		Equalizer Spring	270.000.-	53
-		Working Attachment	1.300.000.-	
-		Track release Spring	-------	62

TT-80	10 Major Assemblies		--
UB-600	10 Major Assemblies	12.800.000.-	--
Hydraulic Couplings	.....	8.670.000.-	--
Reduction Units	.....	1.100.000.-	--

ANNEX 31.

MANAGING DIRECTOR
INDUSTRY "14 OKTOBAR"
23.03 1970 YEAR

Team which ought to work on VALUE ANALYSIS with Mr. Pentti Söderlin.

1. Kostic Mile engineer for organization. He will organize work with the other members of industry.
2. Zarecki Djordje engineer
3. Zivancevic Milija grad.ecc.
4. Dimitrijevic Bozidar, grad. ecc.
5. Stojanovic Ljubinka, grad.ecc.

Interpreter will be Djokic Radica department EXPORT-IMPORT from 23.03 1970 up to 4.04.1970. Later it will be Savic Momir.

Managing Director
dipl.engineer R. Novakovic

ANNEX 12

"14 OKTOBAR"
KRUSEVAC
June 5, 1970

Subject: Value Analysis Installation

Considering the tasks to be fulfilled in order to install the Value Analysis in our Enterprise, for which purpose eng. Pentti Söderlin was engaged by the United Nations, it is necessary to engage the following staff:

I. Value Installation Board Members:

1. Veljkovic Radojica, mech.eng. V.A. Coordinator
2. Kostic Milivoje, org. engineer - Assistant
3. Zivancevic Milija, economist - Assistant

II. Members of teams to carry out the projects:

1. Zarecki Dorde, mech. engineer
2. Kovacevic Sava, mech.eng.
3. Dordevic Petar, technician
4. Arsic Zorica, mech. eng.
5. Stojanovic Milan, technician
6. Vesic Jovan, mech. eng.
7. Vranjanac Miodrag, mech. eng.
8. Rapajic Svetomir, mech. eng.
9. Nikolic Radomir, mech. eng.
10. Mihajlovic Srba, mech. eng.
11. Jelenic Momcilo, economist
12. Kalicanin Srboljub, economist
13. Vasic Pozidar, eng. of metalurgy
14. Sudimac Dragoljub, mech. eng.
15. Savic Dusan, mech. eng.

III. The teams to carry out the projects are supposed to submit their reports to the Organization Sector by 25th every month.

IV. The Sectors Managers are hereby ordered to cooperate and enable ream members to participate during the regular hours in order to carry out the V.A. projects to the benefit of the Enterprise.

ASSISTANT MANAGING DIRECTOR
FOR ORGANIZATION
Ing. Dusan Durdevic

MANAGING DIRECTOR
Ing. Milosav Drulovic

DRAFT

PROJECT ORDER OR "DIREKTIVA"

FOR VALUE ANALYSIS PROJECT IN "14 OKTOBAR"

KRUSEVAC

VALID JANUARY 1, 1971

PURPOSE

The purpose of this project is to install regular Value Analysis work in the company.

Alue Analysis tends to detect unnecessary costs, i.e. costs which do not add anything to the quality, reliability, usefulness, life, interchangeability or appearence of the product.

The target of the project is to find these costs and to remove these thus gaining cost savings and improving the value of our products and the profitability of our company.

OBJECTS

The primary objects are the serial products which have the most contribution to annual sales. These are:

CRAWLERS:
TG-90
TG-170
TG-50

TRACTOR:
TT-80

EXCAVATOR:
UB-500

HYDRAULIC COUPLINGS

REDUCTION UNITS

This does not limit the scope of the Value Analysis activities or exclude such projects like individual products, process equipments, and administrative processes and systems. See annex 1 for list of projects.

The primary objects cover over 60% of the annual sales and yield more than 65% of the total Business Contribution.

CRITERIA IN SELECTING VALUE ANALYSIS PROJECTS

VALUE ANALYSIS shall be applied to the projects with greatest potential savings.

There are several criterias which should be considered when selecting and priorating projects. These are:

- Contribution to sales
- Contribution to profit
- Long design life
- Future prospects of life
- Reliability or field performance
- Existing design capacity and plans for development
- Complexity of design
- Production lead time
- Requested income
    - short
    - medium or
    - long term

Careful consideration should be applied because these criterias might conflict. The most important factor, however, is the annual monetary value of the project.

The final decision about the priority of the projects shall be made by the "Professional Board" proposed by the V.A. Coordinators.

RESOURCES

To man this project it is necessary to engage for this task the following staff:

- Mr. Veljkovic Radojica
- Mr. Savic Momir
- Mr. Vranjanac Miodrag
- (Mr. Kalicanin Srboljub as reserve)

and Assistant staff to these Value Analysis Coordinators:

- Two technicians with knowledge in technology (these are to be specified later)

These people will be 100% engaged with the project. Additional personnel is required to form the teams to cooperate with the Coordinators.

Each coordinator shall have three teams to work with. The teams will be engaged approx. 20% of their time in Value Analysis work.

The required investment will be approximately 700.000 Din annually for two years thus totalling 1.339.000 Din. See appendix 2 for detailed information.

ORGANIZATION

The Value Analysis function is located to the "Organization Center", see Annex 3, thus providing independant location and possibility to interdepartmental cooperation being the general duty of the "Organization Center" during this project to introduce this new technique into the company and to coordinate the work.

The practical project work is carried out as stated in the "Project Work Organization of Value Analysis" - scheme, see annex 4.

Value Analysis Coordinators shall work as stated in their "Job Description", se annex 5.

They will among other things perform the Value Analysis Change Proposals (V.A.C.P.) for decision making process to the Professional Board once a month which among its other duties acts as a Steering Committee for Value Analysis Work, see annex 6 for Job Description.

In some cases where Value Analysis Change Proposals might require large scale investment decisions or have influence on the general product policy and when the Professional Board is not authorized to make such decisions, the proposal is submitted to the Central Managerial Board being the General Manager of the "14 OKTOBAR" the chairman of the Board.

The duties of the team members during the Value Analysis Work are stated in annex 7.

PROCEDURE

The practical Value Analysis Work shall be executed according to the six phase Value Analysis Job Plan. The various duties of the Value Analysis Coordinator, the Value Analysis Team and the ordinary Line Organization during the cycle of the Job Plan is illustrated in annex 8.

The duty of the V.A. Coordinator during the project is to act as a project manager thus ensuring the progress of the projects. His duties are among others to schedule and control the entire project cycle, being the control outmost important in the points where information or tasks are transferred to others concerned.

The Value Analysis Coordinators shall create and maintain "Program Control Books" thus ensuring proper documentation of the project work. The documentation shall happen through the formulas created during the UNIDO assignment.

TARGETS

The time target is to execute the project in two years beginning Januaryl, 1971 and ending December 31, 1972. The time schedule concerning various projects are in annex 9, including in this phase only the team activities. The implementation phase to be defined first after the decision of the Professional Board to suit company overall plans.

The monetary target as stated before should not yield less than 10:1 ratio which is a savings versus invested cost ratio. The total savings shall be at least 7.000.000 dinars annually or total for two years 14.000.000 dinars.

The proposed savings', approved savings' and implemented savings' records shall be reviewed periodically every three months to the General Manager.

The training target is to have 2 V.A. Basic Workshop Seminars annually or total 4 seminars, thus training 80 people more to the practical V.A. work.

INCENTIVES

The V.A. job classification should differ from the ordinary engineering work by several grades (4-5 grades).

Further to motivate people to good results, the successfull teams are suggested to be rewarded by incentive bonus of 0.1% from the real, implemented savings equally shared to the team members who contributed to the savings.

REPORTS

The Value Analysis should report monthly to the "Professional Board" stating the facts during the period, see annex 10. In addition the V.A. Coordinators should report every three months to the General Manager the following:

- The proposed savings
- The approved savings
- The implemented savings

For practical documentation see annex 11 and 12.

PROPERTY No.	PRODUCT	ASSEMBLY OR SUBASSEMBLY	ASSEMBLY VOLUME DM	PAGE No.
1	TG-903	Hydraulic System	1.660.000.-	68
2		Ripper	3.160.000.-	---
3		Tracks	2.550.000.-	63
4		Driving Sprocket with Final Drive	2.500.000.-	45
5		Chassis	2.220.000.-	51
6		Attachment, moldboard	2.000.000.-	--87
7		Track Frame	1.970.000.-	61
8		Track Rollers	1.440.000.-	65 and
9		Transmission	1.200.000.-	33 and
10		Main Clutch	1.130.000.-	31
11		Bevel Gear and Shaft) Steering Clutch)	890.000.-	44 37
12		Front Idler	400.000.-	63
13		Universal Joint	339.000.-	16
14		Drawbar	190.000.-	52
15		Main Clutch Controls	51.600.-	32
16		Throttle Control	22.000.-	84
-		Transmission Controls	185.000.-	33
-		Steering Clutch Controls	570.000.-	38, 39,
-		Brakes) Brake Lock)	155.000.-	42 43
-		Equalizer Spring	460.000.-	53
-		Tractor Body	620.000.-	83
1	TG-170	Hydraulic System	1.771.000.-	
2		Ripper	6.000.000.-	
3		Tracks	807.000.-	
4		Driving Sprocket with Final Drive	1.833.000.-	
5		Chassis	928.000.-	
6		Moldboard Attachment	1.233.000.-	
7		Track Frame	1.160.000.-	
8		Track Rollers (2)	656.000.-	
9		Transmission	-------	

10		Main Clutch	----------	
11		Bevel Gear and Shaft) Steering Clutch)	567.000.-	
12		Front Idler	273.000.-	
13		Universal Joint	--------	
14		Drawbar	182.000.-	
15		Main Clutch Controls	--------	
16		Throttle Control	44.200.-	
-		Transmission Controls	69.956,-	
-		Steering Clutch Control	421.000.-	
-		Brakes	110.000.-	
-		Brake Lock	-------	
-		Equalizer Spring	310.000.-	
-		Tractor Body	282.000.-	
1	TG-50	Hydraulic System	2.800.000.-	
3		Tracks	940.000.-	68
4		Driving Sprocket with Final Drive	580.000.-	45
5		Chassis	990.000.-	51
7		Track Frame	930.000.-	61
8		Track Rollers	625.000.-	65 and 67
9		Transmission Housing) Transmission)	570.000.-	33 34
10		Main Clutch	284.000.-	31
11		Bevel Gear and Shaft	170.000.-	44
12		Front Idler	480.000.-	63
13		Universal Joint	132.000.-	--
14		Drawbar	91.000.-	52
15		Main Clutch Controls	182.000.-	32
16		Throttle Control	39.000.-	--84
17		Electrical Equipment	220.000.-	installation 85/1,2,3
-		Steering Clutch	250.000.-	37
-		Steering Clutch Controls	300.000.-	38
-		Brakes	165.000.-	42
-		Tractor Body	400.000.-	83
-		Equalizer Spring	270.000.-	53
-		Working Attachment	1.300.000.-	
-		Track release Spring	-------	62

TP-80	10 [illegible]		---
UB-660	10 Major Assemblies	12.800.000.-	---
Hydraulic Components	.....	8.670.000.-	---
Reduction Units	.....	1.160.000.-	---

COST OF VALUE ANALYSIS PROJECT INSTALLATION AND WORK

SALARIES

	F.Y.1971	F.Y. 1972	TOTAL
1. V.A. Coordinators (3)	108.000.-	108.000.-	216.000.-
2. Assistants (2)	48.000.-	48.000.-	96.000.-
3. Team members (36) 20% of their time	216.000.-	216.000.-	432.000.-
TOTAL	372.000.-	372.000.-	744.000.-

OTHER COSTS RELATED TO V.A. ACTIVITIES

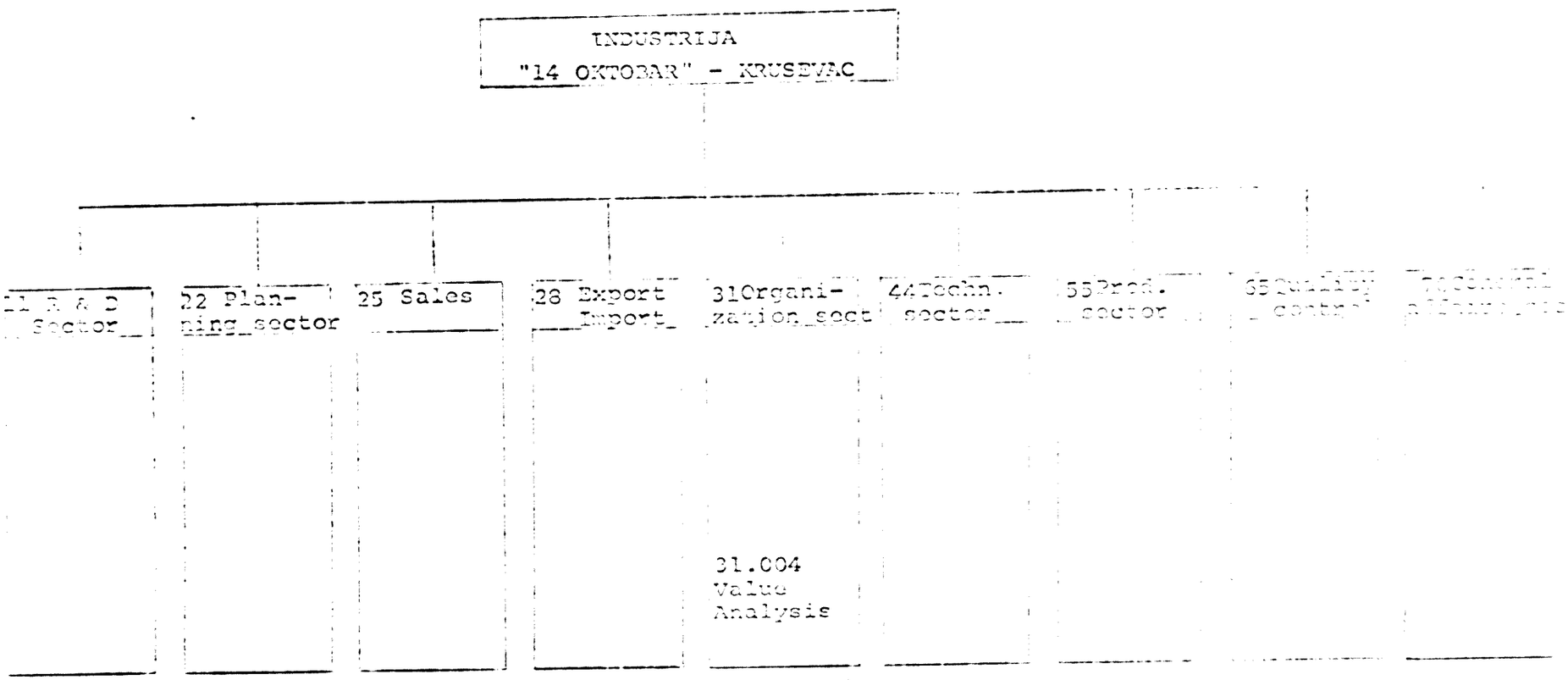
- Design changes			
- Tools			
- Components scrapped			
- Cost of tests	250.000.-	250.000.-	500.000.-
- Revised manuals			
- Library			
- Visits, etc.			

CONSULTING FEES

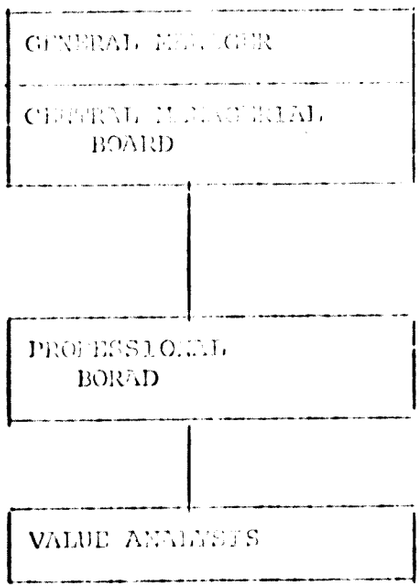
- Consulting fee of 6 weeks			
- Per diam			
- Travelling costs	95.000.-		
TOTAL	717.000.-	622.000.-	1.339.000.-

ANNEX 5.

THE FORMAL ORGANIZATION SCHEME OF "14 OKTOBAR" AND THE LOCATION OF VALUE ANALYSIS FUNCTION IN THE ORGANIZATION



THE PROFESSIONAL
QUALIFICATION OF
VALUE ANALYSIS



"[illegible]"

[illegible]

JOB DESCRIPTION

JOB TITLE: [illegible]

DEPARTMENT: [illegible]

REPORTS TO: [illegible] DATE: [illegible]

SUMMARY:

Coordinates Value Analysis and Value Engineering Job to satisfy the Steering Committee requirements.

Duties:

Holds weekly meetings with Shop, Design, Work Study and Technology concerning the project under study. (Other members of the organization on part time basis) Briefs the team members to run the project concerned.
Prepares the meetings to satisfy all necessary information is given to the team. Makes various analysis to improve the project value study.
Leads the meetings according to the Job Plan. Holds [illegible] discipline during the meetings. Keeps records concerning the meetings. Prepares minutes after the meetings and distributed after the following day. Distributes "work sheets" to those concerned. Prepare a Value Engineering "Value Analysis Change Proposal" (VACP) to be presented to the Steering Committee with all necessary cost data, summary of savings and detailed skizs concerning parts or services to be modified.
Prepares preliminary schedule for the implementation of a VACP . Serves as the secretary of the Steering Committee during the meetings.
Keeps record concerning decisions made by the Steering Committee. Controls the process of implementation. Assures that the modifications made are according to the VACP thus ensuring the savings proposed.
Holds record on the cost of the VA effort and the [illegible] savings versus actual savings. Prepares this schedule for the Total Program to be approved by the Steering Committee.
Prepares Detailed Schedules for the VA work thus ensuring high return on investment in the projects.
Informs other personnel about VA work.
Promotes V.A. activities by articles in the Company PR-papers, public lessons etc.
Holds his personnel knowledge about V.A. up to date by reading and participating meetings concerned with V.A.

Trains company personnel to the V.A. concept then enlarges the pool of practitioners.
Holds appreciation [illegible] to the management.
Acts in the company level as a professional Value Analysis/ Engineering Specialist.

"14 ORDER"
REGRADE

JOB [illegible]

JOB TITLE: [illegible]

REPORTS TO: [illegible]

DATE: [illegible]

SUMMARY:

Acts as a decision making organ concerning Value Analysis Value Engineering activities in the company.

Duties:

Holds monthly meetings concerning V.A. work.
Establishes the overall program of V.A. effort.
Priorites and sets the targets for each project under study. Reviews the plan every six months on basis of the V.A. coordinator reports.
Gives support to the V.A. coordinator in his work running V.A. project and implementing the VECP.
Acts as a decision making organ concerning VECP's.
Approves the applications submitted by V.A. coordinator.
Approves and promotes the applications of the projects proposals, priorities them and sets targets for the V.A. team.
Sets overall targets concerning V.A. training, Events etc. Steers in the company level the overall activities in the field of value analysis.
Enlarges the concepts and the principles of V.A. to apply management all sectors: administration, purchasing, service, marketing, maintenance etc.
Develops policy, administration, education, allocation resources, overall properties, control and assistance to those who perform the function.

"14 OKTOBER"

KREUZVAC

JOB DESCRIPTION

JOB TITLE: [illegible]

REPORT TO: [illegible] DATE: [illegible]

SUMMARY:

Acts as a team member during Value Analysis weekly meetings.

Duties: Provides information and further investigations before teamwork and during [illegible] according to the [illegible] given by the V.A. [illegible].
During the [illegible] acts as an idea generator and evaluates the ideas during the evaluation phase.
Acts as a specialist in the [illegible] concerning his own profession. Helps and promotes the implementation of the VACP's during the [illegible] and development phases.

THE [illegible]

[illegible]

[illegible]

STEPS OF V.A. JOB PLAN	V.A. COORDINATOR	V.A. TEAM	OTHERS
PROJECTING PHASE			
INFORMATION			
SPECULATION (IDEA CREATION)			VECP is formulated
EVALUATION			
DEVELOPMENT	CRITICAL FOLLOWS		
IMPLEMENTATION			
C O N T R O L			

Annex 10.

VALUE ANALYSIS MONTHLY REPORT TO THE STEERING COMMITTEE

Date: July 25, 1970

Report: Covers period June 25 to July 25, 1970

V.E. Coordinator: Veljkovic Radojica

1. During this period the following projects have been studied:

   1.1
   1.2
   1.3

2. During this period the following projects have been completed by the team:

   2.1
   2.2

   (number and brief description of VECPs approved and implemented during the reported period, including net savings anticipated and applicability of change elsewhere if feasable).

- Number of V.E. projects under study during this period.
- Estimated potential savings on current projects.
- Number and dollar savings of VACP currently being evaluated.
- Estimated savings on proposals under evaluation, if approved.
- Number of personnel engaged more than half time in V.E. work.
- Total cost of V.E.program, (last 12 months).
- Ratio of savings to cost of program (last 12 months)(should not be less than 10:1).

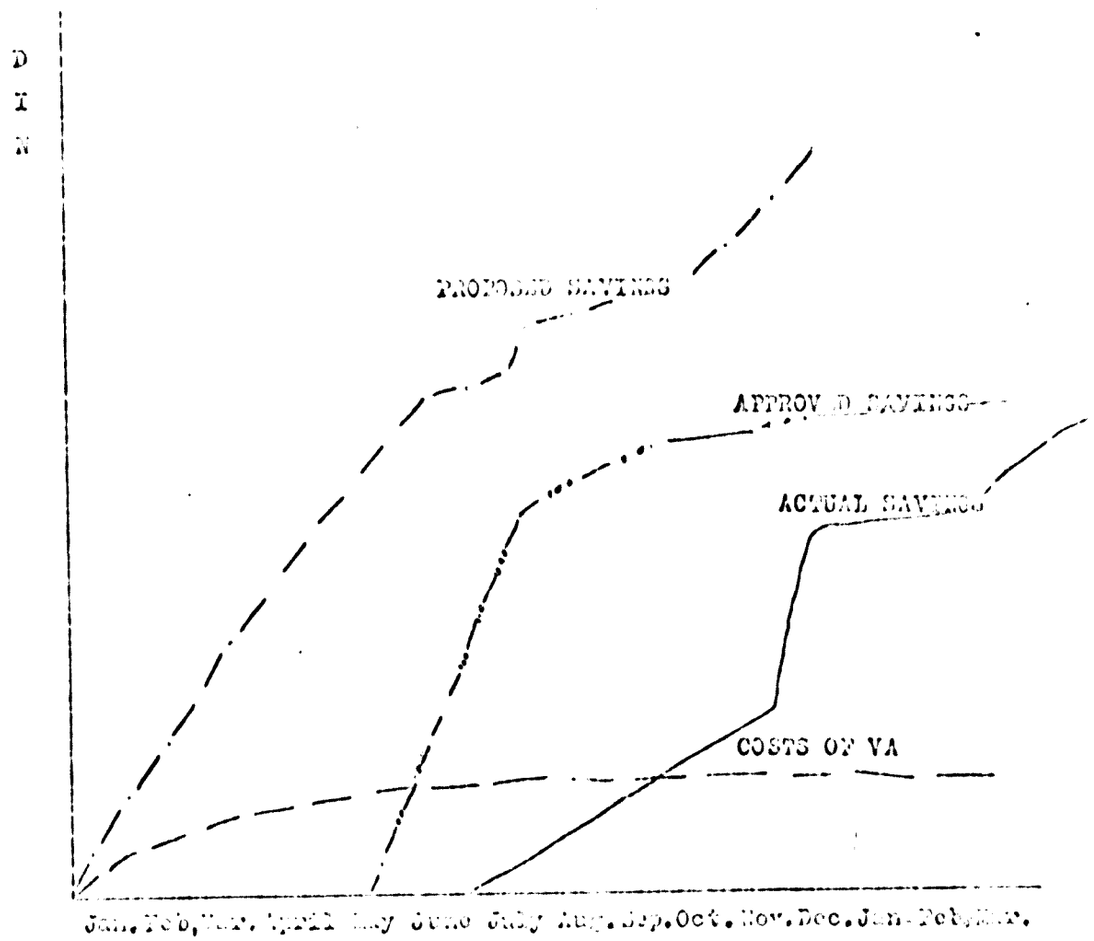
V.E. LIST OF SAVINGS (approved)

Project No.	Name of Project	Annual Volume DIN	Annual Savings DIN	Savings %	Start of implementation (date)	Cost of Project	Sum of Cost of Projects	Sum of savings end of 1970 DIN	Sum of savings end of 1971 DIN	Sum
1		152.000.-	12.000.-	8	1.9.70	500.-	500.-	4.000.-	13.000.-	
2		200.000.-	30.000.-	15	1.7.70	1.500.-	4.500.-	19.000.-	61.000.-	
		components scrapped				2.500.-				
3		575.000.-	120.000.-	19	1.1.71	15.000.-	19.500.-	19.000.-	181.000.-	1...
15										...0.-
16										...0.-

Monetary savings will be calculated no more than 3 years

Annex 12.

[redacted]



[illegible]

[illegible]

[illegible]

a) [illegible]

b) [illegible]

c) [illegible] konstruktivnoj [illegible] ciji [illegible]

1. [illegible]
2. [illegible] vremena [illegible] od 1[illegible] - 4[illegible] [illegible]
3. [illegible] otkivka umesto do sada upotreblje[illegible] materijal.
4. Umesto [illegible] vrlo se [illegible] ili [illegible] [illegible], [illegible] proces izrade i povećava proizvodnja.

b) Tehnološka unapredjenja su sledeća:

1. Iz [illegible] materijala smanjena je izrada otkivaka, [illegible] u prosku [illegible] vrši ušteda materijala.
2. Zbog [illegible] operacija [illegible] II [illegible] se i vreme na operaciji [illegible] i u proseku od [illegible] - [illegible] ovo [illegible] otkivaka [illegible] nisu [illegible] u [illegible] granice.
3. [illegible] operacija [illegible].
4. [illegible] reznog alata naročito na struganju II [illegible].
5. Najbitnije je [illegible] što je [illegible] ručno propisanje [illegible] i [illegible] delovi na osnovu kojih će se [illegible] više pozicija, [illegible] 17 pozicija, [illegible] 17 alata za kovanje imamo samo [illegible] alata.

./.

[illegible]

[illegible]

[illegible] pismenom [illegible] izvršenom [illegible]

[illegible] vrste.

[illegible] na osnovu koje smo postavili zahtev [illegible] dobijanja u smislu [illegible].

[illegible] i da [illegible] novih [illegible]

[illegible]
C.0345 [illegible] predlo [illegible] u normativu [illegible]. Na osnovu [illegible] sprovedena [illegible] službe, ubacujući u crteže [illegible] nabavke istih.

Uštede koje treba da se postignu ovim predlogom na smanjenju vremena izrade i korišćenja materijala po 1 kom. date su u tabeli "Analiza troškova izrade glavčina" varijanta Ø materijal - odlivak ukupno ušteda iznosi oko 4.000.000.- st. din.

Ove analize su vršene na bazi količine [illegible] od [illegible] kom. koje su planirane za 1971. godinu.

Za izradu predloga "Analiza troškova izrade glavčina" pored tehnoloških ostale potrebne podatke sam dobio od odgovarajućih službi Industrije.

Pravilnikom Industrije o pronalascima, tehničkim unapređenjima i korisnim idejama br. 932[illegible] od 17. 07. [illegible] godine regulisan je način prijave, pregleda i priznavanja tehničkih unapređenja.

U vezi ovoga molim da se priloženi materijal uzme na razmatranje kako to reguliše pravilnik i priznaje određena prava po istom.

PRILOG:
1. Analiza troškova izrade glavčina
   (varijanta Ø materijal - odlivak) 1x
2. Analiza troškova izrade glavčina
   (varijanta Ø materijal - odlivak) 1x
3. Skice kompleksnih delova od I - VI 1 x
4. Crteži kompleksnih delova od I-VI 1 x

./.

5. [illegible] 1x

6. [illegible]

[illegible] 1x

[illegible]:

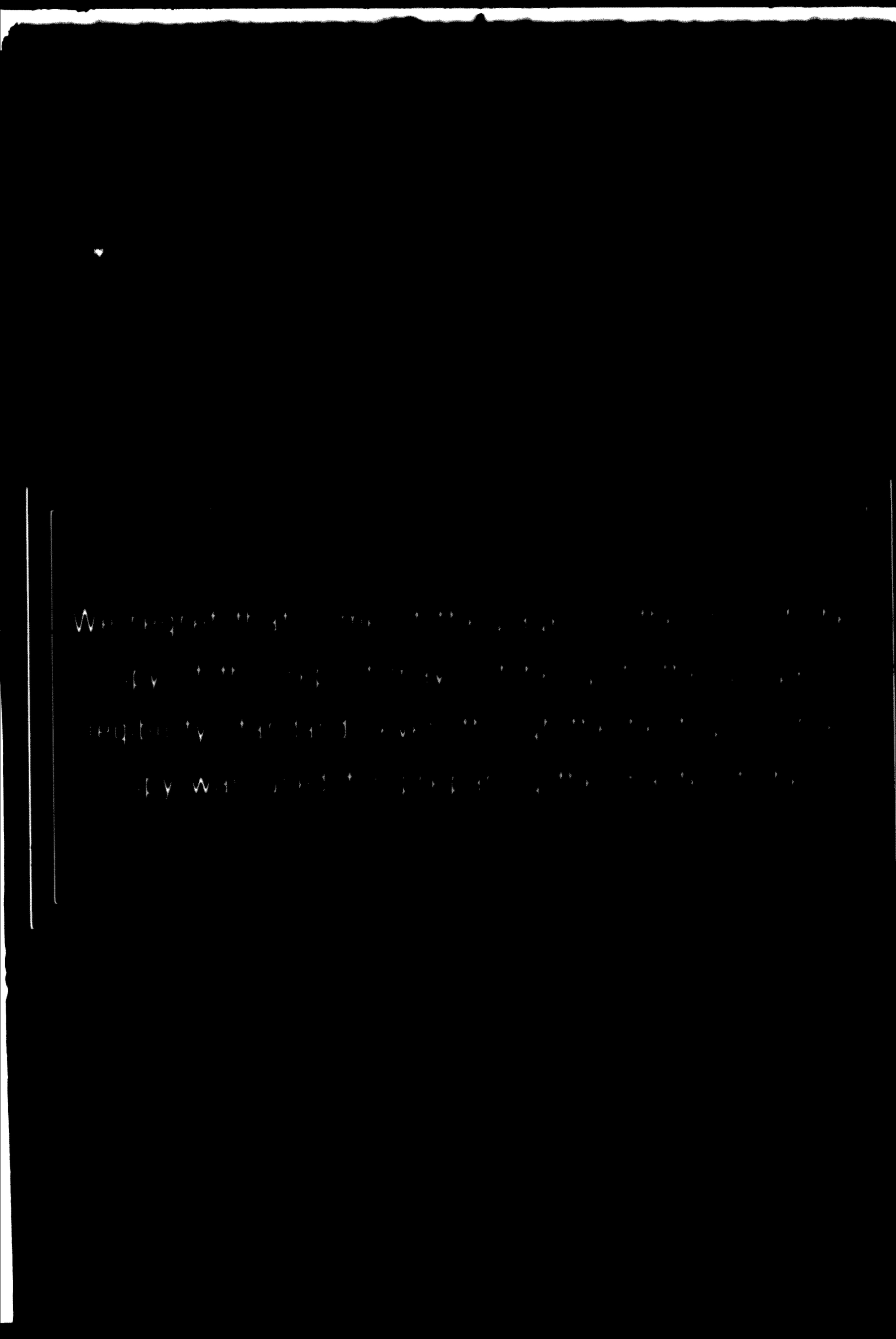
[illegible] 1x

[illegible] 1

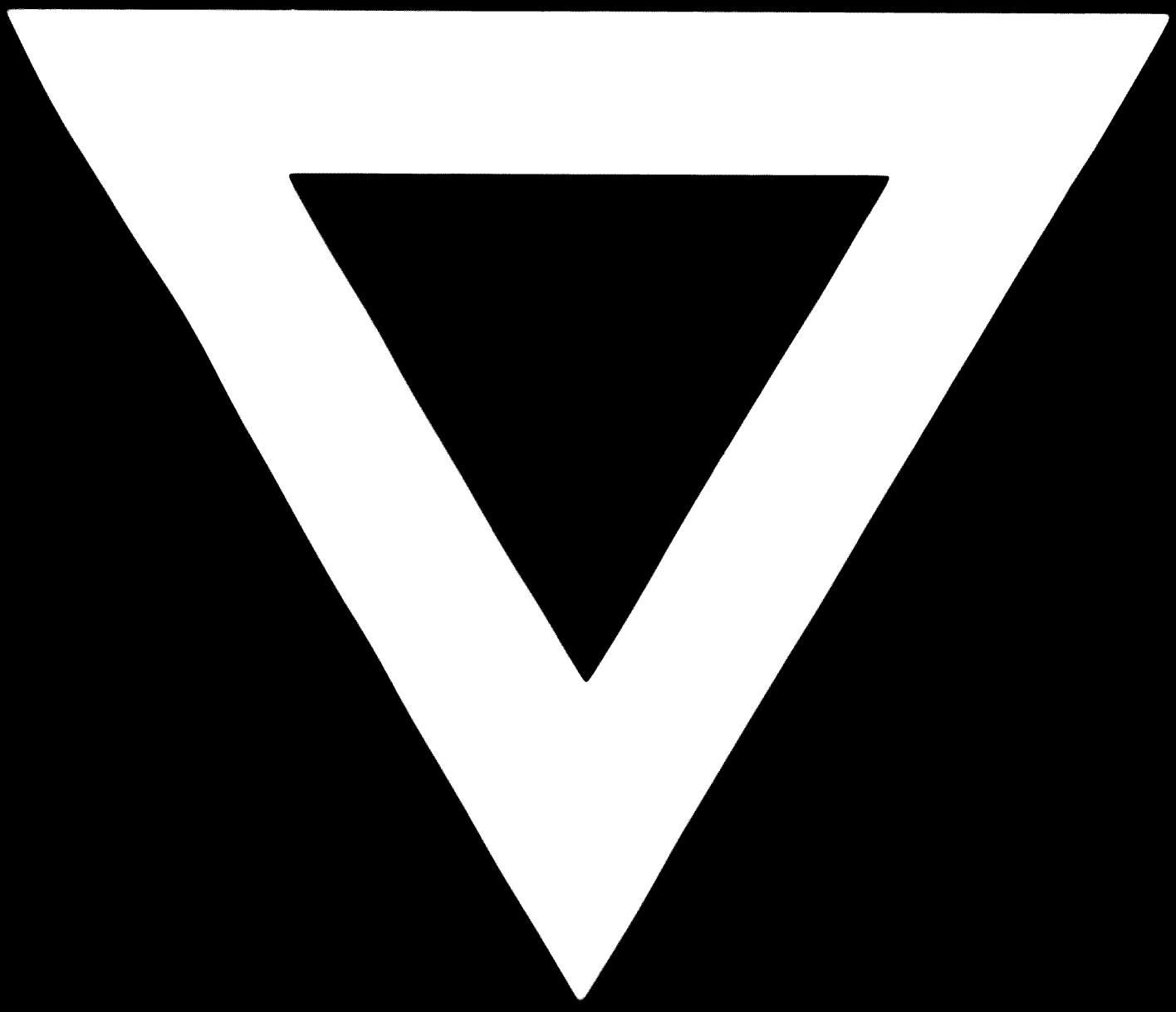
[illegible] 3

[illegible]

SOME FIGURES
OF THIS DOCUMENT
ARE TOO LARGE
FOR MICROFICHING
AND WILL NOT
BE PHOTOGRAPHED.



C-932



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