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DEVELOPMENT OF THE AUTOMOBILE INDUSTRY IN ROMANIA AND COLLABORATION WITH INDUSTRY IN DEVELOPED COUNTRIES 1/

by

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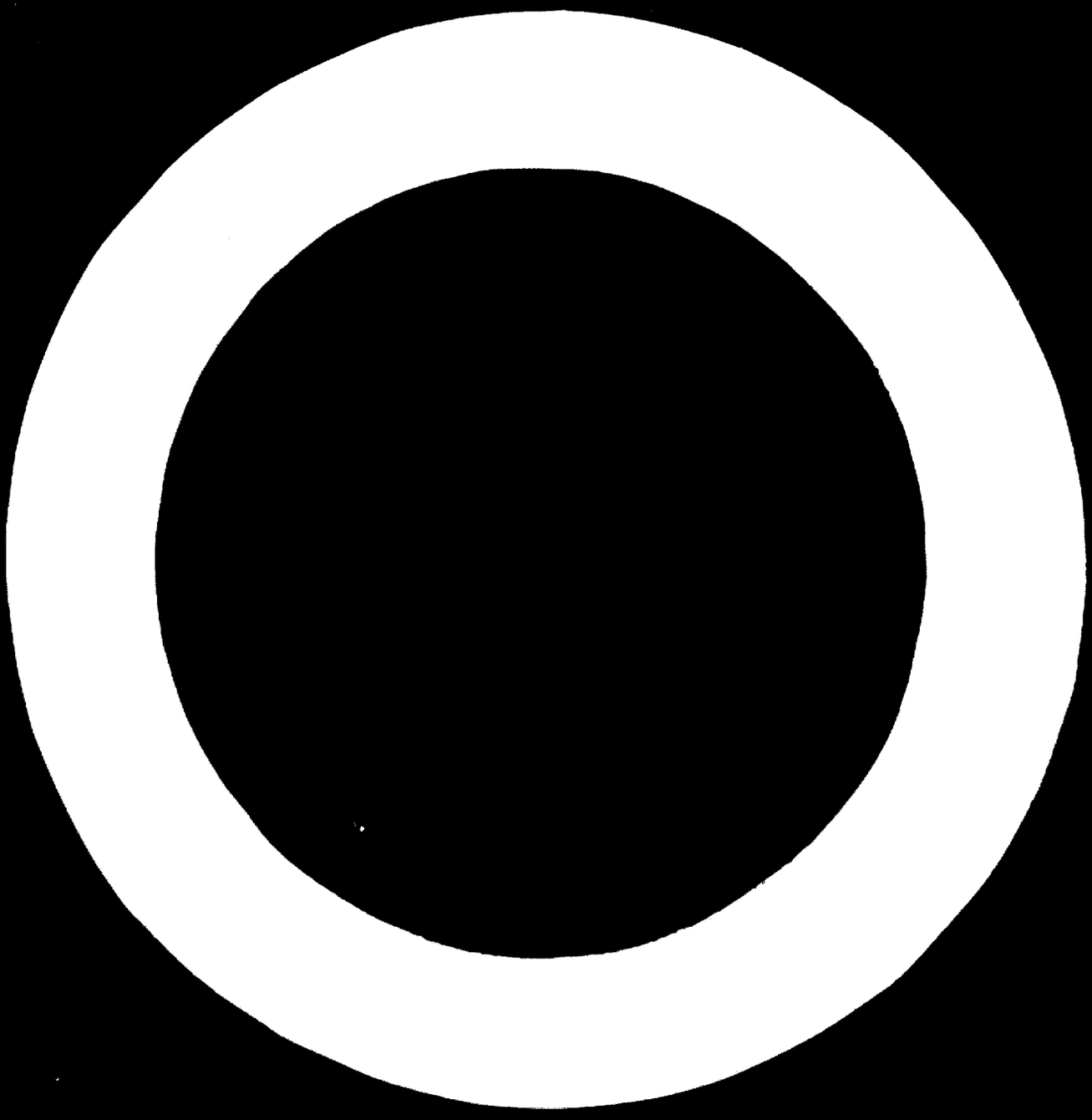
1/ The views and opinions expressed in this paper are those of the author and do not necessarily reflect the views of the secretariat of UNIDO.



INTRODUCTION

The automobile industry began to develop in Romania after the Second World War, in line with the needs of the economy and the growing demand among the population.

For economic reasons to do with goods transport, the first stage in developing the motor industry was to produce lorries and certain vehicles based on them.

The first Romanian lorries were produced in 1954, and since 1960 Romania has been producing a lorry of modern design and high performance.

At the same time, using the mechanical parts of the lorry, the production of buses for urban transport and long-distance mail has been started and continued.

Car production began with jeeps in 1957, followed by a modernized type of jeep in 1961.

Cars began to receive growing attention, as the standard of living rose, with the adoption of an industrialization policy which enabled the population to save in increasing amounts. The development and modernization of the road system also helped to swell demand.

To meet this demand, cars were at first imported. In 1966 a licensing contract was signed with the Renault corporation in France for the production in Romania of the R-12 model, Romanian version, under the name of Dacia 1300, with various alternative versions, following an intermediate stage in which the R-8 model was assembled under the name of Dacia 1100, with only a limited proportion of components produced locally.

Production of the Dacia 1100 model began in 1968, and in 1969, at the same time as the R-12 was launched at Renault, production of the Romanian version, the Dacia 1300, was started (general assembly).

1. Information on the motor industry in the Socialist Republic of Romania

1.0 Number of vehicles

In view of the fact that the greater demand among the population has made itself felt over the last ten years, we shall give particulars of the number of vehicles for the period 1962-1971, based on official statistics.

The following table shows trends in the production of motor vehicles, giving figures for lorries, buses and cars (including jeeps).

Year	Output	Lorries	Buses	Cars, including jeeps	Cars, not including jeeps	Car exports including jeeps
1962	15,004	7,770	951	3,005	-	-
1963	20,174	12,509	1,269	3,222	-	-
1964	22,112	14,718	1,281	3,102	-	-
1965	22,795	14,306	1,571	3,653	-	328
1966	26,973	17,229	1,410	4,565	-	1,648
1967	31,801	20,569	1,727	5,610	-	2,779
1968	38,838	25,407	1,604	7,673	2,030	4,459
1969	56,998	30,535	1,750	19,145	12,668	5,271
1970	66,898	35,018	2,073	23,604	16,250	5,405
1971	74,360	35,164	2,220	29,602	20,500	5,405

The trend in output is one of rapid expansion, made possible by the creation of new production capacity and modernization of the production process.

The number of vehicles on the road has grown over this period as follows:

Year	Number of vehicles	Imports	Sales of private cars
1962	14,800	2,317	-
1963	18,700	3,934	2,306
1964	23,700	8,593	6,347
1965	39,200	11,880	9,216
1966	55,300	16,107	12,770
1967	73,200	17,841	24,557
1968	88,800	13,591	15,939
1969	101,000	6,500	17,878
1970	125,000	11,451	25,500
1971	147,000	3,936	22,800

The rate of growth in the number of vehicles on the road has thus been high, sales increasing by 47 per cent a year over the period 1962-1970. The quantities were not very great, but the growth was steady, both for imports and for Romanian cars, which have helped more and more to meet the growing demand among the population.

In 1970, the percentages of different makes of vehicles on the road were as follows:

Dacia-1100	18.00%
Dacia-1300	0.50%
Fiat-600	2.50%
Fiat-850	10.50%
Fiat-1100	2.00%
Fiat-1300	3.00%
Fiat-1800	1.00%
Moskvici	14.50%
Renault-Dauphine	3.50%
Renault-10	7.00%
Renault-16	3.00%
Skoda	12.00%
Warszawa	1.00%
Wartburg	7.50%
Volga	1.20%
Trabant	9.00%
Miscellaneous	3.80%

Since 1970, the proportion of Romanian-produced cars has tended to rise, because imports have mainly been for the purpose of widening the range of cars available, at least among less powerful cars.

During the period under consideration, registrations went hand in hand with sales (both imports and national output), there being no stockpiling, because of the high level of demand, as can be seen from the figures given above.

1.1 Makes and models of cars produced in Romania.
Brief description of plants

Up until 1968, only jeeps were made in Romania, for the domestic market and for export, greater quantities being exported from 1965 onwards.

Car production was started because of the marked increase in domestic demand, bearing in mind the fact that Romania already had experience of the motor industry through the production of lorries, buses and jeeps.

Under the contract signed with Renault in 1966, arrangements were made for the production in Romania of the Dacia-1300 and related models, which is similar to the R-12 produced by Renault itself.

In addition, using part of the machinery of this car, i.e. at least the propulsion mechanism, the production of utility vehicles in the Estafette range was started in Romania.

In general, car production in Romania is based on the new production capacity created at the motor works and the capacity already existing or in the process of development in supporting sectors of Romanian industry.

The various stages in moving towards autonomous national production are related to the introduction of new capacity.

In accordance with the usual trend in motor vehicle production throughout the world, the first stage was general assembly of the vehicles, the subsequent stages being assembly of the engine, tooling and steel-work.

Production started with general assembly, using CKD parts imported from Renault, the principle being that parts would be gradually dropped from the CKD sets as local production of parts and units developed in Romania.

Car production started in 1968, with the capacity required for the first stage, the production programme having been drawn up following a survey of the domestic market. During a transitional period, until the R-12 model was launched by Renault, it was decided to assemble the R-8 model from imported CKD sets on the assembly lines that had been installed.

This model was a good choice for acquainting workers with the special features of car manufacture while at the same time meeting the population's immediate demand. This model was produced on a transitional basis with a limited proportion of local components, the parts produced in Romania being pieces of general car equipment, such as tyres, upholstery, batteries, radiators, paintwork, lamps, etc.

In 1969, together with the Renault corporation, Romania started producing the Dacia-1300 model, corresponding to the R-12. The proportion of locally produced components at the start of production was much the same as in the case of the Dacia-11 CKD sets being imported for the rest.

The Pitesti motor works was set up in 1952, to produce spare parts and mechanical units for lorries, tractors and jeeps: pistons, piston rings, piston pins, valves, water pumps, oil pumps, petrol pumps, compressors and gear boxes.

On the basis of the experience already accumulated by the works, new capacity has been created for the production of cars in the immediate future while continuing the production of parts and units already made in the old workshops.

With this newly created capacity at the motor works, the proportion of locally produced components will be 55 per cent, the difference coming from supporting industry in Romania and from imports.

The Pitesti motor works has been designed in principle to produce the main components for the Dacia-1300 model. It is capable of doing the assembly work and most of the mechanical work.

The rate of production provided for in the general plan, as determined by Romanian technical experts in collaboration with the Renault corporation, is about ten cars per hour.

The plant is intended to operate on a two-shift system, with the exception of the foundry, forging, heat-treatment and surface-treatment shops and certain tooling shops

The studies on machine tools and equipment and on the utilization of work space were made by the Renault Corporation in co-operation with the Pitesti works and specialized institutes in Romania, on the basis of the production rates that had been fixed, allowing for the possibility of increasing the rates, possibly by making further investment at a later date.

The works has established local design units, for testing and long-term development of vehicles, for the execution of technological studies and for the design of equipment and certain installations, with workshops for their production.

Commercial dealings to do with purchases and sales are conducted through the corresponding services of the factory group to which the motor works belongs.

The plant's foreign trade affairs are handled by the Dacia Export and Import Office, which is part of the factory group and comes under the director general of the group. It is concerned, in particular, with imports of materials for production (CKD sets) and exports of cars.

The labour force, workers and supervisors, comes from similar plants with a long industrial tradition and from the area around Pitesti, up to a distance of about 50 kilometres. The workers, technicians, foremen and junior engineers are trained at schools belonging to the factory group, the apprenticeship including direct participation by the apprentices in the production process for practical instruction. As far as theoretical instruction is concerned, there are normal courses for trainees during the day while for production workers special courses are held in the evening.

1.2 Supporting industry

The production of lorries and jeeps made it necessary to develop a supporting industry in Romania to provide raw and other materials, mechanical units, mechanical parts, electrical parts, chemicals, plastic parts, accessories, oil, grease, etc.

In addition, with the start of car production, there arose a need to develop the existing production capacity of these enterprises, both in quantity, because of the longer series, and in quality, because of the higher standards set by car part specifications.

There are at present about 120 enterprises in Romania which collaborate in car production. They also collaborate with the plants producing lorries, buses, jeeps and tractors. They are located in different parts of the country.

The decision to produce certain parts locally has made it necessary to obtain, through subcontracting, the collaboration of the specialized research institutes for different branches of Romanian industry.

In order to make use of the various sub-licences that have been granted, contracts have been signed with these institutes, providing for modern production techniques, on the basis of the requirements set in the specifications received from Renault.

Local production of car components by the institutes and plants in the supporting industry is done under the motor factory's technical supervision and if necessary the advice of Renault, as the corporation granting the licence, is sought.

Each product manufactured by supporting industry undergoes a process of approval, including verification of the quality of the materials used, the dimensions, assembly and functioning of the part, and endurance tests, in which all the qualitative characteristics and the uniformity of series production have to be checked.

The motor works gives technical assistance to supporting industry, also checking the competence of suppliers, which must be technically developed enough to guarantee constant quality and a genuine capacity to support series production.

The existence of the motor works has led certain other factories to specialize in the production of particular parts for cars, in accordance with the specifications laid down for them. Some plants having a general technical capacity in a certain field have set up specialized workshops or production lines.

Licences or manufacturing rights already obtained by different industries have been revised or extended to enable them to produce car parts.

The Romanian iron and steel industry has started production of certain types of steel and certain rolled, scalped and drawn shapes, in accordance with studies made by the specialized institutes and by enterprises.

The development of the production of rolled sheet by the steel industry, at the Galati works, which has been got under way during the last ten years, has included provision for the production of sheet specifically for car coachwork, and the provisions governing the starting up of rollers provide that they must be passed for the production of coachwork sheet.

The technical rubber and plastic products industry has established, through its specialized institutes, the ranges of materials corresponding to the specifications for car parts, some of which have already reached the stage of series production.

In the mechanical engineering industry, special workshops have been set up for the production of certain units and parts, using technology already established in Romania and technology obtained under licences granted outside the field of car manufacture, together with sub-licences obtained under the general contract with the Renault corporation.

Supporting industry is prepared to meet the needs of car manufacturing in the future, so that new specialization is thus being created in all fields.

The electrical industry has enjoyed the benefit of some licences obtained before the start of car production, from such firms as Ducellier and Jaeger, and sub-licences obtained with the car manufacturing licence, so that it is thus able to meet the present and future requirements of car manufacture in Romania.

The development of supporting industry has been brought into line with long-term development plans for the motor industry in Romania, the main aim being to supply the needs of national production and export.

1.3 Percentage of parts produced locally

The percentage of parts produced locally for the motor industry is not limited by law. Lorries, buses and jeeps are produced locally in their entirety.

The proportion of local production for cars produced under licence depends on existing capacity at the plant and in supporting industry. It evolves in accordance with the development of production capacity in Romanian industry as a whole.

As far as the cars produced under Renault licence are concerned, the present models are intended to be produced locally in their entirety, except for certain minor parts and products not yet produced in Romania, which cannot represent more than 5 per cent of the value of a CKD set.

The development of production capacity at the motor works and plants collaborating with it is governed by a plan covering the period up to 1973.

In principle, the percentage of locally produced parts is calculated on the basis of the progress made in completing the stages described in section 1.2.

When pieces are produced locally they are dropped from the CKD sets, after testing from the standpoint of method, functioning and endurance, testing which is confirmed by the motor works technical services and by the Renault representatives providing technical assistance.

The appropriate parts are eliminated from CKD sets, with due allowance for the minimum time necessary for the preparation and dispatch of such sets.

2. Collaboration with the Renault corporation in France

2.0 Licensing and technical co-operation agreement concluded with the Renault corporation

In 1966, a licensing and technical co-operation contract was signed between Industrialimport, the Romanian foreign trade organization, on behalf of the Pitesti Motor Works, and the Renault corporation.

The purpose of the contract was to enable Romania to produce the R-12 car and models based on it, and also utility vehicles in the Estafette range, with the same quality and characteristics as those models produced by the licensor.

Under this contract the Renault corporation undertakes to provide the technical documentation relating to the product, including designs, specifications, standards, instructions, etc., documentation on technological planning methods and other documentation of production and after-sales services.

In accordance with stages of development fixed upon by joint agreement, a plan was drawn up to govern this process of co-operation, covering the programme for the delivery of documentation and materials by the Renault corporation and the performance by the Romanian party of the obligations undertaken by it.

The co-ordination of the different phases was based on the gradual shift to local production, both at the motor works and in supporting industry. During the period of the contract, the licensee has the right to use the documentation both for its own production and for subcontractors in supporting industry.

The documentation received under the contract includes the necessary material to enable the Romanian works and suppliers to find out the details of the technical conditions governing supplies, procedures for checking quality, and methods and instructions.

The contract takes into account licences already obtained for the manufacture of cars and tractors and licences granted to other branches of Romanian industry for use in the production of parts similar to car parts, regarded as part of a general technique which is already established. The manufacturing rights apply both for the products which are the subject of the contract and for spare parts.

During the period of the contract, any changes or improvements made to the cars, either by the Renault corporation or by the Romanian manufacturer, are to be communicated to the other side, the approval of the licenser being required in certain cases.

Under the contract with the Renault corporation, the Romanian party was to receive modern techniques applicable on an industrial scale.

In practice, it was not possible to transfer the methods and techniques used by the Renault corporation to Romania unchanged. Allowances had to be made for differences in the rate of production.

A thorough study had to be made for this purpose. It was carried out by specialists from the Renault corporation in collaboration with Romanian engineers, who established the work areas required, the layout of the production lines and the appropriate methods, selecting the tools and equipment needed by agreement between them.

Such co-operation has only been possible through constant exchange of technical information.

A licence always implies the transfer of knowledge between the partners and in our case this knowledge is the technology worked out by the Renault corporation and its collaborators.

In the same way, the training of Romanian personnel has been organized at Renault plants, and in some cases at plants acting as subcontractors for Renault, which has enabled them to master techniques that cannot be transferred by means of documentation alone.

The fields in which training is given were established by agreement on the basis of the programme, and generally speaking it has proved possible to obtain all the necessary information.

In addition, the contract provides for Renault specialists to give technical assistance in various fields of activity, such as approval of parts, approval of methods, starting up of production lines and equipment, etc.

In order to help with the problem of getting currency to pay for the licence, it was planned that Renault should buy certain products from the Romanian motor indust

2.1 Subcontracts concluded with the Renault corporation

Under the licensing and technical co-operation contract, Renault undertakes to buy from Romania parts, units and sub-units for the vehicles with which the contract is concerned.

This matter is to be the subject of talks between the partners with a view to finding opportunities for the export of R-12 parts made in Romania in order to make better use of the production capacity created as a result of the contract.

Along the same lines, a subcontract was signed in 1967 transferring the production of Estafette gear-boxes to Romania. This was done by ceasing production at the Renault works and establishing the existing production lines from Renault at the motor works in Romania.

The existence of a common interest ensured the successful completion of this transfer within the framework of technical collaboration arrangement which managed to eliminate the difficulties involved in such an operation for a high-quality product, so that the distances involved have not prevented completion of the transfer and starting up of the production lines, nor the subsequent conduct of this operation.

This kind of collaboration is particularly effective because of the common interest created, in that the licenser entrusts his partner with part of his own production, on which the efficient manufacture of his own products depends.

The subcontracting arrangement has been successful in these circumstances and has been extended, mutual confidence having been established.

Following the same principle, after the feasibility of this type of operation had been established in practice, a second subcontract was signed in 1970, transferrin the production of Estafette front and rear axles. Production under this new arrangement is at present starting up in Romania.

The positive aspect which is characteristic of this type of subcontracting arrangement is that both sides have an interest in it: since the subcontractor gets exclusive rights to make products which are as necessary to him as to the licenser, the results of his efforts are shared between the partners, with a resulting economy of technological effort based on a division of labour, so that the arrangement goes beyond the usual relations between supplier and plant.

2.2 Exports of parts, units and vehicles

Up until 1971, Romania's vehicle exports were of jeeps, sold mainly in Europe.

In 1971, Romania started exporting cars under the bilateral arrangements and contract with Renault, which was to the advantage of both sides, because in the first place it helped to increase Romania's exports and in the second place it made it possible to step up Renault's deliveries, particularly in areas and countries to which it had not previously exported much.

At the same time, it can be said that the cars produced in Romania contain a considerable percentage of Renault parts from CKD sets purchased from France.

Built-up cars have been sold to certain developed European countries and to developing countries, the majority going to European countries.

Under the subcontract for gear-boxes, average annual deliveries are about 30,000 and about the same quantity is envisaged for Estafette axles under the new contract.

3. Special conditions imposed by collaboration

3.0 Investment

Development of the motor industry means adopting modern techniques, in order to achieve an appropriate and consistent level of quality and to lower production costs.

During the initial period of car manufacture, investment is considerable, because modern technology has to be brought into oporation and the rate of output is fairly low to start with.

In the case of Romania, the initial investment has been fairly heavy, but it will be possible to raise the rate of output as time goes by and to reduce costs.

When considering the investment necessary one has to take into account both the development of the basic plant and that of supporting industry.

In making such investment at the Pitesti motor works in Romania, the basis was the plan submitted by the Renault corporation, under the licensing contract, and the buildings were designed by the Romanian specialized institute concerned.

Construction was carried out by a Romanian building firm. Machine tools, installations and equipment were purchased at the proposal of the Renault corporation, with the advice of Romanian engineers, the supplies being shared between Renault and Romanian suppliers.

As a general rule, the Renault corporation has been kept as general supplier for groups of machinery requiring special controls and a considerable amount of technical assistance during assembly, machine tools of a general nature being supplied from Romanian sources.

3.1 Production quality

Car production raises in the first place the problem of whether the car can compete in quality with comparable products on the market.

The main aim of the contract signed with Renault has been to introduce modern technology capable of guaranteeing constant quality and a system of technical organization capable of maintaining quality standards.

The solution to the quality problem lies in the design itself, or in collaboration between Renault specialists and Romanian specialists, provision being made for all the conditions necessary for quality control to be met.

On the basis of the technical conditions and specifications supplied under the licensing contract, all materials were subjected to laboratory analysis to see whether they could be supplied in Romania. In the case of materials for which there was no existing equivalent on the Romanian market, samples were sent to the specialized institutes for study.

The Renault corporation has an obligation to continue the process of in-plant testing of parts produced by the methods adopted by mutual agreement, while cars produced in supporting industry are approved on the basis of Renault's specifications and design documentation.

The procedures adopted under the approval process make it possible to test quality and to ensure that it is maintained during production.

In order to test quality, it has been necessary to construct testing benches and put them into operation, and thus to master testing techniques and data processing.

Updating of the licence documentation ensures that competitive quality is maintained.

A problem which has come up in exchanges of technical information is the different rates of production of licenser and licensee. The licenser, who as a rule has a higher rate of production, has greater economic advantages, because amortization is quicker.

From the economic standpoint, it is desirable that any changes should allow for subsequent interchangeability, which is possible when there is only one model, but licensers usually produce several models.

We think the solution is to consider the interests of both partners in developing licensed models, taking into account the implications for both parties.

The conditions laid down in the contract concerning the need to inform the licensee of all improvements made to the vehicle so that he can keep abreast of the development of the product, cannot be fully met in a properly effective way, because of the differing economic situations of the two parties. The only solution is to ensure interchangeability, in order to avoid difficulties in manufacture and the supply of spare parts.

3.2 Production costs compared with those of industrialized countries

Production costs are determined in the first place by the production lines, bearing in mind the fact that the large-scale investment involved must correspond to a quantity of output which will ensure a rate of amortization in line with the average for producers throughout the world.

Labour is for the time being cheaper in the developing countries, and this is true of Romania. But the situation will change in the future and it will therefore be necessary to place the emphasis on series production.

There can be no question of reducing production costs by lowering quality, which could cut investment to some extent, because the quality would not then be competitive. The best solution is thus to investigate what kind of production series is economic.

For these reasons, the Romanian State envisages that the future development of the motor industry will be towards a more economic rate of production.

It may be said that the results of industrial collaboration between developed and developing countries in the future will be fruitful when the stage is reached at which production costs can be calculated on the basis of similar figures.

In industrial collaboration, the price problem can always be resolved on the basis of long production series, even if in the initial transitional period the developing country produces at a low rate. Thus the developed country can entrust the developing country with the production of sub-units to meet the needs of both partners, in long series, the greater proportion of the parts returning to the developed country and the distribution between the two partners being based on the relative rates of production in the two countries. In this way, economically optimal series can be achieved without upsetting the activities of the two partners, on the basis of modern techniques guaranteeing both quality and delivery periods.

Another problem which arises in such collaboration is price distortion by high customs duties, which create barriers and can make production unprofitable. The idea of collaboration should be backed up, at least in the case of counterpart supplies, by the removal of tariff barriers and discrepancies in duty rates, bearing in mind the fact that developed countries as a rule impose high rates.

In conclusion, it is necessary that each collaborative operation should yield some benefit, which should be shared between the two partners. This is possible if a joint study is made of the aspects relating to the situation of each partner. The results can only be satisfactory to the extent that common elements can be found which will ensure a community of technical and economical interests.

3.3 Adherence to delivery periods

Under a collaborative arrangement, reciprocal deliveries are an essential element for the continuity of the two partners' production.

Because of the difficulties that can arise with regard to reciprocal supplies, a reserve stock must be established so that production can continue in cases of force majeure such as can occur.

In order to keep stocks low and to avoid tying up financial resources, supplies should be planned in relation to production, reciprocal deliveries should be co-ordinated and container transport should be organized, so that the parts can be handled easily and quickly.

For exports of Estafette gear-boxes to Renault, a reserve stock has been set up in order to avoid any danger of a breakdown in deliveries. Studies have been made to determine the most useful containers and a transport system has been established whose possibilities and limits are fully understood.

A decisive factor for successful collaboration is adherence to delivery schedules, both for goods intended for production purposes and for equipment and machinery on which depend the development of national production and the achievement of the targets set in the general plan of collaboration.

Collaboration is only possible if delivery schedules are adhered to and this matter must accordingly be given all due importance in contracts.

3.4 Special conditions established for the development of international collaboration

In Romania, with a view to creating favourable conditions for international collaboration, a legal framework has been set up for establishing joint companies with foreign participation in the fields of industrial and agricultural production, building, transport, commerce, tourism, technical and scientific research and services.

With regard to the establishment of joint companies, the Romanian authorities envisage:

The formation of enterprises having as their object to contribute to the development of the national economy, to extend, modernize and renovate certain existing enterprises, to speed up the introduction of modern techniques, to improve the technical quality of production and services and to ensure a high level of labour productivity;

The promotion of exports, the opening up of new markets and extension of others, the diversification of production for export and the development of collaborative activities in third markets;

The promotion and development of scientific research activities;

The introduction of modern methods of production organization and management of enterprises;

The training of specialist staff for production, organization and management of enterprises, including commercial establishments;

The opportunity for Romanian economic organizations to establish joint companies in Romania or abroad, with the agreement of the competent authorities.

The conditions governing the establishment, organization, duration and operation of joint companies, the rights and obligations of the parties, the procedures governing the formation and withdrawal of capital, the criteria governing the distribution of profits and other specific provisions must be laid down in the contract concluded between the parties.

The joint companies established in Romania are bodies corporate, which carry on their activities in accordance with the legislation of the Socialist Republic of Romania. The share of the Romanian party in the capital of these joint companies is at least 51 per cent.

The Romanian State arranges and guarantees the financial contribution of Romanian economic organizations to joint companies in Romania, and similarly with regard to the activities of the companies in Romania.

The Romanian State, through its authorized institutions, gives its foreign partners guarantees concerning the transfer abroad of capital instalments, profits and other sums due to them, after payment of the corresponding taxes and fulfilment of other obligations laid down in the contract.

The joint company must be registered with the Ministry of Foreign Trade and the Ministry of Finance of Romania and becomes a body corporate from the date of registration.

As regards the future development of the Romanian motor industry, it is planned to continue the policy of international collaboration, the most appropriate form being the establishment of a joint company with a partner in a developed country in order to thus create the material conditions conducive to competitive economic efficiency and an optimum rate of production.

4. Results of collaboration

Through the collaborative arrangement with Renault it has been possible to transfer new techniques and modern methods of car production to Romania.

The technical documentation received, the training courses for Romanian personnel at Renault and the technical assistance of Renault specialists have made it possible to get production going at the works itself and at supplier plants in supporting industry.

By working together it has been possible to arrive at appropriate technical solutions and to organize production in such a way that output quality can be ensured and maintained.

The quality is constantly checked by the Romanian control staff, and the Renault representatives sent to Romania for technical assistance also help in this connexion. As a sign of its confidence in the quality of cars made in Romania, Renault has agreed to sell Romanian-produced cars through its sales network on foreign markets.

The organization of production lines was based on the principles adopted at the Renault works, with the necessary modifications to adapt them to the rate of production planned for Romania.

In promoting the use of parts produced domestically and locally, great stress is always laid on quality control and on guarantees of production capacity, in order to ensure that supplies can be maintained to meet the rate of production.

Subcontracting arrangements, which preceded the start of local production, provided an opportunity to adjust in advance to the technical characteristics of the processes for tooling and assembly of Estafette gear-boxes and axles, and this experience could then be used in starting up tooling and assembly lines for the production of car units under licence.

For example, the starting up of machining and assembly of the R-12 gear-box was much assisted by the fact that the technique in this field was already familiar as regards both the materials used and the production process itself.

This first contract for the production of cars in collaboration with an industry of high repute in a developed country has established the basis for the future development of car production in Romania.

In Romania, industry has the principal role to play in the country's development and the motor industry occupies an important place in it, because it creates a large amount of employment in all sectors of supporting industry.

The technology transferred for the production of cars goes beyond the field of production as such, because the technical assistance given also covers the development of the after-sales network for which the licenser makes his own experience available.

For the licenser, the contract had the following advantages:

Exports of CKD sets to Romania for a period;

Increase in the output of the cars covered by the contract;

Entry into a market with great possibilities for the development of demand in a new geographical area;

Establishment of new industrial relations by means of subcontracts.

5. Conclusions

Car production began in Romania with a licensing and collaboration agreement with the Renault corporation in France.

The future development of the industry will be orientated towards international industrial collaboration with a manufacturer who can take into account the interests of both sides, so that currency payment problems can be solved, either through the formation of joint companies, or through local production of certain parts or units on a large scale in order to meet the needs both of Romania and of its partner.

The present situation of the developed countries and the developing countries with regard to the motor industry may justify an extension of the collaborative system, taking into account the fact that it would be desirable to meet the needs of new markets by local production.

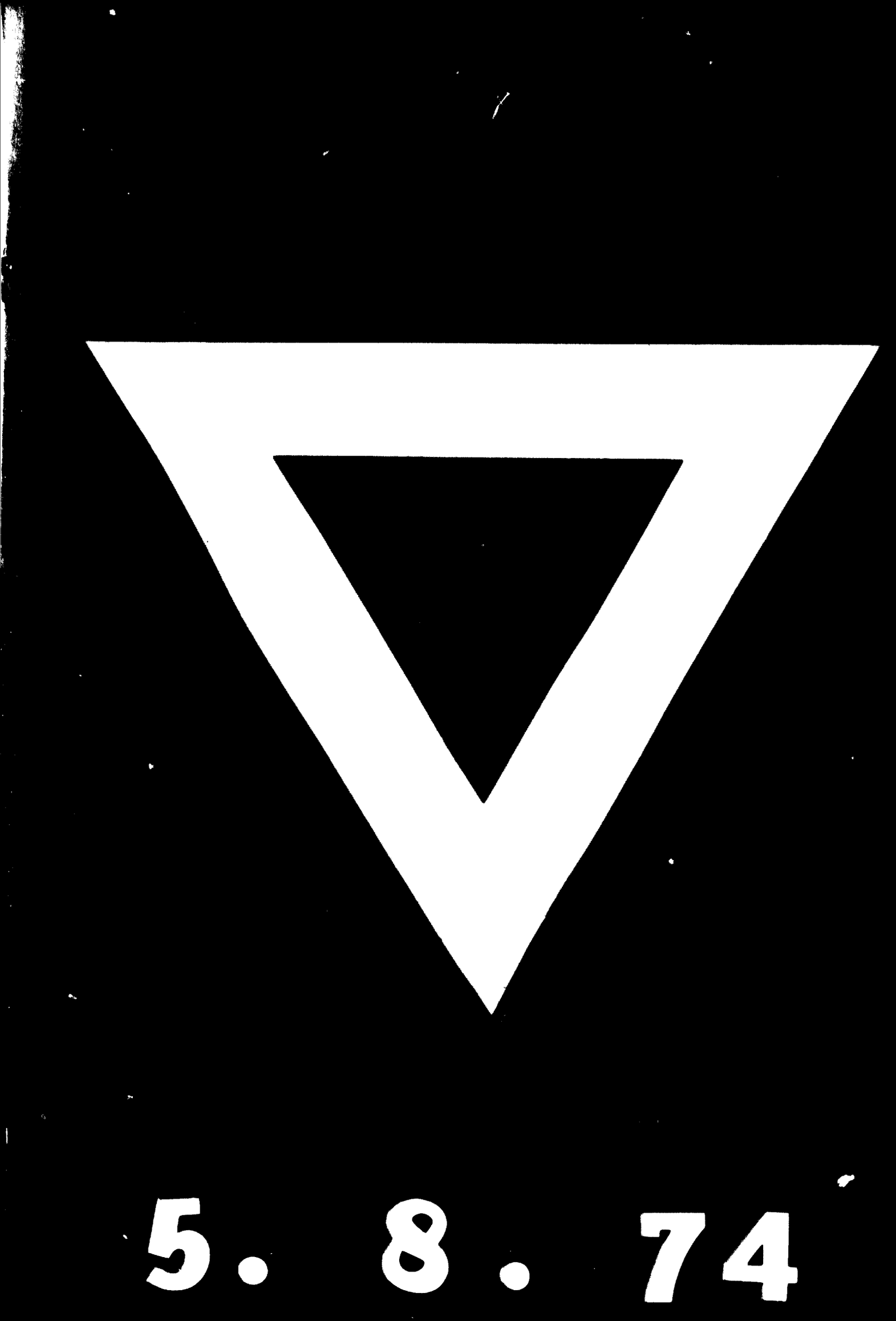
Current technical progress in the field makes it essential to organize production in such a way that its advantages can be utilized to optimum effect, and in that connexion collaboration between industrialized and developing countries makes it possible to solve problems relating to the market, to investment and to labour.

The development of the developing countries' markets is essentially a matter of choosing the car models for which there is a demand and setting prices within the population's reach, which is made possible by the establishment of a national car industry producing in large series. Large-series production can be achieved through industrial collaboration with industrialized countries, under which currency payments are made in the form of supplies of vehicle parts, either through subcontracts, or through joint companies or through some other form of co-operation.

The developing countries are interested in establishing motor industries which will enable them to supply the population with more vehicles, and this can be made possible through collaboration agreements concluded with an awareness of their advantages for both sides, in order to find feasible ways of developing co-operation based on balanced reciprocal deliveries.

There is also the problem of the type of car most appropriate for the specific market conditions in each country. In this connexion it is desirable to make a joint study of the opportunities for adaptation that might be of common interest with regard to sales and industrial collaboration.

From the results achieved in recent years, there is every hope that mutually advantageous solutions can be found for collaboration based on the international division of labour, with due respect for the essential principles of national independence and non-interference in the partners' domestic affairs.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