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WORKING GROUP ON ECONOMIES OF SCALE IN
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CHANGES OF MODELS AND MODIFICATIONS TO MODELS IN PRODUCTION

prepared by

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Note: The meeting of this Working Group is one phase of the project "Prospects and possible forms of regional integration in the automotive industry in Latin America" that is being carried out by the Economic Commission for Latin America (ECLA) and the Inter-American Development Bank (IDB), with the collaboration of the United Nations Industrial Development Organization (UNIDO).

SUMMARY

1. Changes to the base model

These are of two types:

10. Those which are obligatory to bring the chosen model into line:

101. With national legislation. They should be limited in number and importance if the national highway code is based on the rules established by the international organizations;

102. With the particular conditions of the local industry. They will be defined by the experts employed by the International Manufacturer, whose exhaustive knowledge of the model and its potential will enable them to determine: whether it is necessary to alter the original electrical system, by increasing the capacity of the battery or the power of the generator;

103. With the terminology and system of measurement. The lettering on the dashboard and various plates, the markings on the instruments of measurement.

11. Changes introduced by the International Manufacturer in the course of production.

Here, the question becomes much more complex, since the manufacturer himself is faced with a variety of problems.

2. These changes may:

20. Affect the external appearance of the vehicle; this raises problems of disposal of stock, depreciation of unmodified models, price of second-hand vehicles.

21. Affect the performance of the vehicle.

22. Affect the interchangeability of certain mechanical components.

These changes are just as serious, although not visible. They pose problems connected with:

- the stock of spare parts at the factory and in the spare parts shops of concessionaries and agents;
- identification of vehicles on the basis of changes.

/These changes

These changes give rise to:

- internal administrative complications;
- the issue of information to the dealer network;
- changes to production and checking equipment;
- increased stocks of spare parts at all levels;
- errors in delivery;
- inevitable increase in cost price.

23. All Departments share responsibility for these changes:

230. The Sales Department requests them in the light of the market situation, as a means of fighting competition and inducing customers to change vehicles:

- Changes to external bodywork (wings, radiator grills, ornamentation);
- Changes to interior layout (dashboard, carpeting, seating);
- Improvement of performance.

231. The After-Sales Department, in the light of customer research requests improvements in:

Safety-road-holding, durability or wear of safety parts (front and rear axles), tyre wear, consistency and wear of brakes, locks.
Reliability of the engine, transmission and steering; convenience of maintenance, convenience of repairs.

232. The Production Methods Department requests changes in design, in order to:

- improve quality;
- reduce production time;
- permit the automation of manufacture and assembly operations.

Lastly, where suggestions boxes exist, the staff as a whole can make suggestions for the improvement of conditions of production.

In most enterprises, a special General Management department has the task of sifting all requests for changes, evaluating their effects on the cost price and the running of the various services and setting aside any proposals which have no obvious utility.

/3. Should

3. Should the authorized manufacturer apply all the changes made by the International Manufacturer?

31. The question does not arise in respect of SKD and CKD assembly, since the stock of parts dispatched by the manufacturer follows the same evolution as production. The assembler must only take care that the dealer and after-sales networks are informed in good time to create stocks of modified spare parts and to properly identify vehicles so as to avoid delivery errors.

32. The question does arise in cases of integration of national parts.

321. It is in the interest of the International Manufacturer that all the changes be applied, so that the vehicles built under license do not differ from those that he manufactures.

To protect his world reputation;

To avoid complicating the spare parts situation on the various export markets.

In the common case of cars leaving their country of origin, suitable spare parts must be available on the spot.

322. The national manufacturer has more divided interests.

He must ensure that the vehicle that he manufactures does not depreciate in value compared with the same vehicle from the country of origin, particularly from the point of view of appearance and interchangeability if he wishes to export the car.

He must also closely watch his cost price and avoid any situation that would induce it to rise (scrapping of non-amortized tools, excessive stock of spare parts, stock of vehicles for sale at a reduced price, etc.).

33. The best approach is to select for urgent implementation only those changes that affect the safety and reliability or the interchangeability of the vehicle.

The other changes should be studied individually, in conjunction with the International Manufacturer, so as to estimate possible profitability. Those finally adopted would be grouped together for implementation at specific intervals (every year or twice a year, for instance), and the vehicle's name would be changed to avoid errors in the dealer network as a whole.

/4. The

4. The implementation of this policy requires a climate of absolute confidence between the two parties and in particular, absolute secrecy in respect of information transmitted.

1. Changes to the base model

The model which a licensed manufacturer chooses for construction in a new country from the range of models of an International Manufacturer will have to undergo a certain number of changes of variable importance in the course of construction.

10. Changes which are obligatory to bring the chosen model into line:

101. With the legislation of the country considered, or of the countries to which it will eventually be exported. For example: the dimensions of the license plates, fitting of an anti-theft device, the position of the parking lights, the installation of equipment approved in the country in accordance with specific regulations (lights, spotlights, horns) etc.

These changes - which may entail substantial increases in cost price and investment if they affect the steel-work of the vehicle - will be limited in number and importance if the national highway code and the rules which supplement it are based on the regulations established by the specialized international institutions (ISO, etc.).

102. With the particular conditions of the local industry. These changes will be defined jointly by the experts employed by the International Manufacturer and those employed by the authorized manufacturer, possibly together with representatives of the competent administrative body, following trials carried out on the highways and by-ways of the country considered, before the decision is made to build the car. Their exhaustive knowledge of the project and its feasibility will enable them to determine, for instance: whether it is necessary to modify the original electrical system, by increasing the capacity of the battery or the power of the generator; to adopt a more selective air filter to match the granulometry of the local dust; to change the cubic dimensions of the engine so as to make better use of the standard fuel distributed in the country; to fit a different size or shape of tyres, in accordance with the condition of the national road network, etc.

/103. With the

103. With the terminology and legal system of measurement. The lettering on the dashboard and plates should compulsorily be in the language of the country, and the country's legal system of measurement (distance, volume, temperature, pressure) should be used for the markings on the dashboard instruments (tachometer, mileage recorder, petrol-gauge, water thermometer and oil-pressure gauge).

11. Changes incorporated by the International Manufacturer in the course of production of the base model.

Here, the question becomes much more complex, since the manufacturer himself is faced with numerous problems which are a source of enduring conflict among his different departments.

Such changes often have important consequences in the technical, financial and administrative fields.

Should the changes be applied systematically by the licensed manufacturer? That is what the International Manufacturer wants, but such a solution would pose problems for the authorized manufacturer, with attendant risks of conflicts and mutual misunderstandings.

In the present study we intend to pay particular attention to the analysis of this problem and to draw practical conclusions, with a view to removing one of the principal causes of conflict.

2. Changes made by the International Manufacturer in the course of production

We shall deal with this problem from two points of view: firstly, by examining the nature of the changes and secondly, by determining their origin in the enterprise.

In each case, we shall specify the commercial, technical and economic effects of the changes introduced.

20. Changes affecting the appearance of the vehicle

These changes are of great importance commercially, since they permit the identification of the precise data of manufacture.

Experts on the second-hand market are always on the look-out for such changes, which do not have to be very apparent to attract their attention. The modification of the shape of a secondary accessory, such as a window handle, is sufficient. It is not necessary to change the shape of the bumpers or the colour scheme of the bodywork.

/Such changes

Such changes have serious effects on:

201. The disposal of vehicles in stock. The client always desires to have a car that is identical to the last vehicle off the assembly line, and so there is a risk that the vehicles in stock will suffer depreciation during transportation or in the course of distribution, entailing important financial losses when the stock is large,

202. The price of second-hand vehicles, which automatically falls as a result of market displacement by the new vehicle. The amount of the depreciation obviously depends on the importance of the changes in appearance.

In general, these changes are made only once a year, to be presented at a Car Show, so that the effects can be limited to a period during which the same difficulties are normally suffered.

21. Changes affecting the performance of the vehicle. Basically, such changes relate to:

- horse power,
- transmission ratios,
- fuel consumption.

By their very definition, these changes are very unlikely to pass unnoticed and give rise to complaints by earlier clients who claim that vehicles identical to their own have better acceleration times, particularly on drawing away from traffic lights and on gradients.

The most frequent result is for changes to be made under warranty to cars already delivered, even if the warranty period has already elapsed, so as to soothe unhappy clients and retain their custom for a future purchase. This affects the financial and psychological relations between the dealer network and the clientele.

22. Changes affecting the interchangeability of mechanical components. Most changes are of this type and they have chain reactions which it is difficult to apprehend and calculate, especially if the market is large. To prevent customers from suffering on this account, it is essential:

To provide the after-sales network with precise information on:

- the date of the change,
- the number of the first vehicle to which the change was applied,

/the importance

- the importance and number of the parts affected;

To supply dealers with new parts, as soon as they are mass-produced, to offset the risk of undue immobilization of a vehicle, to be repaired.

These changes have important consequences:

a) In the sphere of administration, owing to the need for information at all levels of production and after-sales service: changes in names and spare parts catalogues. Issue of information notes in the languages of all the countries to which the vehicles are delivered.

b) In the dealer network:

Constitution of stocks of spare parts in the factory, in regional shops and in the network of concessionaries and repair-shops.

Risk of exhaustion of stock of spare parts, since it is difficult to assess consumption over the next fifteen years in advance.

All this inevitably has financial implications both for the enterprise and the dealer network, owing to the increase of the stock of spare parts at all levels.

Lastly, increased risk of error in dealing with orders for spare parts; if the client does not specify the series number of his vehicle, he runs the risk of receiving a part which will only fit a vehicle produced before the introduction of the change.

23. All departments share responsibility for the changes

230. The Sales Department demands changes as a weapon to fight competition and to induce the customer to change vehicles, even if the one he has gives satisfaction. In general, such changes are requested once a year, to be incorporated in the model presented at the International Show of the following year, for the purpose of making an impact on the market, initiating a publicity campaign and calling press conferences.

These habitual annual changes, which started in the particularly dynamic market conditions of the United States, gradually spread to the other large producing countries where annual or bi-annual shows are important international events.

The changes requested by the Sales Department relate to:

2301. The external form of bodywork: bumpers, wings, radiator grills, dimensions of rear windows, external decoration, type and colour of paintwork.

/In the

In the United States, these changes are planned by the stylists after studying the base model, which in theory has to last four years, with provision for three restylings. The construction of the shell is planned to allow for changes, without affecting the main structure, the radiator grill, the bonnet and front wings, the doors, the rear window, the rear wings and the boot. The plan specifies how long each of the components is to be used, so that the stamping dies are built to produce a specific number of parts: four years for structural components, three, two years or one year for the wings, bonnets, etc., according to the plan adopted. Thus the means of production are economized and perfectly adapted to the job they have to do.

But all this requires firmness of decisions and absolute secrecy with regard to operations, even within the same enterprise.

2302. Interior outlay: dashboard, dashboard instruments, glove compartment, carpets, shape and position of seats, cushion padding, type of fabric, various accessories: radio, rear-view mirror, door handles, window handles, lighting, cigar lighter, ash-trays, etc.

2303. Improvement of performance: maximum speed, acceleration, fuel consumption. In this connexion, it may sometimes be necessary to slightly reduce the cubic capacity of an engine so that the cars can be classed in a lower class in competitions; this calls for a change of bore and all that entails in the way of new parts; piston, piston axle, piston-rings, cylinder-head.

2304. Reduction in price of a "stripped-down model", together with the creation of models with different customer options: standard de luxe, sport, gran turismo, etc.

2305. The creation of special models designed for particular uses or for sale in countries with peculiar importing habits.

231. The After-Sales Department which, in the light of customer research, compiles complaints and remarks and demands changes based on:

2311. Customers' remarks on:

- maximum speed (generally lower than the speed marked in the catalogue),

/- acceleration,

- acceleration,
- hill-climbing ability (speed ratios and engine power),
- fuel consumption,
- lubricant consumption (exhaust fumes),
- water consumption (engine that overheats),
- starting up cold engine,
- starting up warm engine,
- dust- and water-tightness of the bodywork,
- various noises and vibrations;

2312. Remarks on safety:

- road-holding,
- durability or wear of safety parts (front and rear axles),
- type wear,
- consistency, balance and wear of brakes,
- working of locks.

2313. Remarks of the maintenance workshops on:

- the reliability and wear of the engine, transmission, steering and brakes;
- maintenance facilities (access to filler caps and drain plugs, adjustments);
- convenience of repairs (access to components, disassembling and reassembly).

Before being transmitted to the competent services, these remarks are studied by qualified technicians who check that they are justified or advise the client if he is not using the vehicle correctly. Monthly statistics determine whether these are isolated phenomena (which would be the consequence of irregularities of manufacture), or systematic faults, which might warrant changes to the components concerned.

232. The Production Methods Department demands changes of substance or design, in the light of manufacturing experience, in order:

2321. To improve quality by:

Changes in the shape of cast, forged or stamped parts, to improve the percentage of good parts;

/Changes in

Changes in heat treatment to ensure the uniformity of mechanical characteristics and reduce deformations of parts treated;

Changes in manufacturing tolerances to ensure the interchangeability of assembly components.

2322. To reduce the time spent on production, or permit the use of different machines or manufacturing techniques.

2323. To automate certain manufacturing or assembly operations.

In theory, the changes suggested by the production or assembly workshops should pass through the same channel, in order to avoid conflicts of competence.

233. The Research and Development Department also proposes changes affecting the car as a whole, taking account of:

2331. Developments in national and international legislation, so that the changes may be incorporated within the prescribed time limit. Such changes relate, for instance, to nuisance control: air pollution by exhaust fumes, radio interference, noise.

2332. Experience acquired at test tracks at home and abroad, which generally confirms after-sales experience.

2333. Progress made in related industries in the way of:

23330. Improving the quality of construction materials and better adapting them to their function. This entails, for instance, perfecting special steels for exhaust valves, valve springs, etc., improved plastics to provide a better substitute for components made of pressure-cast metals or even glass, as in the case of rear-view mirrors which were replaced by plastic mirrors silver-plated under vacuum to improve the safety of the interior of the vehicle by eliminating the risk of injuries from splinters.

23331. Better adapting plant and equipment, as for example by replacing continuous-current by alternating-current generators, a consequence of progress in the production of transistors and diodes in the electronic industry.

23332. Introducing new inventions derived from the

/automobile or

automobile or related industries, such as aeronautics or electronics (see previous example).

234. The Buying Department requests changes.

At the proposal of external suppliers, to improve the quality of their supply or reduce the price, or to enable their clients to share in production improvements.

2341. Possibly to change a supplier, if he produces at a higher price or lower quality than one of his competitors or if there is a risk that, through inertia, bad management or continuous social conflicts, the supplier will not honour the delivery deadlines laid down in the production schedule.

235. Lastly, the suggestion boxes, where they exist, enable the staff as a whole, both manual and clerical workers, to put forward suggestions for improving production condition and the quality and price of the articles produced.

These suggestions are usually shifted by a special General Management department, to prevent any possibility of demagogy and a priori rejection by the specialized technical services.

24. The description of these changes and of their different sources shows the complexity of the question and how numerous are the demands which are placed before the Technical Department: several dozen per day in respect of a single car-making process.

Most of the large international car-builders have, therefore, developed a system to control and take the best possible advantage of this continuous flow without placing an undue burden on the work of the enterprise.

241. There are important effects on the running of the enterprise.

2411. The administrative complications are many. Notice of changes must be distributed to all the services concerned:

24111. The Manufacturing Bureau, which must co-ordinate the action of the different departments and fix a deadline for implementation to take account of the urgency expressed without unduly upsetting production.

24112. The Methods Bureau, which must study changes to the range of processes and machinery.

/24113. The

24113. The Production Services, which will have to install the means of production and apply them at the appropriate time.

24114. The Buying Department, which will possibly have to contact the external supplies to ensure that they respect the stipulated deadlines.

24115. The Quality Control Department, to enable it to study and create the means of checking the new parts.

24116. The Cost Price Department, which will have to calculate the effects of changes on the cost of the vehicle and make provision for the amortization of new tools and the residual amortization of old tools.

24117. The Sales Department, which will possibly have to determine the effects on the sale price and organize the spread of information to the dealer network, where appropriate.

24118. The After-Sales Service, which will inform its network and specify how changes are to be applied in technical brochures; it will also pass on orders for the necessary spare parts to ensure that customers are supplied for a period of fifteen years (duration of the obligation to supply repair parts).

All this information must be supplied in complete secrecy, despite the large number of addressees, to avoid the unpleasant consequences of indiscretions: halting of delivery and the counter-publicity that such news always provokes.

2412. Changes in production and checking equipment. Two solutions are possible:

24121. Changes in production and checking equipment where possible. If the necessary tools are to be available during the time required for the introduction of changes, this entails:

- Bringing forward production in order to ensure harmonization with the new system, i.e. to modify the production schedule.

- Setting up a stock of old spare parts to cover future demand, in accordance with the orders passed on by the after-sales service.

- The foreign assembly plants are obliged to adopt these changes in machinery, since they produce the possibility of continuing the supply of old CKD parts.

/24122. Creation

24122. Creation of new tools, the old being preserved in order:

- to cover requirements for spare parts;
- to continue supplying the CKD market, in cases where it is not wished to apply the change.

This solution usually has the drawback of requiring a large amount of investment. One of the two solutions is to be adopted, taking account of the following factors:

- consumption rate of spare parts;
- size of demand for CKD parts;
- interest of the licensed manufacturers in the change envisaged;
- value of the spare parts;
- value of the new tools;
- price of the change of tooling.

In some cases - bodywork components, for instance - it may be feasible to cede the tools for manufacturing spare parts to one of the authorized manufacturers who does not wish to apply the required change and who undertakes to sell spare parts to the central warehouse of the International Manufacturer, and repair parts to the other licensed manufacturers, to fill out incomplete collections of CKD parts, delivered by the International Manufacturer.

2413. Setting up of stocks of spare parts.

24131. For out-of-date parts, to ensure the maintenance and repair of the vehicles delivered before the introduction of the change. In the case of bodywork parts, this stock takes up a considerable amount of space and capital. Parts must be stored on damp-free premises, to avoid damage through rust, especially in tropical countries.

24132. For new parts, and their placement in the over-all network before the introduction of mass production.

2414. Calculation of financial effects.

24141. Change in the cost price of the modified components. Effect on the price of the vehicle.

/24142. Financing

24142. Financing of investment in tools and transformation of workshops. Such investment may be very large in the case of changes to steel-work, if large stamping machines have to be reconstructed.

24143. Residual amortization of tools which have served only a fraction of the time originally envisaged. Effect on the cost price.

24144. Financing of the increased stocks of spare parts.

2415. Organization. The implementation of these changes is expected to require over-all co-ordination, and in many cases arbitration, for the taking of decisions, between the department making the request, which is always sure of the justice of its case, and the other departments, which are not always so sure. Such arbitration can only be undertaken by the general management of the firm after an exhaustive survey, usually carried out by a special service which receives the requests and submits them to an inquiry in all the departments (standard questionnaire).

The study specifies the importance of the changes to be carried out and all the effects foreseen in the enterprise and on the market, calculates the change in the cost price and the investment expenditure to be undertaken.

It proposes either mere rejection, or acceptance, with a time limit for application.

2416. The question of a time limit is important and also gives rise to discussion.

The changes affecting the safety of the vehicle are urgent and, in certain serious cases, may even be applied retroactively to vehicles delivered to customers and vehicles in stock before delivery. This is a delicate operation which must be perfectly organized by the after-sales department to prevent panic and a rush of clients to the workshops. It is also a costly operation, being undertaken under the vehicle warranty.

/Of similar

Of similar importance are changes affecting the resistance to wear and tear of vital components: engines and transmission systems; though the safety of the vehicle is not involved, there is the danger of it breaking down on the road (broken crankshaft, for instance).

In the other cases, it is attempted to group the changes together for application en masse at the time of the annual change, which usually coincides with the Car Show held in the country of the authorized manufacturer. This encumbers the task of the Production Services, but the commercial and after-sales effects are simplified, since it becomes much easier to identify spare parts.

3. Changes made by the authorized manufacturer

Should the authorized manufacturer systematically apply all the changes made to the basic stock by the International Manufacturer? This question may be answered in the light of the preceding analysis.

Obviously, all the above-mentioned drawbacks for the authorized manufacturer are accentuated by:

- the want of local technical resources;
- the scarcity of financial resources and, in particular, the deficit on foreign currency to finance investment;
- the difficulties of passing on information to the dealer network;
- the difficulties of after-sales service for spare parts and the incompetence of the workshop staff who do not read the information notes.

The situation changes according to the proportion of national parts used in manufacture.

31. SKD and CKD assembly without integration of national parts

Here the question does not arise. The number of parts dispatched by the International Manufacturer follows the evolution of production. The assembler must only take care:

/310. That

310. That the dealer network is informed in good time to make the necessary psychological adjustment, especially in the case of an annual change. According to the importance of the change and the state of the market, preparation for the change may range in form from a mere meeting of agents and concessionaries, to the launching of a campaign through advertizing, press conferences, television and radio ..., demonstrations, etc.

311. That the after-sales service network is fully informed, so as to be able to prepare for the application of changes by the following means:

3110. The issue of technical notes drafted in the language of the country and of the level required to ensure their intelligibility. If the subject warrants it, a meeting of workshop technicians to prepare for the necessary demonstrations to be carried out by coaches speaking the language.

3111. The setting up of stocks of spare parts modified on a uniform basis throughout the country.

3112. Checking that the stocks of old spare parts are not neglected, since customers should not suffer as a result of the introduction of changes.

32. Integration of national parts

In this case the question does arise.

321. It is in the interest of the International Manufacturer that all the changes be applied, so that the vehicles built under license do not differ from those that he manufactures:

3211. To protect his world reputation;

3212. To avoid complicating the spare parts situation on the various export markets. In the common case of cars leaving their country of origin, it is essential that the spare parts required for emergency repairs be available on the spot. Any failure in this connexion is blamed to the International Manufacturer.

/322. The

322. The authorized national manufacturer has more divided interests.

3221. He must ensure that the vehicle that he manufactures does not depreciate in value compared with the same vehicle from the country of origin, especially from the point of view of appearance, interchangeability and quality, if he wishes to export the car.

3222. He must also closely watch his cost price and avoid any situation that would cause it to rise (scrapping of non-amortized machinery, excessive stock of spare parts, stock of vehicles for sale at a reduced price, etc.).

3223. He must watch his financial situation and not undertake other than strictly necessary and viable investment.

This duality of interests is a source of perpetual conflict between the two parties. This is one of the most delicate questions in the sphere of working relations between the International Manufacturer and the authorized manufacturer.

An impartial study is therefore required.

323. The best solution is to choose among changes bearing in mind the reason for their introduction, and to adopt only those that are essential to the quality and safety of the vehicle.

It should be made clear at the outset that the question does not present itself in the same way if the authorized manufacturer exports vehicles to the same markets as the International Manufacturer (which is the exception) or if he disposes of his output only on the domestic and other exclusive markets.

In the first case, it is imperative that he apply all the changes affecting interchangeability, so that no quality discrimination arises that might seriously jeopardize his market position.

In the second case, a distinction must be made between:

3231. Imported parts, where the only logical approach is to follow the changes introduced by the International Manufacturer, since any other solution would induce the latter to retain machinery to continue making old spare parts, entailing:

- An increase in the price of special parts manufactured in limited numbers;

/- Difficulties

- Difficulties caused to the International Manufacturer by the introduction, production and stockpiling of parts, which almost automatically gives rise to irregularities in delivery, reflected in assembly line problems and increases in production costs.

3232. Locally produced parts. It is necessary to apply changes to those parts that are mounted on modified imported parts.

For the other parts, changes should not be applied systematically and, before a decision is taken, an analysis of the type set out below should be undertaken.

33. Assembly of 100 per cent locally manufactured parts

It is in the interest of the authorized national manufacturer to carry out a detailed study of the type already carried out by the International Manufacturer, before deciding to apply any change. The reasoning of the latter may not coincide with that of the national manufacturer, and the decisions adopted may be very different.

Let us therefore go back to the analysis made under item 23.

330. The changes requested by the Commercial Department are normally dictated only by domestic market considerations, and since the conditions of competition are not comparable, it is not at all certain that the choice made by the International Manufacturer is the right one.

There is usually no commercial necessity for exterior changes to body panels, which are costly from the point of view of equipment, and the stability of the model must take precedence over the desire for change, the more so since, more often than not, the original bodywork no longer meets the needs for simplicity and stark functionalism on the markets of the developing countries.

The same is true of interior changes, except for the comfort of seats, since the bad state of repair of roads normally justifies a special effort in this regard.

Changes in respect of increased power may be important in a country with rugged topography where customers are tempted to overtax their vehicles.

/All means

All means of reducing consumption of fuel and lubricants must also be considered carefully, since any economy in these fields means a saving in the country's power resources and usually conduces to a balance of the foreign exchange situation.

Variations in bodywork, frequently justified by competition on the domestic market, should not normally be adopted since they complicate programming, production, stockpiling and sales, there being no commercial counterpart on the market developed by the International Manufacturer. This is purely a question of competition on the domestic market.

331. The changes demanded by the After-Sales Department are normally based, as has been shown, on customer research and are aimed at correcting serious or minor defects discovered during merchandising of the vehicles.

In theory, all changes are valid for the authorized manufacturer, particularly those affecting safety (sub-item 2312), reliability (sub-item 2313) and performance (sub-item 2311).

They should be applied at any cost, with the same urgency shown by the International Manufacturer, taking account of conditions on the national market which fatally prolong delays.

For changes requiring retroactive or immediate application, affecting safety or reliability (breakage of parts), it may well be necessary to take advantage of the efforts of the International Manufacturer, importing the required parts urgently (by air, if necessary) for speedy fitting, at the expense of locally produced parts.

The decision to import parts raises the problem of foreign exchange, which can be solved if the public authorities adopt a flexible approach. At the same time, of course, every effort should be made at the national level to rapidly modify existing equipment or manufacture a new plant.

332. The changes requested by the other Departments are not so urgent and may correspond to different priorities owing to the fact that the rates and means of production are not in step, particularly when production has to be automated.

The International Manufacturer issues a record of each change. This record must be studied in detail and a similar record assembling the opinions of the corresponding departments must be issued by the authorized

/manufacturer.

manufacturer. In this sphere also, it is the sole responsibility of the President or Managing Director to take a decision, following prior consultation with the International Manufacturer, if this is deemed necessary.

The need to group these changes together for systematic application twice a year at the most is more imperative than for the International Manufacturer, because of the inertia and frequent incompetence of the after-sales service and the workshops.

333. It is desirable to set up an organization similar to that of the International Manufacturer to follow up this question and co-ordinate the action of the different departments, in research and application.

4. Conclusions

We apologize for the dry, technical language of this report. In conclusion, we should like to lay stress on the psychological conditions essential to the success of the joint action to be undertaken by the two parties.

41. It is absolutely necessary for the authorized manufacturer to be able to take a decision in complete freedom, the consequences of this decision - particularly the financial ones - being his sole responsibility.

Moreover, he is in a better position than the International Manufacturer to understand the situation of the domestic market, its wants and demands, and the conditions of local competition.

42. In this question, as in many others, it is necessary that there be a climate of complete confidence between the International Manufacturer and the authorized national manufacturer. Such an atmosphere would make it possible for changes to be studied at the earliest, so that active measures could be decided upon as quickly as possible. In particular, the question of secrecy should not arise with regard to these questions. In this connexion, the International Manufacturer must have the same confidence in the authorized manufacturer as in his own departments. There must be no fear of any indiscretion on the part of the specialists informed of the important projected changes, sometimes more than one year in advance. Only on this condition will the International Manufacturer freely open his files.

/If these

If these conditions are fulfilled, there is no reason why the International Manufacturer should not consult jointly with his licensed manufacturing agents, at least once a year, on the question of the projected changes, taking account of any remarks they may make in reaching his decision. This would be in the interests of the Company as an international concern.

13 July 1970

F. PICARD

/ANNEX

ANNEX

Request for modification No.

Date:

Model concerned:

Part concerned:

Department making request:

Purpose of change:

Details of the requested change:

With retroactive effect from No.

Urgent

Can be included with the annual change

For follow-up

Remarks by the interested departments

1. Study and Tests Department

Importance of the change:

Interchangeability:

assured

not assured

Time limit for the study:

Time limit for the tests:

Possible time limit for specifications:

Remarks:

/2. Quality

2. Quality Control Department

Will trials be required?

Duration of these trials:

3. Methods Department

Effects of the change:

Changes in machinery: Cost:

Changes in tools: Cost:

Manufacture of tools: Cost:

Scrapping of tools: Value:

Machines to be bought: Cost:

Time required for preparation:

Remarks:

4. Sales Department

Opinion of suppliers:

Change of price:

Time limit for application:

/5. Sales

