

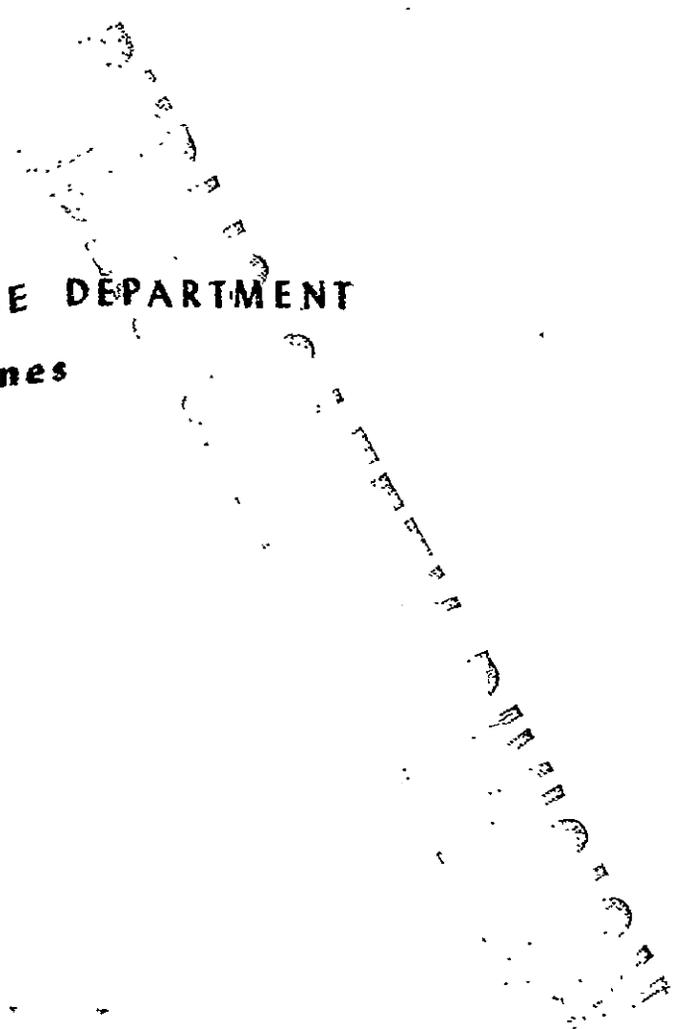
Report of Survey of

LOGISTICS / SUPPLY

MANILA POLICE DEPARTMENT

Manila, Philippines

Harold Caplan
1964



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ARGO

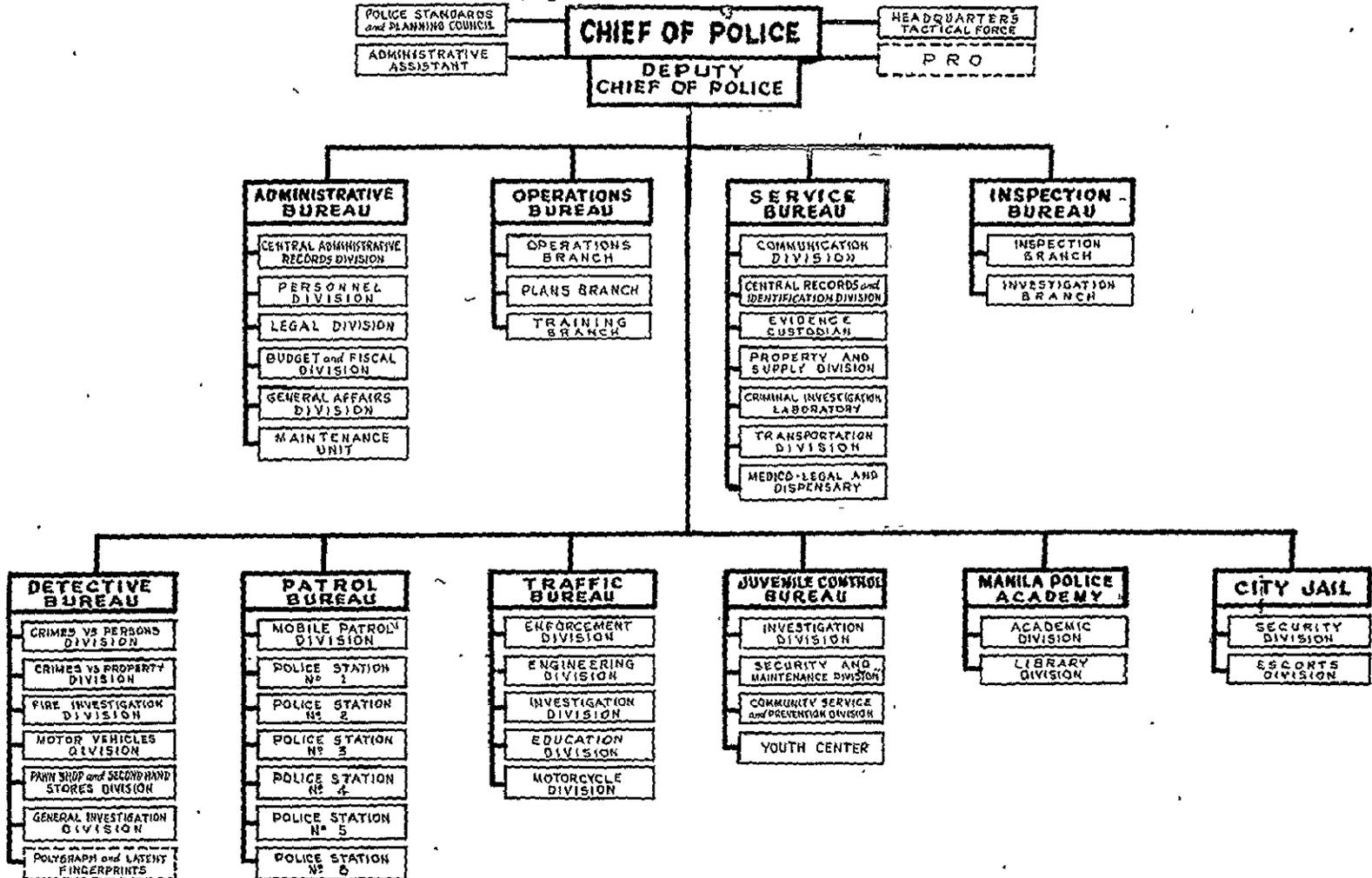
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MANILA POLICE DEPARTMENT ORGANIZATION CHART



	SERVICABLE	SERVICABLE BUT NEEDS REPLACEMENT	UNSERVICABLE	TOTAL	REMARKS
Jeeps	149	58	15	222	Most of these vehicles are of World War II vintage.
Dodge Weapons Carrier		2	4	6	
Dodge Sedan	29			29	
Dodge Ambulance	2	1		3	
Ford Sedan	1			1	
Ford Pick-Up	12			12	
Ford Panel		1		1	
Volkswagen Sedan	1			1	
Volkswagen Kombi	1			1	
GMC trucks		1	2	3	
Scout Car	3			3	
Wrecker	2		1	3	
Motorcycles	42		3	45	
Plymouth Utility	1			1	
Plymouth Sedan	27	14	17	58	
Chevrolet	1			1	
GRAND TOTAL	<u>271</u>	<u>77</u>	<u>42</u>	<u>390</u>	

MANILA POLICE DEPARTMENT
SERVICE BUREAU
TRANSPORTATION DIVISION

LIST OF SHOP EQUIPMENTS

- | | | | |
|---|-----|---|--------------------|
| 1 | No. | Grinder, $\frac{1}{2}$ HP, electric, 220-V, 3450 RPM, | Needs replacement. |
| 1 | " | Gun, power and hand, "ARO" Model 296, 096 & 200, portable, easel type gun rack. | Needs replacement. |
| 1 | " | Hoist, hydraulic lift, rotary brand Model ICAF e/auto, air bleeder, capacity 8,000 lbs., w/accessories & installation. | |
| 1 | " | Hoist, chain, Wright Differential. | |
| 1 | " | Lubricator, Graco, Model 225-696, 600-line, hand operated, SN-1A60. | Needs replacement. |
| 1 | " | Soldering iron, electric, 220-V, 500-watt, US mfr. | |
| 1 | " | Jack, hydraulic, 4-ton cap., 4-wheel mounted, Blackhawk. | Needs replacement. |
| 1 | " | Jack, hydraulic, Ajac brand, H.D. 4-ton capacity. | |
| 1 | " | Lifter, valve. | |
| 1 | " | Lubricator, chassis, ARO Model 62161, complete w/heavy duty grease gun and hose. | Needs replacement. |
| 1 | " | Outfit, spray painting, Model ce-2, Kellogg American, complete w/regulator & filter #C3A, 25 ft. hose #16270, spray gun, spray gun micro spray model S-7P. Nozzle, air cap w/extra quart container. | Needs replacement. |
| 1 | " | Outfit, testing, brake, SN-629733. | |

- 1 No Puller, rear wheel hub, Code 13573.
- 1 " Puller, steering wheel, universal type, Snap-on, US mfr.
- 1 " Shears, for steel pipe, 14", US mfr.
- 1 " Tester, battery cell.
- 1 " Tester, armature, 220-V, Model 350, Meyer brand. Unserviceable.
- 1 " Tanager, GE Model 6r Colt, AC-115, 16 amp. battery charger. Unserviceable.
- 1 " Washer, car, Hardie brand, Model 99CPW, 2-cycle pump, Model 99CPW, 300-lbs. grease pressure. Needs replacement.
- 1 " Welder, electric, No. 1112-861112. Needs replacement.
- 1 " Welding and cutting outfit, "Gasold". Needs replacement.
- 1 " Pipe wrench, 18", U.S. mfr. Needs replacement.
- 1 " Wrench, pipe, 14", U.S. mfr. Needs replacement.
- 1 " Auto lift, portable, Baylift, 3000 lbs. capacity. Needs replacement.
- 1 " Cleaner, steam, Malsbury, Model 110-01B, SN-14683, US mfr. New.
- 1 " Cleaner & tester, spark plug. Needs replacement.
- 1 " Compressor, Model B-321-G, w/2 HP elec. motor, 115/230-V. Old, insufficient capacity.

- 1 No Drill, elec. heavy duty, 3/8" capacity,
220-V.
- 1 Set Wheel balancer, cars & light trucks, 220-V. New.
- 1 " Arc elec. welding, 300 watts, 250-300 amps. Good condition.
- 1 No Grease gun assembly, #62161 H.
- 1 Set Portable wheel aligner.
- 1 " Welding outfit, portable.
- 1 " Copper tubing flaring tool.

SALARY COMPARISON CHART
PESOS

	<u>MPD</u>	<u>LOCAL BUSINESS</u>
Clerk	200	300
Mechanic	190	250
Chief Senior Mechanic	275	400
Chief Asst. Mechanic	245	325
Motorcycle Mechanic	180	250
Auto Painter	180	250
Welders	200	300
Battery	170	250
Greasemen	170	250
Washmen	150	250
Tiremen	180	220
Gas Attendants	160	200
Helpers	160	180
Drivers	190	250

MEMORANDUM

July 6, 1964

TO : Mr. William Simmler, Jr., Chief Public Safety Advisor,
USOM/Philippines

FROM : *Harold Caplan*
Harold Caplan, Public Safety Advisor, USOM/Korea

SUBJECT: Survey - Manila Police Department - Logistics

1. Purpose:

To obtain through inquiry and inspection, a clear and full insight into the difficulties and problems confronting this organization. By observing the methods used and discussing the various problems that are prevalent, it will be possible to suggest changes that will afford better logistical support in maintenance and supply.

2. Personnel Contacted:

- a. Eduardo Quintos Chief, Manila Police Department
- b. Pedro de la Paz Major, Chief Administration Bureau
- c. Jesus T. Gesolgon Captain, Chief Service Bureau
- d. Cezario P. Pastolero Sergeant, Chief Transportation Division

3. Visit to the Motor Maintenance Facility:

After a formal discussion with the personnel assigned to assist in this survey, I was taken on a tour of the Motor Maintenance Facility.

The visit here revealed an inefficiently run shop:

- a. The area is congested and in a cluttered & disorganized condition.
- b. There are a number of old engines and vehicles in many stages of disassembly, with old bodies of vehicles, wheels, tires and chassis just laying around the area taking up precious space.

This condition, it was learned, has been this way for months

because permission has not been received from higher authority to dispose of this junk.

An example of the red tape involved: Transportation Chief request permission from Chief Service Bureau to dispose of this property.

Chief Service Bureau then informs Chief of Police who then makes representation for disposal to the City Auditor thru the Mayor's Office.

- c. On work that is being performed there is no evidence of organization or control.
- d. Work is being performed under unsatisfactory condition.
- e. Many vehicles are deadlined for lack of spare parts.
- f. Some vehicles have been deadlined for several months.

- g. Ten percent of the police fleet is non-operative.
- h. The entire area presented a disorderly and unkept picture. A need for corrective measures were evident.
- i. The present area the shop is located in is not adequate for shop operations for a growing police organization.
- j. Storage of spare parts is inadequate.

Another example of one of the difficulties, is the procedure for obtaining parts and other necessary supplies, follows:

The vehicle is inspected and if the defective part is found beyond repair, the assigned mechanic submits to the Chief Transportation a list of the parts to be replaced. A requisition is prepared and forwarded to the Chief, Property and Supply Division for signature and requisition numbering; then to the Deputy Chief of Police for approval; then to the Office of the Mayor for approval; then to the Property Division; CTO,* thereat the date of public bidding is set aside and the various dealers are properly notified. After the bidding, the Property Division, CTO,* prepares the purchase order in favor of the lowest bidder, who after receipt of the said purchase order, is required to deliver the item stipulated therein, within so many days. When the dealer delivers the

*City Treasurer's Office.

spare parts, they are carefully checked by the Chief, Transportation and the Chief Mechanic; then the said delivery is inspected by a representative of the City Auditor's Office. Not until then, are the spare parts given to the assigned mechanic.

Engine oil, gear oil, gasoline and other equipment is also secured through requisitions.

Causes of delay in procurement of spare parts, etc.:

- a. Too much red tape before requisition is approved.
- b. Rejection of item being delivered, if found not in conformity to specification specified in the purchase order.
- c. Re-bidding when price offered by (lowest bidder) is exorbitant.
- d. Failure of lowest bidder to deliver items on time. There are dealers who join the public bidding even when they do not have the items called for in their stock. So that, when said dealer gets the award, sometimes cannot make delivery within the period stipulated in the purchase order. This predicament occurs very often.
- e. If the swardee cannot make full delivery of the items contained in the purchase order, requisitioner then requests in writing

to the Chief, Property Division, CTO, to award the undelivered portion in favor of the 2nd lowest bidder.

f. Lack of stock in the local market.

In discussions held with the Chief Transportation, it was decided that a plan be formulated which would include a shop layout and a projected shop facility for improvement of the shop operation for future expansion.

RECOMMENDATIONS

1. That the area be cleaned and all materials and old vehicles no longer usable be salvaged and removed from the area.
2. Work benches are needed so that work presently being performed on the ground can be done on adequate work benches.
3. Storage bins for valuable parts and supplies be built so that parts can be stored properly.
4. An efficient stock record/locator system be initiated.
5. That old parts no longer of use, be discarded immediately.
6. That the Chief Transportation be given authority, through proper channels, to inform the Mayor's Office with a weekly report of his deadline status of vehicles and the reason for the deadlining of police vehicles.

7. A pamphlet on good driving habits, safety, courtesy, and preventive maintenance be prepared and distributed to all drivers of police vehicles.

8. A good shop structure be built and equipped with tools and equipment necessary to perform all echelons of repairs.

The total personnel strength of the Transportation Division, MPD, is

54. Of these only 12 are automotive mechanics.

Just recently the MPD requested an increase in the manpower assigned, but to date this recommendation has not been favorably acted upon.

WEAPONS: ARMORY

A very discouraging scene meets the eye as the door to the Armory is opened. Here in a room barely big enough to turn around in, are stored pistols, carbines and riot guns of various makes in deplorable condition.

The room is very damp and musty, a perfect condition for the growth of rust, that now covers most of the weapons stored here.

Ammunition is stacked on the bare floor against one of the walls, which acts as a conductor of dampness. Also, the water table in this area is within a few feet of the surface.

The Armory remains locked except when entered for weapons or ammunition, but no other precautions are taken. There is no fire equipment in or near the Armory.

The Armory is located near the Police Station Number 2, quite some distance from the Headquarters building.

RECOMMENDATIONS

1. That the Armory be moved from its present location and be relocated adjacent to the headquarters building, where in case of emergency, the weapons would be available.
Thought should be given in the selection of the space and conditions needed, keeping in mind that a very dry area is ideal.
2. Racks be built to properly store all weapons.
3. Responsible personnel be assigned to maintain and repair the weapons.
4. That all weapons now on hand be repaired and rebled to a serviceable condition.
5. That wooden pallets be built and ammunition now on hand be properly stacked upon the pallets in a dry area.
6. That the Chief, Service Bureau explore the possibility of having the

Philippine Military repair and reblue the weapons now on hand.

As is generally the case, preventive care and maintenance of vehicles and equipment is less than adequate. Much of this neglect can be attributed to the lack of sufficient budget allotted to the Service Division, but it is also unquestionably true that there is a general failure on the part of responsible officials to recognize the importance and economy of proper care and maintenance. Weapons in particular is a case in point, relatively expensive, there is no one assigned to clean and repair the weapons now on hand. They are stored improperly and allowed to rust, deteriorate, until their usefulness as a weapon is nullified.

Such carelessness is a luxury which the City can ill afford. Too often they are locked in an armory and forgotten, until the need for them arises. As a consequence their useful life is only a fraction of what it should be.

The unescapable conclusion which emerges from my study is that, aside from the limitations imposed by economic factors, the focal point of failure to progress adequately must be attributed to:

1. Lack of civic responsibility, direction, and leadership in this field.
2. Deficiencies of organizational structure, i.e., status as a minor

sub-section of police with practically no responsibility.

3. Lack of technically qualified personnel; i.e., shortage of personnel and low salary, compared to salaries received by mechanics, people working at other installations.

The solution, would lie in the establishment of stronger lines of authority, with clearly defined responsibilities.

Such a program must be developed within the administrative structure of the City Government, but would require an improved functional distinction and command.

Considering that tradition, demands a degree of central supervision, emphasis should be upon strong staff support, leadership and supervision.

At the same time, consideration will be required with respect to budget for operational facilities, buildings, equipment, spare parts and additional personnel.

Considering the technical support and the modern equipment needed, I restrict suggestions to broad specifics which, in my opinion, are fundamental to any plan of improvement for the Manila Police Department. I believe that if these primary deficiencies are not corrected, there is little future prospect of any substantial improvement.

To try and fit an efficient shop operation into the present area would entail a great expense and the problem of an overcrowded area would not be solved. The ideal requirement is a complete new shop installation a short distance away from the headquarters.

This would be of two-fold nature: (1) The present area would provide enough space for the parking of the operational police fleet. (2) There is sufficient room to move the Supply Division i.e., clothing, office supplies, and the Armory into this area. The area would be free of the shop activity, which creates constant problem of moving vehicles, vehicles awaiting repair, deadlined vehicles and vehicles that have been impounded.

Of priority concern is the need for a new automotive repair facility. This facility will greatly aid the police to perform better maintenance and repair of their vehicles which are needed and used for patrol purposes.

It is evident that the economy is growing to such an extent that the police are having difficulty in coping with the problems accompanying this growth. This growing city with its tentacles of new residential areas, new factories and new schools, need police protection. This places added responsibility on an already over-burdened police force. Assistance is vital if the MPD is to effectively develop along with business and industry of Manila.

It is a recognized fact that the economic growth and development of any city is limited to that amount of protection offered by its law enforcement agency to its citizens in pursuit of their daily tasks.

Under difficult conditions, the police, because of urgent necessity and because of a lack of thorough training and proper equipment, have been forced to improvise and resort to methods and procedures which do not meet the standards of modern police administration and public safety.

The main efforts for some months to come, must be directed toward improving the methods and techniques now in use. It will probably take a few months before an appreciable improvement is noticeable.

A new building is envisioned for the automotive shops in which machinery will be placed in a way designed to speed up work and increase production. Personnel will be increased to enable the shops to carry the work load and in this way eliminate deadlined vehicles.

Substantial amounts of parts with high mortality rate be stocked, supply inventories be kept, these are essential as a basis on which to build an efficient cost accounting system.

At the same time thought should be given to a more efficient use of the area for the storage of impounded vehicles.

Training is needed in the use of inventories - stock record cards and stock locator systems, better systems for purchasing, storage and the issue of parts is advocated.

It would be advisable to include one or two members of the Transportation Division as possible participants. The observed results of the participant program leads one to believe that the residual impact of it is probably more durable than the results of a commodity program and certainly of more lasting benefit than the sketchy blitz training a consultant is able to give.

As, or when the initial inertia is overcome, the results will speak for themselves and this portion of a successful venture will be a step toward our objective.

When our plans to reorganize this shop are accepted some instruction will be necessary for the shop office staff responsible for the operations of the shop. This would consist of instructions on the advantages of control procedures and good shop layout which enable a better flow of work, control of the work as it progresses through the shops, and the importance of the proper supply of parts, the proper use of stock cards and a stock locator system.

If these plans are acceptable to the City and full operations becomes a reality, this shop will be capable of repairing and rebuilding all the police vehicular equipment.

Because police service is considered the first line of protection in dealing with crime, disasters, civil defense, it would be necessary to insure that the police have the mobility needed to accomplish the primary function of effectively protecting the public and enforcing the city's laws.

This approach to a solution for this particular phase of the survey seems the most feasible in the light of present capabilities and needs. It may seem relatively insignificant, but on the basis of this evaluation, I am convinced it is an absolutely mandatory condition for achieving any progress in this field. It will involve some expenditures but if implemented will surely result in a considerable overall improvement in police protection for the city.

When the Manila Police Department agrees and accepts these plans, and actively pursues the construction of a new shop building, it will behoove the Mission to then except some role that will enable the MPD to successfully complete this shop and put it into operation.

It will then be imperative that a follow-up return visit be made to give professional guidance for the successful implementation of this venture.

My thanks to the Public Safety staff for their wholehearted cooperation, guidance and assistance.

The Manila Police Department gave unhesitatingly of it's information, service and transportation. The friendly atmosphere and cooperative spirit made the entire survey a more interesting experience.

SHOP OPERATIONS

PRODUCTION CONTROL PLAN

The importance of good automotive maintenance cannot be over-emphasized. A well-organized, adequately managed, and efficiently operated maintenance program will insure a highly mobile fleet of vehicles ready at any time for any emergency.

I. Organization:

a. Shop Office/Production Control Section

This Section will be responsible for the introduction and establishment of control procedures throughout the shops.

b. Quality Control/Inspection Section

This Section will be responsible for the establishment of quality control procedures in the shops.

c. Shop Supply Section

This Section will be responsible for the establishment of shop supply procedures.

d. Shop Layout

In order to obtain the maximum from personnel, shop space, tools and equipment, and other facilities of a maintenance shop,

it is of utmost importance to have an efficient shop layout for an even flow of work. The shop will have the following Sections:

- (1) Shop Office/Production Control Section
- (2) Quality Control/Inspection Section
- (3) Shop Supply Section
- (4) Automotive Section
- (5) Welding and Body Section
- (6) Reclamation Section
- (7) Lubrication Section
- (8) Battery Section
- (9) Tire Section

2. Shop Office/Production Control Section:

- a. This Section will be the headquarters for the various shops.

The Shop Officer will control operations of the automotive shop thru this Section and will be responsible for all maintenance and administration.

The Section will function as follows:

- (1) Exercise supervision of all shops and shop activities.
- (2) Maintain all records of shop operations.

(3) Establish priorities for work within the shops.

(4) Determine whether shop heads have knowledge of procedures for securing necessary supplies and an understanding of methods of routing the flow of work and forms.

b. Maximum production depends upon an orderly and uniform flow of material through the shops. Such a flow of material can be maintained and regulated only if adequate records are instituted and efficiently employed. All information relative to the status of items awaiting repair, in process, or completed, must be readily available in the Production Control Section.

c. The establishment and operation of adequate production control, together with a well-organized plan, will provide the Shop Officer with current and accurate records, available at all times, to intelligently control production of the Automotive Shop. It will be possible for him to foresee bottlenecks developing in any Section, and in most cases, before the Chief Mechanic becomes aware of such a condition. Since shop operations will be clearly reflected in the Control Section at all times,

this system will allow the Shop Officer to take immediate corrective action to remove bottlenecks before they seriously affect the shop.

3. Quality Control/Inspection Section:

- a. Important phases of operation in the Automotive Repair Shop are initial and final inspections.
- b. The Shop Officer is responsible for both the quality and quantity of work performed by the shop.
- c. The objective of the Automotive Shop is to repair a vehicle to a condition of serviceability equivalent to a "like new" condition.
- d. The volume of work performed will dictate the number of automotive inspectors required. The automotive inspector should be the best repairman available, since excellent inspection is the surest means available to the Shop Officer for improving the quality of work.
- e. The automotive inspector will inspect work in process and make thorough inspections of completed jobs.
- f. He will recommend, if necessary, that work be repeated until satisfactory.

g. He will advise the various precinct chiefs on first and second echelons of maintenance.

h. The inspector will return to the shop any defective equipment which has been indicated as being ready for final inspection.

4. Shop Supply Section:

a. This Section will procure, store and issue all supplies required to operate the shop.

b. It will maintain a stock record account, covering property on hand, in storage or in process within shops.

c. It will issue parts and supplies to shops as needed.

d. It will exercise general supervision over all supply activities.

e. It will back-order parts requested which are not immediately available and insure delivery of such parts to the proper shop immediately upon their receipt.

f. It will procure necessary parts on the open market when authorized.

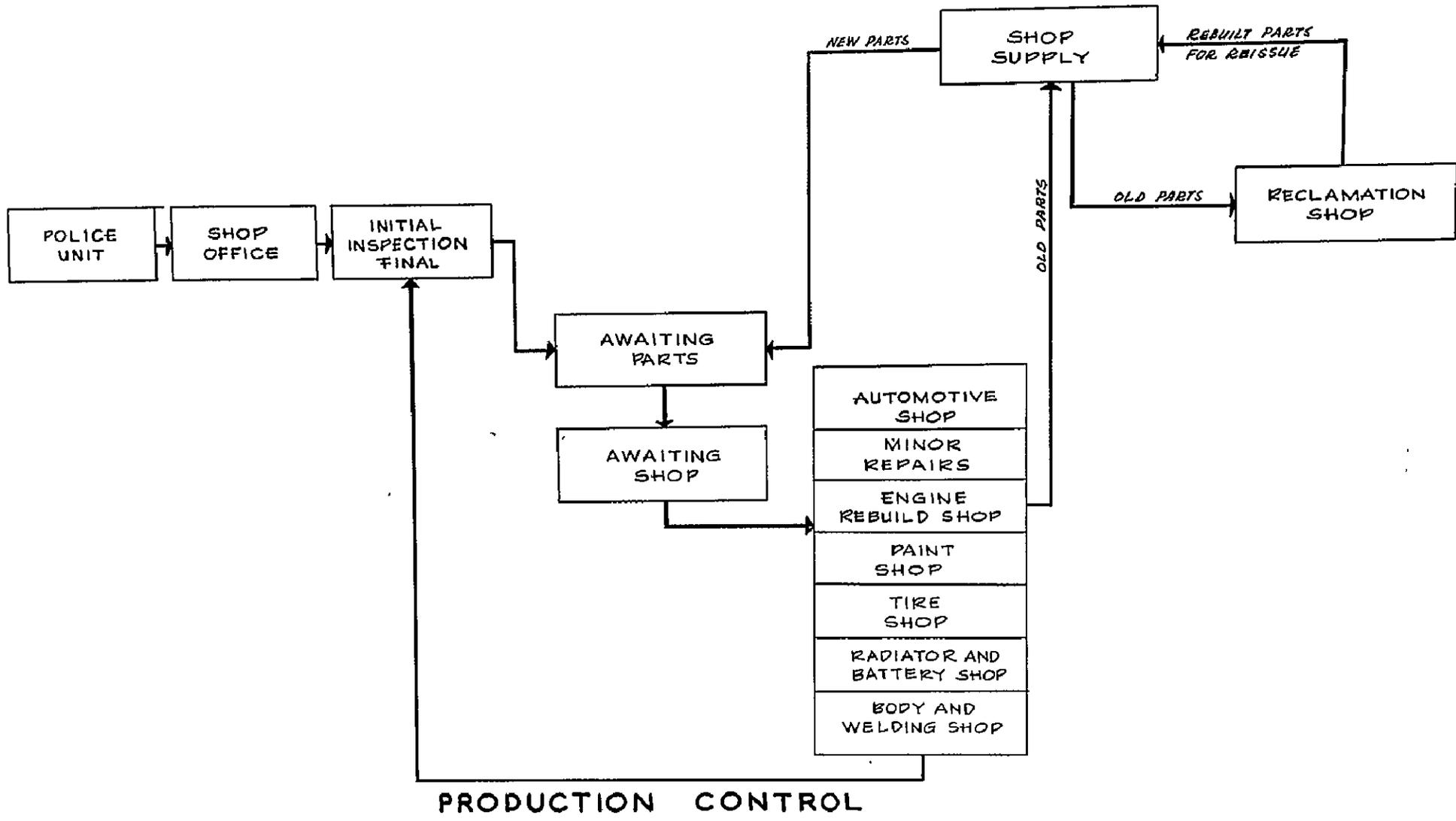
g. It will maintain statistical records of current supply activities.

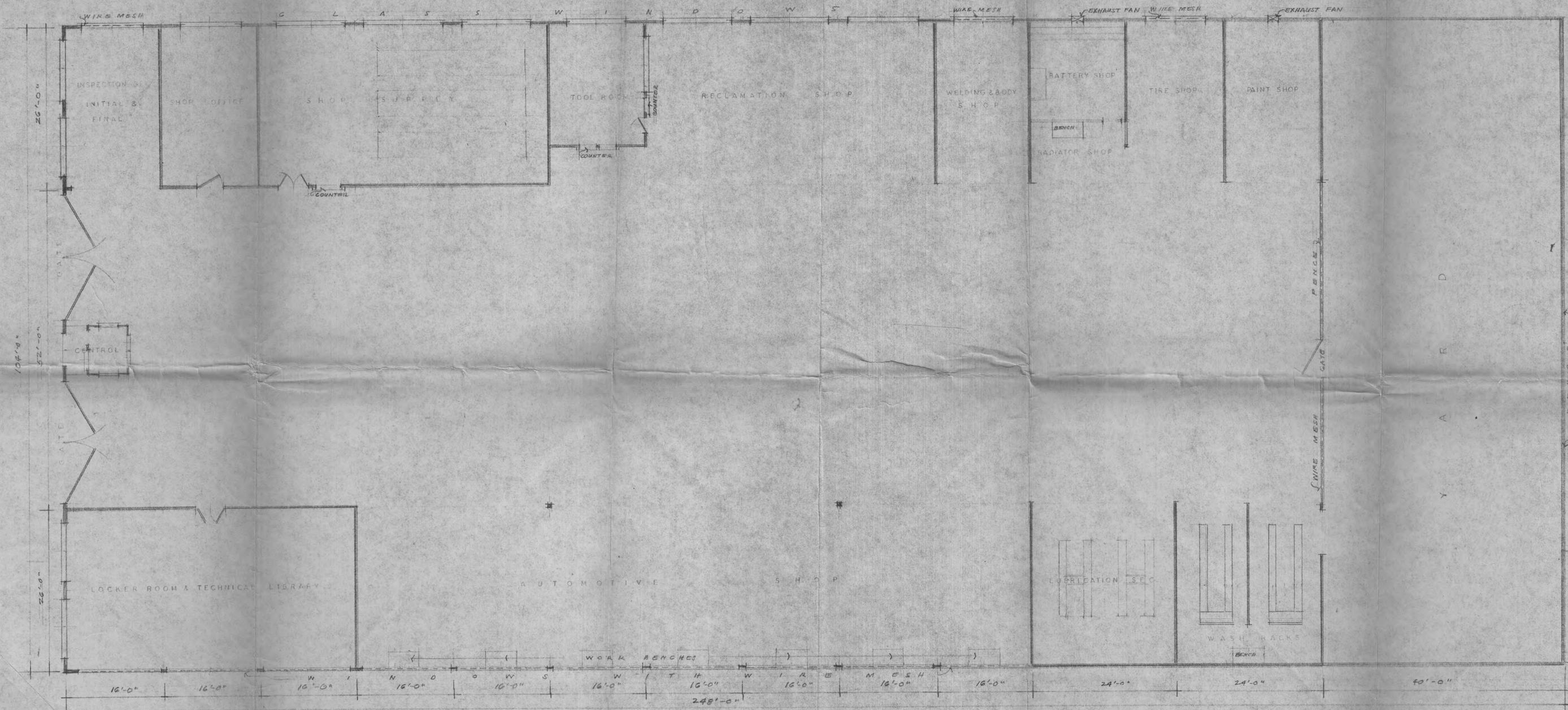
5. Conclusions:

a. The efficient execution of this program will insure use of standard procedures of automotive maintenance in the shop and will afford training to a considerable number of police officers in methods and procedures previously unfamiliar to them.

b. The impact of this program will be evidenced in the lower echelons of maintenance and will result in a clearer understanding of the responsibilities of all echelons of maintenance (preventive and driver maintenance) and supply, and a closer coordination and support from Police Headquarters.

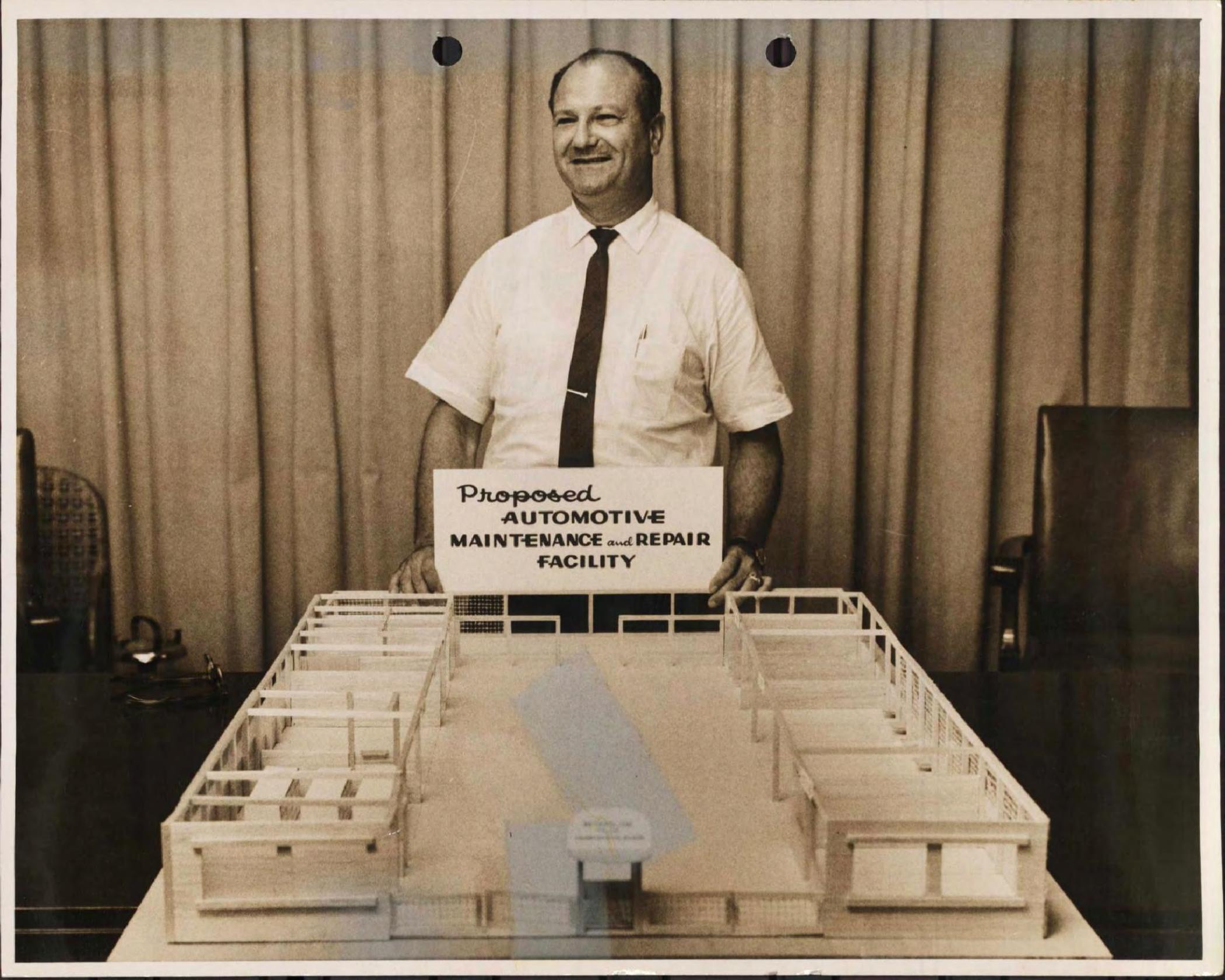
This technician will afford guidance with his knowledge, past experiences and his practical know-how, enabling the police to achieve this objective.





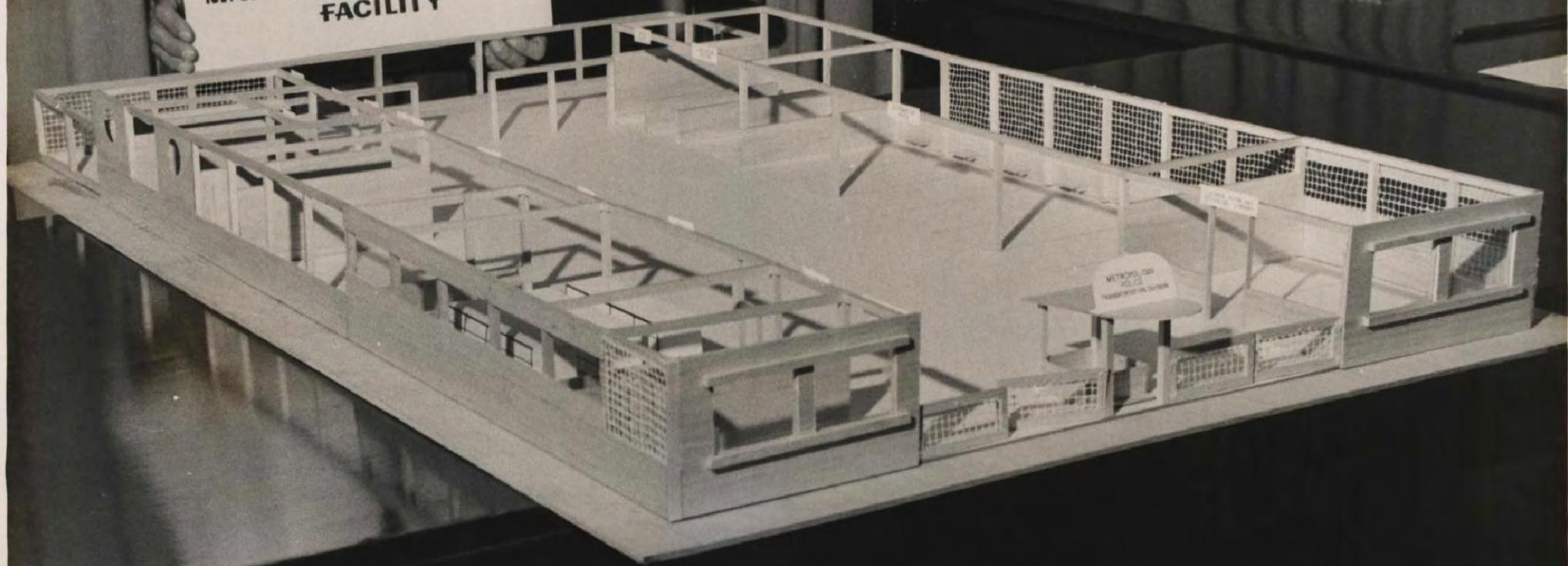
METROPOLITAN POLICE TRANSPORTATION DIVISION
 SCALE 1/8" = 1 FOOT

Designed by Harold Caplan
 PREPARED BY O.K. PUNO
 C.I.L., MPD



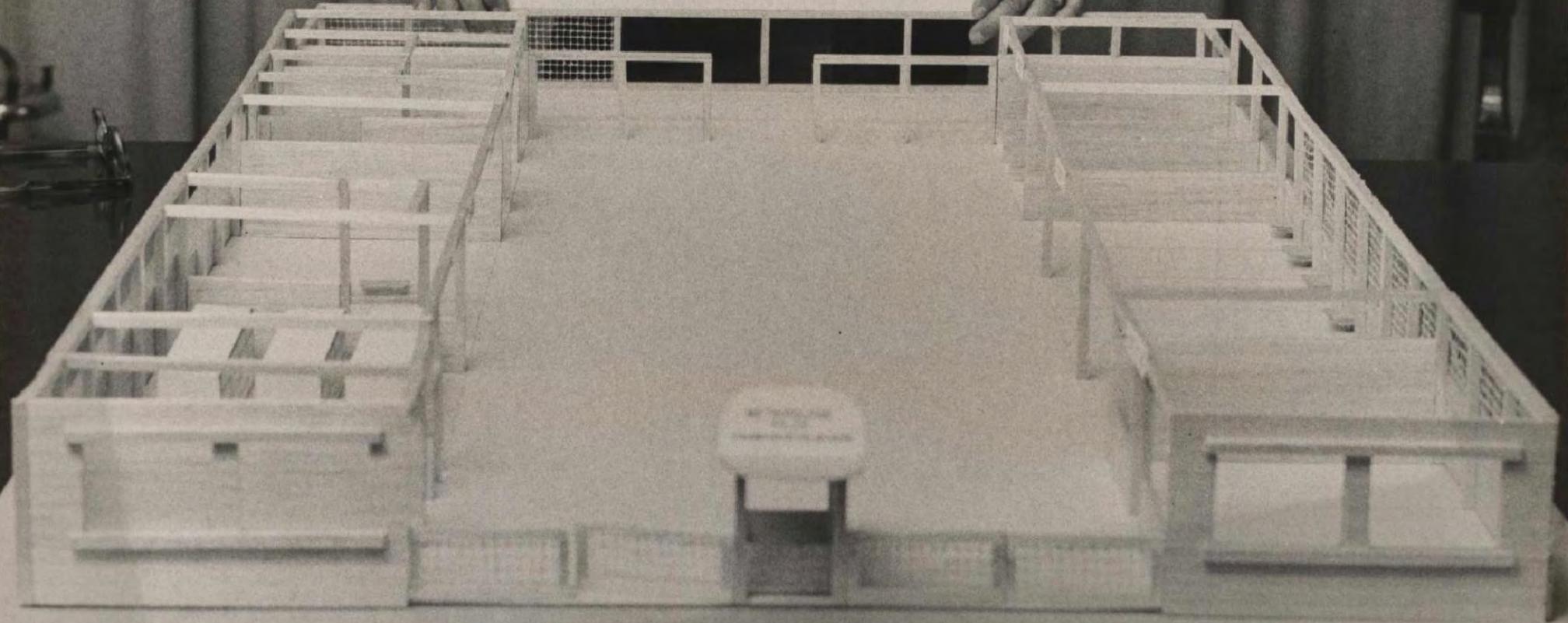
Proposed
AUTOMOTIVE
MAINTENANCE and REPAIR
FACILITY

Proposed
AUTOMOTIVE
MAINTENANCE and REPAIR
FACILITY



METROPOLITAN
PUBLIC
TRANSPORTATION SYSTEM

Proposed
AUTOMOTIVE
MAINTENANCE and REPAIR
FACILITY



h

TOOL LIST

QTY

The Starrett Co.
Athol, Mass.

2 ea. Combination set with Square Head and Center
Head, No. 433ME

2 ea. Inside Micrometer Calipers, No. 700A

2 ea. Inside Micrometer Calipers, 1" - 2", No. 700B

2 ea. Screw Pitch Gage, for 60° threads, No. 474

2 ea. Screw Pitch Gage, Whitworth Stnd., No. 476

2 ea. Screw Pitch Gage, Metric, No. 156M

2 ea. 6" Combination Depth and Angle Gage, with
Hook Rule, No. 236H

Wilson Products Reading, Penna.

8 ea. Safety Spectacles, clear, spade temple with
elastic headband, No. WCS47 with 6.00 curve
clear Super-Tough lenses.

Snap-On Tool Corp., Kenosha, Wisconsin

2 ea. Electric Impact Wrench, EW-500

2 ea. 1/2" Dr. 0-250 ft. lbs. Torque Wrench, TQ-250

2 ea. Socket set, No. 5075A-GS-B, Mastermech set with box

Qty.

10 sets Mechanic Tools, "Mechanics Standard Service Set" 5166-GS-B, with box.

2 sets Mechanic Tools, "Mechanics General Purpose Set" No. 5233-GS-B.

10 sets Allen Wrench sets, AW-1015-K.

10 ea. Flexible "Grib-it" Tool, 715-FF

10 ea. Magnetic Pick-up Tools, PT-27

2 sets Taps and Dies, Blue-Point TD 9900C, complete

1 ea. Armature reconditioning Tool, Blue-Point AT-2, with extra cutters and blades.

2 ea. Bushing Inserter and Remover sets, A-57K-B

10 ea. Curved Nose Pliers, No. 497

2 sets Pipe Wrenches, 6" through 24", No. PWR-906

McMaster-Carr Supply Co.
640 West Lake St., Chicago 6, Ill.

2 sets Hand Reamers (Expansion) $\frac{1}{4}$ - 1" x 1/16", No. EOZ

1 ea. Handee Grinder Kit, complete with all accessories and 2 sets stones and cutters, No. MO120.

2 sets Gear Pullers and board, PE15

3 sets H.S. 1/16" - $\frac{1}{2}$ " x 1/64" SS Drills with stand, No. TSB

3 sets H.S. 1/16" - $\frac{3}{4}$ " x 1/64" SS Drills with stand

Qty.

Clay Borne Automotive Engine Stands
209 S. La Saue Street
Chicago 4, Ill.

2 ea. Model 201 Stand

Blackhawk Manufacturing Co.
Dept. AA, Milwaukee 1, Wisconsin

2 ea. Black Hawk Service Jacks, 4 ton Model S-4

1 ea. Black Hawk Porto-Power, S-200 Super Deluxe Model

Specify Voltage - 200/60 cy. 1 Phase

Black and Decker Mfg. Co.
Towson, Maryland

1 ea. Electric Valve Shop No. 509

Standard Valve Shop with 9/16" standard Refacer
and standard straight driver.

1 ea. 8" Ball-bearing bench grinder

1 ea. 7" Standard Sander Catalog No. 93

Accurate Parts Manufacturing Co.
12435 Enclid Ave., Cleveland 6, Ohio

1 ea. Accurate No. 7A

Clutch Rebuilder Complete

Qty.

Joseph Weidenhoff Inc.
4340-58 W. Roosevelt Rd.
Chicago 24, Ill.

1 ea. Model B-501 Generator Test Bench
1 ea. Model C-729 Double Duty Voltmeter
1 ea. Model B-336 Armature Crowler

Sunnen Products Co.
7900 Manchester Ave.
St. Louis 17, Mo.

Sunnen Bushing Grinder
1 ea. Complete Model LBN 550

Miller Manufacturing Co.
5919 Tireman Ave.
Detroit 4, Michigan

8 ea. Garage-Man Shop Light C-684
2 ea. Tube Flaring and Cutting Tool
C-804 Flaring
2 ea. C-873 Cutting
1 ea. Spark Plug Cleaner C-812
1 ea. Transmission Lo-Jack C-3069
1 ea. Stencil set C-733

Qty.

Curtis Pneumatic Machinery Div.
1919 Kienlen Ave.
St. Louis 20, Missouri

1 ea. Curtis Hydraulic Car Washer

3 H.P. 220-V, 60 cycle, 1 phase.
Two Gun Model

The Joyce-Cridland Co.
Dayton 3, Ohio

20 ea. Safety Jack Model 960

Manning, Maxwell and Moore, Inc.

1 ea. Hoist, Electric one (1) ton (Frame K)
30 ft. lift, Std. Speed, Manual control
operated 220V 60c 1 phase
Model K

2 ea. Neon timing light

2 ea. Compression tester

2 ea. Vacuum gage

2 ea. Battery cell tester

2 ea. Battery Pliers approx. 8" long

2 ea. Offset screw driver 4 way

2 sets Screw drivers (Philipps type 1 & 2, 3)
3" 4" 6"

Qty.

Plastic handles $4\frac{1}{2}$ " x $\frac{3}{16}$ " - 2" x $\frac{1}{8}$ "

3" x $\frac{3}{16}$ " 4" x $\frac{1}{4}$ " 5" x $\frac{5}{16}$ "

6" x $\frac{1}{4}$ " 8" x $\frac{5}{16}$ " 9" x $\frac{3}{16}$ "

12" x $\frac{1}{4}$ " 12" x $\frac{3}{8}$ "

2 ea. Locking Plier wrench - Ton grip

2 ea. Blow torch, gasoline.

1 ea. Bolt Cutters, 24" long

1 ea. Brace, Heavy-duty

4 ea. "C" Clamps 4"

2 ea. Center punches

1 ea. Press - 75 ton capacity

2 ea. Cleaning Tank

2 ea. Dresser, emery wheel

2 ea. Extractors, bolt & screw set

10 ea. File cleaner

10 ea. File or stone, contact points

10 ea. Gauges, feeler

10 ea. Gauges, Spark plug

Qty.

2 ea.	Gauges, Tire pressure lg.
1 ea.	Headlight screen, test
10 ea.	Saws Hack
10 ea.	Vises
2 ea.	Brake bleeder hydraulic
2 ea.	Brake spring pliers
2 ea.	Pusher bushing
4 ea.	Battery-terminal pullers
1 ea.	10" Lathe w/accessories
2 ea.	Boring Bars
1 ea.	Air Compressor 220V, 60 cy. 1 phase 5 H.P. 175 lbs cap.
2 ea.	Spray Gun, Paint.
1 ea.	Crankshaft Grinder MK 278, complete w/standard rear wheel unit. 220V 60 cy. 1 phase. (Miller Manufacturing Co., Detroit, Michigan - Cat. B)
1 ea.	Radiator Test and Repair Bench Model 60A w/group C accessories

	Description	Qty. & Unit of Measure
Model 2500	Wet Honing Machine furnished with Pin Vise, Splash Pan, Foot Pedal Control, Connecting Rod Guide, and	1 ea.
	5 Gallons Honing Oil.	
	Extra Equipment Follows:	
	2 ea. #7025 Long Stone Honing Heads	
	1 ea #7027 Truing Sleeve	
	2 ea #7030 Long Stone Honing Heads	
	1 ea #7032 Truing Sleeve	
	2 ea #7035 Long Stone Honing Heads	
	1 ea #7037 Truing Sleeve	
	2 ea.#7040 Long Stone Honing Heads	
	1 ea #7042 Truing Sleeve	
	2 ea #7045 Long Stone Honing Heads	
	1 ea #7047 Truing Sleeve	
	1 bx #3780 Roughing Stones	
	1 bx #3785 Finishing Stones	
	1 #7024 Honing Head Rack	
	1 #1800 Honing Head w/Stones	

Description		Qty. & Unit of Measure
Model 2500	1 #2450 Honing Head w/Stones	
Model 3300	Connecting Rod Aligner w/"V" Block and Checking Block, Truck Checking Block	1 ea.
AMMCO TOOLS, Inc., 2100 Commonwealth Ave., North Chicago, Illinois, or Equal.		
No. 248	Slide Hammer	2 ea.
No. 28	Universal Pilot Bearing Puller	2 ea.
No. 235	Universal Wheel Puller	2 ea.
No. 61	Remote Starter Switch	2 ea.
No. 550	Battery Service Kit	2 ea.
No. 540	Battery Carriers	2 ea.
No. 541	Battery Carriers	2 ea.
No. 546	Battery Filler	2 ea.
No. 224	Axle Rethreading Die	2 ea.
CAL-JAN. INC., 2328 Brooklyn Road, Jackson, Michigan, or Equal.		
41L27	Welding and Cutting Outfit Complete	2 ea.
McMaster-Carr Supply Co., Chicago, or Equal.		

	Description	Qty. & Unit of Measure
B-6A-2	BRAKE-MOBILE/COMPLETE	
	To include Drum Lathe and True-Arc Brake Shoe Grinder with Anchor Eye Shoe Positioner and Power Driven Dust Collector and a complete set of special brake service Tools and Accessories.	1 ea.
B-238	Special Brake Tools	1 ea.
B-236	Special Brake Tool Group	1 ea.
	Barett Equipment Co., P.O. Box 183 - Export Dept., Springfield, Illinois, or Equal.	
ICFD	Crane and Floor Dolly	1 ea.
IBC	Barrel Chain	1 ea.
LX	Extension	1 ea.
D11	Dynomaster, 220 Volt, 1 Phase, 60 cy., complete	1 ea.
	Storm Vulcan Inc., 2225 Burbank St., Dallas 35, Texas, or Equal.	
Model 881MB	Tire Changer	1 ea.
Model 855T	Tubeless Tire and Tube Tester	1 ea.
Model 918	Bead Breaker	1 ea.
No. 425	Hydraulic Tire Spreader	1 ea.

	Description	Qty. & Unit of Measure
815-S	E-Z-Off Rim Compound (5 Gal Cans)	2 ea.
882-S	Rub-Er-Slide (5 Gal Cans)	2 ea.
Bishman Mfg. Co., Route 2, Osseo, Minn., or Equal.		
CS100	Southbend/or Equal 7" Precision Bench Snaper, w/Motor 110 Volt, 60 cy. 1 Phase and Standard Equipment	1 ea.
South Bend Lathe, Inc., South Bend 22, Indiana, of Equal.		
GA-87	Mechanics Creeper	4 ea.
GA-82	Service Stool	4 ea.
EDS-51A	Drill, Electric $\frac{1}{2}$ " Standard, w/Chuck and Key	1 ea.
EDS-76A	Drill, Electric $\frac{3}{4}$ " H.D. w/Chuck and Key	1 ea.
EDS-190	Stand, for Drill EDS-51A	1 ea.
EDS-192	Stand, for Drill EDS-76A	1 ea.
DB-129	Fractional Drill Set H.S. $\frac{1}{6}$ " to $\frac{1}{2}$ "	2 ea.
DB-160	Wire Gauge Drill Set, DBE-1 to DBE 60	2 ea.
DB-30	Drill Grinding Attachment	1 ea.

	Description	Qty. & Unit of Measure
WD-12	Wheel Dresser, w/WD-12-1, Set of Extra Cutters	2 ea.
2033-BT-B	Brake Service Set, w/Mechnikit, KRA 21 Body and Fender Tool Set Complete, Snap-on or Equal.	1 ea. 1 ea.
5524-GS-B	Shop Master Set, for General Automotive Service, Complete SNAP-ON TOOL CORP., 8028, 28th Avenue, Kenosha, Wisconsin, or Equal.	6 ea.
VR-300	Wet Valve Refacers, w/Standard Equipment Extra Equipment as follows: KRA 532 Cabinet KRA 411 Heavy Work Top Extra Equipment: Cabinet and Work Top AMMCO TOOLS INC., 2100 Commonwealth Avenue, North Chicago, Illinois, or Equal.	1 ea.
Model BC-80	Battery Charger 6 and 12 Volt 220V, 60 cycle, w/Standard Equipment	2 ea.
Model X40	Timing Light 6 and 12 Volt	2 ea.

	Description	Qty. & Unit of Measure
Model UCT-1	Compression Tester, w/Standard Equipment	2 ea.
Model Q	Vacuum Pressure Gauge	2 ea.
Model FPT-3	Fuel Pump Tester	2 ea.
Model O	Oil Pressure Tester w/Standard Equipment	2 ea.

SUN ELECTRIC CORP., Harlem and Avondale, Chicago
31, Illinois, or Equal.

Model SSMT	Tester Complete w/Accessories	1 ea.
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220V, 60 Cycle, 1 phase, for use on
6 and 12 Volt Vehicles
Standard Equipment
Consists of Following:

SSMT-H Head Complete w/Accessories

115V 50/60 Cycle, 1 Phase

10N Tach-Dwell Unit

20M Condenser Vacuum Unit

30M Coil Test Unit

50M Combustion Unit

EC Gas Pick-up

669-14 Exhaust Hose

Description		Qty. & Unit of Measure
SSJ	Sunscope 115V 50/60 Cycle 1 Phase	
SSMT-HF	Head Frame and Power Supply	
SSMT-C	Cabinet	
To be furnished with all adapters, jump leads, tools, switches, hose, and instructional material and specification booklet.		
Model MDT-50	Distributor Tester w/Accessories	1 ea.
	220V 60 Cycle 1 Phase w/Standard Equipment as follows:	
130	Vacuum Unit	
145	Distributor Driver Unit	
150	Tach-Dwell Unit	
PS	Power Supply	
5-112	Scroll Chart	
	Chuck Wrench	
MDTC-3	Cabinet	
DT	Accessory Group	

To be furnished with all adapters, jump leads, and instructional material and specification booklet.

	Description	Qty. & Unit of Measure
AX-5	Garage Horse 5 Ton	6 pr.
S-4	Service Jack 4 Ton	2 ea.
T-1	Transmission Jack	1 ea.
FZ-10	Porto Power Body and Fender Service	1 ea.

Center Bench Rack, Complete.

Blackhawk Mfg. Co., Milwaukee 46, Wisconsin, or Equal.