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for a sustainable future

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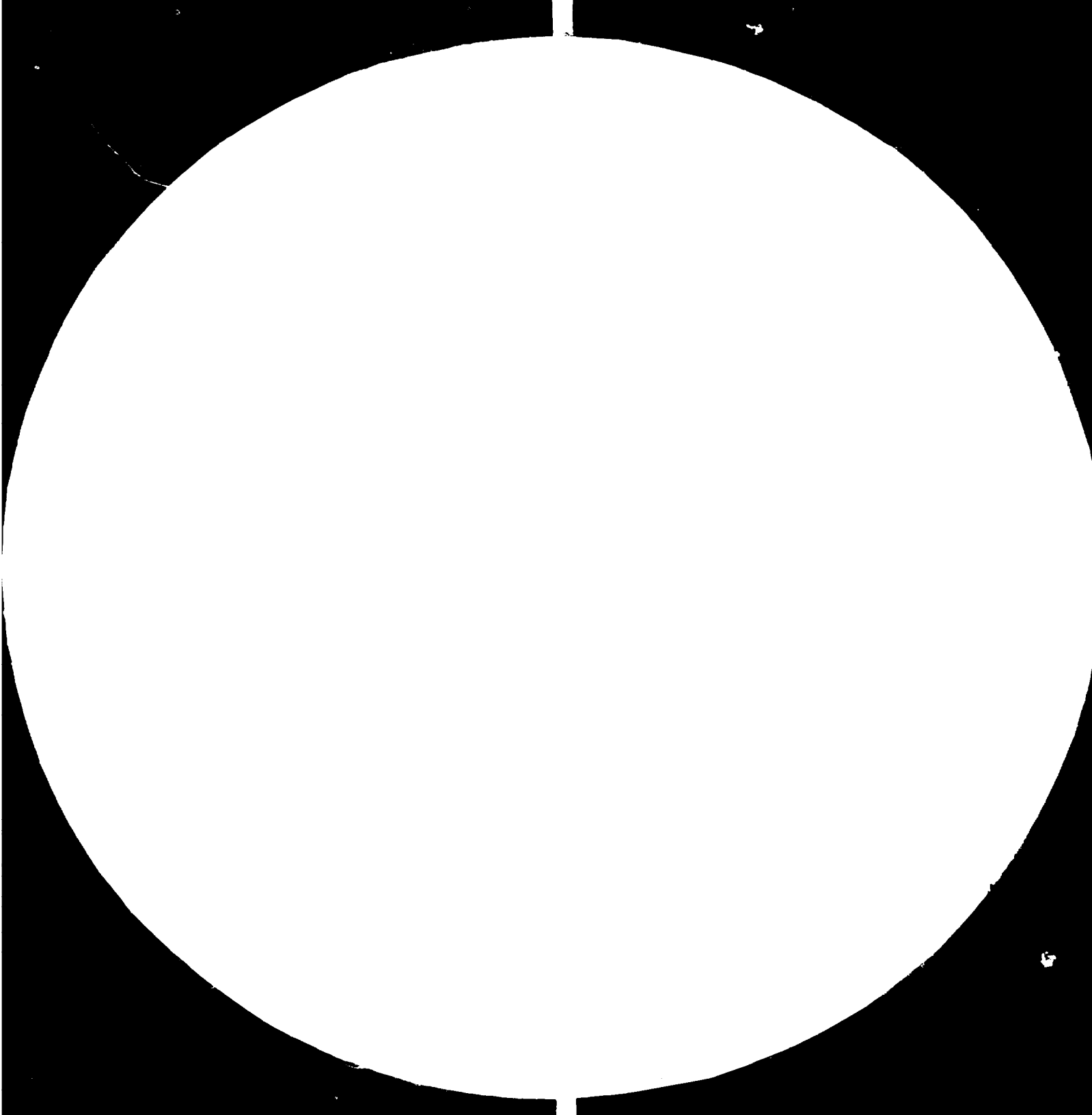
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UNITED NATIONS DEVELOPMENT PROGRAMME

PROJECT OF THE GOVERNMENT
OF THE PEOPLE'S REPUBLIC OF ANGOLA.

Angola.

PETROLEUM DEVELOPMENT CENTRE

(PHASE III)

TECHNICAL ANNEX TO COMERINT OFFER No. 550300

DP/ANG/79/009

COMERINT S.p.A.

Rome, May 1981

This Technical Annex refers to our offer No. 550300 entailing supply of 49 man/months of technical assistance to the activities of the Central School of Petroleum in N'Gunza (starting February 1981 and ending 31st December 1981), as well as supply of equipment and materials to the same.

1. EXPERT ASSISTANCE

COMERINT experts will give their assistance to the Central School of Petroleum in N'Gunza for a total of 49 man/months as follows:

1.1 Assistance for organization and management:

- | | | |
|-------|--|-------|
| 1.1.1 | Team leader
(from 1.7.81 to 31.12.81) | 6 m/m |
| 1.1.2 | Assistant team leader
(from 1.7.81 to 30.11.81) | 5 m/m |
| 1.1.3 | Maintenance and management supervisor
(from 1.7.81 to 31.12.81) | 6 m/m |

1.2 Assistance for maintenance:

- | | | |
|-------|---|--------|
| 1.2.1 | Expert in electrical maintenance
(from 1.2.81 to 31.12.81) | 11 m/m |
| 1.2.2 | Expert in hydraulic maintenance
(from 1.4.81 to 31.12.81) | 9 m/m |

1.3 Assistance to the courses:

- | | | |
|-------|---|-------|
| 1.3.1 | Expert in electrical technology and electrical maintenance
(from 1.7.81 to 31.12.81) | 6 m/m |
| 1.3.2 | Expert in electrical and pneumatic instrumentation
(from 1.7.81 to 30.9.81) | 3 m/m |
| 1.3.3 | Expert in rotating equipment
(from 1.12.81 to 31.12.81) | 1 m/m |
| 1.3.4 | Expert in automotive mechanics
(from 1.12.81 to 31.12.81) | 1 m/m |
| 1.3.5 | Expert in mechanical fitting
(from 1.12.81 to 31.12.81) | 1 m/m |

2. EQUIPMENT AND MATERIALS

2.1 Equipment for Autorepair Workshop

	<u>Q.ty</u>
2.1.1 Workbench, metal structure, wooden top, complete with 2 drawers and vises Size 1800 x 600 x 900h mm approx.	1
2.1.2 Lever-operated grease pump, complete with flex-tube and set of nipples, cap. 500 gm	2
2.1.3 Oil syringe, cap 200 gm	2
2.1.4 Oil syringe, cap 500 gm	2
2.1.5 Lever-operated oilers, cap 500 gm	5
2.1.6 Funnel, flextube and screen filter 190 mm ²	3
2.1.7 Hand shears for sheetmetal, right-handed, 250 mm long	2
2.1.8 Hand riveter for 4-mm ϕ rivets	1
2.1.9 4-mm ϕ aluminium rivets	1000
2.1.10 Sliding calipers, approx. 1/20 mm, scale length 160 mm	2
2.1.11 Graduated steel rule showing mm, size 25x1x500	2
2.1.12 90° square, size 200 x 140 mm	1
2.1.13 Point compass, 250 mm long	1
2.1.14 Scriber, straight and 90° point, 250 mm long	3
2.1.15 Double wooden metre stick	2
2.1.16 Steel flexible measuring tape, 2 m long	2
2.1.17 3-bubble aluminium level, 400 mm long	2
2.1.18 Diamond glasscutter	5

Q.ty

2.1.19	Double plumblines complete with cord and alignment plate	2
2.1.20	Round-tipped mason's trowel 200 mm long	4
2.1.21	Mason's hammer complete with handle	2
2.1.22	Plastering trowel with 1 steel edge, with handle, length 280 mm	2
2.1.23	Plastic bucket for mortar	4
2.1.24	Mason's mallet, 0.8 kg, with handle	2
2.1.25	Octagonal 6-kg sledge with handle	2
2.1.26	Sawbows complete with 10" blades	4
2.1.27	10" blades for sawbows (packs of 10 blades each)	10
2.1.28	Portable 2-speed electric drill, 13-mm hole ϕ , complete with power cord with plug, chuck and key, set of helicoid drills	1
2.1.29	Portable angular abrasive-disc sander, disc 178-mm ϕ , complete with accessories and 30 abrasive discs	1

2.2 Equipment for Maintenance Workshop

	<u>Q.ty</u>
2.2.1 150 to 200-l/min compressor having 50-l tank and 15 m of spiral tubing complete with attachments	1
2.2.2 Airblast pistols, washing nozzles, pneumatic airguns	3
2.2.3 Electric sanding machine, non-automatic, 1000 watt approx., disc 150 mm ϕ	1
2.2.4 Compression testing pistol for gasoline engines	1
2.2.5 Compression testing apparatus for diesel engines	1
2.2.6 Cleaning and sanding kit for diesel injectors	1
2.2.7 Manual milling kit for valve seats	1
2.2.8 Pan with grill for washing of parts	1
2.2.9 Board to lie on with wheels and cushion	1
2.2.10 Manual hydraulic press complete with accessories, 10-tons	1
2.2.11 Manual pump with connectors for calibrating diesel injectors	1
2.2.12 12-volt stroboscopic pistol for phase adjustment	1
2.2.13 Clutch disc centering kit	1
2.2.14 Static 220+ 380 volt 150 amp welder complete with accessories	1
2.2.15 3-shelf part cart, metal construction	1
2.2.16 Universal extractor with 3 reversible arms, maximum opening 200 mm	1
2.2.17 Bench-type vulcanizer with thermostat	1

	<u>Q.ty</u>
2.2.18 Bench anvil, 50 kg	1
2.2.19 Light with 10 m of extension cord and reel	2
2.2.20 200 mm \emptyset disc goniometer	1
2.2.21 Vehicle-supporting blocks, 3000-kg, adjustable to 3 positions	2
2.2.22 Vehicle-supporting blocks, 5000-kg, adjustable to 3 positions	2
2.2.23 Grindstone for sharpening tools, using water	1
2.2.24 Manual calipers or compass for checking toe-in	1
2.2.25 Densimeter for checking battery electrolyte	1
2.2.26 Hand-operated cutter for tubing up to 20 mm	1
2.2.27 Bender and pincer for copper tubing of maximum 10 mm outside \emptyset	1
2.2.28 Chromed $1\frac{1}{2}$ " flextubes complete with washers	50
2.2.29 Johnson anti-oxidant spraycans	10
2.2.30 Paint for FIAT 128, color 2221	2 kg
2.2.31 Set of flat chisels 125-175-250 mm,	2
2.2.32 Set of half-round chisels 100-150-200 mm,	2
2.2.33 Assortment of bolt/pin removers,	1
2.2.34 Percussion wrenches: 30-32-36-41-46-50	1
2.2.35 Lever wrenches assortment	1

	<u>Q.ty</u>
2.2.36 Open-end wrenches in series from 6x7 to 30x33	1
2.2.37 Small wrenches in series	1
2.2.38 Set of combined wrenches from 10 to 32	1
2.2.39 Set of wrenches	1
2.2.40 Complete set of wrenches for engines	1
2.2.41 Set of Allen wrenches from 1.5 to 19	1
2.2.42 Wrenches for adjustment of points, from 12 to 17 mm	1
2.2.43 Sparkplug wrench	1
2.2.44 Set of "T" hexagon wrenches - set of 17 pieces	1
2.2.45 Set of jointed "T" hexagon wrenches - set from 9 to 20	1
2.2.46 Cross wrench	1
2.2.47 Tire lever 500 mm long	2
2.2.48 Set of large socket wrenches	1
2.2.49 Set of small socket wrenches	1
2.2.50 Size 0 and P adapter sockets	1
2.2.51 Type C torque wrench	1

	<u>Q.ty</u>
2.2.52 5-compartment mechanical maintenance box complete with tools	1
2.2.53 Workbench with combined cupboard	1
2.2.54 Pair of starter battery cables	1
2.2.55 Chain extractor for oil filter	1
2.2.56 Gr. 1 and 2 piston ring sleeves	1
2.2.57 Valve pliers - auto - complete set with straight and curved jaws	1
2.2.58 Pincers for brake springs, 480 mm long	1
2.2.59 Adjustable 250 mm pliers	1
2.2.60 Universal pliers 160 and 200 long	1
2.2.61 Set of pliers for becket rings, curved, 125-160-300 mm	1
2.2.62 Set of pliers as above, straight, 135-170-310 mm	1
2.2.63 Set of pliers as above, curved, 130-170-280 mm	1
2.2.64 Set of pliers as above, straight, 130-170-280 mm	1
2.2.65 Pliers with halfround jaws and cutter, curved, 165 mm	1
2.2.66 Pliers with flat jaws and cutter, curved, 200 mm	1

	<u>Q.ty</u>
2.2.67 Pliers as above with flat jaws, straight, 165 mm	1
2.2.68 Pliers as above with halfround jaws, 165 mm	1
2.2.69 175 and 300 mm vise grips	1
2.2.70 Parallel vise grips	1
2.2.71 Insulated 140 mm wirecutter	1
2.2.72 Oblique insulated 140 mm wirecutter	1
2.2.73 Shears 125 long	1
2.2.74 300 mm tinsnips	1
2.2.75 Thread taps in case	1
2.2.76 Assortment of drills	3
2.2.77 Set of series extractors for size 8 bolts	1
2.2.78 Size 2 bolt extractors	1
2.2.79 Assortment of extractors for ballbearings	1
2.2.80 Size 5 ballbearing extractor	1
2.2.81 Set, sizes 12-14-16-18, ballbearing extractor	1
2.2.82 Wheel remover	1
2.2.83 Extractor as above for ball joints	1

	<u>Q.ty</u>
2.2.84 Spring blocking tool	1
2.2.85 Two-speed portable electric drill, without percussion	1
2.2.86 Sensitive bench drill	1
2.2.87 Bench grinder	1
2.2.88 Set of reinforced screwdrivers	1
2.2.89 Set of cross-form screwdrivers	1
2.2.90 Adjustable supports, capacity 3000 kg	4
2.2.91 Lift truck, capacity 3000 kg	1
2.2.92 Folding jack, capacity 1000 kg	1
2.2.93 Mechanic's files in series	1
2.2.94 Sawbow, complete with 20 blades	1
2.2.95 Sawbow, complete with 20 blades for metal	1
2.2.96 German-type hammers with handles, 300-500-1000gm set	1
2.2.97 Sledges with handles, 2 to 5 kg, set	1
2.2.98 Set of transparent plastic mallets, 250-gm and 450-gm	1

	<u>Q.ty</u>
2.2.99 500-gm rubber mallet	1
2.2.100 Fixed bench vise	1
2.2.101 Scraper 20 mm wide	1
2.2.102 Scraper as above, 10 mm wide	1
2.2.103 Oilers of 500-gm capacity	1
2.2.104 Oilers, 300-gm capacity	1
2.2.105 Oil syringe	1
2.2.106 Lever-type grease gun	1
2.2.107 Grease-gun connectors, length 500	1
2.2.108 Set of various nipples	1
2.2.109 Air-pumping pistol	1
2.2.110 Calipers 1/20 160 mm long	1
2.2.111 Outside micrometer, 0 to 25 and 25 to 50	1
2.2.112 Thickness gauge	1
2.2.113 Stainless steel metre stick	1
2.2.114 Steel square 100x70 mm	1
2.2.115 Idem as above 300x175 mm	1
2.2.116 Battery charger for batteries up to 75 Ah, Mod. 15 A, 6/12V	1

	<u>Q.ty</u>
2.2.117 Engine stand with universal flange	1
2.2.118 Hydraulic lever crane - capacity up to 2000 kg	1
2.2.119 Gasoline lamp	1
2.2.120 Flex power shaft for attachment to bench drill, 1.3 m long, complete with set of steel brushes, cup grindstone/cutting grindstone	1
2.2.121 Laminated steel tweezers, 160 mm	1
2.2.122 Percussion screwdriver	1
2.2.123 Set of hollow punches	1
2.2.124 Screw-pitch gauge	1
2.2.125 Complete comparator	1
2.2.126 Magnetic support for comparator	1
2.2.127 Cast-iron surface plate	
<u>SPARE PARTS</u>	
Toyota Land Cruiser truck Mod. HJ-45K	
2.2.128 Gasket kit for engine	3
2.2.129 Gasket for engine head	3
2.2.130 Set of tubes for hydraulic brake circuit	1
2.2.131 " " " " " clutch "	1
2.2.132 " " " " cooling circuit	1
2.2.133 " " " " fuel supply circuit	1

	<u>Q.ty</u>
2.2.134 Complete radiator and fan	1
2.2.135 Toothed V-belt for alternator/fan	2
2.2.136 Plastic reservoir for brake fluid	2
2.2.137 Set of front and rear brake linings	2
2.2.138 Front shock absorbers	2
2.2.139 Rear " "	2
2.2.140 Conic roller bearings for wheels	4
2.2.141 Ball-joint spindles	2
2.2.142 Engine supports	2
2.2.143 Complete steering box	1
2.2.144 Exhaust pipe complete with muffler	1
2.2.145 Thermostarter	1
2.2.146 90-Ah battery	1
2.2.147 Oilfeed pump	1
2.2.148 Water pump for cooling circuit	1
2.2.149 Hydraulic pump for clutch	1
2.2.150 A.C. pump (fuel feed)	1
2.2.151 Gasoil filters	11
2.2.152 Oil filters	10
2.2.153 Air filters	5
2.2.154 Complete clutch	1
2.2.155 Set of cables for parking brake and accelerator	2
2.2.156 Complete set of 6 injectors	1

	<u>Q.ty</u>
2.2.157 Key-type starting switch	1
2.2.158 7.50 - 16" tires with tubes	8
2.2.159 Outside rearview mirrors (right/left)	2
2.2.160 Inside rearview mirrors	2
2.2.161 Doorlock with key (right/left)	2
2.2.162 Window handle	2
2.2.163 Right-door side window	1
2.2.164 Headlights complete with reflectors and bulbs	2
2.2.165 Lenses for front signal lights	2
2.2.166 " " rear signal, parking and stop lights	2
2.2.167 Lateral direction indicators	2
2.2.168 Bulbs for headlights	4
2.2.169 " " front signal lights	5
2.2.170 " " rear lights (signal, parking, stop)	5
2.2.171 " " lateral direction lights	5
2.2.172 8A fuses	10
2.2.173 16A fuses	10
2.2.174 Set of engine oil seals	1
2.2.175 Set of engine belts	1
2.2.176 Set of brake gaskets	1

Land RoverQ.ty

2.2.177	Set of engine gaskets	1
2.2.178	Set of oil seals	1
2.2.179	Head gasket	1
2.2.180	Set of engine belts	1
2.2.181	Fuel filters	2
2.2.182	Engine oil filters	2
2.2.183	Set of brake gaskets	1
2.2.184	Tires	4
2.2.185	Inner tubes	4

Alfa Romeo minimus of the Gamma 30 AR 8 series

2.2.186	Set of brake linings for rear brakes	2
2.2.187	" " " " " front "	2
2.2.188	Brake master pump	1
2.2.189	Pressure control pick-up for braking corrector	2
2.2.190	Partializing valve for front braking circuit	1
2.2.191	Engine-powered vacuum pump	1
2.2.192	Hydraulic inefficiency signalling switch	1
2.2.193	Air filter	14
2.2.194	Oil filter	24
2.2.195	Gasoil filter	24
2.2.196	Fuel suction filter	10
2.2.197	Radiator complete with fan	1

	<u>Q.ty</u>
2.2.198 Timing chain	3
2.2.199 Complete set of injectors	2
2.2.200 Manual (A.C.) fuel pump	1
2.2.201 Glow plugs	2
2.2.202 Belts for alternator, fan, water pump	3
2.2.203 Set of feeler gauges for tappet adjustment (various sizes)	1
2.2.204 Complete set of valves (compression/exhaust)	2
2.2.205 Drive gear for distributor shaft	1
2.2.206 Oil pump	1
2.2.207 Complete set of engine gaskets	2
2.2.208 Gasket for engine head	2
2.2.209 Water pump	1
2.2.210 Thermostat for cooling fluid circuit	1
2.2.211 Plastic pan for cooling liquid	1
2.2.212 Plugs for above pan	3
2.2.213 Complete set of tubing for cooling circuit	1
2.2.214 Complete set of cables for brake, clutch, accelerator	1
2.2.215 Complete clutch	2
2.2.216 Bellows protection hood for rack-gear bar	4
2.2.217 Set of conic rollers for front/rear wheels	1
2.2.218 Set of hydraulic shock absorbers, front	2
2.2.219 " " " " " rear	2

	<u>Q.ty</u>
2.2.220 175 - 16 8 pr tires complete with inner tube	14
2.2.221 88 Ah, 12V battery, Bosch brand or equivalent	1
2.2.222 Key-operated rotary switch	1
2.2.223 Side direction indicators	2
2.2.224 Lenses for front signal lights and relative 21W bayonet bulbs	2
2.2.225 Lenses for rear signal, parking and stop lights, complete with relative 5W and 21W bayonet bulbs	2
2.2.226 5W bayonet bulbs for illumination of rear plate	4
2.2.227 Headlights, complete with two-filament 45-40W bulbs	2
2.2.228 3W bulbs for front parking lights	10
2.2.229 5W cylindrical bulbs for cab	5
2.2.230 Light switch	1
2.2.231 Dashlight switch	1
2.2.232 Switch for electric fan	1
2.2.233 Windshield wiper blades complete with motor	1
2.2.234 Combined headlight and horn switch	1
2.2.235 8A fuses	20
2.2.236 16A fuses	10
2.2.237 Door handles complete with keys (side and rear doors)	2
2.2.238 Window handle	2
2.2.239 Outside right and left rearview mirrors	1
2.2.240 Complete set of oil seals	1

	<u>Q.ty</u>
2.2.241 Set of piston rings (pass form)	1
2.2.242 Set of brake gaskets	1
<u>FIAT 128-A-1 (1300 cc)</u>	
2.2.243 Engine gaskets (set)	1
2.2.244 Engine head gasket	2
2.2.245 Set of valves	2
2.2.246 Distributor	1
2.2.247 Coil	1
<u>FIAT 128-A-CL (1100 cc)</u>	
2.2.248 Fuel tank caps	5
2.2.249 Hydraulic cylinders for brakes	4
2.2.250 Tires complete with inner tubes	4
2.2.251 Semi-axles	4
2.2.252 Starter switch with key	2
2.2.253 Lenses for front parking lights	1
2.2.254 Headlights complete with bulb holders	4
2.2.255 Front shock absorbers	4
2.2.256 Rear shock absorbers	4
2.2.257 Spider for planetary gears	1
2.2.258 Direction and parking indicators (rear and side)	4
2.2.259 8A fuses	40
2.2.260 24V 55-50W bulbs	4
2.2.261 Horn	2

	<u>Q.ty</u>
2.2.262 12V coil	2
2.2.263 Gear pulley for distributor shaft	2
2.2.264 Rearview mirror	2
2.2.265 Automatic tripper for signal lever	2
2.2.266 Champion N Y 9 spark plugs	20
2.2.267 Belts for alternator	3
2.2.268 Cable for speedometer	3
2.2.269 Set of windows: front, rear, sides	1
2.2.270 Plastic reservoir for cooling liquid	2
2.2.271 Carburetor	2
2.2.272 Door handle, complete with key	2
2.2.273 Inside door lever	2
2.2.274 Window handle	2
2.2.275 Set of engine gaskets	2
2.2.276 Head gasket	3
2.2.277 Set of valves, intake and exhaust	2
2.2.278 Set of spark plugs	4
2.2.279 Set of piston rings (pass form)	2
2.2.280 Set of engine belts	3
2.2.281 Complete clutch	2
2.2.282 Distributor cap, rotor, platinum plated points	3
2.2.283 Motor oil filters	10
2.2.284 Air filters	10

	<u>Q.ty</u>
2.2.285 Set of brake gaskets	2
2.2.286 Batteries, dry	2
2.2.287 Tires 145x13	18
2.2.288 Inner tubes	18
<u>FIAT 238 ambulance</u>	
2.2.289 Set of spark plugs	1
2.2.290 Set of platinum plated points	1
2.2.291 Tires	2
2.2.292 Inner tubes	4
<u>FIAT 50 truck</u>	
2.2.293 Tires	4
2.2.294 Inner tubes	8
<u>Refrigerator Truck - Thermo-King x. M.T. 20D</u>	
2.2.295 Carburetor	1
2.2.296 Pulley	1
2.2.297 Accelerator solenoid	1
2.2.298 Dewatering filter	1
2.2.299 Thermostatic valve	1
2.2.300 Valve plate	1
2.2.301 Comp. intake valve	1
2.2.302 Relay	1
2.2.303 Points	1
2.2.304 Belt	1

	<u>Q.ty</u>
2.2.305 Plug	1
2.2.306 Belt	1
2.2.307 Gasoline pump	1
2.2.308 Spark plug	1
2.2.309 M.T. cable	1
2.2.310 High-pressure safety valve for THERMO-KING cooling assembly	1
2.2.311 Cable for motor and accelerator operation	4
2.2.312 Set of 15m reinforced hose	2
2.2.313 Set of standard connectors from 1/4" to 1"	2
2.2.314 Wheelblade pipe cutter plus cinching wheel	1
2.2.315 Copper tubing flanging tool (kit)	1
2.2.316 "Castolin" rods for welding tubing	5 kg
2.2.317 Set of connectors for welding, from 1/4" to 1"	1
2.2.318 Set of threading taps from 1/4" to 1"	1
2.2.319 20-kg can of iron and epoxy resin cement	1
2.2.320 Bottles of silicon transparent sealer + pistol	20
2.2.321 Stethoscope	1
2.2.322 Complete set of bolts and screws	1
2.2.323 Hand riveter + assortment of rivets	1
2.2.324 Thermometer -40 to +120°F 1/2"	1
2.2.325 " -20 to +240°F 1/2"	1
2.2.326 " -10 to +120°F 1/2"	1

	<u>Q.ty</u>
2.2.327 Thermometer +40 to 300°F ½"	1
2.2.328 Pressure gauge with freon scale	2
2.2.329 Thermostats with capillary tube	5
2.2.330 Recharging set complete with pressure gauges	1
2.2.331 Electronic freon leak finder	1
2.2.332 Portable high vacuum pump for removal of air from refrigerant circuits	1
2.2.333 Fibre roller for seating gaskets	1
2.2.334 Pipe flatener for copper tubing	1
2.2.335 Tool for pinholing copper tubing	1
<u>Expendable materials and working accessories</u>	
2.2.336 Box of assorted hose clamps	1
2.2.337 Assortment of "Guarnital" paper for making gaskets	5 m ²
2.2.338 Pic. tubes (plastic gasketing)	3
2.2.339 Jars of "Ermetic"	3
2.2.340 Assortment of cotter pins	1
2.2.341 Assortment of cable terminals	1
2.2.342 Bottles of "Svitol"	2
2.2.343 Assortment of 12V bulbs, 30 per type	1
2.2.344 "Fispa" filter elements for gasoline vehicles	20
2.2.345 Fire extinguishers for vehicles, with support	10
2.2.346 "Fast" pressure cans for repair of car tires	10
2.2.347 Common welding rod, 1000 1.5mm, 1000 2.5 mm	2000

	<u>Q.ty</u>
2.2.348 Assorted radiator caps	20
2.2.349 Jar of neutral vaseline	1
2.2.350 Windshield wipers with rubber blades	20
2.2.351 Assortment of copper and aluminium rivets	1
2.2.352 Plastic pans, size 600x400x4300 mm approx.	25
2.2.353 Plastic buckets, capacity 10 l	20
2.2.354 3 kg CO ₂ extinguishers (complete with accessories and supports)	9
2.2.355 Plastic tabs for keys (various colors, for doors)	200
2.2.356 Fuel transfer pump complete with drawpipe and rubber forcepipe, and accessories	2
2.2.357 Syringes complete with tube and set of nozzles (one 300-gm, one 500-gm and one 1000-gm)	3
2.2.358 Syringes, cap. 500 gm,	4
" " 850 gm,	3
2.2.359 Oilers, 300-gm	9
2.2.360 Transfer recipients	2
2.2.361 " "	2
2.2.362 "Yale" machine for key-making	1
2.2.363 Keys	400
<u>Lubricants for machine tools</u>	
2.2.364 Class A oil (general lubrication) 20-kg cans	5
2.2.365 Class B oil (gearlube) 20-kg cans	2
2.2.366 " D " " (spindles) " "	1

	<u>Q.ty</u>
2.2.367 Class E oil (guides) 20-kg cans	2
2.2.368 " F oil (hydr. commands) 20-kg cans	2
<u>Other similar products</u>	
2.2.369 Graphite grease (5-kg can)	1
2.2.370 Graphited braiding for pumps (various sections)	20
2.2.371 Neutral vaseline for lab. equipment (jars)	2
2.2.372 Tubes of silicon	50
2.2.373 Pistol for silicon tubes	2
2.2.374 Tubes of glue for deratization	20
2.2.375 12% sodium hypochlorite for water treatment	120

2.3 Consumables and Technical Materials for the Printing Department

	<u>Q.ty</u>
2.3.1 Flasks of Canon NP50 toner	6
2.3.2 Flasks of Canon NP50 Premix	6
2.3.3 Bristol board sheets, 21 x 29.7 cm	500
2.3.4 "Long life" kit consisting of: 2 packs of matrices 4 bottles of toner 1 developer 1 set of filters 1 wash pack 2 Rotaprint 100 pads	1
2.3.5 Kit containing: 2 packs of matrices 4 bottles of toner 1 developer 1 set of filters	1
2.3.6 "Fabriano" type paper - 80 gr. 29.7 x 21 cm 500-sheet packs	320
2.3.7 Matte finish smooth cards, 250 gr.	3.000
2.3.8 FIMAPRINT pads in 100-piece packs	13
2.3.9 Blanket cleaner for washing and maintenance; 5 lt. pack	3
2.3.10 White cloth	10 kg
2.3.11 Rubbers for paper matrices - FIMAPRINT (boxes)	10
2.3.12 Powder toner for U-BIX-MARK 1	4
2.3.13 Powder developer - U-BIX-MARK 1	4
2.3.14 Brushes	4

	<u>Q.ty</u>
2.3.15 Bag filter - U-BIX-MARK 1	4
2.3.16 Matrices made of photosensitive metal sheets (boxes)	4
2.3.17 Canon NP50 liquid toner (bottles)	5
2.3.18 Canon NP50 Premix (bottles)	5
2.3.19 Developing salts for OCE 214 heliographic machine (envelopes)	10
2.3.20 Spirals of 21 rings of various diameters	1350
2.3.21 U-BIX-MARK 1 developer	2
2.3.22 Matrix shifter belts for Copyoffset 125 U-BIX-MARK 1	2
2.3.23 15 copies of the 14 texts for Production Operators Course	
2.3.24 15 copies of the 12 texts for Electricians Course	
2.3.25 15 copies of the 18 texts for External Operators Course	

2.4 Work Dresses**Q.ty****2.4.1 One-piece suit of blue overalls in 100% cotton
with zippers**

Sizes (Italian) : size 46	40
size 48	60
size 50	50

2.4.2 White cotton laboratory-type overalls

Sizes (Italian) : size 46	15
size 48	20
size 50	15

**2.4.3 Protective work shoes - light lace-up
short boot model PLO**

Sizes (Italian) : size 42	30 pairs
size 43	60 "
size 44	10 "

**2.4.4 Leather gloves for general work use
- Split leather**

75 "

**2.4.5 Leather gloves for general work use
- Grain leather**

75 "

2.5 Consumables for Electricity Laboratory

	<u>Q.ty</u>
2.5.1 Power-factor meter for low load	1
2.5.2 Three-way waterproof boxes with cable clamps	8
2.5.3 25A single-phase board type fuse carriers	6
2.5.4 Cells for tester	6
2.5.5 Small lamps 240/260 V 3 W signal	20
2.5.6 Flexible wire cross-section 1.6 mm ² - red m.	500
2.5.7 " " " " " " - green m.	500
2.5.8 " " " " " " - white m.	500
2.5.9 Amp terminals for 1.6 mm ² wire	1000
2.5.10 Burday clips to connect 4 mm ² cable	50
2.5.11 Scotchcast packs for 4x4 mm ² cable	10
2.5.12 80 VA single-phase transformer cores (with wrapper)	10
2.5.13 200 VA single-phase TR cores (without wrapper)	5
2.5.14 Steel brushes for files	5
2.5.15 Emery cloth, various sizes	
2.5.16 10 mm parallel vice to be mounted with the other on the fitting bench	1
2.5.17 TA 10/1	4
2.5.18 Column amperometers for same	4
2.5.19 Iron screws 3 MA/4MA - 20 40 mm.	
2.5.20 Bench for electrical measurements	1
2.5.21 Facom maintenance equipment box	1

	<u>Q.ty</u>
2.5.22 Panels for bench	4
2.5.23 Sets of tools for maintenance and construction electricians	2
2.5.24 "FUMASI" type wire strippers	2
2.5.25 "FUMASI" type roundnose pliers	2
2.5.26 Cutting nippers	3
2.5.27 Phase indicator	6
2.5.28 Electricians' scissors	3
2.5.29 Punch	2
2.5.30 Scriber	2
2.5.31 Tester	3
2.5.32 Screw driver \emptyset 5 mm	2
2.5.33 " " \emptyset 4 mm	2
2.5.34 " " \emptyset 3 mm	2
2.5.35 " " \emptyset 2.5 mm	6
2.5.36 Star screw driver \emptyset 5 mm	6
2.5.37 " " " \emptyset 3 mm	6
2.5.38 Ampliversal terminal pliers	6
2.5.39 Stanley electricians' knife	6
2.5.40 Set of Facom box spanners	2
2.5.41 Set of Facom box spanners	4
2.5.42 Set of Acesa spanners	7

	<u>Q.ty</u>
2.5.43 Set of Acesa plain + 12-point spanners - 10 - 13 - 24 10 - 13 - 24	3
2.5.44 Set of Acesa plain + 12-point spanners - 6 - 8 - 10 - 11 - 13 - 14 - 24	7
2.5.45 Set of drills 1 - 2 - 2.5 - 3 - 3.5 - 4 - 4.5 - 5 - 6 - 6.5 - 8.5 - 13	12
2.5.46 Screw tap Ø M8 x 1.25 mm	1
2.5.47 Cells for tester tester	10

2.6 Consumables for Chemistry Laboratory

			<u>Q.ty</u>
2.6.1	HCl concentrated hydrochloric acid	liter	5
2.6.2	KNO ₃ potassium nitrate	1/2 kg	4
2.6.3	H ₂ SO ₄ concentrated sulphuric acid	liter	5
2.6.4	NH ₄ NO ₃ ammonium nitrate	1/2 kg	4
2.6.5	KCNS (0.05 N solution) potassium thiocyanate	phials	5
2.6.6	AgNO ₃ (0.05 N solution) silver nitrate	"	5
2.6.7	Toluol	liters	2
2.6.8	Ethyl alcohol	liters	3
2.6.9	Acetone (for analyses)	liters	3
2.6.10	Acetone (technical)	liters	5
2.6.11	Na ₂ CO ₃ sodium carbonate	kg.	3
2.6.12	Iso-octane	liters	2
2.6.13	K ₂ CrO ₄ potassium chromate	kg.	1
2.6.14	KCl potassium chloride	gr.	500
2.6.15	K Mn O ₄ N/10	phials	6
2.6.16	Starch mixture	gr.	300
2.6.17	KI potassium iodide	gr.	500
2.6.18	Eriochrome T black	gr.	100
2.6.19	K ₂ Cr ₂ O ₇ potassium bichromate	kg.	2
2.6.20	CaCl calcium chloride (technical)	kg.	5
2.6.21	Phenolphthalein	gr.	100

			<u>Q.ty</u>
2.6.22	Methyl orange	Gr.	250
2.6.23	ASTM standard viscosity oil for cali- brating viscosity meters	liters	3
2.6.24	Cork stoppers, various diameters		
2.6.25	Platinum wire (6 cm)	6 cm	10
2.6.26	Porcelain mortar with pestle \emptyset 8 cm		5
2.6.27	Watch glass \emptyset 6 cm		10
2.6.28	Porcelain crucible \emptyset 3 cm for calcina- tion		10
2.6.29	Porcelain capsule \emptyset 10 cm		5
2.6.30	Glass funnel \emptyset 8 cm		10
2.6.31	ASTM thermometers :		
	- 7 C		4
	- 8 C		4
	- 9 C		2
	-23 C		1
	-24 C		1
	-25 C		1
	-33 C		1
	-34 C		1
	-35 C		1
	-57 C		1
2.6.32	Chronometer		1
2.6.33	Laboratory overalls - size 46		5
	- size 48		10
	- size 50		5
2.6.34	Protective goggles, fibreglass, with side protection		8
2.6.35	Rubber tubing, \emptyset 4, \emptyset 6, \emptyset 8 mm	mt.	15
2.6.36	CO ₂ extinguisher - 3 kg.		4

	<u>Q.ty</u>
2.6.37 Refractory support for distiller ASTM D 86 Ø 50 cm (for distilling gas oil)	2
2.6.38 Analytical precision balance	1
2.6.39 Mechanical-type cap piercer (with crank)	1
2.6.40 Metal support with bottom spiral and wire for Hengler flasks	1
2.6.41 Gas reducer for "GPL" cylinders (plug connection)	4

