60

Coventry City Council

Environmental Protection Act 1990, Sections 12 (1)

Notice of Revocation

To: The Company Secretary
Ageo Ltd
PO Box 62, Banner Lane
Coventry
CV4 9GF

Coventry City Council ('the council'), in exercise of the powers conferred on it by section 12 of the Environmental Protection Act 1990 ('the Act'), hereby gives you notice as follows:

1. The authorization reference 060 is hereby revoked with effect from the 11th of July 2003.

Signed on behalf of Coventry City Council

[redacted]
.....
Head of Environmental Health

Date: 11 JUL 2003

CERTIFICATE OF SERVICE BY POST
(Magistrates Courts Rules 1986) Rule 55(2)

I Maria Walsh a Clerical Assistant employed by Coventry City Council, hereby certify that I served R F Pearce with a true copy of this notice, by the recorded delivery service posted by me at the Post Office situated at 21 Hertford Street, Coventry at 4 ~~am~~/pm on 16-7-03 and addressed to ESTATE MANAGER AGCO LTD PO BOX 62 BANNER LANE COVENTRY being his/her last known residence/the company's registered office/place of business

Dated the 11TH day of JULY 2003

Signed: [redacted]

Coventry City Council

read with VN dated 13/5/02

THE ENVIRONMENTAL PROTECTION ACT 1990

The Environmental Protection (Prescribed Processes and Substances) Regulations 1991, SI 472.

The Environmental Protection (Application, Appeals and Registers) Regulations 1991, SI 507.

Authorisation No: 060
Application Received: 12th October 1992

Notice is hereby given that under the Environmental Protection Act 1990 Coventry City Council (hereafter called the Authority) gives authorisation to:

AGCO Ltd
P O Box 62
Banner Lane
Coventry
CV4 9GF

Register in England No: 2388894

For the spraying of tractors as described on Page 2 at:

AGCO Ltd
P O Box 62
Banner Lane
Coventry
CV4 9GF

Subject to the conditions specified on the attached pages, Nos 1 to 5, and within the process boundary as indicated on Plan No. 1.

Signed ..... Dated..... day of.....199..
City Environment Officer

1. DESCRIPTION OF PROCESS

1.1 This authorisation is for the spraying of tractors, as described in the Environmental Protection (Prescribed Processes and Substances) Regulations 1991, SI472, Section 6.5 Part B paragraph (b) within the process boundary outlined in red on the attached Plan numbered 1 and specifically relates to the processes outlined below.

1.2 CHASSIS PAINT PLANT

1.2.1 The delivery and storage of paints, diluents and cleaning solvents in the paint/mix room as shown in the Plan numbered 1.

1.2.2 The pretreatment cleaning of the chassis and the application of a phosphate coating.

1.2.3 A cold water rinse followed by a Triple Drying off process.

1.2.4 The spraying of primer paint in the primer spray booth as shown on plan A, employing manual electrostatic spraying techniques, following into the flashing off of the paint.

1.2.5 The spraying of the final enamel paint in the finish spray booth as shown on plan A, employing manual electrostatic spraying techniques.

1.2.6 The flash off and curing of the paints in the stoving ovens as shown on plan A.

1.3 SHEET METAL PAINT PLANT

1.3.1 The delivery and storage of paints, diluents and cleaning solvents in the paint/mix room as shown on plan numbered 1.

1.3.2 The cleaning of the sheet metal with an alkali based degreasant followed by a hot water rinse with a final clean by an alkali based degreasant and a cold and hot water rinse.

1.3.3 The automatic coating of the sheet metal with a zinc phosphate spray as shown on plan B.

1.3.4 The application of the primer paint to the component by an electrophoretic dip method.

1.3.5 The Ultra filtrate rinse is sprayed onto the components and the residue flows back into the electro paint tank.

1.3.6 The flash off and curing of the components to 190°C in the stoving ovens.

1.3.6.1 The spraying of a primer surfacer to all livery coloured panels by a manual air-assisted airless electrostatic process in an enclosed spray booth.

1.3.6.2 The flash off, at ambient temperature, of the primer surfacer coat for a minimum of ten minutes.

1.3.7 The spraying of the final enamel by a manual hot airless electrostatic process.

1.3.8 The polymerisation of the enamel paint film in the enamel stove.

1.3.9 The coating of small components by manual spraying in the small open spray booth.

1.4 The rectification of damaged or deficient paintwork in the hospital bay in the final finish shop as shown on plan 1 applied by a manual spray gun.

1.5 The sanding down of components which have failed to meet specification to enable re-entry into the coating process.

1.6 Any change to the above descriptions must not take place without the prior consent from this Authority.

2. EMISSION LIMITS AND CONTROLS

2.1 All emissions to air shall be free from offensive odour outside the process boundary, as perceived by the local Authority Inspector.

2.1.1 The p^H value of the spraybooth water tanks in the Chassis Paint Plant and Sheet Metal Paint Plant shall be checked daily to ensure a p^H greater than 9 exists. A log shall be kept on the daily p^H readings. The sludge from the tank shall be cleaned out every 3 months.

2.1.2 Deleted

2.1.3 All emissions to air from stacks (numbered C1-6, and S1-6 on plan C), exhaust points and buildings of the Chassis Paint Plant and the Sheet Metal Paint Plant other than steam or condensed water, shall be free from droplets, free from persistent mist and free from persistent fume.

2.2 There shall be no emissions of particulate matter noticeable beyond the process boundary.

2.3 All pollution concentrations shall be expressed at standard conditions of 273K and 101.2Kpa without correction for water vapour content.

2.3.1 The following concentration limits of emissions to atmosphere expressed as 30 minute mean emission concentration shall not be exceeded in the final discharge to air.

(i) Total Particulate matter from each individual stack numbered C1-6 in the Chassis Paint Plant spraybooth and stacks numbered S1-6 in the Sheet Metal Paint Plant as shown in plan C shall not exceed 50 mg/m^3 (Tests shall be carried out in accordance with the main procedural requirements of BS3405:1983).

(ii) Isocyanates (expressed as Total NCO group excluding particulate matter) from each individual stack numbered C1-6 in the Chassis Paint Plant and numbered S1-6 in the Sheet Metal Paint Plant as shown in plan C shall not exceed 0.1 mg/m^3.

Both conditions in 2.3.1 shall not apply until 1st April 1998.

2.3.2 All paint diluents and cleaning solvents used in conjunction with the processes in the Chassis Paint Plant and Sheet Metal Paint Plant comply with the VOC's content specifications of clause 20 in the Secretary of States Guidance Note on the coating of metal and plastic, PG6/23(97). Furthermore the coating process shall use no more than 1 tonne of volatile organic compounds in any 12 month period of non compliant coatings due to non-availability of compliant coating. This condition shall apply from 1st April 1998.

Use of the Croda two pack low solids polyurethane grey paints will be phased out and removed from the processes on the Chassis Paint Plant and Sheet Metal Paint Plant by August 1998.

2.4 The introduction of dilution air to achieve the emission concentration limits in this authorisation is not permitted. Exhaust flow rates should be consistent with the efficient capture of emissions.

3. MONITORING SAMPLING AND MEASUREMENT OF EMISSIONS

3.1 Deleted

3.1.1 Emissions of total particulate matter from the spraybooths in the Chassis Paint Plant and Sheet Metal Paint Plant (numbered C1, C2 and S1-6 inclusively) shall be tested at least once a year to demonstrate compliance with condition 2.3.1.

3.1.2 Emission of isocyanates from the Chassis Paint Plant and Sheet Metal Paint Plant spraybooths (number C1, C2 and S1-6 inclusively) shall be tested once every 12 months to demonstrate compliance with condition 2.3.1.

3.1.3 The date and time of monitoring, pollutants to be tested and proposed test methods for measuring compliance with emission concentration limits specified in condition 2.3.1 shall be forwarded to the Council at least 7 days in advance of any periodic monitoring taking place.

3.1.4 The results of all non continuous emission testing shall be forwarded to the Local Authority within 8 weeks of the completion of sampling.

3.1.5 If any emission concentration exceeds twice the emission concentration limit specified in clause 2.3.1, the Local Authority shall be advised immediately by telephone (024 7683 1832) or by fax (024 7683 1840). If the emission measurements exceed the emission concentration in clause 2.3.1, the results should be forwarded immediately to Housing & Environmental Services Directorate, Coventry City Council, Broadgate House, Broadgate, Coventry.

3.1.6 The results of all monitoring to comply with conditions of 2.3.1 shall be recorded in a log book, retained on site for a minimum of 2 years and made available for examination by this Local Authority. Adverse results shall be investigated immediately and recorded in the log book, identifying the cause and corrective action taken shall be produced.

3.2 Deleted

3.3 Deleted

3.4 Deleted

3.5 A detailed record shall be kept of all organic solvents used in the prescribed processes. This shall include cleaning solvent usage, diluent solvent usage and solvents contained within coatings used. This inventory shall be forwarded to the local Authority at least once every six months and shall include a determination for the total organic solvent usage for that period.

3.6 Deleted

3.7 Deleted

3.8 Deleted

4. MONITORING SAMPLING AND MEASUREMENT OF EMISSIONS

4.1 Deleted

4.2 Deleted

4.3 Deleted

4.4 Deleted

4.5 Deleted

5. MATERIALS HANDLING

5.1 The cleaning of spray guns and other equipment shall only be carried out in the spray booths and paint mix room. This shall only be undertaken while the spray booths are in proper working order.

5.2 The mixing of paint shall only be carried out in the area marked paint mixing room as shown on the plan numbered 1.

5.3 Spray gun testing, following cleaning shall only be carried out in the spray booths. This shall only be undertaken while the spray booths are in proper working order.

5.4 Spraying shall only be carried out in the spray booths and these must be in proper working order.

5.5 All full, partially full and nominally empty containers which hold or have held materials which contain organic solvents must be stored in the storage bins besides the hospital bay and have lids.

5.6 All sludge from the water filtration systems awaiting collection must be stored in a lidded skip.

6. CHIMNEYS, VENTS AND PROCESS EXHAUSTS

6.1 Emissions from the spraying of primer and enamel coatings on the chassis in the primer spray booths shall only be emitted to atmosphere via the water filtration system.

6.2 Emissions from the spraying of the primer surfacer and enamel to the sheet metal shall only be emitted to atmosphere via a water filtration system.

6.3 Emission from the spraying of the assembled tractor in the hospital bay shall only be emitted to atmosphere via a water filtration system.

6.4 Emission from the flashing off and stoving ovens must be vented to atmosphere via proper process exhausts.

6.5 Emission from the paint mixing rooms shall only be emitted via proper process exhausts.

6.6 Emissions from the sanding down of components shall only be emitted via proper process exhausts.

7. GENERAL OPERATIONS

7.1 Any mechanical malfunction or spillage of material shall be attended to and remedied as soon as possible. Any incident likely to give rise to atmospheric emissions shall be noted in detail in the process log book as described in 3.4.

7.2 Any incidents likely to give rise to emissions which may have an impact on neighbouring residents shall be reported immediately to this Authority.

7.3 A copy of this authorisation shall be kept in a location which is conveniently accessible to persons having duties which are or maybe affected by this authorisation.

7.4 The operator shall supply, to this Authority, on demand and without charge, a copy of all or part of the monitoring records kept in accordance with this authorisation.

8. Deleted

8.1 Deleted

8.2 Deleted

epa/aa/060©

SUPPLEMENTARY NOTES

THESE NOTES ARE NOT PART OF THE AUTHORISATION

1. Your attention is drawn to your obligation under Section 7(2) of the Environmental Protection Act 1990 to ensure that the best available techniques, not entailing excessive cost (BATNEEC) for:

   A) preventing the release of prescribed substances into the air or where that is not practicable by such means, for reducing the release into the air of such substances to the minimum and for rendering harmless any such substances that are so released

   and

   B) for rendering harmless any other substances which might cause harm if released into the air.

2. The authority for contact purposes should be taken to mean the head of the Environmental Protection Section, Tel 76831810 during office hours, 76832222 outside office hours.

3. You will note that condition 7.1 of the authorisation requires you to submit a schedule of works for approval by this Authority, within six months of the issue date. This schedule must describe the procedures and improvements that you intend to implement in order to meet the requirements of the relevant guidance note referenced within the authorisation. From observations and inspections of the process I would recommend that the following topics are specifically included.

   a) The results of non-continuous emission sampling of emissions from the Spray booth to indicate what improvements (if any) are required to ensure compliance with the emission limits stated in the Process Guidance Note.

   b) The proposed frequency of further non-continuous emission sampling, taking into account the results of the initial monitoring exercise.

   c) The increase in height of the final discharge points from the Spraybooths according to the requirements of the Process Guidance Note. This should include a calculation of the proposed ground level pollutant concentration around the prescribed process.

   d) An initial indication of the intended options for the emissions of particulate matter to be pursued according to the process guidance note.

   e) An initial indication of the intended options for emissions of volatile organic compounds to be pursued according to Clause 19 of the Process Guidance Note.

f) Any other matter detailed within the Secretary of State's guidance notes on the 'paint application in vehicle manufacturing' and 'the Coating of Metal and Plastic.'

2/11/92 additional cheque as requested - sent to admin. Cheque No 124973

MASSEY FERGUSON

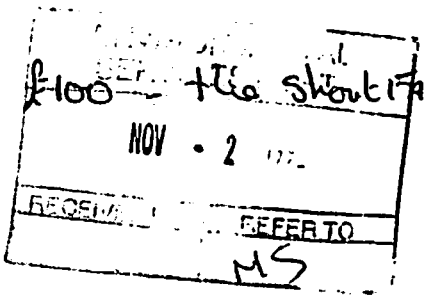
Massey Ferguson Tractors Limited
P.O. Box 62 Banner Lane Coventry
England CV4 9GF
Telephone 0203 694400
Telex 335011 VARITY G
Fax 0203 852495

Std letter sent typing

To MARK SLATER

PLEASE FIND ATTACHED Cheque for ~~£100~~ the shortfall on our Submission.

Regards [redacted]



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ENVIRONMENTAL PROTECTION ACT 1990, Part I
The Environmental Protection (Prescribed Processes and Substances) Regulations 1991
The Environmental Protection (Applications, Appeals and Registers) Regulations 1991

See Notes on pages 3 and 4 before completing this form.

APPLICATION FOR AUTHORISATION to carry out prescribed process
under section 6 of the Environmental Protection Act 1990

To(1) COVENTRY City Council

1 Name and address of applicant (2) *(in the case of a registered Company, name, number and registered office)* MASSEY FERGUSON LIMITED, Reg No 571884
STARETON, KENILWORTH,
WARWICKSHIRE CV8 2LJ Tel.No. 513000

2 Name and address of premises where process is or will be carried on *(not applicable to mobile processes)*
MASSEY FERGUSON TRACTORS LIMITED,
P.O. BOX 62, BANNER LANE,
COVENTRY CV4 9GF Tel.No. 694400

3 In the case of mobile plant, name and address of the principal place of business

N/A Tel.No.

4 Address for correspondence relating to the application
MASSEY FERGUSON TRACTORS LIMITED,
P.O. BOX 62, BANNER LANE,
COVENTRY, CV4 9GF
Contact name J.F. COSTELLOE Tel.No. 694400 Ext 3167

5 List of maps or plans enclosed with the application showing the location of the premises where the process is or will be carried on.

TITLE	Reference No.
CHASSIS PAINT PLANT	A.
SHEET METAL LINE - PAINT SHOP	B
REFINISH - HOSPITAL BAY	C

Where the process is or will be carried on on only part of the premises whose address is given at 2 above, describe which part of the premises and list the plan(s) which identif(y)(ies) this part or these parts.

SITE PLAN ATTACHED SHOWING A, B, C, ABOVE

6 Describe the prescribed process (3) *(use a continuation sheet if necessary)*

CHASSIS PAINT PLANT - SEE APPENDIX A1
SHEET METAL LINE - PAINT SHOP - SEE APPENDIX B1
REFINISH - HOSPITAL BAY - SEE APPENDIX C2

ENVIRONMENTAL SERVICES DEPT.
OCT 12 1992
£800.00 (121959)
RECEIVED BY | REFER TO

7 When was the plant first installed?

Please also give the details and dates of any major modifications or improvements which have been carried out.

PAINT SHOP - SHEETMETAL LINE INSTALLED July 1964 - 6 NEW COMBUSTION BURNERS BS5555 FITTED STUDLEY OVENS 1990

CHASSIS PLANT - INSTALLED July 1966 - 8 NEW BURNERS FITTED APPROX 1980

HOSPITAL TOUCH UP BOOTH - INSTALLED MAY 1990.

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8 List the prescribed substances (and any other substances which might cause harm) used in connection with or which might be released into the air resulting from the prescribed process.(4)

VOLATILE ORGANIC COMPOUNDS

ISOCYANATES.

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9 Describe the techniques to be used for preventing releases into the air of substances listed above, for reducing such substances to a minimum and for rendering harmless any such substances that are released.(5) *(use a continuation sheet if necessary and attach drawings of plant and equipment, where appropriate)*

USE OF WATER BASED ELECTRODEAT PRIMER PAINT ON SHEETMETAL LINE AND WATER WASH SCRUBBING SYSTEM OF THE SPRAY BOOTHS

ANY FREE ISOCYANATES IN THE SPRAY BOOTH WILL BE RAPIDLY RENDERED INERT BY EXPOSURE TO MOISTURE WHEN PASSING THROUGH THE WATER WASH SCRUBBING SYSTEM OF THE SPRAY BOOTH.

---

10 Give details of the source, nature and amount of current and/or anticipated emissions to air from the process. *(use a continuation sheet if necessary)*

(i) SEE APPENDIX D FOR VOLATILE ORGANIC COMPOUND EMMISSION.

(ii) ISOCYANATE BASED CATALYST USED FOR TWO PACK POLYURETHANE PAINT APPLICATION. TESTS HAVE SHOWN THAT THERE IS AN EXTREMELY LOW LEVEL OF FREE ISOCYANATE IN THE SPRAY BOOTH ATMOSPHERE (<0.003 mg/m3) EVEN BEFORE IT PASSES THROUGH THE SCRUBBING SYSTEM SEE APPENDIX E FROM CLAYTON ENVIROMENTAL REPORT.

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11 Give the assessment of the likely environmental consequences of the emissions to air. *(use a continuation sheet if necessary)*

NO PARTICULATE EMMISSIONS DUE TO THE USE OF WATER SCRUBBING SYSTEMS IN THE SHEET METAL & CHASSIS SPRAY BOOTHS

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12 What monitoring is or will be carried out of emissions to air?

Regular Isocyanate checks will in the SPRAY Booths ATMOSPHERE. NO OTHER MONITORING TO DATE

13 What monitoring will be carried out of the environmental consequences of emissions to air?

WE ALREADY CHECK THE IMMEDIATE AREAS, AND WILL BE LOOKING AT MONITORING ALL EXTERNAL SOURCES WHERE THE PRESCRIBED SUBSTANCES ARE LISTED IN SECTION 5.

---

14 How will you monitor the techniques described in the answer to question 9?

THIS WILL BE COMPLETED IN A NUMBER OF WAYS, PERSONAL MONITORS, ATMOSPHERIC SAMPLING, MEDICAL HEALTH CHECKS, AND USING SPECALISED MONITORS.

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15 State how you will ensure that the objectives listed in section 7(2) of the Environmental Protection Act 1990 will be achieved and how the condition implied by section 7(4) of the Act will be complied with.(6)

IT IS OUR INTENTION TO USE THE TWO PACK POLYURETHANE PAINT APPLICATION ON THE SHEETMETAL LINE – PAINT SHOP – AS SOON AS POSSIBLE IN CONJUNCTION WITH 13 ABOVE ALL REASONABLY PRACTICABLE MEANS WILL BE TAKEN TO ENSURE THE OBJECTIVES ARE MET.

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16 If you have any proposals for improvements which might prevent or reduce emissions, please give details. *(use a continuation sheet if necessary)*

AS PART ONE OF 15 ABOVE

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17 Give any other additional information which you would like to be taken into account by the local authority in considering your application.

MASSEY FERGUSON HAS ALWAYS STRIVED TO COMPLY WITH ANY NEW LEGISLATION.
THE EPA WILL FORM PART OF THE COMPANIES POLICY WITH REGARDS TO IT ENVIRONMENTAL OBLIGATIONS

Official guidance on the best available techniques not entailing excessive cost is published by the Department of the Environment in the process guidance notes for specific industries, copies of which are available from HMSO or can be ordered from certain bookshops. YOU ARE ADVISED TO CONSULT THE PROCESS GUIDANCE NOTE FOR YOUR INDUSTRY BEFORE COMPLETING THIS FORM. YOU MIGHT ALSO FIND IT USEFUL TO READ THE GENERAL GUIDANCE NOTE GG3.(7)

If you require any further information or assistance in completing this form, please contact your local Council at the address shown below.

Please complete the final section of this form on page 4 overleaf.

I enclose the fee of £ 800 — (8).
Cheques should be made payable to:

I HEREBY CERTIFY that all the information contained in this application is correct to the best of my knowledge and belief [and that I am authorised to sign on behalf of the Company].

Signature [redacted] .....

Official title Safety Officer .....

Date 29/9/92

Please complete and return this form together with FOUR copies of each of the plans listed in the reply to question 5 and the required fee to:

Tel No. 691400 Ext 3167

NOTES

1 This is the local authority in whose area the prescribed process will be carried on, or in the case of mobile plant, the local authority in whose area the applicant has his principal place of business.

2 Please state the person/Company who is operating or will operate the process, **not** an agent who may be completing the application on the operator's behalf.

3 A list of prescribed processes for local authority control is given in **Appendix A**, which accompanies this form. Further advice can be obtained if necessary from the local authority.

4 A list of prescribed substances for release into the air is given in **Appendix B**, which accompanies this form. "Harm" includes offence to the senses or harm to property.

5 Please list fully all pollution control measures for all stages of the process, from the receipt of raw materials to the despatch of wastes and finished products, including, for example, the height and location of any stacks or vents; the abatement technology; process control and operational data; arrangements for maintenance; the extent of supervision; the relevant qualifications and experience of the workforce; staff training; and contingency plans for breakdowns and emergencies.

All calculations should be shown, particularly for the chimney height(s). Justification for the selection of a particular abatement option should be given.

6 Section 7(2) and 7(4) of the Environmental Protection Act 1990 requires every operator of a prescribed process to use the best available techniques not entailing excessive cost for -

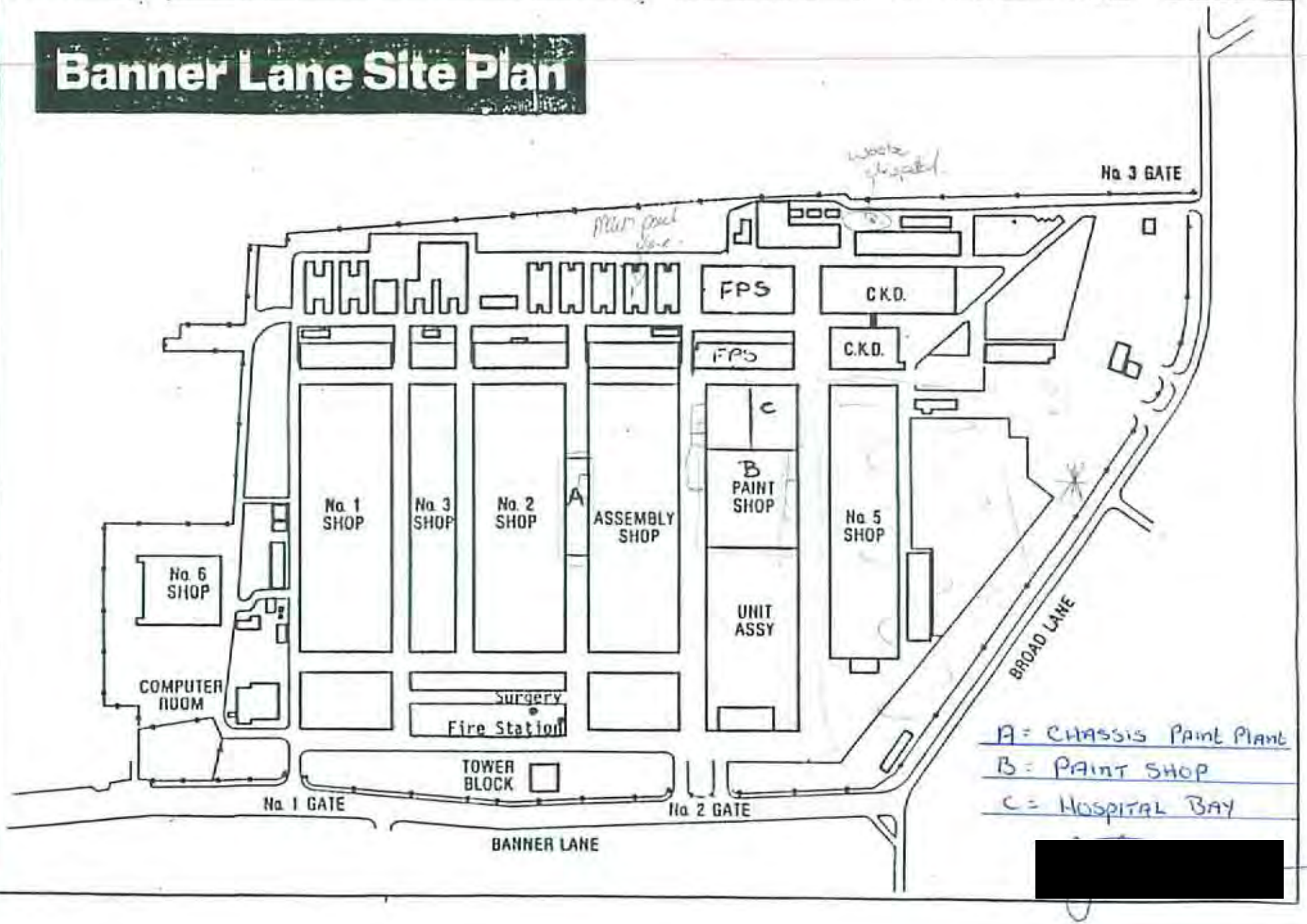
(i) preventing the release of prescribed substances, or where that is not practicable, for reducing the release of such substances to a minimum and rendering them harmless; and

(ii) rendering harmless any other substances which might be released.

7 Much of the information contained in the application form will be included in a register which the local authority is required to keep for public examination in accordance with section 20 of the Environmental Protection Act 1990 and the Environmental Protection (Applications, Appeals and Registers) Regulations 1991. Sections 21 and 22 provide for certain information (affecting national security, or commercial confidentiality) to be excluded from the register. Such information should be clearly identified in this application form.

8 £800 in the case of initial applications.
£530 in the case of applications for a substantial change.
£530 in the case of processes transferred from previous HMIP control.
£100 for small waste oil burners.

Banner Lane Site Plan



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Appendix - A1

PROCESS DATA SHEET

MASSEY FERGUSON	PROCESS ENGINEERING	SHT. 1 OF 10 ENG: B. Pearce DATE 13.9.92.
	REF. NO. C.10.C. A.7.A.	
	PROCESS Chassis Paint Plant	

INTRODUCTION

The Chassis Paint Plant cleans, phosphates, flash primes and finish paints tractor chassis metal components to achieve M.F. Engineering Specification M1000 and CPS 82. It comprises the following functional stages :-

1) Clean and phosphate
2) Clean and phosphate
3) Rinse
4) Rinse
5) Blow off
6) Oven dry off
7) Manual blow off
8) Flash prime bare metal
9) Spray paint final enamel
10) Enamel stove

The Process Data Sheets which control this system are :

- Chassis Wash C.10.C.
- Chassis Paint A.7.A.

PROCESS DATA SHEET

MASSEY FERGUSON	PROCESS ENGINEERING		SHT. 2 OF 10 ENG: B. Pearce DATE 13.9.92.
	REF. NO.	C.10.C. A.7.A.	
	PROCESS	Chassis Paint Plant	

TASKS (T) CODES AND RESPONSIBILITY (R) CODES - Frequencies are indicated on each sheet :

T1)	Check solution strengths and inform production of necessary corrections	(R1)
T2)	Check temperatures, pressures	(R4)
T3)	Check and correct paint viscosities, resistivities	(R3)
T4)	Routine chemical adjustments	(R2)
T5)	Organise dumping of solutions, washtanks, refill and make up with chemicals	(R4)
T6)	Overall surveillance of effectiveness of Plant & Process Materials in achieving plant objectives	(R2) & (R4)
T7)	Organising plant trials when a problem or process developments warrants production evaluation	(R4)
T8)	Visual observation of paint cover	(R2)
T9)	Visual observation of cleaning prior to painting	(R4)
T10)	Organising corrective actions with relevant departments	(R2) & (R4)

PROCESS DATA SHEET

MASSEY FERGUSON

PROCESS ENGINEERING	
REF. NO.	
PROCESS	

SHT. 3 OF 10
ENG: B. Pearce
DATE 13.9.92.

RESPONSIBILITY CODES

R.1. Laboratory

R.2. Production supervision

R.3. Production (Mix Room) personnel

R.4. Plant & Process Planning Engineer

CONTROL FREQUENCY

F.1. Once daily

F.2. Weekly

F.3. As requested

PROCESS DATA SHEET

MASSEY FERGUSON

PROCESS ENGINEERING	
REF. NO.	C.10.C.
PROCESS	Chassis Wash

SHT. 4 OF 10
ENG: B. Pearce
DATE 13.9.92.

Process Objective To remove oil and dirt from tractor chassis and simultaneously phosphate bare steel and cast iron surfaces. (Iron phosphate to BSS 3189 - Class D)

Plant Numbers 420075 430030 490076 **Plant Location** Chassis Pre Treatment Area, Assembly Shop

Clean & Phosphate STN.1.

Tank capacity - 1250 gallons
Spray pressure - 10 p.s.i.
Temperature - 60 C
Initial make up - Fill tank to within 3" of weir. Heat up. Add 36 Kg of Metprep 960 Iron Phosphate. Mix well. Add water to 1" of weir.
Tank fill and initial chemical make up carried out by contract cleaners under MF supervision. F3 R4
Laboratory Control- Maintain paint strength 4-6. Once per shift. F1 R1
Analysis - Titrate 10cc with M/10 sodium hydroxide. Phenolphthalein indicator
Additions - Add 7 Kg of Metprep 960 for every point below strength
Laboratory to advise production of additions required
Additions to be made by Paint Shop labour under supervision
Oil and scum to be weired over by Paint Shop supervision daily F1 R2
For additional information refer to Brent Data Sheet Metprep 960

STN.2. AS FOR STN.1.

PROCESS DATA SHEET

MASSEY FERGUSON	PROCESS ENGINEERING		SHT. 5 OF 10 ENG: B. Pearce DATE 13.9.92.
	REF. NO.	C.10.C.	
	PROCESS	Chassis Wash	

COLD WATER RINSE	STN.3.	Tank capacity - 950 gallons Spray pressure - 10 p.s.i. Temperature - Ambient Initial Make up - Water only. Tank fill by contract cleaners under MF supervision F2 R4 Laboratory Control - Maintain point strength below 3. F1 R1 Analysis - Titrate 50cc with M/10 sodium hydroxide. Phenolphthalein indicator Drop rinse water weekly and refill. F2 R4 Constant flow valve fitted to control overflow
COLD WATER RINSE	STN.4.	Tank capacity - 1150 gallons Spray pressure - 10 p.s.i. Temperature - Ambient Make up - As STN. 3. Laboratory Control - As STN. 3. Maintain below 0.5 point.
AIR BLOW OFF	STN.5.	To remove excess water before dry off oven
DRY OFF OVEN	STN.6.	Temperature settings - All zones 80 C If burner suction fan fails in any zone Maintenance to remove U.V. cell from holder to prevent damage by heat.

PROCESS DATA SHEET

MASSEY FERGUSON	PROCESS ENGINEERING		SHT. 6 OF 10 ENG: B. Pearce DATE 13.9.92.
	REF. NO.	C.10.C.	
	PROCESS	Chassis Wash	

AIR BLOW OFF STN.7. Manual blow off to remove water trapped in hollows, vertical trreaded holes etc.

Demask - Air inlet and exhaust manifolds secondary baGs

Mask - Wheel studs, 4WD hub tapped holes (& grease), hydraulic steering ram (2WD), Quadrant/linkage, fuel filter bowl, lower link pins

Drain - Engine oil and replace sump plug

Note : Assembly Methods Operation Layout 2520 521 K92 refers to :
- Op. 05 Chassis Wash
- Op. 10 Chassis Dry
- Op. 15 Air Blow Off/Mask/DeMask

Chassis PreTreatment Wash - Plant No. 420075
Chassis PreTreatment Air Blow Off - Plant No. 400030
Chassis Pretreatment Dry Off Oven - Plant No. 490076

PROCESS DATA SHEET

MASSEY FERGUSON

PROCESS ENGINEERING		SHT. 7 OF 10 ENG: B. Pearce DATE 13.9.92.
REF. NO.	A.7.A.	
PROCESS	Flash Prime & Finish (Charcoal Grey	

PROCESS OBJECTIVE To paint chassis Charcoal Grey

PLANT NUMBERS 410044, 410095, 490077 **LOCATION** Chassis Spray Area

FLASH PRIME

Two component Epoxy Primer
Mix ratio - Base 3 : Catalyst 2
Viscosity - Use at viscosity obtained after mixing R3
Primer - (ex International Paint) Base 4540 A3722 Curing Agent 0002 2 0031
Equipment - Kremlin spray guns air assisted, airless, electrostatic
Kremlin plural unit (metering and mixing)

SPRAY BOOTH WATER WASH

"Entry" tank capacity - 1360 gallons
Water level - maintained automatically
Initial make up - Tank filled to normal level. 41lb Aquarite C added with fan running When dissolved, add 40 gallons waste oil to form an emulsion with slight excess of floating oil. Tank fill and make up by contract cleaners under MF supervision. F3 R4

Control by chemical supplier

Refer to Binks Bullows literature for further information & details

PROCESS DATA SHEET

MASSEY FERGUSON

PROCESS ENGINEERING	
REF. NO.	A.7.A.
PROCESS	Flash Prime & Finish (Charcoal Grey)

SHT. 8 OF 10
ENG: B. Pearce
DATE 13.9.92.

"Exit" Tank capacity - 1360 gallons

Details as with "Entry" Tank

CHARCOAL GREY COLOUR COAT

Two component polyurethane, isocyanate cured
Mix ratio - Base 2. Catalyst 1.
Viscosity - Base. Diluted with thinner 8000 5 0394 to 46 secs at 19 °C
Approx. 33L of Thinner to 205L Base. Ford No. 4 Cup.
Final mixed viscosity (Base 2.Catalyst 1) 29 secs at 19/20 C
Ford No. 4. Cup. F1 R3

Resistivity - Grey Base 4520 A 6200 Unthinned 4MΩ
Thinned 2.5MΩ
Catalyst 0000 2 0032 850KΩ
Thinner 8000 5 0394 4MΩ

Mixing and adjustment of viscosity carried out by Mix Room Operator F1 R3

Equipment - Kremlin spray guns - air assisted, airless, electrostatic
Kremlin plural units (metering and mixing)

PROCESS DATA SHEET

MASSEY FERGUSON

PROCESS ENGINEERING		SHT. 9 OF 10 ENG: B. Pearce DATE 13.9.92.
REF. NO.	A.7.A.	
PROCESS	Flash Prime & Finish (Charcoal Grey)	

SPRAY BOOTH WATER WASH

"Nearside" Tank capacity - 2000 gallons
Water level maintained automatically
Initial make up - Tank filled to normal level. 60lb Aquarite C added with fan running. When dissolved, add 60 gallons waste oil to form an emulsion with slight excess of floating oil. Tank fill by contract cleaners under MF supervision. F3 R4

Refer to Binks Bullows literature for further details and information

"Farside" Tank capacity - 2000 gallons

Details as with "Nearside" tank.

PROCESS DATA SHEET

MASSEY FERGUSON

PROCESS ENGINEERING SURFACE FINISHING SECTION		SHT. 10 OF 10 ENG: B. Pearce DATE 13.9.92.
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PROCESS	Flash Prime & Finish (Charcoal Grey)	

FINISH STOVE — Temperature Settings

Zone 1)
2) Off

3)
4) 65°C At low build rates - below 14/hr - may be possible to turn of Zone 3 Burner
5)

If burner suction fan fails in any zone, Maintenance should remove UV cell from holder to prevent damage by heat.

Note : Assembly Methods Operation Layout 2520 521 K92 refers to :

- Op. 50 - Prime Paint
- Op. 60 - Flash Off
- Op. 70 - Finish Paint
- Op. 80 - Flash Off
- Op. 90 - Stoving Oven

Appendix - B1

PROCESS DATA SHEET

Massey Ferguson

MANUFACTURING PLANNING SURFACE FINISHING SECTION		Sht. 1 of 22
REF No.	C10A/A2B/A11B, A12C, A18B	Eng. S. J. WATKIN
PROCESS	SHEET METAL PAINT PLANT	Date 30/01/85

INTRODUCTION

The Sheet Metal Paint plant cleans, phosphates, electroprimes and enamel paints tractor sheet metal components to achieve M-F Engineering Specs. CMS 1000 and CPS 82. It comprises the following functional stages .....

1. Degrease
2. Rinse
3. Degrease
4. Rinse
5. Rinse
6. Zinc Phosphate
7. Rinse
8. Rinse
9. Rinse (Demin Water)
10. Electrocoat Prime
11. Rinse Ultrfiltrate I + II
12. Rinse (Demin Water)
13. Electrocoat Stove
14. Spray Paint Final Enamel
15. Enamel Stove
16. Unload

The Process Data Sheets which control the entire Sheet Metal System are .....

1. Pretreatment - ref. C10A
2. Electro-prime - ref. A2B
3. Finish Enamels - ref. A11B (Grey)
   A12C (Red)
   A18B (Black)

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PROCESS DATA SHEET

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MANUFACTURING PLANNING SURFACE FINISHING SECTION		Sht. 2 of 22 Eng. S. J. WATKIN Date 30/01/85
REF No.		
PROCESS		

TASK (T) CODES AND RESPONSIBILITY (R) CODES (Frequencies are indicated on each sheet)

TASKS (T)

T. 1 Check temperatures, solution strengths, coating weights, viscosities, film thicknesses, paint resistance/conductivities and advise deviations from P/Data Sheet and need for corrective action to Production Supervision (triplicate book). ?
Also compilation of record sheets R1.
T. 2 Organising corrective action with relevant department R1 R2.
T. 3 Verification that corrective action has been successful (R1). Record action.
T. 4 Alerting Senior Staff if Data Sheet control parameters are not achieving desired results (R1) and (R2).
T. 5 Checking acceptability of electrocoat premix prior to transfer to tank (R1).
T. 6 Liaison with departments * on possible need for Process Data Sheet amendments R1 R2.
T. 7 Organising routine chemical top-ups of process solutions R1, R2, R5.
T. 8 Organising dumping of solution, tank cleaning, refill and initial make-up with chemicals R1, R2, R3, R4.
T. 9 Overall surveillance of effectiveness of Plant and Process Chemicals in achieving Plant objectives. R1, R2, R4.
T.10 Organising Plant trials when a problem or process development warrants Production evaluation R1, R2.
T.11 Visual observation of cleaning effectiveness prior to phosphate (R1) R2, R5.
T.12 Visual observation of phosphate coat prior to electrocoat (R1) R2, R5.
T.13 Visual examination of electrocoat "cream coat" (R1) R2, R5.
T.14 Visual examination of primer after stoving (R1) R2, R5.
T.15 Organising examination of pretreatment spray jets (daily extension) R1, R3.

* Process Engineering, Technical Support and Laboratory

PROCESS DATA SHEET

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MANUFACTURING PLANNING
SURFACE FINISHING SECTION

REF No.	
PROCESS	

Sht. 3 of 22
Eng. S. J. WATKIN
Date 30/01/85

RESPONSIBILITY CODES

R1. Process Engineering Department

R2. Production Supervision

R3. Maintenance Supervision

R4. Laboratory

R5. Paintshop Chargehands

CONTROL FREQUENCY (Specified on each sheet)

F1. Once daily

F2. Twice daily

F3. Three times daily

F4. As indicated by Laboratory

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PROCESS DATA SHEET

Massey Ferguson

MANUFACTURING PLANNING SURFACE FINISHING SECTION		Sht. 4 of 22
REF No.	C10A	Eng. S. J. WATKIN
PROCESS	SHEET METAL PRETREATMENT	Date 30/01/85

STAGE 1 "KNOCK-OFF - STRONG ALKALI DEGREASE

CONTROL CHECK FREQUENCY F2

Components are received coated in Castrol DW x 22 Preservative or equivalent laboratory approved coating. This stage removes the PM38 and particulate matter from components by spraying compts. with hot alkali solution under pressure.

* Tank capacity - 2300 galls
* Operating temperature - 60 - 70 C
* Pressure prior to in-line filter - 22 psi (A)
* Pressure after in-line filter - 20psi (B)
* Pressure differential (A-B) 2psi max higher differential pressures indicate the filter requires cleaning.
* Alkali cleaner : Pyroclean 637
* Initial fill quantity - 50 kgs.
* Control strength 7 - 12 points (10ml sample) ZP conditioner 400 gms/12.5 Kgs 637.

If solution supply pressure on the output side of filter starts to rise, it is an indication that jets are starting to block.

Jet types - "Vee" in end standpipes
"Whirls" in rest.

No. of standpipes = 48
Jets per standpipe = 5
Pump flow rate (normal) = 650-750 gpm @ 70ft/hd

Solution Control

Refer to Pyrene Technical Service Data Sheet No 663 for methods of solution strength control, initial make-up and safety precautions R1.

Cleaning of Spray Jets

It is essential that spray jets are kept free from blockage. Blocked jets must be removed from their standpipe and cleaned. Poking jets to unblock them whilst still in-situ in their standpipes is not satisfactory. Refer to the Paint Plant Maintenance Brochure. Examine jets daily R1, R3 and R5.

HPHW Coils

Solution temperature is important for this process. HPHW coils should be changed at the frequency shown in the Paint Plant Maintenance Brochure - R3.

Frequency of Dumping Solution

Once every 2 weeks or more frequently if advised. R1.

Water top-up is effected by ball valve with quick fill facility for refill after dumping.

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REF No.	C10A	Eng. S. J. WATKIN
PROCESS	SHEET METAL PRETREATMENT	Date 30/01/85

STAGE 2 HOT SPRAY TOWNS WATER RINSE

CONTROL CHECK FREQUENCY F1

This stage rinses components to remove residual strong alkali cleaner.

* Tank capacity - 1000 galls
* Operating temperature - 55 - 60 deg C
* Spray time - 15 secs @ 12 pfm conveyor speed
* Spray pressure - 25-30psi
* Solution - water only
* Solution control - 5.0 points max (50 cm3 sample)

Jet type - "Vee"
No. of standpipes = 8
Jets per standpipe = 5
Pump flow rate 250-300 gpm @ 60ft/hd (nominal)

Point strength is determined on a 50 ml sample of solution titrated 0.1 M HCl with methyl orange indicator R1.

Water feed to the tank is controlled manually.

The water purity cannot be better than the quality of the Towns water supply which can vary from week to week.

Empty and refill tank once weekly.

Ensure Plant spray jets are clean. Rising pressure shows that the jets are starting to block. Once blocked, jets should be removed from standpipes for cleaning. Examine jets daily. R1, R3 and R5.

HPHW coils - this should be cleaned at the frequency shown in the Paint Shop Maintenance Brochure - R3.

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MANUFACTURING PLANNING SURFACE FINISHING SECTION		Sht. 6 of 22
REF No.	C10A	Eng. S. J. WATKIN
PROCESS	SHEET METAL PRETREATMENT	Date 30/01/85

STAGE 3 SPRAY ALKALI CLEAN - MEDIUM TEMPERATURE

CONTROL CHECK FREQUENCY F2

This stage is a back-up cleaner stage to the "knock-off". The solution used here is not so aggressive and operates at a lower temperature.

* Tank capacity - 2300 galls
* Solution temperature - 32 - 38 deg C
* Spray time - 90 secs @ 12fpm conveyor speed
* Pressure before filter - 22psi (A)
* Pressure after filter - 20psi (B)
* Pressure differential (A-B) 2psi max higher differential pressures indicates that the filter requires cleaning.
* Alkali cleaner : Pyroclean 637
* Initial fill quantity - 50 Kgm Pyroclean 637
* Control strength 6 - 12 points (10ml sample)

If solution supply pressure on the output side of filter starts to rise, it is an indication that jets are starting to block.

Jet types - "Vee" in end standpipes
"Whirls" in rest.

No. of standpipes = 36
Jets per standpipe = 7
Nominal pump flow rate - 750-850 gpm @ 70ft/hd

Solution Control

Refer to Pyrene Technical Service Data Sheet No 663 for methods of solution strength control, initial make-up and safety precautions R1.

Cleaning of Spray Jets

It is essential that spray jets are kept free from blockage. Blocked jets must be removed from their standpipe for cleaning. Poking jets in situ in the standpipe is not acceptable. Refer to Paint Shop Maintenance Brochure. Examine jets daily. R1, R3 and R5.

HPHW Coils

Solution temperature is important for this process. HPHW coils should be changed at the frequency shown in the Paint Plant Maintenance Brochure - R3.

Frequency of Dumping Solution

Once every 2 weeks or more frequently if advised. R1.

Water top-up is effected by ball valve with quick fill facility for refill after dumping. Overflow / Drain routed into sump below phosphate tank for neutralisation and discharge

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PROCESS	SHEET METAL PRETREATMENT	Date 30/01/85

STAGE 4 COLD TOWNS WATER SPRAY RINSE

CONTROL CHECK FREQUENCY F1

This stage rinses components with Towns water to remove carry over from the second alkali cleaner.

* Tank capacity - 1000 galls
* Operating temperature - ambient
* Spray time - 30 secs @ 12 pfm conveyor speed
* Spray pressure - 20-25psi
* Solution control - below 2 points on 50cm3 sample Point strength is determined on a 50cm3 sample of solution titrated against 0-1MHCL with methyl orange indicator R1.

Water feed to the tank is controlled by a Pyrene autobond AQ solution strength control meter. For setting up and operating this device refer to Pyrene Data Sheet EDS No. 1. The water purity cannot be better than the quality of the Towns water supply which The water purity cannot be better than the quality of the Towns water supply which can vary from week to week.

Empty and refill tank once weekly R1.

Ensure Plant spray jets are clean. Rising pressure shows that the jets are starting to block. Once blocked, jets should be removed from standpipes for cleaning. Examine daily. R1 and R3.

Jet type - "Vees" in end standpipes
"Whirls" in rest
No. of standpipes = 14
Jets/standpipe = 7
Nominal pump flow rate - 300 gpm @ 60ft/hd.

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STAGE 5 WARM TOWNS WATER SPRAY RINSE

CONTROL CHECK FREQUENCY F1

This stage rinses components with Towns water. At this point the components should be totally free of water breaks. Each component should be covered with a complete film of water. Totally unbroken. Water breaks are evidence that components are not grease-free which means that potentially, there could be phosphating problems in the subsequent phosphate stage. However, it is acceptable for components to retain fine black deposits (sensed by wiping one's hand over the surface of a component),providing no water breaks are evident. This rinse tends to be acidic. It is important that the acidity level does not build up over the permitted level since pre-passivation of components can occur which will prevent effective phosphating.

COMPONENTS SHOULD BE CHECKED FOR FREEDOM OF WATER BREAKS TWICE DAILY.
ENSURE THAT NO PHOSPHATE SPRAY IS DRIFTING ACROSS INTO THIS RINSE.

* Tank capacity - 1000 galls
* Operating temperature - 35-45 deg. C.
* Spray time - 30 secs at 12 fpm conveyor speed
* Spray pressure - 20-25psi
* Solution control below 0.5 points strength on 50cm3 sample using 0.IM sodium hydroxide solution and phenolphthalein indicator. ZP conditioner - 1Kgm/ shift at start R1.

Water feed to the tank is controlled by a Pyrene autobond AQ solution strength control meter. For setting-up and operating this device, refer to Pyrene Data Sheet EDS No. 1. The water purity cannot be better than the quality of the Towns water supply which can vary from week to week.

Empty and refill tank daily at end of shift R1. Ensure that Plant spray jets are clean. Rising pressure shows that the jets are starting to block. Once blocked, jets should be removed from standpipes for cleaning. Examine jets daily R1, R3 and R5.

Jet type "Vees" in end standpipes
"Whirls" in rest
No. of standpipes = 14 Pump flow rate (nominal)
Jets per standpipe = 7 300 gpm @ 60ft/hd

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REF No.	C10A	
PROCESS	SHEET METAL PRETREATMENT	

STAGE 6 SPRAY ZINC PHOSPHATE

CONTROL CHECK FREQUENCY F3

This stage converts the surface of the components to Zinc Phosphate. This helps to bond the paint onto the component and prevents the spread of corrosion if the component paint finish gets chipped in service. The zinc phosphate coat must be complete and of tight grey fine crystalline appearance. The coating should be uniform grey, free from dustiness or blue/yellow/brown stains.

Optimum coating weights are in a range 100 - 200 mgs/sq.ft. Failure to achieve a satisfactory phosphate will cause poor electocoat appearance and reject components.

* Tank capacity - 2750 galls
* Spray pressure - 5 - 10psi
* Temperature - 44 - 50 deg. C
* Spray time - 90 secs @ 12 pfm conveyor speed
* Phosphate chemicals - Bonderite 26SF)
  top-up solution) Ex
  - Bonderite 26SF IMU) Pyrene
  starter solution)

Accelerator No 14 (Nitrite)
Phosphate controls: Zinc 1.4 - 1.6 points
F2 (Total acid 25 - 32 ccm)
(NB: Add 14.5 litres 26SFR per pt. low total acid
(Free Acid 0.4 - 1.2 ccm
F1 (Nitrite 2.0 - 3.5 ccm
(NB: Add 2.5 litres Acc14 per pt. low Nitrite

NOTES

Water feed to the tank is by virtue of a ball valve for normal top-up and a quick-fill valve for initial make-up.

Spray jets must be kept scrupulously clean and should be inspected daily. Jet directionality is also important. The two outermost rows of standpipes feature "vee" jets. The fan should be positioned in the vertical plane. The standpipes should be angled facing in towards the centre of the zone in the case of the two outermost rows of standpipes at each end of the section.

The other standpipes (which are fitted with "whirl" jets) should face across the tunnel at right angles to the conveyor.
Jet specifications .....

"Vee" jets - angle 70 deg. flow rate = 3.5 gpm @ 15 psi
"Whirl" jets - angle 70 deg. flow rate = 4.0 gpm @ 15 psi

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MANUFACTURING PLANNING
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REF No.	C10A
PROCESS	~~SHEET METAL PRETREATMENT~~

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STAGE 6 SPRAY ZINC PHOSPHATE continued .....

Initial make-up

1. Soda Ash - 30 kgs
2. Additive 59IMU - 60 kgm
3. Additive 46IMU - 60 kgm
4. Bonderite 26SFIMU - 750 kgm

If free acid more than 0.8 reduce with soda ash
1kg Soda ash = reduction of 0.1 points free acid.

For further advice on control, initial make-up and safety info., refer to Pyrene Technical Data Sheet No. 625

Jets/Standpipes = 6
No. Standpipes = 36
Pump flow rate (nominal) = 800 gpm

The importance of ensuring a correct zinc phosphate coat cannot be over-emphasised. Poor phosphate will definitely result in poor quality electrocaot primer and subsequent rejects.

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STAGE 6 SPRAY ZINC PHOSPHATE continued .....

Phosphate Sludge Control

An unavoidable by-product of zinc phosphate processes is sludge. The sludge will block spray jets and coat HPHW pipes.

The tendency for a sluge to block the standpipes and spray jets has been reduced by the incorporation of a bottom "header" (to supplement the top header). The bottom header permits the return of solution back to the main phosphate tank thus keeping all solution in all parts of the pipework system "on-the-move" and thereby reduces settlement.

Flush through zinc phosphate tank header units to remove sludge accumulation in the pipework. Carried out by opening each of 4 valves (3 full turns of each valve) for about 30 minute each, before and after each. main production run. Then close down to re-store the original flow rate. R1 and R5.

Intentional settlement occurs in the 5 cones in the base of the main tank. It is recommended that each cone has its valve 'cracked' open to remove any sludge accumulation. Each cone is fitted with a compresed air actuated valve for this purpose. F1 and R1

STAGE 6 SPRAY ZINC PHOSPHATE continued .....

HPHW Coils

These will gradually become coated in phosphate sludge and lose their heat transfer efficiency. This will be self-evident from the fact that the solution is below the required temperature. The Drayton HPHW Control Valve will also be permanently in the downmost (open) slide position, "calling" for heat. At this point there is no alternative but to clean the HPHW coils - R3.

Standpipes

Weekly, 9 pipes removed in rotation and soaked in dilute Hydrochloric Acid solution (10% Pyroclean 14) to remove phosphate scale. After water rinse pipes put back into service. R3.

PROCESS DATA SHEET

Massey Ferguson

MANUFACTURING PLANNING
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REF No.	C10A
PROCESS	SHEET METAL PRETREATMENT

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Eng.
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STAGE 7 AND 8

CONTROL CHECK FREQUENCY F1 R1

These rinses remove any carry over of zinc phosphate solution.

* Tank capacity - 1000 galls
* Operating temperature - ambient
* Spray time - 30 secs @ 12 pfm conveyor speed
* Spray pressure - 15-25psi
* Solution - Water only
* Solution control - below 0.5 points on 50cm3 sample Point strength is determined on a 50cm3 sample of solution titrated against 0-1M sodium hydroxide using phenolphthalein indicator.

Water feed to these tanks is controlled by a Pyrene autobond AQ solution strength control meter. For setting up and operating this device refer to Pyrene Data Sheet EDS 1. The water purity cannot be better than the quality of the Towns water supply which vary from week to week. Overflow/Drain (section) routed to sump below phosphate tank for neutralisation and settlement before discharge.
Empty and refill tank once weekly R1.

Ensure Plant spray jets are clean. Rising pressure shows that the jets are starting to block. Once blocked, jets should be removed from standpipes for cleaning. Examine daily. R1, R3 and R5.

Jet type - "Vees" in end standpipes
"Whirls" in rest
No. of standpipes = 14
Jets/standpipe = 7
Nominal pump flow rate - 300 gpm @ 60ft/hd.

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MANUFACTURING PLANNING
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REF No.	C10A
PROCESS	SHEET METAL PRETREATMENT

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STAGE 9 - DEMINERALISED WATER RINSE

CONTROL CHECK FREQUENCY F1

This stage rinses components with demineralised water thus ensuring that no inorganic contaminants are carried over from the Pretreatment Plant to the electrocoat tank.

* Tank capacity - 250 galls
* Pressure - no gauge
* Spray time - 5 secs @ 12 pfm conveyor speed
* Max. conductivity - 80 micro mhos at 25 deg C R1

Demin water feed to this tank is controlled by a Pyrene autobond AQ solution strength control meter. For setting up and operating this device refer to the Pyrene Data Sheet EDS No. 1. This unit should be set to ensure that the conductivity of this rinse does not exceed 80 micros mhos.

Ensure Plant spray jets are kept clean, if jets are blocked they should be removed from their standpipes for cleaning. Jets should be examined daily. R1, R3 and R5.

Jet type - "whirl"
No. of standpipes = 2
Jets/standpipe = 7
Nominal pump flow rate - 40 gpm @ 50 ft/hd.

Visual Examination of phosphate coat prior to electropaint - check frequency - R1 and R5

Standing on the staging at the entrance to the electrocaot tank visually examine the phosphated work about to enter the electrocoat. It should reveal a uniform coating of zinc phosphate free from yellow/brown/blue shiny patches or amorphous dusty patches. The coating should be fine crystalline appearance.

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MANUFACTURING PLANNING SURFACE FINISHING SECTION	
REF No.	A2B
PROCESS	SHEET METAL PAINT PLANT

Sht. 15 of 22
Eng. B. PEARCE
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STAGE 10 - ELECTROPHORETIC PRIME PAINT

CONTROL CHECK FREQUENCY F1

This stage comprises an anodic electrophoretic paint plant. The paint is based on a phenolic modified polybutadiene resin, featuring base deficient feed with the paint solubilised by "DIPA" (diispopropylamine). Paint film build is within the range 15 - 30 microns. The stoved paint film must be smooth and free from stains or rough patches.

* Tank capacity - 41,000 litres (tank has automatic demin. water top-up)
* Plating voltage - 160 - 300 volts depending on film build.
* Paint temperature - 68-77 deg F, 20-25 deg C, preferred 68-70 deg F, 20-21 deg C.
* Pumps - normal production - two small circulating pumps running
  - overnight/holidays - as above
* Ultrafiltration - Fluxrate approx 250 litres/hour. U/F plant runs continuously. If stopped, the membranes must be flushed with demin. water and left with tubes filled with clean demin. (Ultrafiltrate is used in a closed loop system for pump gland flush and for the U/F rinses. Ultrafiltrate dump to control paint is by Laboratory request.

Paint Supplier - Herberts Industrial Coatings
Paint Reference - [redacted]
205.1141/8

Additive References - Herbert's Ref. No.

806.3023.5	Additive No. 11 (Bactericide)
806.3027.8	UF. 2 Flow agent (LOFA)
852.1122.2	Additive No. 17 (Solvent)
806.3019.7	Flow stabiliser
811.0012.4	Additive No. 13 (Solvent)
205.1114.0	Pigment Paste
300.5883.X	Regulator
301.9045.2	Solubilising agent

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MANUFACTURING PLANNING SURFACE FINISHING SECTION	
REF No.	A2B
PROCESS	SHEET METAL PAINT PLANT

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Date 20/06/85

Solids of paint in tank 15.0 - 16.5%)
pH 6.9 - 7.1)
Conductivity 3000 - 3500) F1
MEQ/1000g solid 75 - 85) R1
Solvent Total 2.8 - 3.2%)
Bactreia count. Less than 1 x 10
Suppliers responsibility

Control Parameters - Check Frequency 1 R4

Non-volatile matter 15.0 - 16.5%
pH 6.9 - 7.1
Conductivity 3000 - 3500 micros at 25 deg C
MEQ 75 - 85
Solvents - by GLC
Also weekly testing by Herberts - summary telex circulated

Electrical Contracts

There should be no arcing between current collectors and busbar.

Paint Feed Procedure

Production Laboratory will advise feed instructions based on analytical results from paint supplier and daily Prod. Lab. checks.

To make additions follow these instructions .....

1. Turn off valve from electrocoat tank to mix tank
2. Reduce level in mix tank to accommodate feed
3. Add DIPA to mix tank
4. Add solvent to mix tank via Graco pump
5. Pump up main feed to mix tank via Graco pump taking 20 - 25 mins
6. Stir in main feed for further 20 mins.
7. Laboratory to sample mix tank contents for pH MEQ, conductivity and homogeneity in accordance with Herbert's manual.
8. If contents of mix tank are satisfactory, open valve between mix tank and electrocoal tank.
9. Open valve from mix tank to pump.

Issue 2: 29/04/87 B. Pearce
3: 31/10/88 B. Pearce
4: 16/06/90 B. Pearce
5: 01/06/92 I. Hartill

PROCESS DATA SHEET

Massey Ferguson

MANUFACTURING PLANNING SURFACE FINISHING SECTION	
REF No.	A2B
PROCESS	SHEET METAL PAINT PLANT

Sht. 17 of 22
Eng. S. J. WATKIN
Date 31/01/85

STAGE 11 ULTRA FILTRATE RINSES

This stage rinses carried-over electropaint from the components. U.F. is sprayed onto the components. Rinsed off paint and U.F. flow back into the electropaint tank.

Pressure: 10 - 15psi

Spray jets must be kept clean. Inspect daily R1 and R5.

The ultrafiltrate system is kept running continuously to preserve the function of the semipermeable membrane tubes at filtering the electro-paint and producing the ultrafiltrate (permeate). In addition, the ultrafiltrate is kept circulating to flush clean and maintain the integrity of the re-circulating pump glands.

The ONLY part of this plant to be shut down on a daily basis are the After Rinse Pumps for stages 1, 2, 3 and 4. All are controlled from the main panel. F3 - R1 and R5.

Weekly, filtrate is to be dumped to mains drains to assist in maintaining the electro-paint condition R1 and R4.

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PROCESS DATA SHEET

Massey Ferguson

MANUFACTURING PLANNING
SURFACE FINISHING SECTION

REF No.	A2B
PROCESS	SHEET METAL PAINT PLANT

Sht. 18 of 22
Eng. S. J. WATKIN
Date 31/01/85

STAGE 12 DEMIN. WATER RINSE 1 AND 2

This stage removes water soluble salts from the components prior to stoving. This is necessary to avoid retention of the salts which would give subsequent blister problems in the final enamel finish.

The demin water is recirculated from a reservoir tank that is constantly being topped-up with fresh demin. thereby removing (by weir action) any coagulated paint residues.

Tank capacity : 250 galls
Spray pressure : 30-35psi
Temperature : ambient
Demin feed rate : 1.50 gpm controlled by conductivity meter - dump and refill tank weekly.

Spray jets must be kept clean. Inspect daily R1 and R5. Ancillary equipment - Permutit-SCION 500 two-bed water deioniser with waste trap tank for re-gen. waste water treatment. (for operating instructions see separate brochure).
Waste water from re-gen. treated with LYCAL (magnesium oxide) before pumping to main phosphate pit. R1
See section 3.3 point 12 of manual for further information.

Demin water to be dumped weekly to mains drains to assist is maintaining electropaint finish R1 and R4.

Final stage demin water rinse jets to be removed and cleaned out weekly. R1, R3 and R5.

Issue 2: 29/04/87 B. Pearce
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4: 16/06/90 B. Pearce
5: 01/06/92 I. Hartill

PROCESS DATA SHEET

Massey Ferguson

MANUFACTURING PLANNING SURFACE FINISHING SECTION		Sht. 19 of 22
REF No.	A2B	Eng. S. J. WATKIN
PROCESS	SHEET METAL PAINT PLANT	Date 31/01/85

STAGE 13 ELECTROCOAT STOVE **CONTROL CHECK FREQUENCY F1**

This stage stoves (polymerises) the electrophoretic paint. Minimum metal temperature profile is 177 deg C for 20 minutes. Process Engineering (R1) to check this monthly with a "Grant" recorder.

Oven air temperatures in the three control zones should be controlled at 185 - 190 deg C (check daily) R1 and R5.

Ancilliary equipment : Leeds and Northrupp continuous chart recorder.

Issue 2: 29/04/87 B. Pearce 4: 16/06/90 B. Pearce	5: 01/06/92 I. Hartill	

PROCESS DATA SHEET

MANUFACTURING PLANNING SURFACE FINISHING SECTION	Sht. 20 of 22
REF No. A11B, A12C, A18B	Eng. S. J. WATKIN
PROCESS SHEET METAL PAINT PLANT	Date 31/01/85

STAGE 14 HOT SPRAY PAINT FINAL ENAMEL **CONTROL CHECK FREQUENCY F4**

This stage spray paints the finish enamel. Three colours are available. Super Red, Charcoal Grey and Dull Black. The manual painting is a hot airless electrostatic process.
The local paint circulating systems are fed from a main paint mix room.
Paint viscosities should be taken in the main mix room after the paint has been pumping around the system for 1 - 2 hours. This will avoid false information resulting from thixotropy in the paint. The optimum enamel film thickness is within a range 22-38 microns.

Paint Control Viscosities

Super Red (IP 365F 2714) 60-70 secs @ 70 deg F.
Charcoal Grey (Int. paint 365 F 5730) 60-70 secs @ 70 deg F. Solvent = "Solvesso" 100
Dull Black (Eagle UMF 203/ES) 30-35 secs @ 70 deg F.

Viscosities are normally taken after each mix of paint.
The paint suppliers may advise occasional addition of alternative solvents.

All of the above paints should have electrical resistivities in a range 1-4 megohm. This should be monitored weekly by the Laboratory and Paint mix room operative using a Ransburg Test Meter. Results feedback to Process Engineering.

Paint circulating pressure at spray booths - 70 - 80 psi.
Solvent circulating pressure at spray booths - 70 - 80 psi.

Issue 2: 29/04/87 B. Pearce 4: 16/06/90 B. Pearce	5: 01/06/92 I. Hartill		

STAGE 14 continued .....

Spray Gun Details

Ransburg REH Hand Gun - Tip size : 13 thou
- Fan angle : 80 degrees

Paint pressure in local circulating system : 800 - 1000 psi.
Paint temperature = 140 - 160 deg F.

Spray Booth Water Denaturant System R1, R5 and contract cleaning company.

This system is filled with an alkaline paint denaturant (Gramos-Aquorite C). This saponifies the paint resin and causes the paint overspray to float off the surface on the tank. It is skimmed from the surface of the tank on a daily basis. The objective is to float the paint residue. Settlement will give rise to stagnation of the denaturant system.

Tank volume (both booths total) 7500 galls
Solution pressure : 5 psi
End sparge pressure : 7 psi
Initial fill -
Point strength = 2.5 - 3.0 on 50 ml sample VS. 0.1MHCL using phenolphthalein indicator.
Solution is dosed via a diaphragm pump which should be set to hold the tank strength at the desired level.
pH should be in range 9.0 - 9.5.

The tank contents should be pumped out twice yearly and any paint residue dug out.

PROCESS DATA SHEET

Massey Ferguson

MANUFACTURING PLANNING SURFACE FINISHING SECTION	
REF No.	A11B, A12C, A18B
PROCESS	SHEET METAL PAINT PLANT

Sht. 22 of 22
Eng. S. J. WATKIN
Date 31/01/85

STAGE 15 - ENAMEL STOVE

This stage stoves (polymerises) the enamel paint film.
Minimum metal temperature profile is 121 deg C for 20 minutes. Process Engineer (R1) to check this monthly with a "Grant" recorder.

Oven air temperatures in the three sections should be 115 - 125 deg. C (check daily) R1 and R5.

Ancillary equipment - Leeds and Northrupp continuous chart recorder.

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PRO. .S DATA SHEET

APPENDIX - C1.

Massey Ferguson

MANUFACTURING PLANNING SURFACE FINISHING SECTION		Sht. 1 of
REF No.	A8A	Eng B. PEARCE
PROCESS	REFINISH - HOSPITAL BAY	Date 17.9.92.

INTRODUCTION

The work carried out in the Hospital Bay is the rectification of damaged or deficient paint work. It comprises the following functional stages:

1. Inspection
2. Surface preparation
3. Masking where necessary
4. Painting
5. Drying off
6. Demasking.

PROCESS DATA SHEET

Massey Ferguson

MANUFACTURING PLANNING SURFACE FINISHING SECTION	
REF No.	
PROCESS	

Sht. 2 of
Eng. B. PEARCE
Date 17.9.92.

TASK (T) CODES AND RESPONSIBILITY (R) CODES. Frequencies are indicated on each sheet.

TASKS (T)

T1 Check equipment - call maintenance if needed
T2 check operating parameters.
T3 Prepare paints at correct viscosities
T4 Alert Technical Staff if control parameters or materials are not achieving the desired results.
T5 Organise plant trials when problem or process development warrants production evaluation
T6 Booth cleaning. including wash tank.

RESPONSIBILITIES (R)

R.1. Production Supervision
R.2. Technical Staff
R.3 Contract cleaners

CONTROL FREQUENCY (F)

F1 Daily
F2. Weekly
F3 As requested, or agreed by contract.

PROCESS DATA SHEET

Massey Ferguson

MANUFACTURING PLANNING SURFACE FINISHING SECTION		Sht. 3 of
REF No.		Eng. B. PEARCE
PROCESS		Date 17.9.92

SPRAY BOOTH

Binks Bullows "No Pump".
Plant No 410055
Denaturant – AquariteC. Makeup - add 100lb. AquariteC to booth water when booth running. Add waste oil until a thin floating film is formed. approx 100 gall. Control by Gramos. Makeup by contract cleaners under M.F. Supervision. R2. R3. F3.
For further details refer to Binks Bullows manual.

SPRAY PRIMER

Grey Etch Primer 4923 A 6514 ex International Paint
Spraying Viscosity 30secs No4 Ford Cup 22°C.
Thinner 3000 6 0035 ex International Paint.
Air Pressure 50psi
Fluid Pressure 10psi
Air Cap No 705
Fluid Tip AV 15 FF

} Equipment DeVilbiss paint pressure pots, air transformer, hoses, JGA spray gun.
R1 F1

PROCESS DATA SHEET

Massey Ferguson

MANUFACTURING PLANNING SURFACE FINISHING SECTION	Sht. 4 of
REF No.	Eng. B. PEARCE
PROCESS	Date 17.9.92

SPRAY COLOUR R1 F1

Red Acrylic Base	4024 A 5063	ex International Paint.	Spray viscosity	25 secs at 22°C No 4 Cup
Acrylic clearcoat	4024 A 8080	" "	" "	25 secs at 22°C No 4 Cup
White	4050 B 0300	" "	" "	30 secs at 22°C No 4 Cup
Grey	4204 A 6200	" "	" "	25-30 secs at 22°C No 4 Cup
Trim Black	67715	" Carrs Paints	" "	30 secs at 22°C No 4 Cup
Silver Mist	E.9099	" " "	" "	30 secs at 22°C No 4 Cup

BRUSH COLOUR

Grey	4202 A 6200	" International Paint	Brushed as received.

SPRAY CLEAR PROTECTIVE

Tempro 20	" I.C.I.	Spray as received

D

Appendix - D

MASSEY-FERGUSON

FROM: G HINSON

TO: COSTELLO.JOHN ***

DATE: 92-09-23

COPY: M PATRICK
C HABERFIELD
C VINES
W PATTISON
BARRY PEARCE
R F PEARCE
S C PAGE

REFERENCE: GHIN /920923/0843

SUBJECT: Environmental Protection Act Operator Application

I have listed below the total annual paint & solvent usage on our three paint plants in 1991 plus a 20% allowance for any increase volume in future years. These figures have been converted to equivalent total VOC (Volatile Organic Compound) weight emmissions/annum.

I have also sent to you separately, the process data sheets for each plant which give all the details of the paint process used.

The application should make it clear that we are using an isocyanate curing agent on the chassis plant and this will almost certainly be extended to the sheet metal plant next year with the provision of new equipment. We would want the operating licence to reflect this situation.

1. Sheet Metal Line

	VOC (g/lt)	Usage (lt/annum)	Total Emission (Kg/annum)
Electrocoat Primer	210	(exempt under act)	
Super Red Stoving Paint	556	29,000	16,140
Grey " " "	550	20,600	11,330
Matt Black " " "	550	3,400	1,870
Solvent	870	7,900	6,900
			36,240

2. Chassis Line

FROM: G HINSON DATE: 92-09-23

SUBJECT: Environmental Protection Act Operator Application

Two Pack Epoxy Primer	601	12,000	7,210
" " Grey Polyurethane	621	74,900	46,510
Solvent	870	13,700	11,920
			65,640

3. Touch-in Spray Booth (Exempt as <5 tonnes/annum emmission?)

Grey Air Dry Paint	560	4,320	2,420
Red " " "	630	300	190
			2,610
		Total (Paint)	104,490

Herberts

MASSEY-FERGUSON

Anodic Electrocoat Tank Additives

Ref No.	Description	VOC g / Kg as Delivered
205/1141/8	Light Grey Electrocoat	184
205/1114/0	Pigment Paste	190
301/8803/2	Solubilsing agent DIPA	501
806/3027/8	Regulator UF2	128
811/0012/4	Additive 13 (Butyl Cellosolve)	1000
————	Additive 17 (sec-butanol)	1000

Herberts

MASSEY-FERGUSON

Anodic Electrocoat Tank

	Weight%	Volume%
Tank solids	15.00	11.72
solvent	3.20	3.86

VOC content = 3.2 / (11.72 + 3.86) x 1000
(less water) = 205 gm / litre

VOC compliance	300 gm / litre (1992)
Target	250 gm / litre (1998)

LEV Examination - Results of Analysis

APPENDIX E

SS Code 42039098 IS Code 410 BS Code L Date 10/06/1992

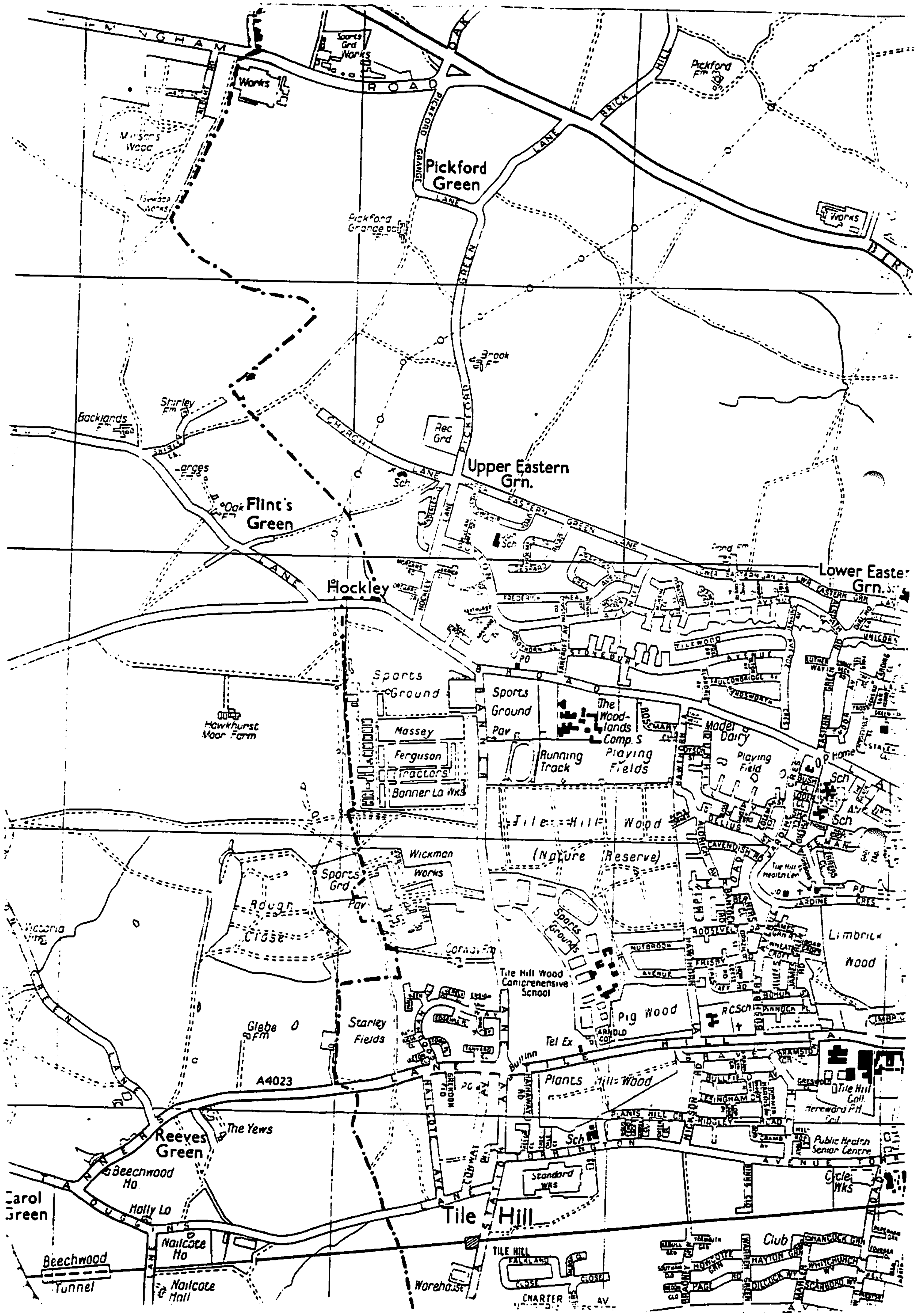
Company Massey Ferguson

Head No	Extraction Point	Substance Controlled	Flow Rate l/min	Sample Time mins	Iso-Cyanate ug/m3					Date of Monitoring
239	Static:Inside Booth	HMDI	1.3	30	<0.003					14/05/1992
40	Static:Chassis Prep'n	HMDI	1	30	<0.003					14/05/1992
81	Static:In Gangway	HMDI	1	30	<0.003					14/05/1992
155	Static:Flash-Off Booth	HMDI	1	30	<0.003					14/05/1992
Occupational Exposure Standard										
Maximum Exposure Limit					0.02					

The results indicate that they are within the occupational exposure limits

Signed [redacted]

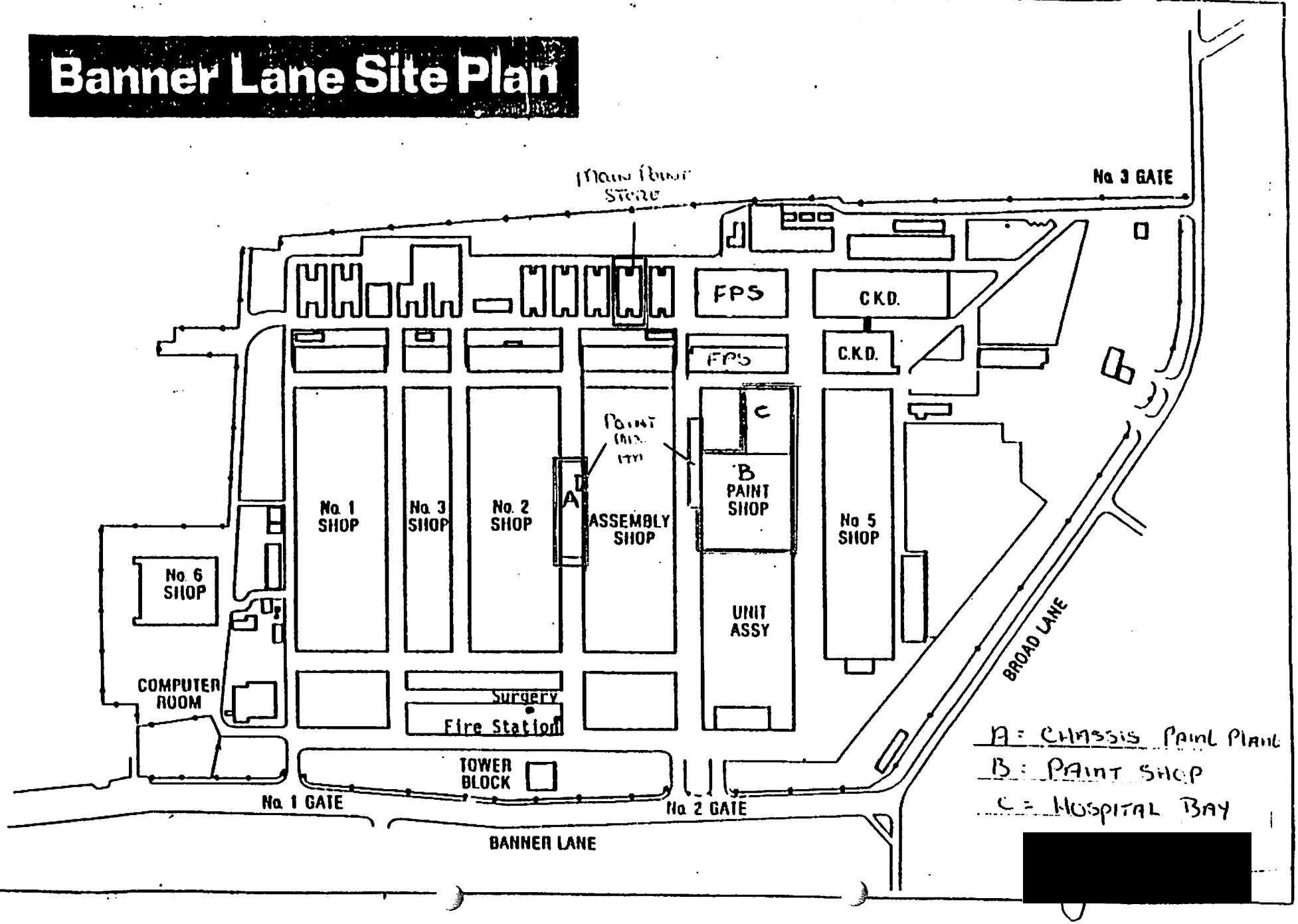
J Leadbetter, Minerva Health Mngment



Pickford Green
Pickford Grange Fm
Pickford Fm
Works
Brick Hill
Road
Brook Fm
Rec Grd
Upper Eastern Grn.
Lower Eastern Grn.
Eastern Green Lane
Church Lane
Flint's Green
Oak Fm
Shirley Fm
Backlands Fm
Hockley
Sports Ground
Pav
Massey Ferguson Tractors
Banner La Wks
Hawkhurst Moor Farm
The Woodlands Comp. S
Running Track
Playing Fields
Model Dairy
Playing Field
Tile Hill Wood
(Nature Reserve)
Wickman Works
Sports Grd
Rough Close
Sports Grounds
Tile Hill Wood Comprehensive School
Pig Wood
R C Sch
Limbrick Wood
Starley Fields
Glebe Fm
Tel Ex
A4023
Plants Hill Wood
Reeves Green
The Yews
Beechwood Ho
Holly Lo
Nailcote Ho
Nailcote Hall
Beechwood Tunnel
Carol Green
Tile Hill
Standard Wks
Cycle Wks
Public Health Senior Centre
Tile Hill Coll.
Club
Warehouse
Sch

Plan (1)

Banner Lane Site Plan



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