



Vermeer
1210 Vermeer Road East
Plant 1 P.O. Box 200
Pella, IA 50219
Phone: (841) 628-3111
www.vermeer.com

VIA FACSIMILE 202-366-7882

To: Mr. Jon White, Chief
Defects and Recall Information Analysis Division
Associate Administrator for Safety Assurance
National Highway Traffic Safety Administration
400 7th Street, SW
Washington DC 20590

08V-215
(17 pages)

PART 573 Defect and Noncompliance Report

Report Date: May 9, 2008

On April 29, 2008, Vermeer Manufacturing Company determined that there is a defect which relates to motor vehicle safety with respect to certain motor vehicles listed below, and is furnishing notification to the National Highway Traffic Safety Administration in accordance with 49 CFR Part 573 Defect and Noncompliance Reports.

Fabricating Manufacturer:

Vermeer Manufacturing Company
1210 Vermeer Road East
Pella, IA 50219

Telephonic: 641-628-3141

Fax: 641-621-7739

Contact Name and Title: Lois Slings
Product Safety/Legal, Operations Manager

Name and Title of Person Who Prepared Report: Lois Slings
Product Safety/Legal, Operations Manager

Signed:

Date:

5-9-2008

RECEIVED

2008 MAY 12 A 10:35

DEFECTS INVESTIGATION
RECALL MGMT DIV.



PART 573 Defect and Noncompliance Report

Report Date: May 9, 2008

I. Identify the Vehicle Models Involved in the Recall

Manufacturer's Identification Code: IK01-1460

Vehicle Identification:

Make:	Vermeer	Model Years Involved:	2006, 2008
Model(s):	BC2100XL		
Production Dates:	Beginning:	05/10/2006	Ending: 04/30/2008
VIN Range:	Beginning:	1VR2202Y181000097	Ending: 1VR2202YX81000115
Vehicle Type:	Trailer – Tandem axle brush chipper		

Description which characterizes/distinguishes the recalled vehicles from those model vehicles not included in the recall: The VIN Range includes 19 units.

Identify the approximate percentage of the production of all the recalled models manufactured by your company between the inclusive dates of manufacture provided above, that the recalled model population represents. For example, if the recall involved Widgets equipped with certain items of equipment from January 1, 1996 through April 1, 1997, then what was the percentage of the recalled Widgets of all Widgets manufactured during that time period.

100%

II. Identify the Recall Population

Total Number of Vehicles Recalled Potentially containing the defect or noncompliance:

Model	Year	Number of Vehicles Potentially Involved
BC2100XL	2006	2
BC2100XL	2008	17
Total Number Potentially Affected by the Recall:		<u>19</u>

Approximate percentage of Total Number of Vehicles Estimated to actually contact the defect or noncompliance:

100%

Identify and describe how the recall population was determined, in particular how the recalled models were selected and the basis for the beginning and final dates of manufacture of the recalled vehicles: From manufacturing records, we were able to determine that the 19 units were built with the same tongue configuration.

III. Describe the Defect or Noncompliance

Describe the defect or noncompliance. The description should address the nature and physical location of the defect or noncompliance. Illustrations should be provided as appropriate.

Model BC2100XL units, S/N 097 - 115, were equipped with an adjustable length tongue tube assembly, Item number 163642966 (**Exhibit A**). The tube material used in tongue assembly (Item number 163642966) was a 4 ½ inch x 2 ½ inch rectangular tubing with a 3/8 inch wall thickness and a material specification of ASTM A500 Grade B. However, some units were incorrectly manufactured with 0.25 nominal thickness, as well as some units receiving undersized 3/8" wall tubing received from the steel supplier. Recent Finite Element Analysis (FEA) was undertaken after notification of the potential field failures. The analysis indicates that material stresses in the tongue tube where it extends from the main frame will result in bending and/or fatigue fractures (cracks) which can eventually result in complete separation of the tongue tube.

A copy of a product brochure for Vermeer Model BC2100XL and a photograph of the BC2100XL tongue are attached (**Exhibit B**).

Describe the cause(s) of the defect or noncompliance condition.

Component design had inadequate useful life.

Describe the consequence(s) of the defect or noncompliance condition.

Development of bending and/or fatigue cracks in the tongue which can result in tongue failure and separation from the towed vehicle.

Identify any warning which can (a) precede or (b) occur.

- (a) Visible bending and/or fatigue cracks can develop at the high stress site prior to failure.

If the defect or noncompliance is in a component or assembly purchased from a supplier, identify the supplier by corporate name and address.

Not applicable.

Identify the name and title of the chief executive officer or knowledgeable representative of the supplier.

Not applicable.

IV. Provide the Chronology in Determining the Defect/Noncompliance

If the recall is for a defect, complete item 6, otherwise item 7.

With respect to a defect, furnish a chronological summary (including dates) of all the principle events that were the basis for the determination of the defect. The summary should include, but not be limited to, the number of reports, accidents, injuries, fatalities, and warranty claims.

PART 573 Defect and Noncompliance Report

Report Date: May 9, 2008

- 04/07/2008: **First field notification** - Vermeer factory Environmental Service Department received notification from dealership, Vermeer Northeast, regarding the tongue or the tube inside the tongue may be starting to bend on unit: BC2100XL, VIN 1VR2202Y581000104.
- 04/21/2008: Vermeer factory Environmental Service Department received a follow-up email to 04/07/2008 notification from dealership, Vermeer Northeast, attaching photographs with a straight edge showing relationship to tongue. Photos of BC2100XL, VIN 1VR2202Y581000104, tongue received from dealership attached as **Exhibit C**.
- 04/21/2008: **Second field notification** received from dealership in Aurora, Illinois, relating to BC2100XL bent tongue. During the telephone conversation(s) the dealer informed Environmental Engineering that the tongue thickness was 3/8" thick.
- 04/28/2008: Email from dealership, Vermeer Northeast, relating to the BC2100XL, tongue stating that the "thickness of the tube is .249 of an inch". Through various conversation(s), it was determined that this unit was being towed by the dealer with a dump truck with fixed-mounted pintle hitch.
- 04/28/2008: Vermeer factory Engineering department installed an instrumented production tongue tube assembly (p/n 163642966) onto unit: BC2100XL VIN 1VR2202Y181000097 (unit owned by the factory) in the extended position. The unit was taken over a varied road course towed by a dump truck with fixed-mounted pintle hitch to determine the loading on the tongue tube (p/n 163642965). After the road course was completed, the tongue tube was found to be permanently deformed. The data collected confirmed that the loading was sufficient to take the material beyond the elastic limit, thereby, resulting in the permanent deformation. The data also indicated that the stress level exceeded both the minimum yield and tensile strength of the material (ASTM A500 Grade B). The fatigue analysis also indicated an unsatisfactory life estimate.
- 04/29/2008: Vermeer Product Safety department and Engineering representatives met to discuss the tongue issue. Company's product database records at that time indicated none of the 19 units to be outside the control of the factory or its independent, authorized dealerships, i.e., none sold to retail customer.
- 04/30/2008: Vermeer received Equipment Registration for retail sale of BC2100XL, VIN 1VR2202Y281000111. This is first unit shown in our records to be sold to retail customer.

- 05/06/2008: No warranty claims have been submitted to factory to date for the inner tongue, Item number 163642966.
- 05/07/2008: Received Equipment Registration for retail sale of BC2100XL, VIN 1VR2202Y081000110. This is second unit shown in our records to be sold to retail customer. To our knowledge, all other remaining units remain in factory inventory or dealer inventory.

With respect to a noncompliance, identify and provide the test results or other data (in chronological order and including dates) on which the noncompliance was determined.

Not applicable.

Furnish a description of the manufacturer's remedy for the defect or noncompliance. Clearly describe the differences between the recall condition and the remedy.

The engineering team has completed an alternative design and has completed FEA analysis that confirms that uniform distribution of the loading will produce satisfactory fatigue life. The new design will consist of 4 ½ inch x 2 ½ inch Cold Finished 1018 flat bar (i.e., solid). See Item Number 180015391 drawing attached as **Exhibit D**. With the new material our analysis shows that the peak strain level will be reduced by 68%.

Clearly describe the distinguishing characteristics of the remedy component/assembly versus the recalled component/assembly.

Field kit modifications are currently under development. The new tongue is a solid bar design, which according to the final FE analysis, shows all indications of providing an adequate service life.

Identify and describe how and when the recall condition was corrected in production. If the production remedy was identical to the recall remedy in the field, so state. If the product was discontinued, so state.

The shipment of additional Model BC2100XL units from the factory has been stopped until the new designed tongue can be installed. The new design has been released to the production and is the same design as the field kit modification.

VI. Identify the Recall Schedule

Furnish a schedule or agenda (with specific dates) for notification to other manufacturers, dealers/retailers, and purchasers. Please, identify any foreseeable problems with implementing the recall.

PART 573 Defect and Noncompliance Report

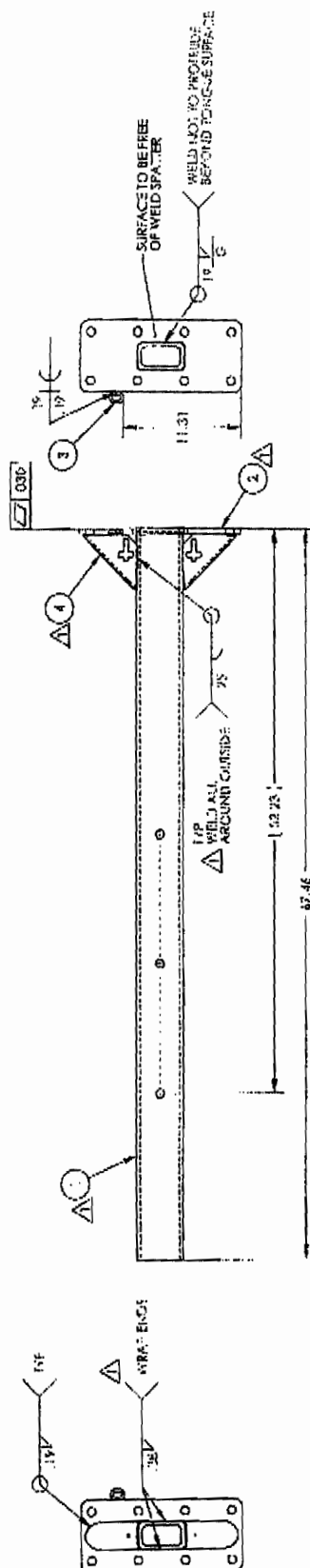
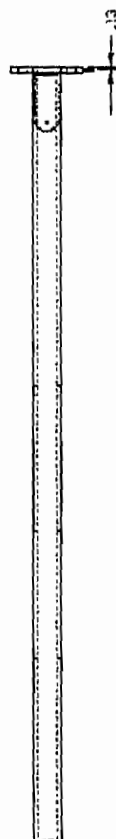
Report Date: May 9, 2008

1. 05/14/2008: Complete development of field modification Kit, including fabrication of replacement parts and installation instructions.
2. 05/16/2008: Factory will publish Service Bulletin and Kit Instructions to dealers introducing field modification kit via company internet site.
3. 05/19/2008: Factory will provide listing of affected units in their area to dealers via fax.
4. 05/28/2008 Factory will notify owner(s) of mandatory field modification via certified mail.

VII. Furnish Recall Communications

Furnish a final copy of all notices, bulletins, and other communications that relate directly to the defect or noncompliance and which are sent to more than one manufacturer, distributor, or purchaser. This includes all communications (including both original and follow-up) concerning this recall from the time your company determines the defect or noncompliance condition on, not just the initial notification. A DRAFT copy of the notification documents should be submitted to this office by Fax (202-366-7882) for review prior to mailing.

201-4-1-1.5-24.



NOTES

ITEM 2 (163647049) NEEDS TO BE TACKED IN PLACE BEFORE WELDING ITEM 1 (163642965) TO ITEM 2 (163642964)

BACK BOWTIE VIEW

ISOMETRIC VIEW

QTY	ITEM NUMBER	UNIT	DESCRIPTION	QTY
1	16842966	PLATE - HIGH		1
1	16842964	PLATE - LOW		1
1	16842965	PLATE - MIDDLE		1
1	16842967	PLATE - BOTTOM		1
1	16842968	PLATE - TOP		1
1	16842969	PLATE - SIDE		1
1	16842970	PLATE - FRONT		1
1	16842971	PLATE - REAR		1
1	16842972	PLATE - LEFT		1
1	16842973	PLATE - RIGHT		1
1	16842974	PLATE - CENTER		1
1	16842975	PLATE - OUTER		1
1	16842976	PLATE - TOP LEFT		1
1	16842977	PLATE - TOP RIGHT		1
1	16842978	PLATE - BOTTOM LEFT		1
1	16842979	PLATE - BOTTOM RIGHT		1
1	16842980	PLATE - FRONT LEFT		1
1	16842981	PLATE - FRONT RIGHT		1
1	16842982	PLATE - REAR LEFT		1
1	16842983	PLATE - REAR RIGHT		1
1	16842984	PLATE - CENTER LEFT		1
1	16842985	PLATE - CENTER RIGHT		1
1	16842986	PLATE - OUTER LEFT		1
1	16842987	PLATE - OUTER RIGHT		1
1	16842988	PLATE - TOP CENTER		1
1	16842989	PLATE - BOTTOM CENTER		1
1	16842990	PLATE - FRONT CENTER		1
1	16842991	PLATE - REAR CENTER		1
1	16842992	PLATE - LEFT CENTER		1
1	16842993	PLATE - RIGHT CENTER		1
1	16842994	PLATE - TOP LEFT CENTER		1
1	16842995	PLATE - TOP RIGHT CENTER		1
1	16842996	PLATE - BOTTOM LEFT CENTER		1
1	16842997	PLATE - BOTTOM RIGHT CENTER		1
1	16842998	PLATE - FRONT LEFT CENTER		1
1	16842999	PLATE - FRONT RIGHT CENTER		1
1	16843000	PLATE - REAR LEFT CENTER		1
1	16843001	PLATE - REAR RIGHT CENTER		1
1	16843002	PLATE - CENTER LEFT CENTER		1
1	16843003	PLATE - CENTER RIGHT CENTER		1
1	16843004	PLATE - OUTER LEFT CENTER		1
1	16843005	PLATE - OUTER RIGHT CENTER		1
1	16843006	PLATE - TOP CENTER CENTER		1
1	16843007	PLATE - BOTTOM CENTER CENTER		1
1	16843008	PLATE - FRONT CENTER CENTER		1
1	16843009	PLATE - REAR CENTER CENTER		1
1	16843010	PLATE - LEFT CENTER CENTER		1
1	16843011	PLATE - RIGHT CENTER CENTER		1
1	16843012	PLATE - TOP LEFT CENTER CENTER		1
1	16843013	PLATE - TOP RIGHT CENTER CENTER		1
1	16843014	PLATE - BOTTOM LEFT CENTER CENTER		1
1	16843015	PLATE - BOTTOM RIGHT CENTER CENTER		1
1	16843016	PLATE - FRONT LEFT CENTER CENTER		1
1	16843017	PLATE - FRONT RIGHT CENTER CENTER		1
1	16843018	PLATE - REAR LEFT CENTER CENTER		1
1	16843019	PLATE - REAR RIGHT CENTER CENTER		1
1	16843020	PLATE - CENTER LEFT CENTER CENTER		1
1	16843021	PLATE - CENTER RIGHT CENTER CENTER		1
1	16843022	PLATE - OUTER LEFT CENTER CENTER		1
1	16843023	PLATE - OUTER RIGHT CENTER CENTER		1
1	16843024	PLATE - TOP CENTER CENTER CENTER		1
1	16843025	PLATE - BOTTOM CENTER CENTER CENTER		1
1	16843026	PLATE - FRONT CENTER CENTER CENTER		1
1	16843027	PLATE - REAR CENTER CENTER CENTER		1
1	16843028	PLATE - LEFT CENTER CENTER CENTER		1
1	16843029	PLATE - RIGHT CENTER CENTER CENTER		1
1	16843030	PLATE - TOP LEFT CENTER CENTER CENTER		1
1	16843031	PLATE - TOP RIGHT CENTER CENTER CENTER		1
1	16843032	PLATE - BOTTOM LEFT CENTER CENTER CENTER		1
1	16843033	PLATE - BOTTOM RIGHT CENTER CENTER CENTER		1
1	16843034	PLATE - FRONT LEFT CENTER CENTER CENTER		1
1	16843035	PLATE - FRONT RIGHT CENTER CENTER CENTER		1
1	16843036	PLATE - REAR LEFT CENTER CENTER CENTER		1
1	16843037	PLATE - REAR RIGHT CENTER CENTER CENTER		1
1	16843038	PLATE - CENTER LEFT CENTER CENTER CENTER		1
1	16843039	PLATE - CENTER RIGHT CENTER CENTER CENTER		1
1	16843040	PLATE - OUTER LEFT CENTER CENTER CENTER		1
1	16843041	PLATE - OUTER RIGHT CENTER CENTER CENTER		1
1	16843042	PLATE - TOP CENTER CENTER CENTER CENTER		1
1	16843043	PLATE - BOTTOM CENTER CENTER CENTER CENTER		1
1	16843044	PLATE - FRONT CENTER CENTER CENTER CENTER		1
1	16843045	PLATE - REAR CENTER CENTER CENTER CENTER		1
1	16843046	PLATE - LEFT CENTER CENTER CENTER CENTER		1
1	16843047	PLATE - RIGHT CENTER CENTER CENTER CENTER		1
1	16843048	PLATE - TOP LEFT CENTER CENTER CENTER CENTER		1
1	16843049	PLATE - TOP RIGHT CENTER CENTER CENTER CENTER		1
1	16843050	PLATE - BOTTOM LEFT CENTER CENTER CENTER CENTER		1
1	16843051	PLATE - BOTTOM RIGHT CENTER CENTER CENTER CENTER		1
1	16843052	PLATE - FRONT LEFT CENTER CENTER CENTER CENTER		1
1	16843053	PLATE - FRONT RIGHT CENTER CENTER CENTER CENTER		1
1	16843054	PLATE - REAR LEFT CENTER CENTER CENTER CENTER		1
1	16843055	PLATE - REAR RIGHT CENTER CENTER CENTER CENTER		1
1	16843056	PLATE - CENTER LEFT CENTER CENTER CENTER CENTER		1
1	16843057	PLATE - CENTER RIGHT CENTER CENTER CENTER CENTER		1
1	16843058	PLATE - OUTER LEFT CENTER CENTER CENTER CENTER		1
1	16843059	PLATE - OUTER RIGHT CENTER CENTER CENTER CENTER		1
1	16843060	PLATE - TOP CENTER CENTER CENTER CENTER CENTER		1
1	16843061	PLATE - BOTTOM CENTER CENTER CENTER CENTER CENTER		1
1	16843062	PLATE - FRONT CENTER CENTER CENTER CENTER CENTER		1
1	16843063	PLATE - REAR CENTER CENTER CENTER CENTER CENTER		1
1	16843064	PLATE - LEFT CENTER CENTER CENTER CENTER CENTER		1
1	16843065	PLATE - RIGHT CENTER CENTER CENTER CENTER CENTER		1
1	16843066	PLATE - TOP LEFT CENTER CENTER CENTER CENTER CENTER		1
1	16843067	PLATE - TOP RIGHT CENTER CENTER CENTER CENTER CENTER		1
1	16843068	PLATE - BOTTOM LEFT CENTER CENTER CENTER CENTER CENTER		1
1	16843069	PLATE - BOTTOM RIGHT CENTER CENTER CENTER CENTER CENTER		1
1	16843070	PLATE - FRONT LEFT CENTER CENTER CENTER CENTER CENTER		1
1	16843071	PLATE - FRONT RIGHT CENTER CENTER CENTER CENTER CENTER		1
1	16843072	PLATE - REAR LEFT CENTER CENTER CENTER CENTER CENTER		1
1	16843073	PLATE - REAR RIGHT CENTER CENTER CENTER CENTER CENTER		1
1	16843074	PLATE - CENTER LEFT CENTER CENTER CENTER CENTER CENTER		1
1	16843075	PLATE - CENTER RIGHT CENTER CENTER CENTER CENTER CENTER		1
1	16843076	PLATE - OUTER LEFT CENTER CENTER CENTER CENTER CENTER		1
1	16843077	PLATE - OUTER RIGHT CENTER CENTER CENTER CENTER CENTER		1
1	16843078	PLATE - TOP CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843079	PLATE - BOTTOM CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843080	PLATE - FRONT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843081	PLATE - REAR CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843082	PLATE - LEFT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843083	PLATE - RIGHT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843084	PLATE - TOP LEFT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843085	PLATE - TOP RIGHT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843086	PLATE - BOTTOM LEFT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843087	PLATE - BOTTOM RIGHT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843088	PLATE - FRONT LEFT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843089	PLATE - FRONT RIGHT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843090	PLATE - REAR LEFT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843091	PLATE - REAR RIGHT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843092	PLATE - CENTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843093	PLATE - CENTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843094	PLATE - OUTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843095	PLATE - OUTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843096	PLATE - TOP CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843097	PLATE - BOTTOM CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843098	PLATE - FRONT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843099	PLATE - REAR CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843100	PLATE - LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843101	PLATE - RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843102	PLATE - TOP LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843103	PLATE - TOP RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843104	PLATE - BOTTOM LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843105	PLATE - BOTTOM RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843106	PLATE - FRONT LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843107	PLATE - FRONT RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843108	PLATE - REAR LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843109	PLATE - REAR RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843110	PLATE - CENTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843111	PLATE - CENTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843112	PLATE - OUTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843113	PLATE - OUTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843114	PLATE - TOP CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843115	PLATE - BOTTOM CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843116	PLATE - FRONT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843117	PLATE - REAR CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843118	PLATE - LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843119	PLATE - RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843120	PLATE - TOP LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843121	PLATE - TOP RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843122	PLATE - BOTTOM LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843123	PLATE - BOTTOM RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843124	PLATE - FRONT LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843125	PLATE - FRONT RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843126	PLATE - REAR LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843127	PLATE - REAR RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843128	PLATE - CENTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843129	PLATE - CENTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843130	PLATE - OUTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843131	PLATE - OUTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843132	PLATE - TOP CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843133	PLATE - BOTTOM CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843134	PLATE - FRONT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843135	PLATE - REAR CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843136	PLATE - LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843137	PLATE - RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843138	PLATE - TOP LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843139	PLATE - TOP RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843140	PLATE - BOTTOM LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843141	PLATE - BOTTOM RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843142	PLATE - FRONT LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843143	PLATE - FRONT RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843144	PLATE - REAR LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843145	PLATE - REAR RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843146	PLATE - CENTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843147	PLATE - CENTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843148	PLATE - OUTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843149	PLATE - OUTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843150	PLATE - TOP CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843151	PLATE - BOTTOM CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843152	PLATE - FRONT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843153	PLATE - REAR CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843154	PLATE - LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843155	PLATE - RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843156	PLATE - TOP LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843157	PLATE - TOP RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843158	PLATE - BOTTOM LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843159	PLATE - BOTTOM RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843160	PLATE - FRONT LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843161	PLATE - FRONT RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843162	PLATE - REAR LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843163	PLATE - REAR RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843164	PLATE - CENTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843165	PLATE - CENTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843166	PLATE - OUTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843167	PLATE - OUTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843168	PLATE - TOP CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843169	PLATE - BOTTOM CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843170	PLATE - FRONT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843171	PLATE - REAR CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843172	PLATE - LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843173	PLATE - RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843174	PLATE - TOP LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843175	PLATE - TOP RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843176	PLATE - BOTTOM LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843177	PLATE - BOTTOM RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843178	PLATE - FRONT LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843179	PLATE - FRONT RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843180	PLATE - REAR LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843181	PLATE - REAR RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843182	PLATE - CENTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843183	PLATE - CENTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843184	PLATE - OUTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843185	PLATE - OUTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843186	PLATE - TOP CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843187	PLATE - BOTTOM CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843188	PLATE - FRONT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843189	PLATE - REAR CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843190	PLATE - LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843191	PLATE - RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843192	PLATE - TOP LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843193	PLATE - TOP RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843194	PLATE - BOTTOM LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843195	PLATE - BOTTOM RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843196	PLATE - FRONT LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843197	PLATE - FRONT RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843198	PLATE - REAR LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843199	PLATE - REAR RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843200	PLATE - CENTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843201	PLATE - CENTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843202	PLATE - OUTER LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843203	PLATE - OUTER RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843204	PLATE - TOP CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843205	PLATE - BOTTOM CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843206	PLATE - FRONT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843207	PLATE - REAR CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843208	PLATE - LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843209	PLATE - RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843210	PLATE - TOP LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843211	PLATE - TOP RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843212	PLATE - BOTTOM LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843213	PLATE - BOTTOM RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843214	PLATE - FRONT LEFT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1
1	16843215	PLATE - FRONT RIGHT CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER		1

Vermeer®

Brush Chipper

BC2100XL



Vermeer®

BC2100XL

Believe in a Legend

With three engine options, this brush chipper delivers the power to tackle tough land clearing jobs. Two horizontal patent-pending feed rollers, a belt-tensioned cutter drum, and the largest feed table in its class turn that power into productivity. Plus, you can keep working longer with easy, low-cost maintenance.

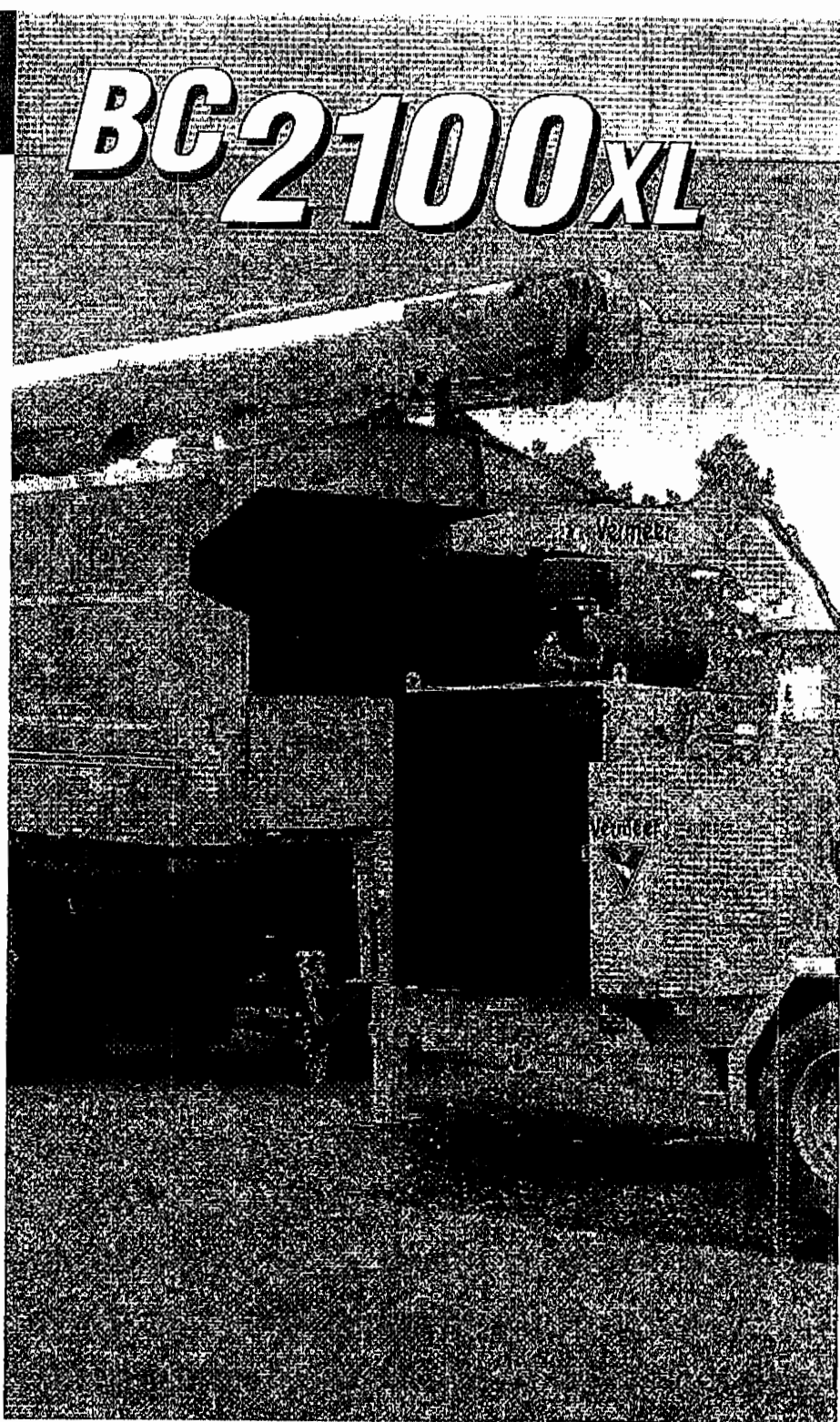
More than just tough, this brush chipper can process limbs up to 21 inches (53 cm) in diameter and has several exclusive features that make it a smart choice as well. The BC2100XL feed rollers boast 10,000 pounds (4536 kg) of theoretical combined pulling force giving the operators the ability to pull in "whole trees" that have limbs and branches attached to the main trunk of the tree. It also helps reduce the need for repositioning the material while being fed.

Heavy-duty tandem torsion axles provide reliable off-road jobsite performance as well as decreased ground pressure for softer conditions compared to single axle designs. Taillights are mounted high above and to the sides of the infeed table and set back from the feed table for protection and improved visibility in comparison to lower-mounted designs.

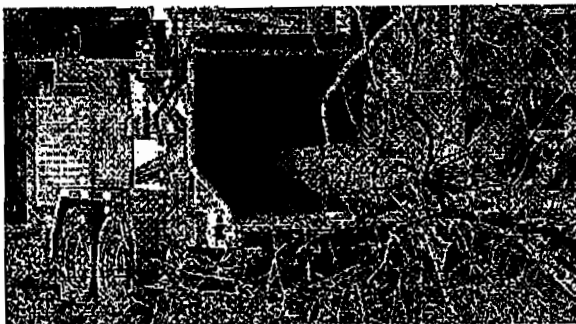
Powerful, smart, and productive. It's a legendary combination you can believe in.



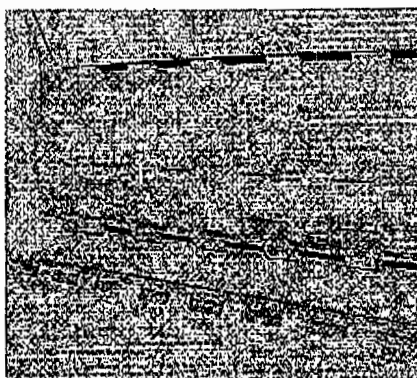
Three Cummins diesel engine options to match most jobsite needs. Options include 215 hp (160 kW), 250 hp (186 kW), or 275 hp (205 kW).



BRUSH CHIPPER



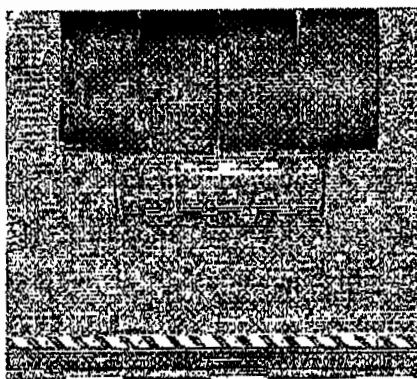
SmartCrush puts the pressure on branches. Once the upper feed roller raises for four seconds, it will automatically increase down pressure on the material being fed. This allows the upper feed roller to easily climb onto large forked material before the increased down pressure is applied for maximum pulling force.



The lower feed roller is offset from the upper feed roller by 11" (28 cm). Material is easily pulled to the upper feed roller, so there is less need to manually raise the upper feed roller for larger diameter material.



Optional remote control lets one person do the work of two. Operate one machine to load while still maintaining control of the chipper. The remote control operates forward, reverse and stop functions of the feed rollers, restarting the feed rollers, engine throttle, engine stop, crush boost for the upper feed roller and hydraulic discharge chute positions (if equipped).



The SmartFeed system increases operator productivity and reduces strain on vital engine parts. A patented feed sensing control system monitors engine rpm and automatically stops or reverses the rollers when feeding larger, hardwood material. Plus, it senses feed roller jams and responds by automatically shifting material back and forth, reducing the need for manually manipulating the control bar.



The 3-year / 3,000-hour extended limited warranty on drum housings, cutter drums, shaft, and ring feeder hubs offers you peace of mind, in addition to the 1-year / 1,000-hour Vermeer equipment limited warranty.

BC2100XL Specifications

General

Weight (with outriggers): 15,000 lb (6804 kg)
Weight (without outriggers): 14,700 lb (6668 kg)
Operational length (tongue extended): 259" (858 cm)
Width: 97" (246 cm)
Height (standard chute): 117" (297 cm)
Height (adjustable chute minimum): 110" (279 cm)
Height (adjustable chute maximum): 136" (345 cm)

Engine Options

Make / model: Cummins QSB 6.7L
Horsepower: 215 hp (160 kW), 250 hp (186 kW),
or 275 hp (205 kW)

Max torque:

215 hp (160 kW): 655 ft-lb (888 Nm)
250 hp (186 kW): 728 ft-lb (987 Nm)
275 hp (205 kW): 730 ft-lb (990 Nm)

Fuel type: Diesel

Number of cylinders: 6

Cooling medium: Liquid

Electrical

System voltage: 12 V DC

Capacities

Fuel tank: 65 gal (246 L)

Hydraulic tank: 24 gal (90 L)

Chassis

Frame: C channel, 2.5" x 4.5" x .038"
(6.3 cm x 11.4 cm x 0.1 cm)

Tires: 235/75R17.5 load range J

Axle / suspension: Dextro tandem torsion

Hitch: 3" (7.6 cm) pintle

Cutting System

Drum system: Spherical roller bearings

Disc / drum speed: 1084 rpm

Drum size opening: 21.5" x 28" (55 cm x 71 cm)

Knives: 4 knives

Feed / Discharge System

Chipping capacity: 21" (53 cm)

Feed table height: 39" (99 cm)

Feed table length: 61" (155 cm)

Feed table width: 72" (183 cm)

Max feed speed: 100 fpm (30 m/min)

Number of feed rollers: 2 horizontal

Discharge height: 116" (295 cm)

Discharge chute rotation: 270°

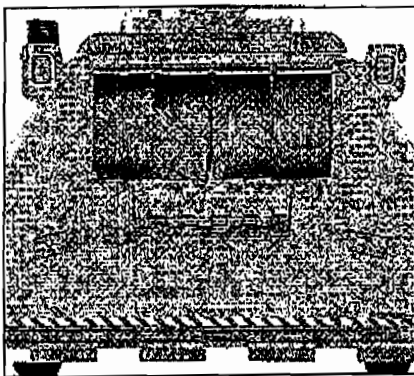
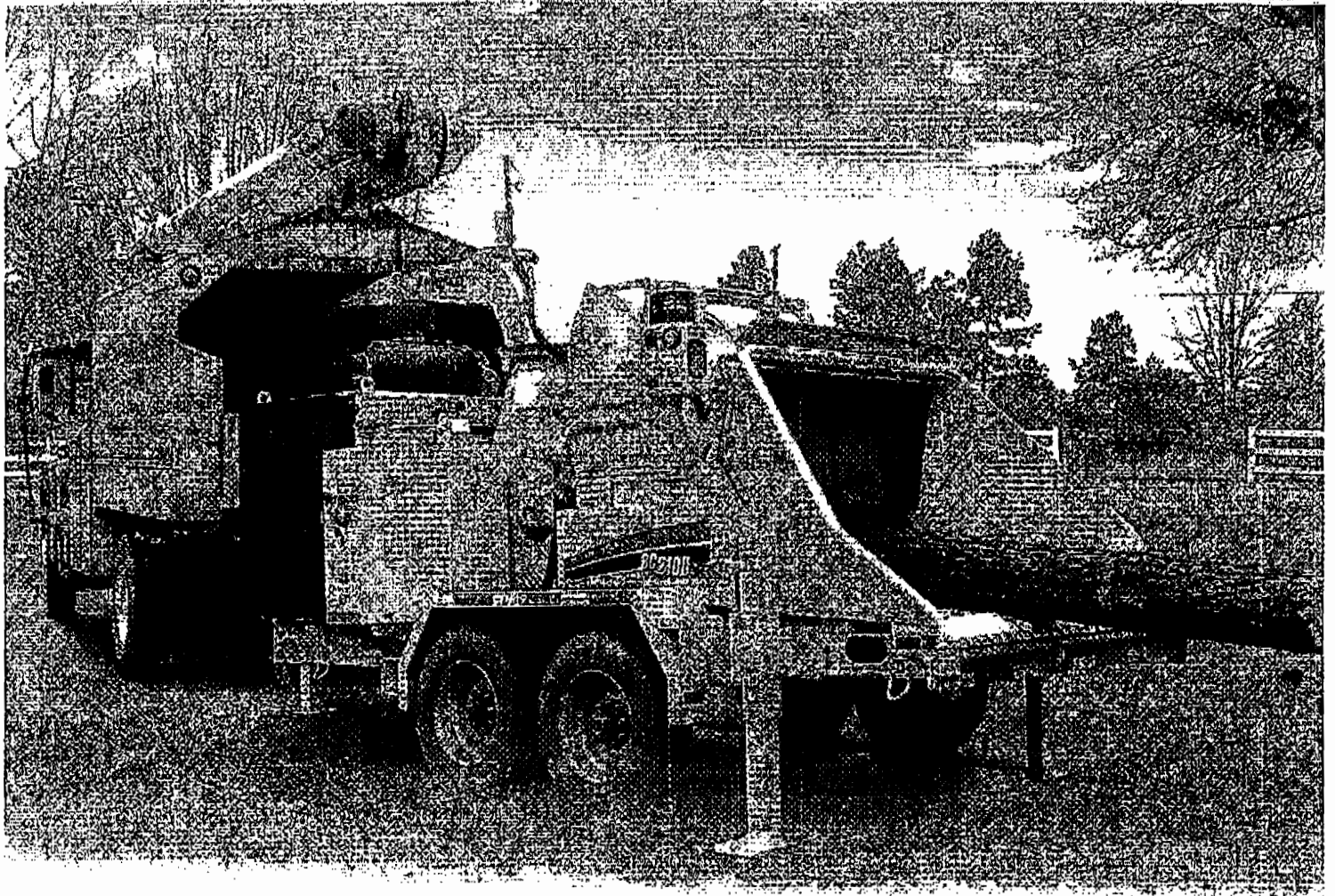
Options

Adjustable height discharge chute

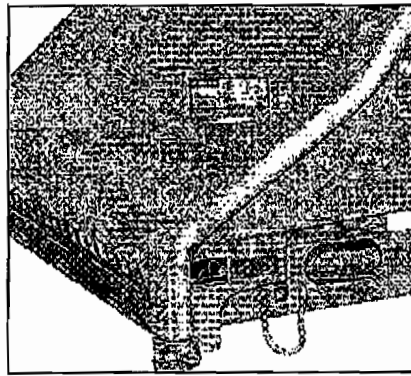
Remote control

Hydraulic outriggers

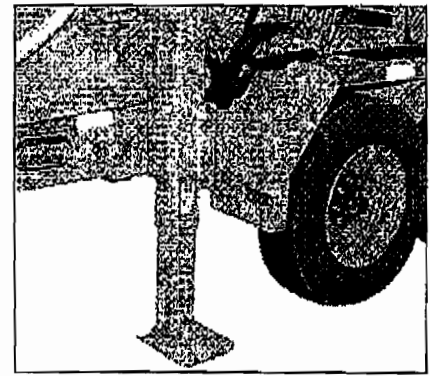
Hydraulic chute controls



The infeed table design is the largest in its class! It funnels material to the drum opening, allowing for smooth material feeding from table to drum. The overall table width is 72" (183 cm) with a 39" x 62" (99 cm x 157 cm) opening by the infeed curtains and a drum opening of 22" x 28" (56 cm x 71 cm).



Bottom feed stop bar is strategically located to make it possible for the operator to strike the bar and shut off the feed either intentionally or automatically in an emergency situation. A reset button on each side of the infeed housing allows for easy system reset if the bar is tripped.



Optional hydraulic outriggers support the back of the chipper and prevent the unit from bouncing while chipping or loading large diameter material onto the feed table.

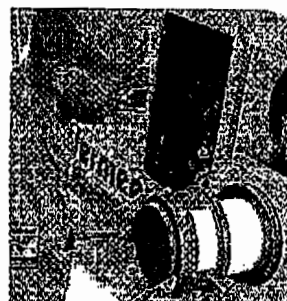
Your Complete Global Service Provider for Quality Parts and Service



The Preventive Maintenance Plus program offers you flexibility in choosing a preventive maintenance plan that best fits your situation and service needs.



Get the parts and service edge. In addition to providing quality equipment, Vermeer delivers top-quality parts and superior service. Vermeer parts are manufactured to exacting specifications to help keep your Vermeer equipment running trouble-free and at OEM specifications.



Vermeer offers factory-certified training programs to its dealer network to ensure that the most current service procedures are presented to the service personnel of your Vermeer dealer.



Vermeer Corporation
1210 Vermeer Road East
P.O. Box 200
Pella, Iowa 50219 U.S.A.
Phone: (641) 628-3141
Fax: (641) 621-7773
International fax: +1 (641) 621-7730
www.vermeer.com

Call toll-free 1-888-VERMEER
1-888-837-6337 (U.S.A. only)

Europe, Middle East, and Africa:
P.O. Box 323
4460 AS Goes
Netherlands
Phone: +31 113 272700
Fax: +31 113 272727

Building Industry Partnerships to Serve You Better

Vermeer has forged strong strategic alliances with tree industry giants that include Sherrill Incorporated and ArborMaster. These alliances ensure that top-quality industry support is the standard at Vermeer dealerships. Membership in the TCIA and ISA helps Vermeer stay in touch with the customers it serves and the issues they face.



ArborMaster.

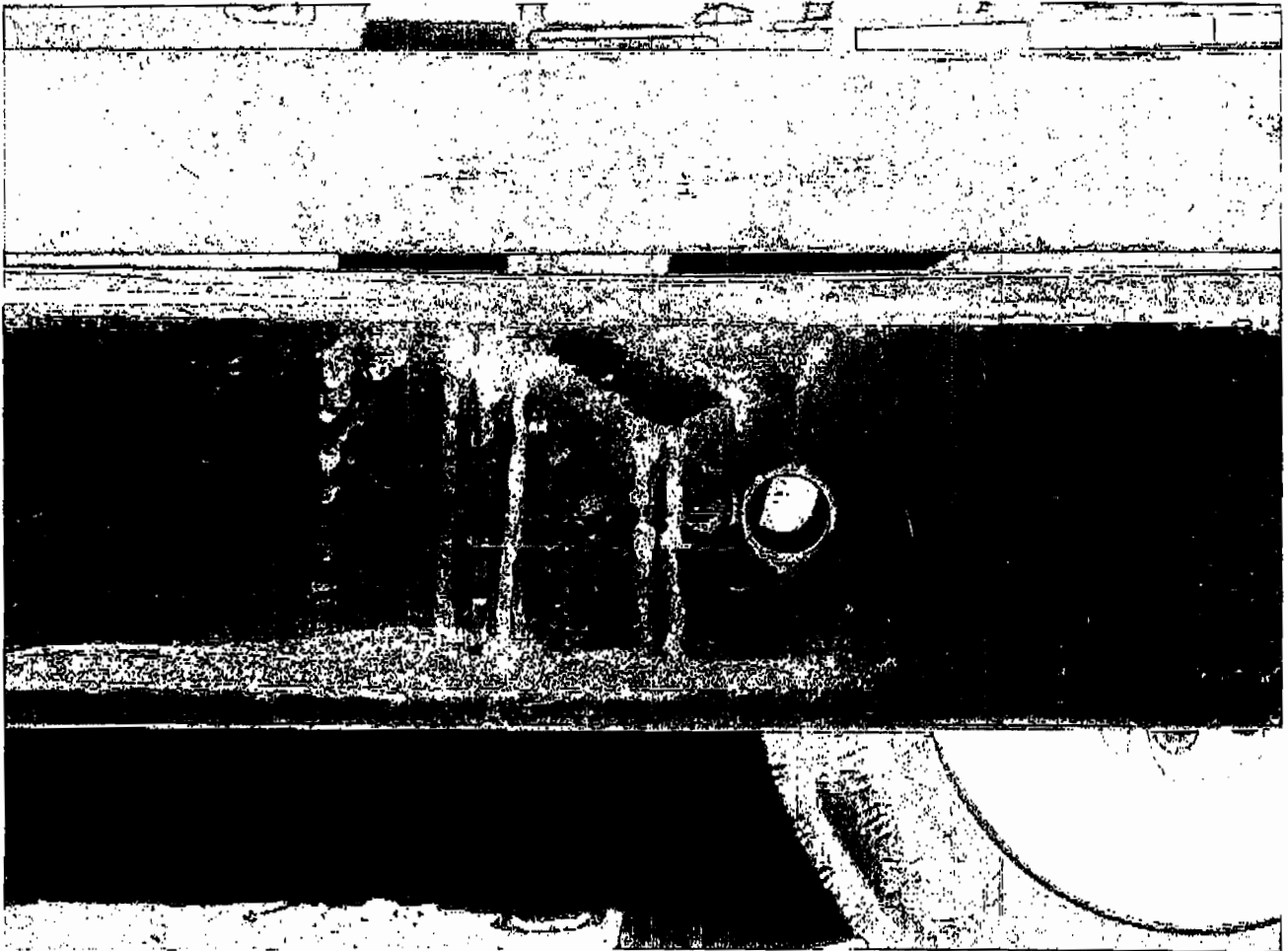
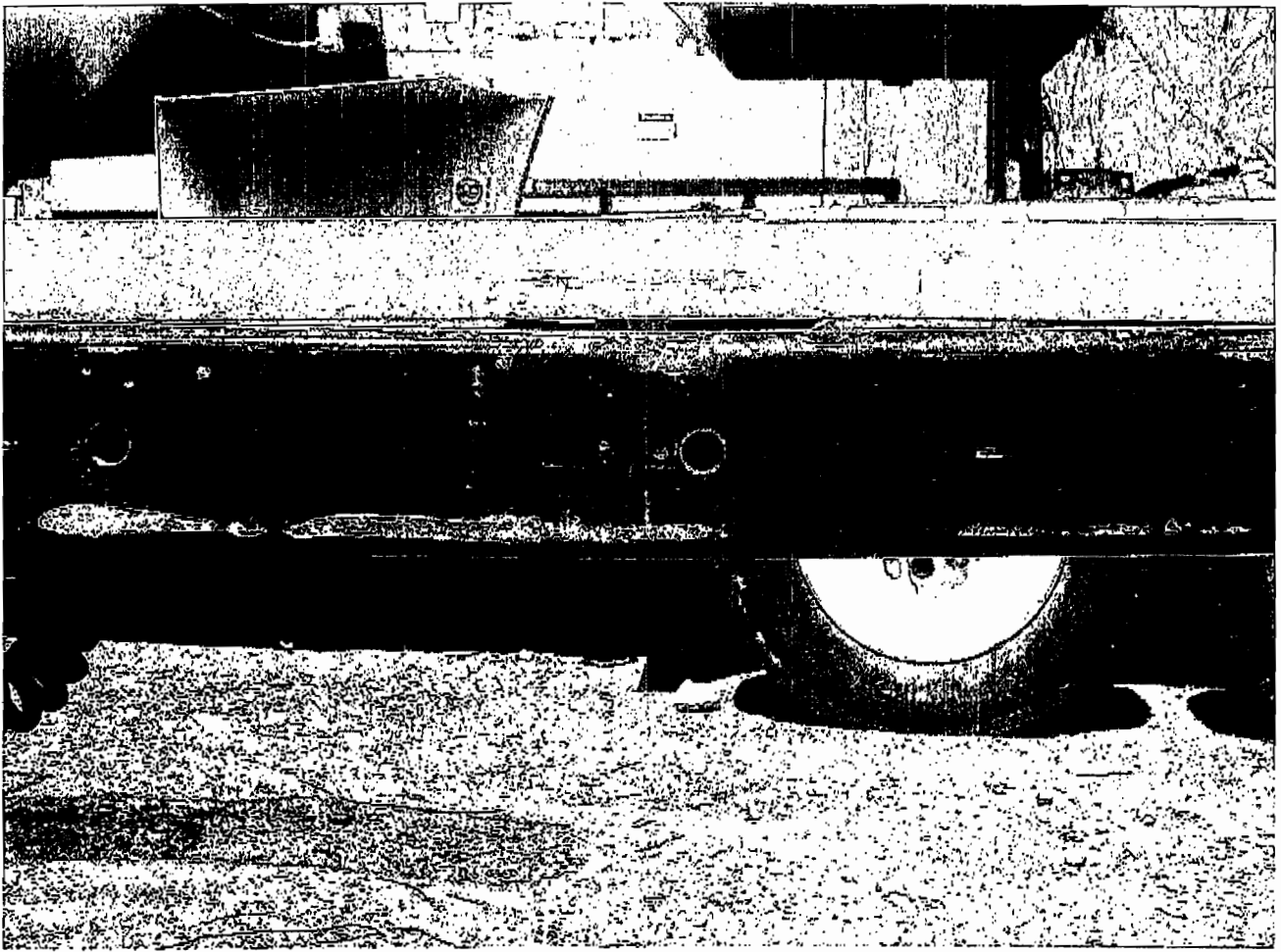


Equipment shown is for illustrative purposes only and may display optional accessories or components. Please contact your local Vermeer dealer for more information about machine specifications. Vermeer Corporation reserves the right to make changes in engineering, design, and specifications; add improvements; or discontinue manufacture of the unit at any time without notice or obligation. VERMEER, the VERMEER LOGO are trademarks of Vermeer Manufacturing Company in the U.S. and / or other countries. SHERILL TREE is a trademark of Sherrill Incorporated. ARBORMAS-TER is a registered trademark of AMT. © 2006 Vermeer Corporation. All Rights Reserved.

EXHIBIT B



05/08/2008



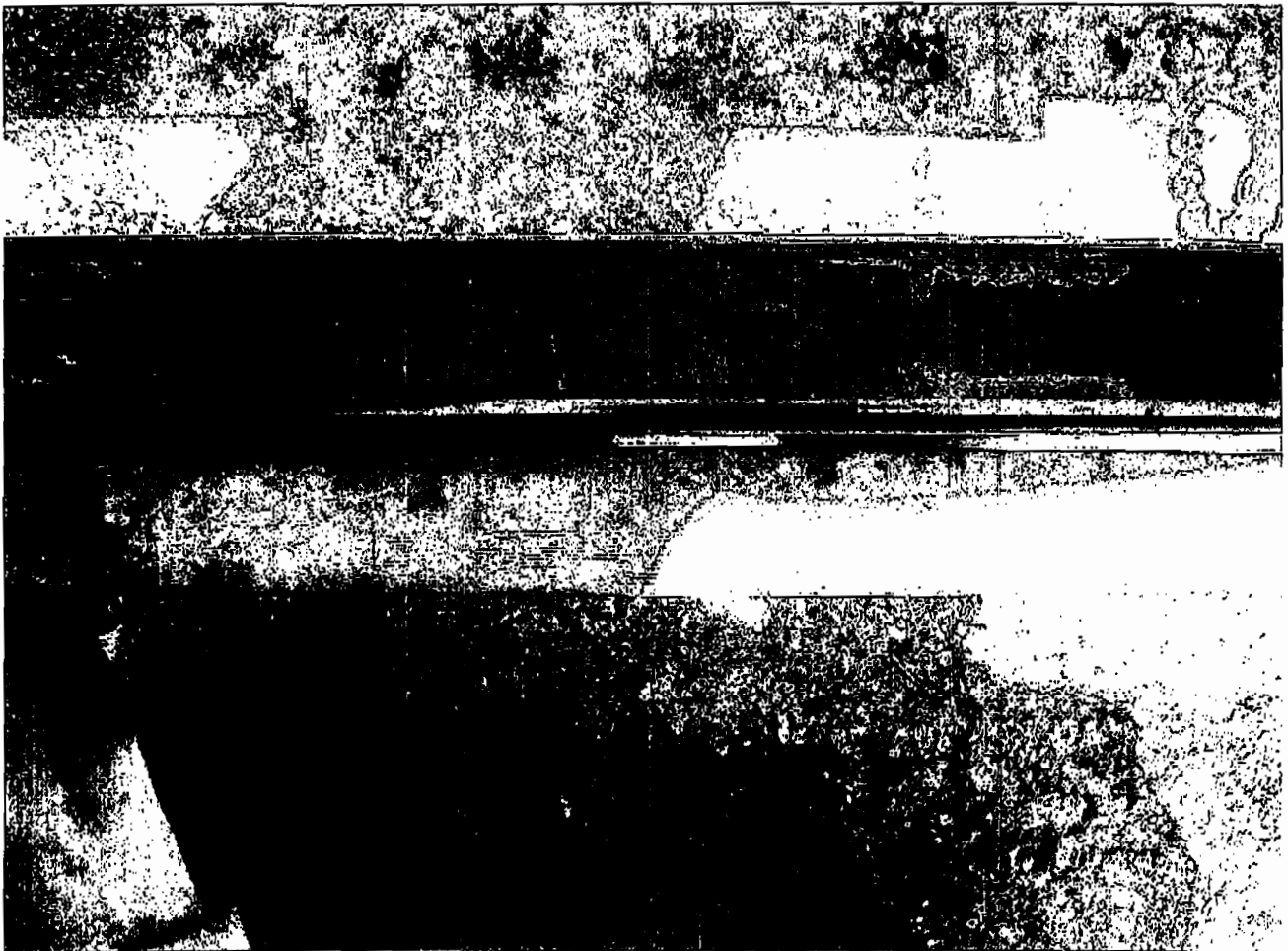
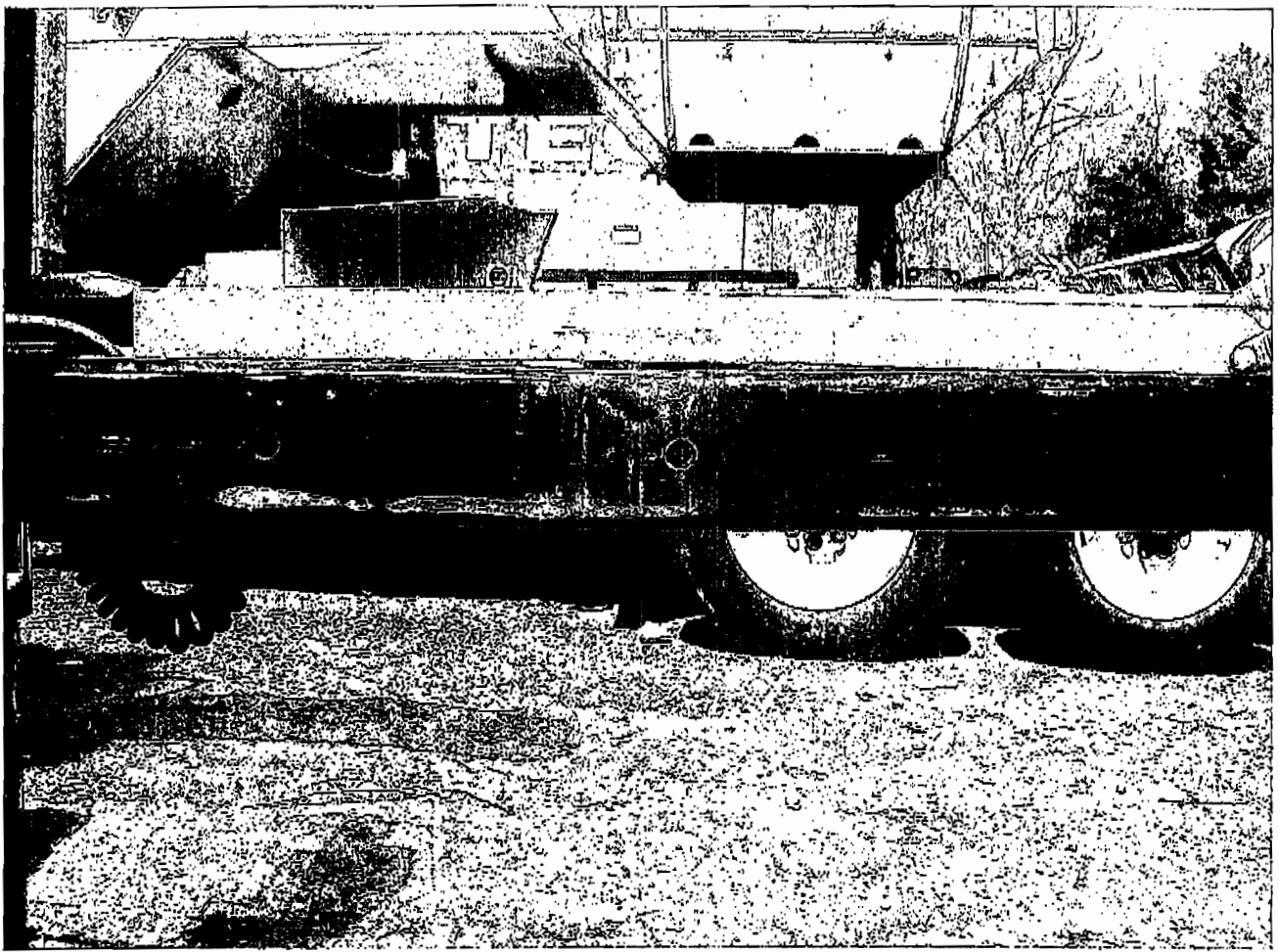


EXHIBIT D

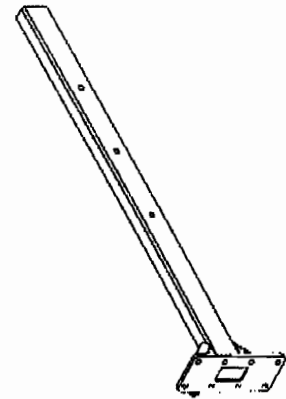
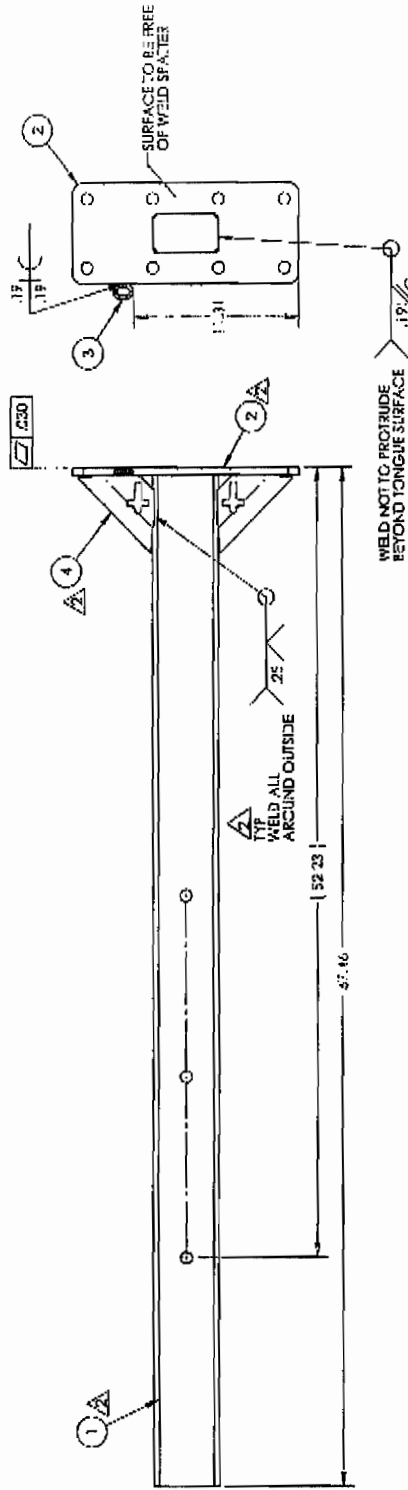
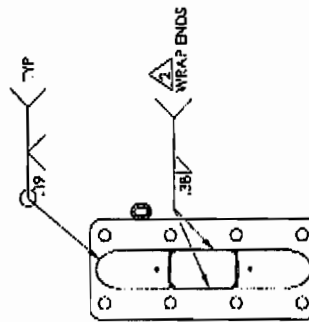
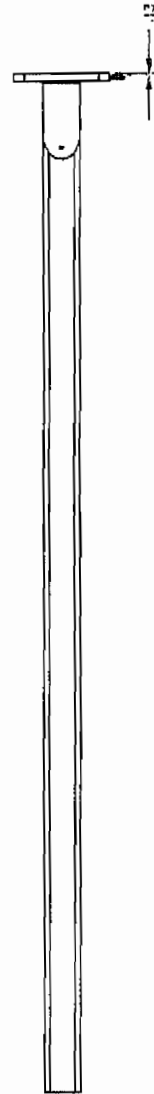
180015391

WPS 35-A-130

NOTES:

1. PAINT BLACK PER VMA 1-002

2. ITEM 4(1636294) NEEDS TO BE TACKED IN PLACE BEFORE WELDING ITEM 1 (1636294S) TO ITEM 2(1636294)



ITEM	QTY	DESCRIPTION	REVISION
1	1	180015391	1
2	1	1636294	2
3	1	1636294	3
4	1	1636294	4

DATE	11/14/08	BY	JH
SCALE	1:1	DATE	11/14/08
DESIGN	180015391	DATE	11/14/08
BY	JH	DATE	11/14/08

ITEM	QTY	DESCRIPTION
1	1	180015391
2	1	1636294
3	1	1636294
4	1	1636294

DATE	11/14/08	BY	JH
SCALE	1:1	DATE	11/14/08
DESIGN	180015391	DATE	11/14/08
BY	JH	DATE	11/14/08