AG8000

AIRE GUARDIAN® MOBILE DUST CONTAINMENT CART

ICRA-Compliant Solution for Containing Airborne Particles

Designed specifically for projects in healthcare facilities

The unique design of the AG8000 make it the ideal solution for helping to meet ICRA guidelines while performing healthcare facilities projects requiring ceiling plenum access.

FEATURES & BENEFITS

- Unique patented upper structure provides ladder support at the ceiling, giving workers unmatched height access above the ceiling.
- Self-locking height adjustment mechanism allows single-handed header extension and retraction to any ceiling height up to 10 feet.
- Built-in top cover allows cart interior to be sealed off while cart is in transport or stored.
- Three section fiberglass extension ladder included - 300 lb rating.
- Recessed floor pockets and built-in ladder bracket accept and secure ladder in place within OSHA regulations for angle of use and rung spacing.
- Cart designed with exceptional structural integrity featuring easy to clean anodized aluminum frame with clear polycarbonate walls, 900 lb load rating and secure locking casters.
- Easy Ordering Kits Available:
  AG8000 includes a fiberglass ladder and variable speed switch
  AG8000PAS includes an AG8000 and PAS750 Portable Air Scrubber
  AG8000PAS-RPM includes an AG8000, PAS750 Portable Air Scrubber and RPM-RT1 Room Pressure Monitor
- Optional Accessories Include:
  PAS750 Portable Air Scrubber
  RPM-RT1 Room Pressure Monitor
  V930D HEPA Vacuum

TECHNICAL SPECIFICATIONS

DESCRIPTION	AG8000
Dimensions (LxWxH)	62" x 32" x 81" (157 cm x 81cm x 205cm)
Maximum Ceiling Height	10' (3m)
Weight	285 lbs. (129kg)
Door Opening	54.5"H x 22"@ (138cm x 56cm)
Power	Use a grounded extension cord (not provided) from a 120VAC, 60Hz, single phase source
Max Load	Cart base 900 lbs (408kg) Ladder 300 lbs (136kg)
Sleeve & Top Cover Material	Polyester (meets CPAI 84 Flame Retardant Standard)
Patents	U.S. Patent No 9,574,399 / Canadian Patent No. 2,895,016

Specifications subject to change without prior notice.

THE AG8000 IS BEST SUITED FOR:

- HEALTH CARE CONSTRUCTION
- HEALTH CARE FACILITIES

ABATEMENT TECHNOLOGIES®
LEADERS IN CLEAN AIR

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SILCA-ILCO SPEED 045 MANUAL $1150.00

$1,150.00

The Speed 045 is designed for duplicating typical automotive, residential and commercial keys including those with large bows or long blades such as cruciform keys, flip style keys and automotive keys with remote heads.
Designed also for duplicating edge cut/flat style keys, the Speed 045 offers accurate and economical key cutting. This manual model is an ideal basic duplicator for any key cutting outlet.

1 Add to Cart

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Category: Key Cutting Machines

Description | Reviews (0)

Product Description

The Speed 045

- Four sided, nickel plated jaws for clamping the majority of all edge cut/flat type keys. Smooth rotation by simply twisting into position.
- Slotted jaw surfaces accommodate tip stop bars and a rigid shoulder gauge design to allow for greater accuracy when loading and gauging keys,
- Wide spacing 3 1/2" (88.9 mm) spacing between clamps accommodate large bow (head) and long blade keys, including flip style keys
- Depth tracer system with micro adjustment for precise calibration in increments of .00098" (0.025mm)
- TiN (Titanium Nitride) coated cutter for longer life and oxidation resistance
- Nylon deburring brush
- Electro-magnetic "main" safety switch with a separate cutter motor switch for easy access.
- Large transparent cutter safety shield contains chips and provides a storage area for accessories
- Large drawer-type (chip) tray under the carriage for easy access
- Mounting bracket included for securing the machine to counter
- Two year warranty

The Speed 04X Series mechanical key duplicators are engineered and manufactured with a new look and many new improved features over the existing 04X series of machines. These new models will replace the current Performance HD Series of machines (040HD, 044HD, 045HD and 046HD)

SPEED 045 Manual Operation

Search Products

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Product Categories

-KEY BLANKS
Automotive & Truck Keys
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Key Cutting Machines
Retail Setup Kit
Key Display Racks
-Key Cutting Packages
HOTEL KEYS
Lock Smith Supplies
Security Door & Mail Box Locks
Transponder Equipment
WD-40

Maximum absorbed power:	2.8 Amp, 200 Watt
Cutter motor:	single phase and speed
Movements:	by ball joint on rectified carriage
Tool Speed:	1350 rpm
Carriage Runs:	1.65" (42mm)

Standard Parts

Cutter:	TiN Coated • BC0599XXXX • D746382ZB
Brush:	Nylon, 5/8" (15.87 mm) bristles • BJ0929XXXX • D934958ZR

Dimensions:

Width:	15.75" (400 mm)
Depth:	18.1" (460 mm)
Height:	9.8" (250 mm)
Weight:	31 lbs. (14 kg)

Modern, open styling

The open styling of the Speed 04X line of machines allows for ease of cleaning. A large drawer-type tray is located under the carriage to capture key shavings. Mounting bracket included for ease in securing the machine to a work bench.

Four-sided jaws mean flexibility of use

Four-sided jaws easily clamps virtually all edge cut and flat style keys present on the market. These jaws can be quickly and smoothly rotated by simply loosening the knob and rotating the jaw into the proper position. The 3-1/2" (88.9 mm) spacing between clamps accommodates large bow (head) and long blade keys including the flip style automotive and cruciform keys. Jaws are nickel plated for extended life.

Wear resistant cutter

The large cutter is TiN (Titanium Nitride) coated for long life and oxidation resistance

Finish keys perfectly

Nylon, soft-touch deburring brush bristles are perfect for the finishing of cut keys.

Optimized calibration and precise gauging

A depth tracer system with micro-adjustment feature provides fast, precise calibration in increments of .00098" (.025mm). The standard tracer works on all edge cut keys, including Sargent®.

2-Year Warranty

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ITL-950CM

CODE MACH W/ MED

. . . back

MFG: **Intralock Tools (ITL)**

To view current stock and costs you must be a member and sign-in.

Picture is representation of product and may not be actual image of product.

Item Detail :***ITL 950C - Computer Key Code Machine***

► Codes from major automotive manufacturers built-in
► Perfect for mobile locksmiths
► Retrieves codes and cuts a key in 15 seconds

• One cutter emulates all flat widths
• Half-cut function
• Use anywhere. Operates on 12VDC or 120 VAC power supply
• Repeatable accuracy +/- .002
• Four line display with menus
• RS232 communication port enables connection to laptop or computer
• 600+ manufacturers' depths and spaces built in
• 1 year parts and labor warranty

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JET

JDP-22F 22" 1-1/2 HP 12 Speed Drill Press

Write a Review

SKU: JDP-22F

BULK DISCOUNT RATES

Below are the available bulk discount rates for each individual item when you purchase a certain amount

Buy 3 - 11	and pay only $2,192.67 each
Buy 12 - 35	and pay only $2,034.92 each

Sarah in Windsor, Canada purchased **6003P Hi-Viz Traffic Safety Pant**

1

ADD TO CART

DESCRIPTION

- Powerful 1-1/2 horse power motor
- Full 22" swing for easy drilling of larger work pieces
- 12 speed capability allows for a broad assortment of drilling applications
- Safety on/off switch with removable lock key
- Fully hinged belt and pulley cover and quick adjust motor mount permit fast changes of spindle speed
- Worktable with quick release clamp rotates and tilts to 45° right and left
- Slots in worktable and base permit easy clamping of the work piece
- Positive depth setting mechanism uses a threaded rod and two lock nuts for accuracy
- Built-in work lamp with separate switch (use outdoor rated bulb, not included) Standard Equipment: Drill chuck and key

Swing	22"
Type	Floor Model
Chuck Size	3/4"
Drilling Capacity	1-1/4"
Spindle Travel	4-1/2"
Spindle Distance to Base	49"
Spindle Distance to Table (Maximum)	29"
Table Size (Diameter)	16-1/2" x 18-3/4"
Table Tilt (Right and Left)	0° - 45°

VIEW ALL

ADDITIONAL INFORMATION

Sarah in Windsor, Canada purchased **6003P Hi-Viz Traffic Safety Pant**

RELATED PRODUCTS

JFH-12HP 12" High Pressure Grease Hose - Super Heavy Duty

JET

$22.01

JDP-13 13-1/2" 3/4 HP 12 Speed Bench Drill Press

JET

$692.31

JDP-13F 13-1/2" 3/4 HP 12 Speed Floor Drill Press

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JDP-17F 1

CUSTOMERS ALSO VIEWED

JDP-17F 17" 1 HP 16 Speed Floor Drill Press

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JDP-13F 13-1/2" 3/4 HP 12 Speed Floor Drill Press

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JDP-13 13-1/2" 3/4 HP 12 Speed Bench Drill Press

JET

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DPV-4U 4"

Sarah in Windsor, Canada purchased **6003P Hi-Viz Traffic Safety Pant**

S

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POPULAR BRANDS

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Sarah in Windsor, Canada purchased **6003P Hi-Viz Traffic Safety Pant**

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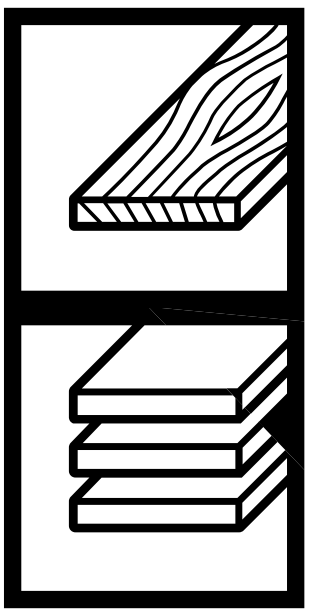
FELDER

Stroke & Edge Sanders

Edge Sanders FS 900 K



See the list price

Callback service LIVE-DEMO
Personal consultation Contact

Simple clean edges

The continuously adjustable tilt of the sanding table, table height adjustment and sanding belt speed of 36 feet per second (11 m/sec) enables the FS 900 edge sander to be able to process edges quickly and easily at a great price/performance ratio.

- Variable speed sanding table tilts 90°–45°
- Table height adjustment 5⅞" (150 mm)
- Belt drive rollers with a 3⅛" (80 mm) diameter and 6" (160 mm) diameter
- The sanding belt speed is 36 feet/sec.
- Oscillating sanding belt with independent oscillating motor
- Sanding belt length 86⅝" (2,200 mm), Sanding belt width 5⅞" (150 mm)

FELDER. Quality and precision in a nutshell

Since 1956, a guarantee for perfect results with excellent ease of use and reliability in regular professional use. Woodworkers are always enthusiastic about the individual and solid solutions for small and mid-sized businesses.

The most important highlights at a glance

[Sanding table](#)

[Additional Table and Tensioning Spindle](#)

[Table Extension](#)

... Your decision for Felder, a risk-free decision

- The right machine for every budget
- Complete reliability in professional use
- Tailor made machine solutions
- High quality cast iron machine table and aggregates
- Innovative detail solutions derived from 60 years of experience – already included in the standard configuration
- First class manufacturing and finishing standards
- Intuitive application concepts
- Modern, distinct design
- Quality and precision from Austria
- Powerful and efficient
- Complete package: Comprehensive service support

Details

[Additional Table and Tensioning Spindle](#)

[Sanding table](#)

[Table Extension](#)

Technology Data

Electrical setup

	001
3x 400 V S	
	002
3x 230 V motor voltage O	
	004
50 Hz S	
	005
60 Hz	

4.0 HP (3.0) kW	
S	
	50
2-speed main motor 8, 11 m/sec.	
O	
Sanding Unit	
	-
Belt speed m/sec.	
11	
	-
Belt width in mm	
150	
	-
Drive wheels Ø in mm	
80/160	
	-
Oscillating sanding belt by means of independent oscillating motor	
S	
	-
Sanding belt length in mm	
2200	
General	
	-
Table height adjustment in mm	
150	
	-
Table size in mm	
1440 x 220	
	-
Table tilt 90° to 45°	
S	
Important Accessories	
	70
Table extension with roller (14.0.950)	
O	
	80
Additional below table extraction (14.0.951)	
O	
	90
Attachment for sanding shaft/drum Ø 30 mm (14.0.952)	
O	
	223
IPPC	
O	
Transport	
	221
Preparation for container	
W	

Legend **S** ... Standard equipment **O** ... Option **W** ... Choice **-** ... not available

Customer service & maintenance

Specially trained service personnel are always available to provide specialised on-site service for you. If the matter is urgent you can call our hotline centre for straightforward immediate help. Contact our consultants or report your request

Your direct line to us

Do you have any questions?

We are happy to advise you online, over the phone or on-site at one of our more than 270 sales and service centres worldwide.

Showrooms

FELDER GROUP USA Headquarters **Details**
FELDER GROUP USA Dallas **Details**
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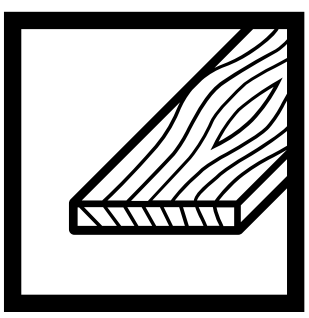
Show more

FELDER

Bandsaws

Bandsaw FB 640



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The Industrial Duty line of FELDER Bandsaws

- Electronically balanced, solid cast iron wheels
- European Style upper and lower guides
- Saw blade tension indicator
- Cast iron bandsaw table, tiltable up to 20°
- Cast iron fence

FELDER

FELDER. Quality and precision in a nutshell

professional use. Woodworkers are always enthusiastic about the individual and solid solutions for small and mid-sized businesses.

The most important highlights at a glance

[European Style upper and lower guides]

[Table tilt]

[Saw blade tension]

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Details

[European Style upper and lower guides]

[Saw blade tension]

[Table tilt]

[Rip fence]

[Miter fence]

[Circle cutting device]

[Universal linear laser for all bandsaws]

Technology Data

Band Saw Unit

-

Cutting height in mm
400

-

Cutting speed in m/min
1658

-

620	-
Flywheel-Ø in mm	
640	
General	
	-
Table size in mm	
620 x 870	
	-
Total height in mm	
2180	
	-
Weight kg (with standard configuration)	
350	
Important Accessories	
	-
Circle cutting device (01.1.300)	
O	
	-
Lower bandsaw guide Ø 300–700 mm (13.0.009)	
O	
	-
Mitre fence (423-043)	
O	
	-
Replacement rear roller for guide 13.0.009 (423-033)	
O	
	-
Replacement rear roller for guide 13.1.008 + 13.1.009 (423-034)	
O	
	-
Upper bandsaw guide Ø 550–850 mm (13.1.008)	
O	
	213
Rolling carriage for Felder bandsaws (400-750)	
O	
	223
IPPC	
O	
Transport	
	221
Preparation for container	
O	

Legend **S** ... Standard equipment **O** ... Option **W** ... Choice **-** ... not available

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Show more

MY NEW WA 80.

FEATURES, OPTIONS.

ALTENDORF®

Two models, one promise: Performance, you can count on.

WA 80 TE → Page 4

Altendorf WA 80 TE *with motorised rise/fall and tilt adjustment of the main saw blade.*

WA 80 X → Page 6

Altendorf WA 80 X *with motorised rise/fall and tilt adjustment of the main saw blade and motorised adjustment of the rip fence.*

The Altendorf WA 80: Quality made in Germany.

The Altendorf WA 80 is assembled in a factory with the most up-to-date production machinery and methodology under the strictest quality control in Minden, Germany.

The Altendorf WA 80 can take on any cutting challenge you can present it with, whatever material you want to cut, whether wood or plastic. With its well thought out design and robust build quality, it makes light work of simple but precise squaring cuts through to complex angles. Completely designed, developed and assembled in Germany, the machine sets a new benchmark for sliding table saws in terms of price and quality. The Altendorf WA 80 is a pleasure to work with, cut for cut, day after day.

BASIC SPECIFICATION FOR THE WA 80 TE:

- Motorised rise/fall 0–46° and tilt adjustment of the main saw blade
- Sliding table, table length 3000 mm
- Rip fence, manual adjustment using graduated scale, includes fine adjustment, cutting width 1000 mm
- Crosscut fence with fixed 90° angle, manual adjustment using graduated scale up to 3200 mm
- Maximum saw blade protrusion 150 mm, maximum saw blade diameter 450 mm
- Motor rating 4 kW (5.5 HP), single speed (4000 rpm)
- AKE tool clamping system for the main saw blade

Ergonomic controls: With the Altendorf WA 80 TE the height and angle of the blade are simply adjusted at the press of a button. The digital display of the angle remains in your field of vision at all times during the cutting operation.

Accurate: The Altendorf WA 80 TE with motorised rise/fall and tilt adjustment of the main saw blade.

Machine frame control panel: All functions are easily accessed on the control panel on the machine frame. You can control the rise/fall and tilt of the main saw blade at the touch of a button. The tilt angle is shown on the digital display.

Saw blade protrusion: The WA 80 saw blade protrusion is 150 mm (saw blade diameter 450 mm). This results in a greater cutting height when crosscutting or square cutting and also when angle cutting with the saw blade tilted.

Rip fence with manual fine adjustment: Setting the fence is easy; the precision fine adjustment makes for great accuracy. The hard chrome-plated round bar system ensures the fence moves smoothly. The rip fence drops down clear of the machine table level to free up extra space for dividing large panels. Available cutting widths: 800 mm, 1000 mm or 1300 mm.

Crosscut fence with fixed 90° angle: The crosscut fence with fixed 90° angle earns its corn every day helping out with precision cuts on workpieces of different lengths and formats. The stop can be slid into place easily without lifting. Two flip stops are included. The basic specification includes stops to 3 200 mm, adjustable using the graduated scale.

BASIC SPECIFICATION FOR THE WA 80 X:
Motorised rise/fall 0–46° and tilt adjustment of the main saw blade
Eye-level operating panel
Sliding table, table length 3000 mm
CNC rip fence, cutting width 1000 mm
Crosscut fence with fixed 90° angle, manual adjustment using graduated scale up to 3200 mm
Maximum saw blade protrusion 150 mm, maximum saw blade diameter 450 mm
Motor rating 4 kW (5.5 HP), single speed (4000 rpm)
AKE tool clamping system for the main saw blade

Number one for ease of operation and ergonomics. The eye level control panel of the Altendorf WA 80 X can be pivoted to the most convenient position for the operator.

Ergonomic: The Altendorf WA 80 X with three motorised axes.

Eye-level operating panel: All major control functions are always visible. The panel pivots into the most convenient position and is accessible from both sides of the machine. Adjustment of both the saw blade and the rip fence are motorised.

Saw blade protrusion: The WA 80 saw blade protrusion is 150 mm (saw blade diameter 450 mm). This results in a greater cutting height when crosscutting or square cutting and also when angle cutting with the saw blade tilted.

CNC rip fence: The CNC rip fence has a traverse speed of 200 mm/sec. and an accuracy of +/– 1/10 mm. The high precision five-point recirculating ball spindle system needs little maintenance and, along with the motor, is well protected by its integration into the aluminium profile. The fence detects its position automatically, especially in the danger area around the saw blade, and has an emergency cut-out to prevent the risk of crushing. Dimensions are corrected automatically when the fence is switched between the upright and the flat position or when working with the saw blade tilted. Available cutting widths: 800 mm, 1000 mm or 1300 mm.

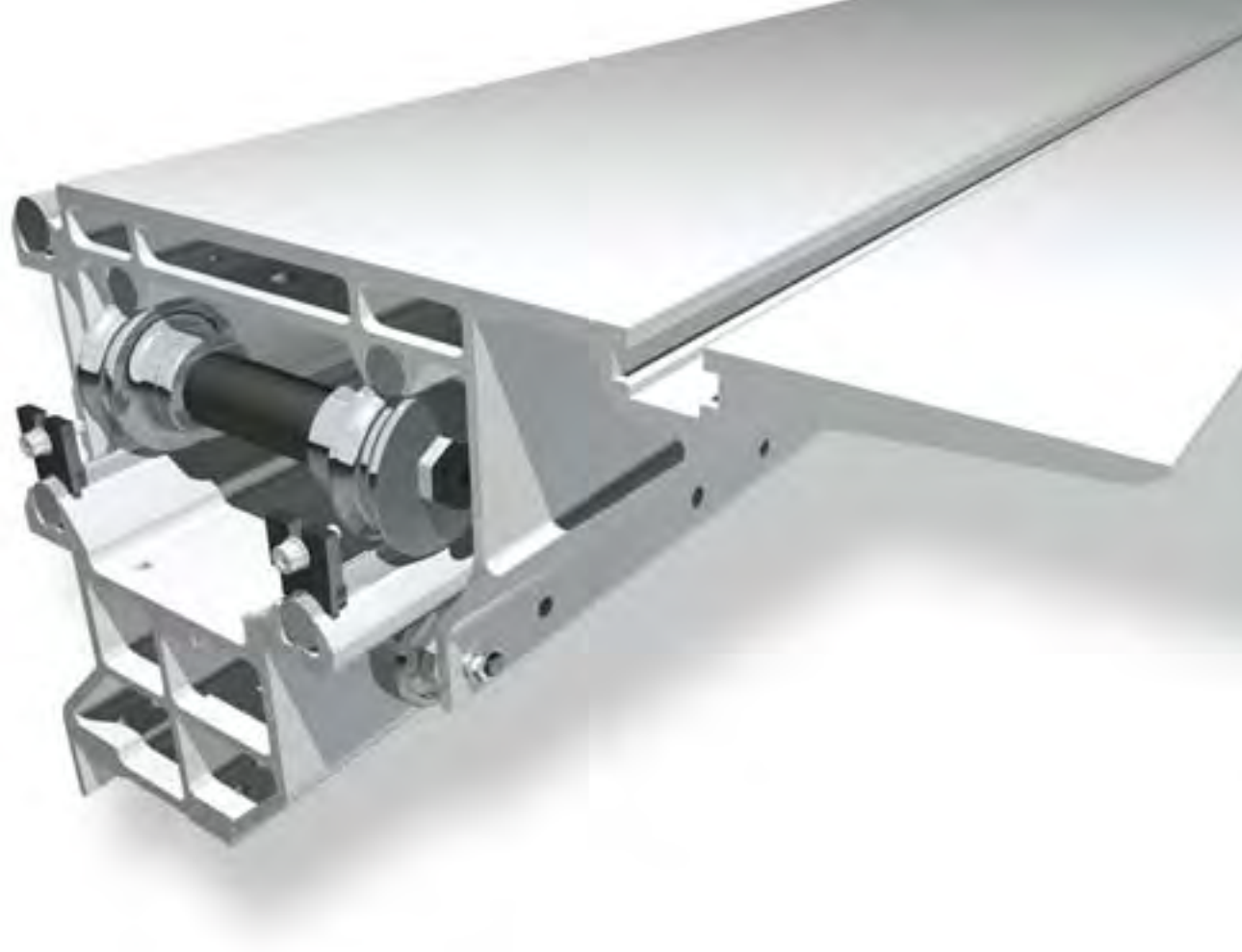
Crosscut fence with fixed 90° angle: The crosscut fence with fixed 90° angle earns its corn every day helping out with precision cuts on workpieces of different lengths and formats. The stop can be slid into place easily without lifting. Two flip stops are included. The basic specification includes stops to 3 200 mm, adjustable using the graduated scale.

Full performance to the last detail.

Altendorf saw unit: Smooth-running and powerful. The Altendorf saw unit is the engineering heart of all our saws. It is a powerhouse produced with the latest manufacturing technology. The saw shaft runs incredibly smoothly: this is because it is electronically balanced as a fully assembled unit, and extensive use is made of cast components. The high-precision vertical movement of the unit is linear with maintenance-free guide bearings. The robust tilt quadrants incorporate the traditional Altendorf tongue and groove connection system, which allows the whole unit to tilt easily and precisely to exactly the correct angle. The basic specification includes a 4 kW (5.5 HP) main motor with one sawshaft speed.

A 5.5 kW (7.5 HP) or a 7.5 kW (10 HP) motor are available as options with three speeds 3/4/5 000 rpm.

On/off switches on sliding table: The practical option. The on/off switches are always right where you need them, at the end of the sliding table. The four keys switch both the main and scoring blades on and off. This option allows you to load a large workpiece before switching the machine on, thus improving safety and convenience. The keys can be operated without you having to switch specially between the machine operating panel and the sliding table switches.

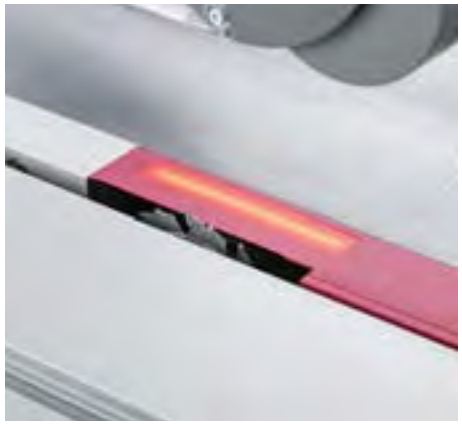


Sliding table: The Altendorf sliding table is renowned for its smooth and exact running. This is one of the hallmarks of an Altendorf, and it all comes down to design: the table runs on large dumbbell rollers sandwiched between hard chromed guide bars, guaranteeing absolute precision. The system's large rollers ensure smooth action, meaning the table takes less effort to move and glides as securely as if it were on rails. This quality running will endure decades of heavy load bearing in the constant presence of dust and chips, and it needs virtually no maintenance. Each time the table moves, the brush fitted to the upper part automatically cleans the round guide bars. The system operates without any lubrication. The table's hollow multi-chamber aluminium extrusion guarantees optimal torsion resistance and rigidity.

Made to measure performance: The options.

Scoring unit with motorised adjustment: The scorer prevents chipping out on the underside of laminated panels. The rise and fall is motorised, the lateral adjustment manual. When the scoring blade is switched on, the scorer moves to the height stored. When either the main or scoring blade is switched off, the scorer moves back under the table. The scorer has an independent 0.75 kW (1 HP) motor and turns at 8 200 rpm.

RAPIDO scoring tool: The RAPIDO scoring system makes it easier and quicker to adjust the cutting width to match that of the main blade. How quick? About three minutes, max! Compared to working with shims, where you have to take the blade off the machine to alter its width, the RAPIDO saves at least ten minutes, as the blade stays on the machine during adjustment. Adjustment is continuous so the RAPIDO can be fine-tuned to match any main blade. Adjustment range: 3 – 3.8 mm, Ø = 120 mm.

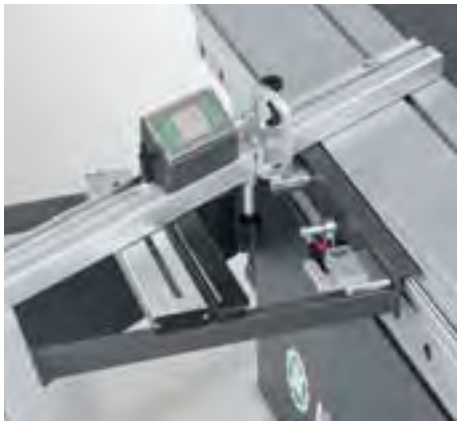


LED illumination: Particularly energy-efficient LEDs render the danger area around the scorer highly visible.

Rip fence with DIGIT X: A digital cutting width display for the rip fence with manual fine adjustment. This electronic measuring system guarantees rapid, precise adjustment of the rip fence. Recurring dimensions can be reproduced exactly and checked on the DIGIT X display. The correction for the rip fence position is shown digitally on the machine control unit's display when working with the saw blade tilted. The system is not subject to wear and is unaffected by dust. Dimensions are corrected automatically when the fence is switched between the upright and the flat position. Available cutting widths: 800 mm, 1 000 mm or 1 300 mm.

Crosscut fence with DIGIT L: For 1/10 mm accuracy when setting the length dimension. The display shows all stop settings at the same time, and allows calibration of all stops in one operation. Two flip stops with fine adjustment, two batteries and a charger are included.

Crosscut-mitre fence: This patented Altendorf fence, with integral length compensation, makes it easier to perform bevel cuts and mitre cuts precisely in one function. The set angle can be adjusted continuously over a range of 49° with a graduated scale and the robust, free-sliding zero-play flip stops can be positioned individually at any distance up to a maximum of 3 500 mm. The outer stop docks into the roller-stabilised telescopic extension for distances longer than about 1 700 mm. The integral length compensation feature enables the fence to be moved precisely to any required position when cutting mitres with no need of additional length compensation aids.



Crosscut-mitre fence with DIGIT L or DIGIT LD: For 1/10 mm accuracy when setting the length dimension. The display shows all stop settings applied. The central measuring and display unit calibrates the entire system in one operation. Two flip stops with fine adjustment, two batteries and a charger are included.

The DIGIT LD also displays the angle digitally, enabling a level of precision of +/– 1/100°. The length dimension is calculated automatically as a function of the mitre angle. Two flip stops with fine adjustment, two batteries and a charger are included.

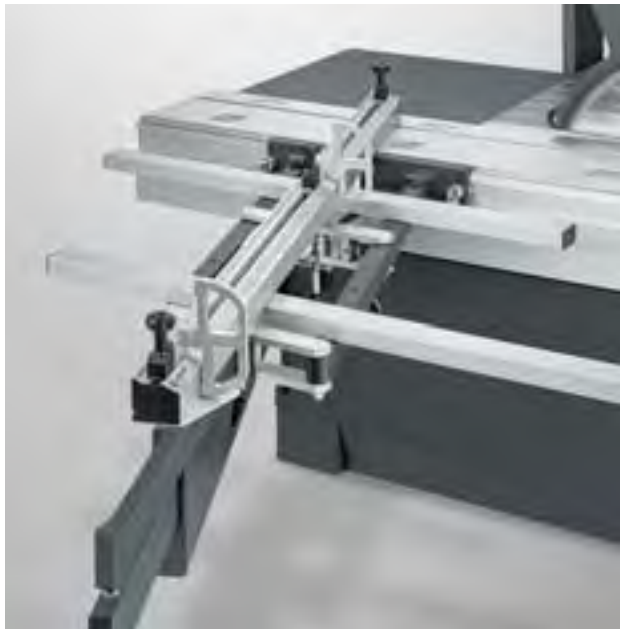
One-sided mitre fence: The one-sided mitre fence enables precise cutting of mitres. It is easy to set and can be positioned on the sliding table with the minimum of effort.

Made to measure performance: The options.

DUPLEX double-sided mitre fence: DUPLEX fences make it possible to cut any angle between 0 and 90° very quickly and exactly. Set the DUPLEX to 45° and a mitre cut can be made on both sides of the workpiece without resetting the two fences. Dimensions are set using a magnifier, a measuring scale and a length compensation scale. All DUPLEX fences can be positioned anywhere along the entire length of the sliding table.

It is also available as DUPLEX D, with a digital display of the angles which calculates the values to an accuracy of 1/100°. Stops to 1350 mm or 2 150 mm.

DUPLEX DD: An exclusive Altendorf development, the DUPLEX DD has been patented worldwide. The high precision DUPLEX DD electronics incorporate automatic length compensation and calculate the distance to the stops as a function of the angle on both sides of the fence and display both figures digitally. Digital angle display and digital length display for adjustment, automatic length compensation. Batteries included. Stops to 1350 mm or 2 150 mm.



Parallelogram cross slide (PQS): Changing was yesterday! The fence rule arranged in the centre allows the workpiece to be positioned at the front and the rear. The two adjustable supports ensure secure support here. Not only is this unique, it is also quick and easy. Features a robust 90° locking mechanism that ensures the right-angle position is absolutely reproducible. The fence can be angled by up to 47° in either direction. The integrated digital display shows the set angle with an accuracy of 1/100° for optimal precision. Also included is length compensation, which is simply taken from a scale when the fence is angled. Two flip stops are included.

Parallelogram cross slide with DIGIT LD: for 1/10 mm accuracy when setting the length dimension. The display shows all stop settings applied. The central measuring and display unit calibrates the entire system in one operation and angles are displayed in digital format, enabling a level of precision of ±1/100°. The length dimension is calculated automatically as a function of the mitre angle. Two flip stops with fine adjustment, two batteries and a charger are included.

Laser cutting line marker: The laser cutting line marker shows the cutting line clearly for all cut lengths, which is useful when trimming or cutting marked jobs such as steps. Use it to save both time and materials.

PALIN: Used in combination with the crosscut fence, the PALIN allows you to cut parallel and conical workpieces on the sliding table. By butting against the side of the workpiece, differing lengths can be cut quickly and precisely without having to move the PALIN. One other benefit: By folding the measuring system away the PALIN also serves as an additional workpiece support. Also available is the PALIN D model, which offers digital measurement display and fine adjustment. Adjustment range 80-950 mm.

Made to measure performance: The options.

Pneumatic hold-down beam: This is also ideal with the two-way tilting saw unit for securely retaining workpieces of up to 80 mm thick, making it particularly useful when working with long and thin materials such as veneers, for example. Controlled separately at the rear and front position. A 6 bar pneumatic connection is required.

Manual quick-action clamp: The alternative to the pneumatic clamp. The manual clamp can be easily positioned on the sliding table and fixed. The workpiece is then firmly secured on the table and the crosscut fence. It has a clamping height of up to 200 mm and provides extra safety at very little extra cost.

STEG: Enlarges support area (width: 400 mm) for wider workpieces. Makes it much easier to size large panels.

Front support roller: The 300 mm-wide infeed support roller is particularly useful when cutting longer workpieces against the rip fence. It folds away under the sliding table (minimum length 3 000 mm) when not required.

Tecnical specifications.

SLIDING TABLE CUTTING LENGTHS

Maximum cutting lengths when using clamping shoe or crosscut fence

Table length (mm)	2250	3000	3200	3400	3800	4300
Cutting length (mm)	2155	2905	3105	3305	3705	4205

MAXIMUM SAW BLADE PROTRUSION

With or without scoring saw blade

Saw blade diameter (mm)	**250**	**300**	**315**	**350**	**400**	**450***
Saw blade protrusion 90° (mm)	0–50	0–75	0–82	0–100	0–125	13–150
Saw blade protrusion 45° (mm)	0–33	0–50	0–56	0–70	0–87	6–103

**the scoring saw blade must be removed.*

CUTTING WIDTHS 800, 1000, 1300 mm

MACHINE WEIGHT starting at 1000 kg

TABLE HEIGHT 910 mm

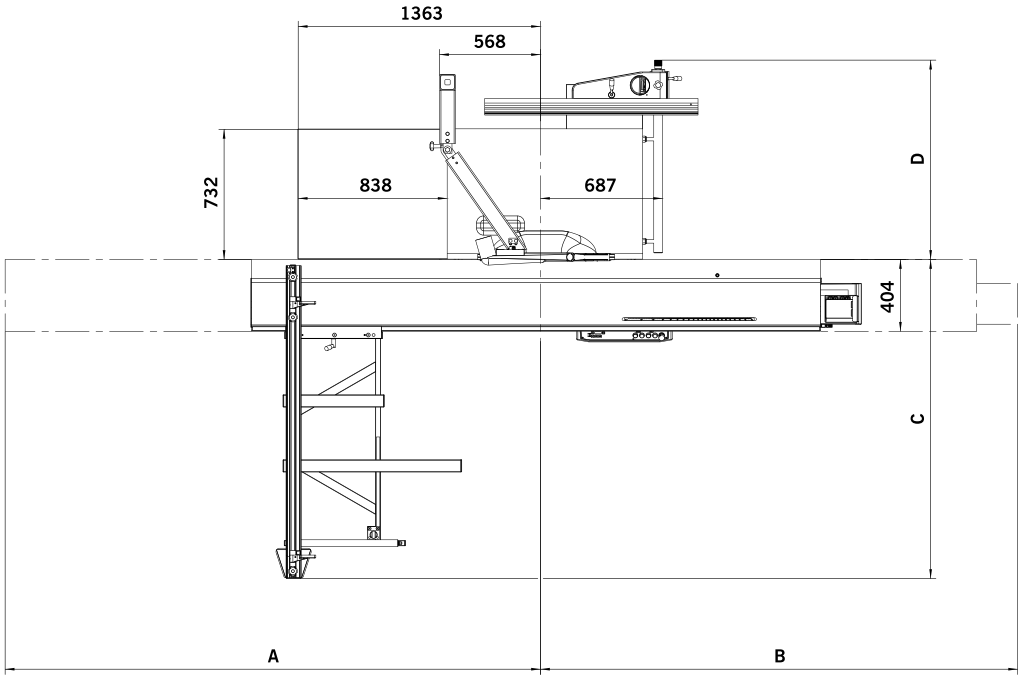
ELECTRICAL POWER REQUIREMENTS [1)]

Motor (kW)	4	5.5	7.5
Voltage (V)	380–420	380–420	380–420
Frequency (Hz)	50	50	50
Current (A) without/with scorer	7.5/9.5	11.5/13.5	15.5/17.5
Fuses/circuit breakers (A)	25	25	25

DUST EXTRACTION CONNECTIONS

Top connection:	Ø = 80 mm
Bottom connection:	Ø = 120 mm
Pressure drop:	1200 Pa with a total connection diameter, Ø = 140 mm
Minimum air requirement:	V_{min} = 1110 m³/h at 20 m/sec.

[1)] The cross section of the mains cable depends on the machine's distance from the power source and must be determined by a qualified electrician (Power drop in the input cable ≤ 3%). Please contact your Altendorf sales partner if your power supply does not match the requirements shown. Workstation noise level 85.2 dB (A).



SPACE REQUIREMENTS

A	Sliding table length + 290 mm
B	Sliding table length + 360 mm
C	Crosscut fence, stops to 2500 mm: 1500 – max. 2630 mm
	Crosscut fence, stops to 3200 mm: 1890 – max. 3420 mm
	Crosscut-mitre fence, stops to 3500 mm: 1960 – max. 3690 mm
D	Cutting width + 310 mm

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All machines illustrated are CE models.
Some illustrations of machines depict special equipment that is not included in the basic specification.
We reserve the right to make technical modifications.
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Order number K9690.0532. 05/2019

Maximum Cutting Precision in Minimum Space

SECTOR Series

PRODUCTIVITY AND PRECISION

HOLZ-HER

The SECTOR Series always ensures clean cuts.

Powerful 4 kW sawing motor

High speed cutting cycles in automatic mode

We have done a lot of hard work to make your work easier!

Continuous middle workpiece support

Easy moving, ergonomic operation

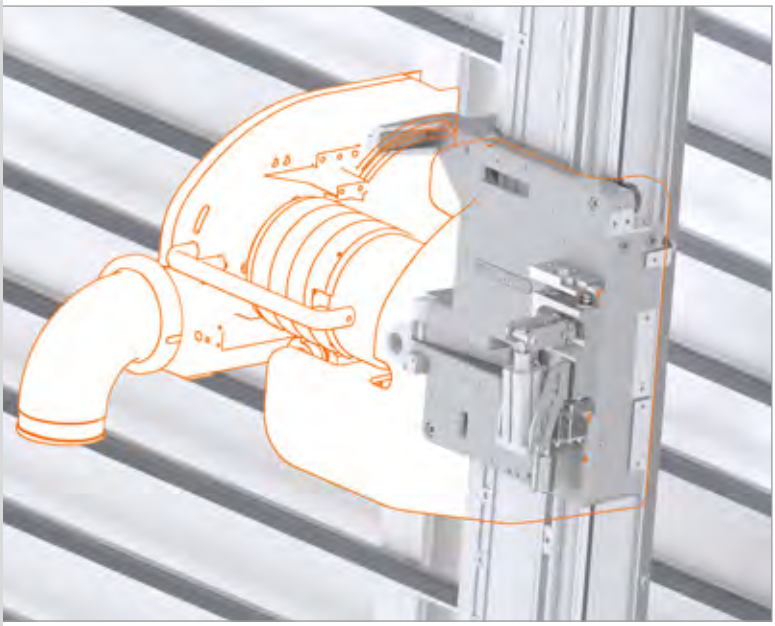
Pneumatic support grid

Finished cut quality for immediate edgebanding

SECTOR Series
Exact. Space saving. Efficient.

The SECTOR 1255 pro and SECTOR 1260 automatic combine proven technology from over 50 years of experience with a basic, solid design.

Perfectly ergonomic design, absolute precision and angular accuracy are the solid features of these vertical panel cutting saws.



Automatic electrical fine adjustment.

Sawing beam

Pneumatic arrest at sawing beam top and bottom, can be operated from the control panel at the touch of a button.

Including automatic interface detection for vertical cut.

Sawing unit

Sawing unit including pneumatic arrest for horizontal cut and electrical fine adjustment of measurement directly on the control panel.

Saw blade change

The ProLock EasyFix quick change system allows saw blades to be changed in a jiffy.

ProLock®

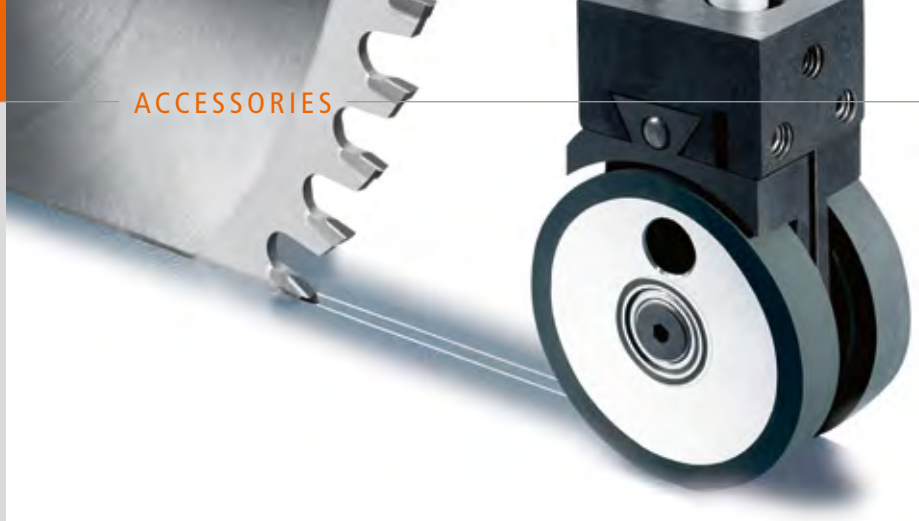
Automatic version

The SECTOR 1260 automatic offers an infinitely adjustable feed rate up to 25 m/min for automatic ...

1. plunge cuts
2. sawing through (horizontal or vertical),
3. retraction and
4. automatic return to the operator, ensuring high speed cutting cycles.
5. Optimized cycle: If the entire cutting length is not required, the automatic mode returns the sawing unit at an earlier time.

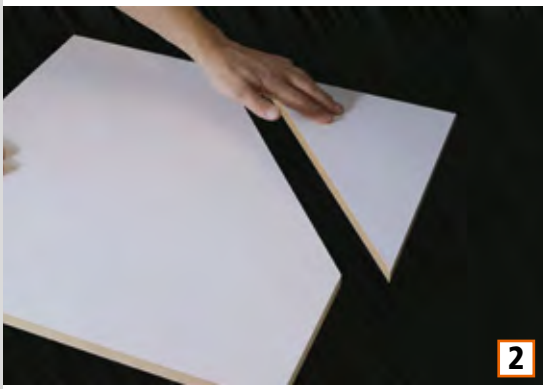
10-YEAR WARRANTY

Only from HOLZ-HER
10 Year warranty on all linear guides!



SuperCut is the patented HOLZ-HER prescoring system.

Clean work made easy



Prescoring for precision cuts
SuperCut is the patented HOLZ-HER prescoring system. It provides ready-to-glue cuts with just one basic adjustment (figure above).

- Two carbide blades score the surface of coated panels exactly to the width of the saw blade.
- The circular saw blade then cuts the panel without chipping the hard, brittle or fibrous top layer.
- The result is a smooth edge for further processing.
- SuperCut can be adjusted easily on a dimension scale.

Digital longitudinal stop with fine adjustment
Digital dimension display for vertical cut, including fine adjustment on hardened linear guide (optional) (Fig. 1).

GeoMetric angular cutting feature
The mobile angular cutting device allows angular cuts up to 45° to be completed easily. For this purpose simply clamp the angular cutting device to the saw and set the angle in degrees. Two adjustable vacuum units hold the panel in place. Then cutting can be accomplished in the vertical or horizontal direction. A simple conversion feature allows the angular cutting unit to be attached on the left or right side of the cut (Fig. 2).

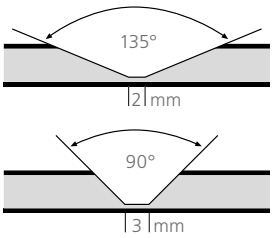
Strip Stop
The strip stop ensures a uniform cut to the width of the workpiece. Once set – every cut is the same (Fig. 3)

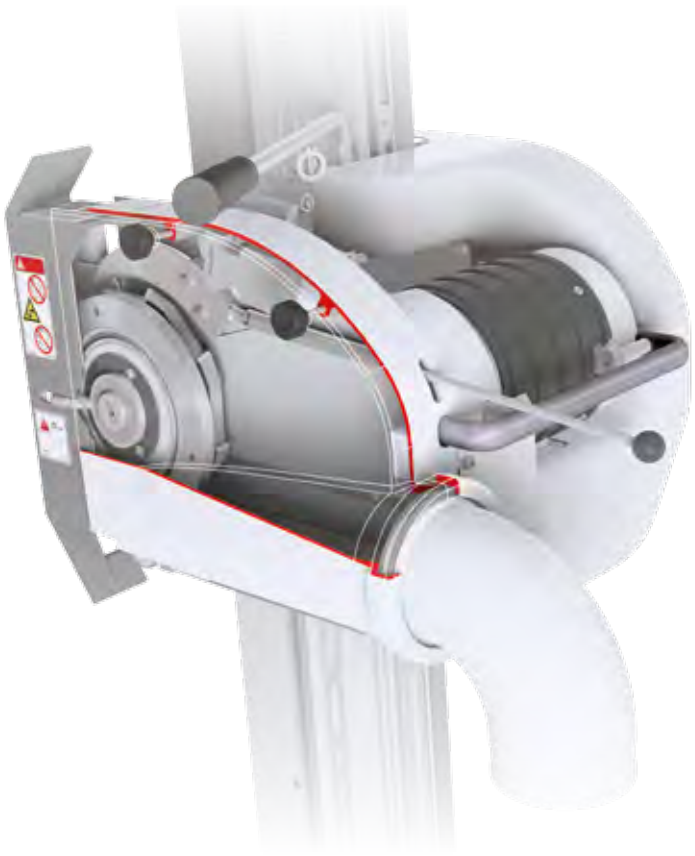
SECTOR 1255V for Alucobond®, Dibond® and Co.

Composite materials are a consistent part of modern architecture. The innovative products provide inspiration both in new buildings and in renovated old buildings. These materials are used when geometric solutions, extremely smooth surfaces, clean lines and precise corners are required, but of course also for wavy surfaces and complicated applications.

Grooving in two angle sizes 90° and 135°

The available shaping cutters for angled bending to 90° or 135° cut V-shaped or right-angled grooves on the rear side of the composite panels. In the process, the aluminum top sheet and part of the plastic core of the panel do not move. The thinness of the remaining material allows edge bending. The shape of the groove automatically determines the bending radius.





Various cutters and sensing rollers available as options.

Composite Material Package

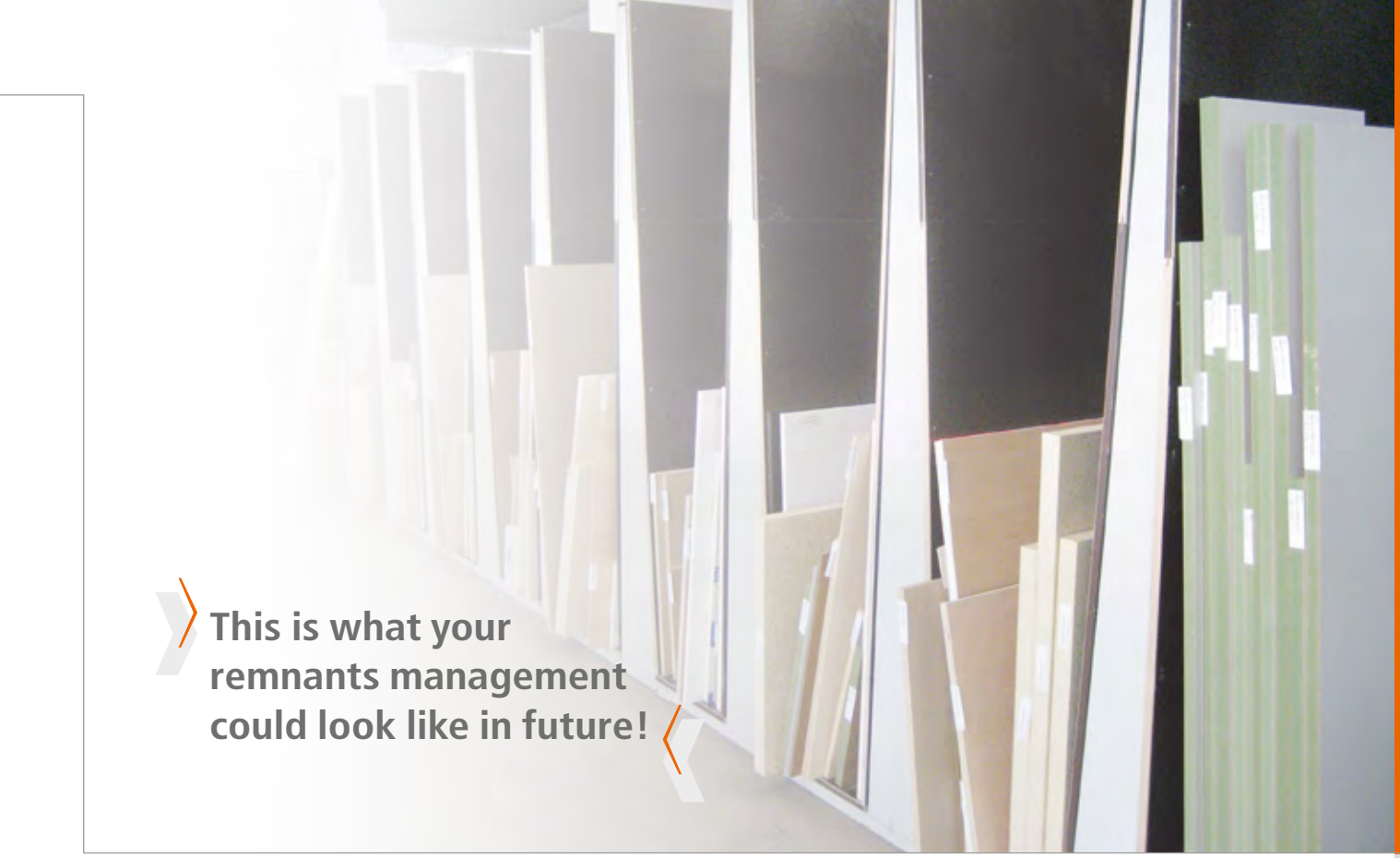
- Special pressure shoe with cutout for cutter and sensing roller.
- Digital horizontal dimension display.
- Two additional longitudinal stops for vertical cut (additional longitudinal stops possible).
- Adapted compensation weight for sawing unit.
- Incl. HW circular saw blade, dia. 250 mm, for composite materials instead of standard saw blade.

Cut optimization – Step-by-step instructions for effective panel cutting

With the professional OptiBase V-Cut cutting optimization feature from HOLZ-HER you always get the best optimization results for perfect material utilization. Clearly arranged user surface and 10" touch screen for simple, quick operation and management of orders, material and parts lists. The label printer for HOLZ-HER machines included in the package ensures clear identification of all parts.

Perfect integration thanks to network connectivity as standard.

W4.0 digital INSIDE



This is what your remnants management could look like in future!

Cutting optimization is supported by

- Optimization software for vertical panel cutting saws makes it easy to optimize your cutting plans.
- Waste material is reduced highly while labeling ensures professional management.
- The choice is yours – you can either import the cutting plans created in your office via network connection/USB or enter them directly on the touch screen.
- Perfect material utilization and maximum yield thanks to intelligent software.

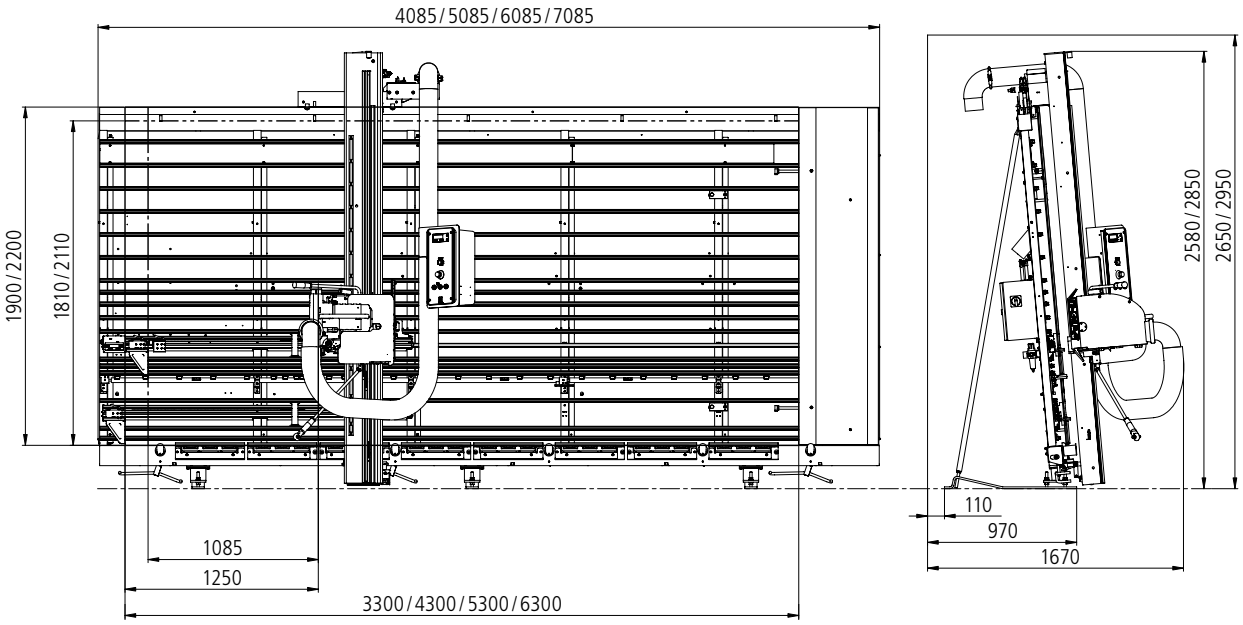
Perfect data flow to HOLZ-HER programming system

- Programming
- Sawing
- Edgebanding
- CNC machining

SECTOR Series
Equipment Overview

	SECTOR 1255	SECTOR 1260
Automatic mode	X	Continuous feed up to 25 m / min
Sawing unit	4.0 kW 5200 rpm | 50Hz 6300 rpm | 60Hz	4.0 kW 5200 rpm | 50Hz 6300 rpm | 60Hz
	Up to max. 7.0 kW infinite speed control from 1100 to 5500 rpm	Up to max. 7.0 kW infinite speed control from 1100 to 5500 rpm
	Pneumatic brake for horizontal cut	Pneumatic brake for horizontal cut
	ProLock Quick Clamp Flange	ProLock Quick Clamp Flange
	Patented SuperCut Prescoring System	Patented SuperCut Prescoring System
Sawing beams	Top and bottom pneumatic arrest	Top and bottom pneumatic arrest
	Three adjustable sawing points in sawing beam	Three adjustable sawing points in sawing beam
Saw support	Pneumatic support grid	Pneumatic support grid
	Middle workpiece support over entire length	Middle workpiece support over entire length
	Bottom stainless steel workpiece support	Bottom stainless steel workpiece support
	Two narrow part attachments	Two narrow part attachments
Dimension display	Digital horizontal dimension display incl. electric motor fine adjustment on control panel	Digital horizontal dimension display incl. electric motor fine adjustment on control panel
	Longitudinal stop using measuring tape with integrated small part stop	Longitudinal stop using measuring tape with integrated small part stop
	Longitudinal stop with digital fine adjustment	Longitudinal stop with digital fine adjustment
	Second longitudinal stop with measuring tape or digital display	Second longitudinal stop with measuring tape or digital display
Optimization	10" touch screen OptiBase V-Cut cutting optimization with office license incl. EasyLabel printer	10" touch screen OptiBase V-Cut cutting optimization with office license incl. EasyLabel printer
Accessories	TRK Dust Evacuation (CE requirement for woodworking shops)	TRK Dust Evacuation (CE requirement for woodworking shops)
	Strip Stop for repetition cuts	Strip Stop for repetition cuts
	GeoMetric angle cutting attachment	GeoMetric angle cutting attachment
	Composite Material Package	X

Standard Optional x Not possible



Technical data	SECTOR 1255	SECTOR 1260
Cutting depth (mm)	60	60
Cutting length (mm)	3300/4300/5300/6300	4300/5300/6300
Cutting height (mm)	1900/2200	1900/2200
Trimming height	1810/2110	1810/2110
Saw blade dia. (mm)	250	250
Air requirement (m^3/h)	1400	1400
Air velocity (m/sec)	≥ 20	≥ 20
Attachment connection dia. assembly (mm)	120	120
Connection dia. frame end (mm) (TRK version)	100	100
Attachment dia. consolidation by customer (mm)	additional 160	additional 160
Static vacuum (Pa)	1500	1500
Weight (kg)	900 – 1200	900 – 1200

Product brochures and many videos are available at
www.holzher.com

The technical data specified is intended for reference only. HOLZ-HER woodworking machines are subject to constant development and are therefore subject to modification without prior notice. The illustrations are therefore not binding. Some of the machines shown also contain special equipment not included as a standard feature. For clarity, some of the machines are shown without protective hood.

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HOLZ-HER
A member of the WEINIG Group

MOTREC

E-280

OPERATOR AND MAINTENANCE MANUAL
SPARE PARTS LISTS INCLUDED

SERIAL NUMBER: 1125497 & UP

Printed in Canada

One Year Limited Warranty

Effective April 25, 2005, Motrec International Inc. (MOTREC) hereby warrants to the Original Retail Purchaser (Owner) that any of its vehicles shall be free from any defect in materials for a period of 90 DAYS while in the possession of such Original Retail Purchaser. This warranty IS NOT TRANSFERABLE to any subsequent Buyer.

The warranty period is extended to one year or one thousand (1,000) hours, which ever first occurs, on the electric motor, differential (parts that bathe in oil) and the electronic speed controller. MOTREC makes no warranty or representation with respect to the internal combustion engine, tires and batteries, since their respective manufacturers cover such parts. Accessories (light, gage, horn, etc), electrical contacts (switch, solenoid, contactor, relay), diodes & fuses, belts & pulleys, filters & spark plugs, lubricants, brake linings & shoes, brake drums & discs, seals, seats, trim and other items subject to wear are not included in this warranty; nor is any item that in MOTREC sole opinion, shows evidence of neglect, misuse, abuse, collision or alteration.

This warranty shall not apply to normal maintenance requirements as described in the User Manual, and to damages during shipment. The latter is the carrier's responsibility. No compensation will be allowed for delays.

To initiate warranty coverage on any MOTREC vehicle, the Dealer must complete and return the “Sales/Installation Report” to MOTREC within 30 days after delivery to the Original Retail Purchaser; or within 90 days after the delivery date to the Dealer, which ever occurs first. Failure to follow these procedures will result in considering the warranty coverage effective as of the shipment date from the factory.

The defective vehicle must be returned, at the Owner's expense, to an authorised MOTREC Dealer within 30 days after failure. The Owner will not be charged for parts and labour required for warranty repairs, which must be performed by an authorised MOTREC Dealer only. The vehicle will be returned at the owner’s expense. The Warranty Claim Forms must be completed and returned with the defective part(s) to MOTREC within 30 days after repair was done. No compensation will be allowed for damages caused by vehicle downtime.

It is the responsibility of the owner of the vehicle to make sure that the driver is properly trained and instructed in the safety features and operation of the vehicle, including vehicle stability, as required by OSHA and ANSI-B56. Operators shall read, understand and follow the safety and operating instructions in MOTREC Manual before driving the vehicle. Operators shall not be permitted to drive the vehicle unless a complete and adequate training has been provided. Driving a vehicle constitutes a hazard. The driver is responsible for the control of the vehicle while driving and must always evaluate and care for all peculiar situations that he or she may meet while driving. The driver assumes the inherent hazards related to this activity. The vehicle is designed for off-road use only. MOTREC disclaims any liability for incidental or consequential damages, to include, but not be limited to, personal injury or property damage arising from vehicle misuse, lack of maintenance or any defect in the vehicle.

It is the responsibility of the Owner of the vehicle to make sure that the service technicians are properly trained as required by OSHA and ANSI-B56. Service technicians shall read, understand and follow instructions in the MOTREC manual before servicing the vehicle. Only qualified and authorized personnel shall be permitted to maintain, repair, adjust and inspect the vehicle.

MOTREC prohibits, and disclaims responsibility for, any vehicle modification altering the weight distribution and stability, increasing the speed or affecting the safety of the vehicle. Such modifications can cause serious personal injury or property damage for which MOTREC disclaims any responsibility.

For Owners that are located outside North America, the warranty period starts the date of shipment from the factory, and the defective parts must be returned at the Owner's expense to MOTREC prior to warranty repair.

TABLE OF CONTENTS

INSTRUCTIONS

SAFETY WARNINGS FOR OPERATORS

- FAILURE TO OBEY THE FOLLOWING SAFETY RULES MAY RESULT IN SEVERE INJURY.
- It is the responsibility of the owner of this vehicle to train operators to ensure that they understand the operating characteristics of this vehicle, including training in vehicle stability, and obey the following safety rules and guidelines. Owner shall comply with OSHA and ANSI/ITSDF B56.8 & B56.9 Standards for vehicle use, safety rules, operator training and certification. Do not drive this vehicle unless you are a qualified operator.
- Do not drive this vehicle under the influence of drugs or alcohol.
- Do not drive this vehicle on public roads and highways. This vehicle is designed to be driven in buildings.
- The electrical system of this vehicle will make sparks which can ignite inflammable materials. Never use the vehicle in hazardous areas where there are inflammable materials, explosive dust or fumes in the air.
- Have your vehicle inspected regularly by trained personnel, and cease operation if a malfunction occurs.
- Do not open battery compartment to prevent battery explosion, acid splashing, severe damage to eyes or skin.
- Do not open motor compartment. Keep clear from moving, rotating(wheels, sheaves, etc) or lifting parts.
- Never carry more passengers than number allowed for this vehicle. Wait until all occupants are seated and holding on before moving. Always keep all body parts inside vehicle. Keep both hands on steering wheel.
- Do not exceed the vehicle cargo load capacity and gross trailing weight capacity, rated for flat hard even surface. Different operating conditions such as loose terrain or ramps reduce vehicle capacity.
- Avoid loose, unbalanced or top-heavy loads to keep a good stability and prevent overturn. Do not load cargo that can fall off the vehicle. Do not carry cargo that is longer, wider or higher than this vehicle.
- Always depress slowly the accelerator for smooth acceleration. Avoid stunt driving or horseplay.
- Avoid sharp turns, always slow down before turning, to prevent vehicle overturn or trailer jack knife. Vehicle is more sensitive to overturn and jack knife when traveling on inclines or when carrying a heavy load.
- Always drive straight up and down the face of an incline, never across the face, to prevent overturn and trailer jack knife. Drive slower and start applying brakes sooner on inclines to adjust for longer stopping distance.
- Use extra care and drive slowly in reverse, in congested areas or on wet or slippery ground.
- Keep to the right under normal conditions. Maintain a safe distance from all objects.
- Slow down and sound the horn when approaching a corner or other blind intersections.
- Before leaving the vehicle, park on a level ground flat surface, turn off all switches, set the forward/reverse switch to neutral, set the parking brake, remove the key. Do not park the vehicle on an incline.
- Before battery charging, park the vehicle in a well ventilated area set for. Do not operate it when charging. To interrupt a charging cycle, disconnect the AC plug; disconnecting the DC plug or a battery terminal, or operating the vehicle, could damage the charger and produce a spark, battery explosion and acid splashing.
- Use another driver to steer this vehicle while it is towed. Be sure the driver uses brakes when you slow or stop the towing vehicle. Do not exceed 5 MPH or carry any passenger while towing this vehicle.

OPERATING INSTRUCTIONS

It is the responsibility of the owner of this vehicle to ensure that the operator understands the operating characteristics of this vehicle, and obeys the safety instructions in this manual and ANSI/ITSDF B56.8 & 9 Standards. Do not drive this vehicle unless you are a certified operator as required by OSHA.

BEFORE TURNING ON KEYSWITCH

Set to neutral, set parking brake, check for visible damage, check brake pedal.

AFTER TURNING ON KEYSWITCH

Check safety devices: seat switch, reverse alarm, motion beeper, strobe light, and all other safety devices.

BATTERIES

Never open the battery compartment unless you have received proper training for battery maintenance.
Batteries emit explosive hydrogen gas that can be ignited by a spark or loose terminal. Battery acid causes severe damage to eyes or skin. Flush the contaminated area immediately with water. Park the vehicle in a well ventilated area for battery charging. Most battery chargers come with an electronic control that starts when the charger is plugged and stop when the battery is fully charged. To interrupt the charging cycle, disconnect the AC-plug, do not disconnect the DC plug.

BATTERY DISCHARGE INDICATOR

The green light moves from right to left as batteries are being discharged. When the green light is at the last position on the left the batteries must be recharged. A flashing light warns the operator that further discharge will damage batteries. See HOBBS indicator instructions.

EMERGENCY SAFETY DEVICE

The emergency push button or battery disconnect handle, when present, should only be used in case of emergency. Use the key switch for normal ON/OFF control.

KEYSWITCH

Depress brake pedal and turn the key switch clockwise for on position. Always turn off all switches, set the F/R selector to neutral, set the parking brake, remove the key before leaving the vehicle.

HORN

Depress the horn button on the steering column or handle bar.

F/R SWITCH

Three positions with neutral at center. Depress the front part of the rocker switch for forward direction. Depress the rear part of the rocker switch for reverse direction. Always set switch to neutral, turn off all switches, set the parking brake, remove the key before leaving the vehicle.

ACCELERATOR PEDAL

It is designed for right foot operation only, and controls the speed of the vehicle. Apply slowly.

FOOT BRAKE PEDAL

It is designed for right foot operation only. The brake force is proportional to the pressure on the pedal.

PARKING BRAKE

Pull handbrake lever to apply. Never park the vehicle on an incline. Always turn off all switches, set the F/R selector to neutral, set the parking brake, remove the key before leaving the vehicle.

MAINTENANCE

SAFETY WARNINGS FOR SERVICE TECHNICIANS

FAILURE TO OBEY THE FOLLOWING SAFETY RULES MAIN RESULT IN SEVERE INJURY.

Owner shall comply with OSHA and ANSI/ITSDF B56.8 & B56.9 Standards for vehicle maintenance.

Only qualified and authorized personnel shall be permitted to maintain, repair, adjust and inspect carriers, vehicles, tractors, and batteries.

Before any maintenance work, park the vehicle on flat level surface, turn off all switches, remove key, lift wheels off the ground and secure with jack stands of adequate capacity. Don't connect charger.

Keep clear from moving parts such as tires, sheaves and motor.

Follow the maintenance instructions applicable to the type of repair, maintenance, or service.

Always wear a face shield and gloves when working around batteries.

Before opening the battery compartment, disconnect the charger, turn off all switches and remove the key. Batteries emit highly explosive gases which greatly increase when charging; do not disturb connections or produce sparks around batteries to avoid a battery explosion and acid splashing. Battery acid causes severe damage to eyes or skin. Flush contaminated area immediately with water.

Use insulated tools to avoid sparks that can cause battery explosion and acid splashing.

Use two counteracting tools, double-wrench technique, when disconnecting or tightening terminals on the battery and the speed controller to avoid cracking the terminal or battery post welds.

Before cleaning or replacing a battery, charger, speed controller, contactor, relay, diode, or any other component in the power circuit, always disconnect the charger, turn off all switches, remove the key, wear a face shield and gloves, identify battery polarity and disconnect battery leads, discharge the capacitor in the controller with a 10 ohms, 25 W resistor for a few seconds across B+ and B-.

After cleaning, the power must not be reapplied until terminal areas are thoroughly dry.

On EE-Rated vehicles make sure that the control box is sealed, the static strap makes good contact with the ground, the motor is sealed by bands, the cable protectors are properly installed.

Keep cables and wires clear from mechanical and rubbing action. Make sure that cable insulation is free from cutting or visible damage. Make sure that EE-Rated cable protectors are properly installed.

Before replacing a fuse or circuit breaker, identify the cause of failure and repair.

Programmable controllers must be programmed using the parameter settings in this service manual, before connecting the motor, to avoid sudden vehicle movement and accident.

Do not try to increase motor speed by changing parameter settings in the speed controller; it can cause accident and severe damage to the motor.

SEPEX speed controls are protected by a diode in the power circuit to filter inductive loads in the event of a sudden power interrupt. Some speed controllers require a diode to filter inductive loads on the KSI input. Removing the diodes will cause the speed control failure.

Before resuming maintenance operations, inspect safety warnings stickers and replace any if damage is found and part of the text can't be read.

Check decals and labels, see "DECAL AND LABELS" page.

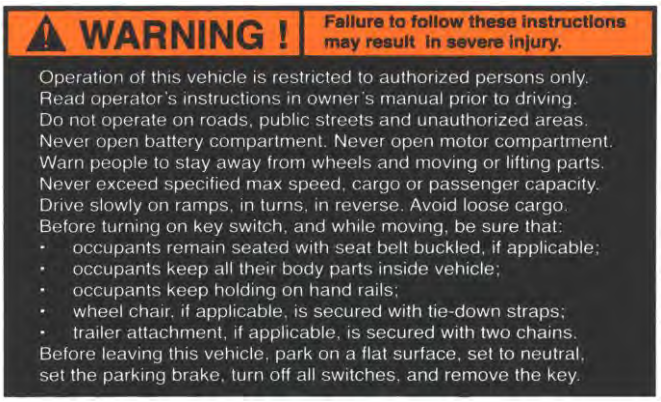
DECALS AND LABELS

! CAUTION !

The images included in this section depict the decals/markings installed on the vehicle. It is of the utmost importance that theses decals/markings remain unaltered and readable. Else, the sticker or the part baring the marking has to be replaced.

Dashboard security warning label:
5100000002

General security warning label:
5100000001



When an emergency push button is installed, this label is required (located under push button): # 3109800006

When a disconnect handle is installed, this label is required (located in front of handle):
4800012J

Respectively, key switch markings, forward/reverse selector markings and light switch marking:

266211

2819321003

1269004

PERIODIC MAINTENANCE CHECKLIST

FOR MODELS WITH TOWING CAPACITY UP TO 16,000 LB (7270 KG)

REVISION 12-01-23

! WARNING !

Maintenance operations must be made by properly trained service technicians.

- Keep clear from moving parts such as tires, sheaves and motor.
- Check for all EE protections, when applicable, and keep cables and wires clear from mechanical and rubbing action
- Batteries contain sulphur acid that can cause severe burns on skin or eyes.
- When working around batteries, wear acid proof protective equipment: face shield and gloves.
- Use electrically insulated tools to avoid sparks that can cause battery explosion.
- Before any maintenance work, park the vehicle on a flat level surface, turn off all switches, remove the key, lift the wheels off the ground and secure with jack stands of adequate capacity, identify and disconnect battery leads. Don't connect the charger.

PERIOD CHECK/PERFORM HOURS	DAY	WEEK 20	MONTH 50	QUART. 200	YEAR 1000	2 YEARS 2000
MECHANICAL DAMAGE, OIL LEAKS	X					
REVERSE ALARM, DEADMAN SWITCH	X					
STATIC STRAP if any, min 2" contact with ground	X					
TIRE PRESSURE, pressure rating on tire		X				
CHECK/FILL BATTERIES, add distilled water to cover plates. Fill to recommended level after batteries have been fully charged.		X				
WARNING DECALS & MARKINGS			X			
EE-Rated CABLE PROTECTORS, SEALED MOTOR, SEALED CONTROL BOX, STATIC STRAP.			X			
MASTER CYLINDER FLUID (DOT 3)			X			
BRAKE PEDAL TRAVEL 2" (50 mm) maximum travel			X			
STEERING FOR PLAY			X			
PARKING BRAKE LEVER requires 30-40 lbs. (14-18 kg) force to apply			X			
BELTS AND PULLEYS -10 lbs (5kg). force for 1/8" (3mm) deflexion; -pulleys alignment, see procedure.				X		
CLEAN/TIGHTEN WIRE TERMINALS				X		
WASH BATTERY TOP WITH WATER				X		
MOTOR BRUSHES FOR WEAR -brushes must exceed holders				X		
ACCELERATOR ADJUSTMENT -1/8" (3 mm) travel to activate micro-switch; -0 to 50 ohms when micro-switch activated; -4500 to 5500 ohms with pedal down.				X		
HYDR. BRAKE LINES FOR LEAK				X		
STEERING ASSEMBLY, as instructed				X		
BRAKE MECHANICAL LINKAGES for wear & play				X		
BRAKE LININGS FOR WEAR 1/16" (2 mm) minimum lining thickness. 6 mm minimum thickness for brake-pulley lining.				X		
LUBRICATE (GREASE EP-2) brake pedal pivots, steering column, ball joints and kingpins.				X		
OIL (SAE 30) LEVEL IN DIFFERENTIAL Before adding oil, check oil seals for leaks.				X		
FRONT WHEEL BEARINGS PLAY				X		
TIGHTEN NUTS/BOLTS, electric terminals; drive; steering; brakes; suspension; body.				X		
REPLACE DIFFERENTIAL OIL(SAE 30)					X	
CLEAN AND RE-PACK FRONT HUBS					X	
SERVICE DIFFERENTIAL, replace the three oil seals, wheel bearings, oil (SAE 30)						X

ACCELERATOR

GEAR

- Remove the cover.
- Backlash between gears must be reduced to a minimum by sliding holder; use locktite 262 to lock the three screws.
- When the plastic gear is fully depressed a small backlash must remain between the gears.
- When the plastic gear is released its rear portion must not exceed the pedal case.

MICRO-SWITCH

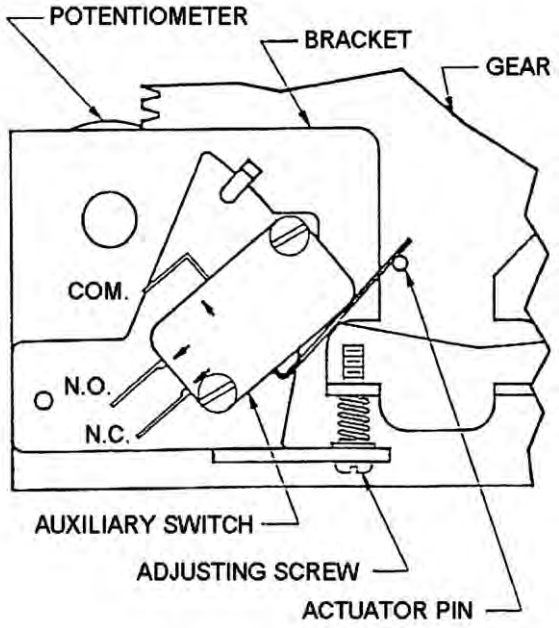
The micro-switch must deactivate the on/off solenoid when the accelerator is released; turn the adjusting screw (shown on figure below) to adjust the micro-switch height.

POT

- Remove the terminals 2 and 3 on PMC to measure resistance signal.
- When the micro-switch is activated the signal must be less than 50 ohms. When the front portion of the pedal is fully depressed the signal must be more than 4600 ohms.
- To modify the resistance, turn the adjusting screw to change the micro-switch height (see figure below).

Proceed with the same verifications after the accelerator cover is on and then connect terminals 2 and 3.

AUXILIARY SWITCH IS WIRED N.O. WITH BLUE LEAD TO COM. & ORANGE LEAD TO N.O. CIRCUIT. THE GREEN LEAD IS GROUNDED. AUXILIARY SWITCH IS SHOWN WITH THE TREADLE IN THE UP POSITION. SWITCH WILL ACTUATE AT BEGINNING OF TREADLE STROKE. SYMBOLS COM., N.O. & N.C. ARE TERMINAL MARKINGS, AS MARKED ON SWITCH.



FOOT PEDAL FP-6 MAINTENANCE GUIDELINES

FEATURES -

- FP 6 is designed for IP rating 64
  - It can work in dusty atmosphere.
  - It has sealing against splashing and spraying water from all side.
  - We do not recommend low pressure or high pressure washing.

SPECIFICATIONS -

- Pedal high point is pedal free condition
- 1st Microswitch Setting ;
  a) First micro switch should operate at 3º ± 1º (i.e. between 2º to 4º) from free condition
- Pot setting
  a) Operate pedal slowly; find reading at which first Microswitch operates.
  b) Pot resistance reading across pot low and wiper (i.e. black and white) must be within 100Ω to 400Ω.
- 2nd Micro switch setting
  a) 2nd micro switch should operate between 4600 Ω and *pot max* resistance, across *pot low and wiper* (i.e. black and white)

INSTALLATION PROCEDURE

Terminology - ***"Pot low", "wiper" and "pot high"*** are pot terminals. (Black, white and red cables respectively) "***Pot max resistance***" is the resistance value across pot low and pot high. (Black and Red cables)

1. MICRO SWITCHES AND POT SETTING

For Foot Pedal FP-6, use pot low and wiper (black and white) for setting micro switches.

- Set Pedal at free condition.
- Adjust pedal at 3° deflection. Set first micro switch to operate about set deflection.
- Adjust pot resistance from high valve to get (100 to 400Ω) across *pot low and wiper* (i.e. black and white).
- Set 2nd micro switch between 4600 Ω and *pot max* resistance.

CHECK LIST / CAUTION

- Pedal angle must be within 30 +/- 3 degree. Check freeness of pedal.
- Select 'resistance' measurement range in as per requirement on the Multi meter. Minimum resistance between pot low and wiper must be less than 10 ohms. Pot Max Resistance (between pot low and pot high) must be within 4500 to 5500 ohms.
- Confirm that micro switch settings are as per specifications.
- Measure the resistance between each of the seven wires and the housing of the Foot Pedal. It should measure "Infinity"
- Visually check the insulating sleeves are put around the soldered side of all seven cables, and that the sleeves are firmly in place.

YEARLY MAINTENANCE

- Remove cover of Pedal.
- Apply 3 to 5 drops oil on pedal return spring.
- Apply 2 drops oil in the slot of front bush.
- Do not apply oil on shaft from outside. It is of no use, due to sealing on the shaft.
    i. Oil Specification
    ii. 20W Motor Oil (Or 3 in one motor oil)
    iii. 20 stand for weight of motor oil.
    iv. W Stands for winter grade.

HYDRAULIC & PARKING BRAKES

FOR MODELS WITH TOWING CAPACITY UP TO 16,000 LB (7270 KG)

Revision 2012-01-23

DRUM BRAKES

Remove brake drums and check lining wear. Replace shoes and springs if the lining thickness is 1/16" (2mm) or less. Turn the brake adjustment to reduce the clearance between lining and drum. Wheels must turn free when the pedal is released.

DISC BRAKES

Check pad linings. Replace pads if lining thickness is 1/16" (2 mm) or less.

PARKING BRAKE

Replace cables and stoppers if cable play exceeds 1/8” (4mm).
Wheels and/or differential pinion must turn freely when the parking brake is released.
On pinion brake, use spacers at pad fixed ends to reduce space between pads and pulley to 1mm.
To install new cables and stoppers:
-insert the new cable through the hand lever end;
-pull the cable out from the brake assembly end;
-insert the stopper on the cable and leave a maximum play of 1mm;
-for a two-cable system, make sure that cable length is the same at hand lever end;
-tighten ¼-ncx3/4 grade-5 bolt in stopper at 8 Lb-Ft (11Nm) torque;
-cable must extend 1.5” (4cm) out of the cable stopper, cut cable excess.

Once cable play has been checked and/or adjusted, turn the knob on the brake lever until a force of 30-40 Lbs or 14-18 kg is required on the handle to set the parking brake. Tighten the locking screw.

BRAKE PEDAL

If the brake pedal becomes soft or spongy, air may have entered the hydraulic system and the brake system has to be bled:

1. fill the master cylinder with brake fluid (DOT-3);
2. bleed front calipers one at a time by having someone applying a steady pressure on the brake pedal, and close the bleeder before allowing the brake pedal to return to up position;
3. fill the master cylinder with brake fluid (DOT-3);
4. bleed rear wheel brakes one at a time, following the same procedure;
5. fill the master cylinder with brake fluid (DOT-3);
6. clean every fitting and line, remove traces of oil;
7. apply a continuous pressure on the brake pedal for about five minutes ;
8. Finally, inspect brake lines and fittings for leaks ;

BATTERY MAINTENANCE

! WARNING !

- It is the responsibility of the owner of this vehicle to ensure that the service technicians are properly trained, read and obey the safety rules and guidelines in this manual (ANSI B56).
- Maintenance operations must be made by properly trained service technicians only.
- Before any maintenance work, park the vehicle on a flat level surface, turn off all the switches, set to neutral, remove the key, lift the wheels off the ground and secure with jack stands of adequate capacity.
- Keep charger disconnected while doing any maintenance work.
- Always wear a face shield and scarf when working around batteries.
- Battery emits highly explosive gases; do not produce sparks to avoid battery explosion and acid splashing. Battery acid causes severe damage to eyes or skin. Flush contaminated area immediately with water.
- Use insulated tools to avoid sparks that can cause battery explosion and acid splashing.
- Use two counteracting tools, double-wrench technique, when disconnecting or tightening battery posts.
- Before cleaning or replacing a battery, discharge the capacitor in the controller with a 10 ohms, 25 W resistor for a few seconds across B+ and B-, identify battery polarity and disconnect battery leads.
- After cleaning, the power must not be reapplied until terminal areas are thoroughly dry.

BATTERY LEADS AND CONNECTORS

Check for loose connections, damaged cables, acid spill, loose terminal posts, quarterly.

BATTERY POST CORROSION

If corrosion is present on battery posts, remove the cable connectors, use a wire brush to remove particles, and then clean them with a cloth that has been moistened with ammonia.

ELECTROLYTE LEVEL

Does not apply to sealed battery.

- Disconnect battery connectors on roll-out or lift-out installations.
- Make sure the battery roll-out tray is provided with stops before rolling out.
- Fill with distilled water.
- Daily charged batteries normally require watering once a week. Under watering leads to a shortened battery life. Over watering leads to battery corrosion. Be careful not to overfill any cell to avoid electrolyte to be forced out while charging.
- Fill each cell to plate level with distillated or de-ionized water, before battery charging. When the battery is charged, the fluid expands and can seep out if overfilled. Refill each cell after full charge, when the fluid has expanded to its maximum level.
- Reinstall battery caps before charging.

BATTERY MOUNTING

A loose battery increases damaging effects of vibrations and is more prone to short out.

BATTERY DISCHARGE LIMIT

Discharging below a 20% state of charge cuts down the battery life and the number of cycles available. At 20% state of charge, specific gravity of 6V battery should be 1180; and 1220 for industrial battery.

CHARGING AREA

- Always charge battery in a well ventilated area set for and approved for charging.
- Never leave a charger connected for more than 20 hours.

FREQUENCY OF CHARGE

- When a battery is discharged to its 20% state of charge, it is best to charge immediately.
- Batteries require a low current equalization charge (min 4 hours) at least every week, to equalize battery cells, improve battery performance and life in number of cycles.
- Never leave a charger connected for more than 20 hours.

STORAGE

- Keep the battery from getting cold, it would loose its capacity.
- Let the battery warm up before charging.
- Charge batteries in “stored” vehicles every month.

DEFECTIVE BATTERY

Check specific gravity of each cell; if a cell is shorted, voltage drop may occur only when there is current.

BATTERY CHARGER

! WARNING !

Always unplug the AC and DC electrical cords before attempting any repairs to the charger.

CHARGER DOES NOT TURN ON:

- Dc cord of portable chargers must be disconnected from batteries after every charge to restart;
- Check dc fuse links;
- Check battery voltage at the battery connector;
- Check ac outlet and cordset;
- Replace electronic control ;

RELAY CLOSES AND TRANSFORMER HUMS BUT AMMETER DOES NOT REGISTER:

- Check dc fuse links;
- Check the continuity of the dc output cord, ammeter, diodes and all connections in the dc circuit;
- Check diodes;
- Check capacitor(rapidely increasing resistance);

SINGLE CHARGER FUSE BLOWS:

- Disconnect and check diodes;

BOTH FUSE LINKS BLOW:

- Check the battery pack and battery connector polarity;
- Disconnect and check diodes.

CHARGER OUTPUT IS LOW:

- Disconnect and check diodes;
- Can be caused by a transformer failure.

AMMETER READS 30 AMPS FOR MORE THAN 30 MINUTES:

- Check the battery pack;

CHARGER DOES NOT TURN OFF:

- Check specific gravity in each battery cell;
- As much as 16 hours may be required to properly charge heavely discharged new or cold batteries;
- Replace electronic control.

AC LINE FUSE OR CIRCUIT BREAKER BLOWS:

- Check ac cordset;
- Check ac line fuse rating;
- Replace electronic control;
- Can be caused by a transformer failure.

ELECTRICAL TROUBLESHOOTING

! WARNING !

Maintenance work must be performed by trained service technicians only.

It is the responsibility of the owner of this vehicle to ensure that the services technicians are properly trained, understand and obey the safety rules and guidelines (ANSI B56).

All service technicians must read and understand the maintenance warning section in this manual.

! WARNING !

Before any maintenance work, park the vehicle on a flat level surface, turn off all switches, remove the key, lift the wheels off the ground, secure with jack stands of adequate capacity, disconnect charger.

Always wear safety glasses.

Batteries emit highly explosive gases that can be ignited by a spark. Before disconnecting a high current terminal, turn off all switches, disconnect battery charger, disconnect batteries.

Keep clear from moving parts such as tires, sheaves and motor.

PMC SELF DIAGNOSTIC

If your PMC comes with a status led, use the flashing code to help troubleshooting.

BATTERY VOLTAGE

Make sure batteries are securely connected. Measure voltage between + and - terminals. We will call this value B+ or full battery voltage.

ACCESSORIES NOT WORKING

- Check the fuses on the batteries and the DC/DC converter.
- Check voltage across + and – terminals on the battery gage; if not B+, check wiring.
- Turn the key switch ON, check voltage between output terminal on the key switch and the - terminal on the battery gage; if not B+, replace the key switch.
- Check voltage across DC/DC converter output terminals; if not 12-Volt, replace the converter.
- Depress the accessory switch, check voltage across accessory terminals. If not 12-Volt, replace the switch. If 12-Volt, replace the accessory.

FORWARD ONLY

On a SEPEX motor control, check the reverse signal input on the controller.
On a series wound motor control, a bad reverse contactor is the most probable cause of the problem. Switch to reverse and check voltage on the reverse control wire. If not B+, replace the F/R switch. If B+, turn off the key switch, disconnect batteries, disconnect power terminals on the F/R contactors, check the resistance across N.C. power terminals of the reverse contactor. If not 0 ohm, change the reverse contactor. If 0 ohms, switch to forward and check the resistance across the forward N.O. power terminals. If not 0 ohms, change the forward contactor.

REVERSE ONLY

On a SEPEX motor control, check the forward signal input on the controller.
On a series wound motor control, a bad forward contactor is the most probable cause of the problem. Switch to forward and check the voltage on the forward control wire. If not B+, replace the F/R switch. If B+, turn off the key switch, disconnect batteries, disconnect power terminals on the F/R contactors, check the resistance across N.C. power terminals of the forward contactor. If not 0 ohm, change the forward contactor. If 0 ohms, switch to reverse and check the resistance across the reverse N.O. power terminals. If not 0 ohms, change the reverse contactor.

TRAVEL AT REDUCED SPEED

Check batteries.

Turn off all switches and disconnect charger. Wear face shield and gloves. Do not disturb any battery connection to avoid sparks. Check the specific gravity of each cell. Cold batteries, highly discharged batteries or dead cells are the most frequent causes of reduced travel speed.

Check potentiometer.

Turn off the key switch, disconnect potentiometer terminals. Check the resistance between terminals.

Other causes of lower speed:
- dragging brakes;
- cold temperature (higher differential oil viscosity).

INTERMITTENT OPERATION

A bad potentiometer is the most probable cause of the following:
- acceleration is not constant;
- maximum speed is erratic;
- sudden stop after a bump or shock;
- erratic starts, requiring several pedal cycles.

A bad F/R contactor is also a probable cause of the following:
- sudden stop after a bump or shock;
- would not start to move at times.

Erratic starts could also be the cause of a misadjusted potentiometer or micro-switch; the pot signal must be less than 50 ohms when the micro-switch turns on.

PMC has an HPD safety feature that prevents the vehicle from moving if the accelerator pedal is depressed before the key switch is ON and seat switch is activated.

PMC may also have an SRO safety feature that prevents the vehicle from moving if the F/R switch is activated before turning on the key switch and activating the seat switch.

The vehicle stops on a steep and long ramp or while towing a heavy load: the circuit breaker has open to prevent motor overheating and will reset automatically after one minute. The PMC is also equipped with an internal thermal protection that cutback the current until the PMC has cooled down.

NO MOTION

Make sure that the PMC surface is clean and dry; check the terminal areas. Dust Particles or acid contamination, can create current leaks and cause a PMC malfunction.

Check F/R switch

Turn on the key switch and set to forward. Check voltage between the forward terminal and the – terminal on the battery gage, check voltage between the reverse terminal and the – terminal on the battery gage; if both B+, replace the F/R switch.

Check switches and wiring

Disconnect control terminals on the PMC and check all control signals. If a switch pin does not read B+, check wiring or replace the switch.

Check potentiometer

Turn the key switch to OFF, disconnect potentiometer terminals. Check the resistance across terminals: if not within the recommended limits, adjust or replace the potentiometer. Check for shorts between potentiometer wires and vehicle frame; resistance should read at least 1 megohm.

Check main contactor or solenoid

Check voltage across power terminals; if not B+, check circuit breaker or replace the solenoid.
Turn to on the key switch and activate the seat switch. Check voltage across the coil terminals; if not B+, check wiring and interlock switches. Check resistance across power terminals; if not 0 ohms, replace the solenoid.

Check circuit breaker and SEPEX DIODE

Before replacing the circuit breaker, check for shorts in the power circuit and check the SEPEX diode in the power circuit using a diode tester. If no such instrument is at hand, use an ohmmeter: the reading should be weak in one direction and strong in the other way.
Check the resistance across the circuit breaker. If not 0 ohms, replace the circuit breaker.

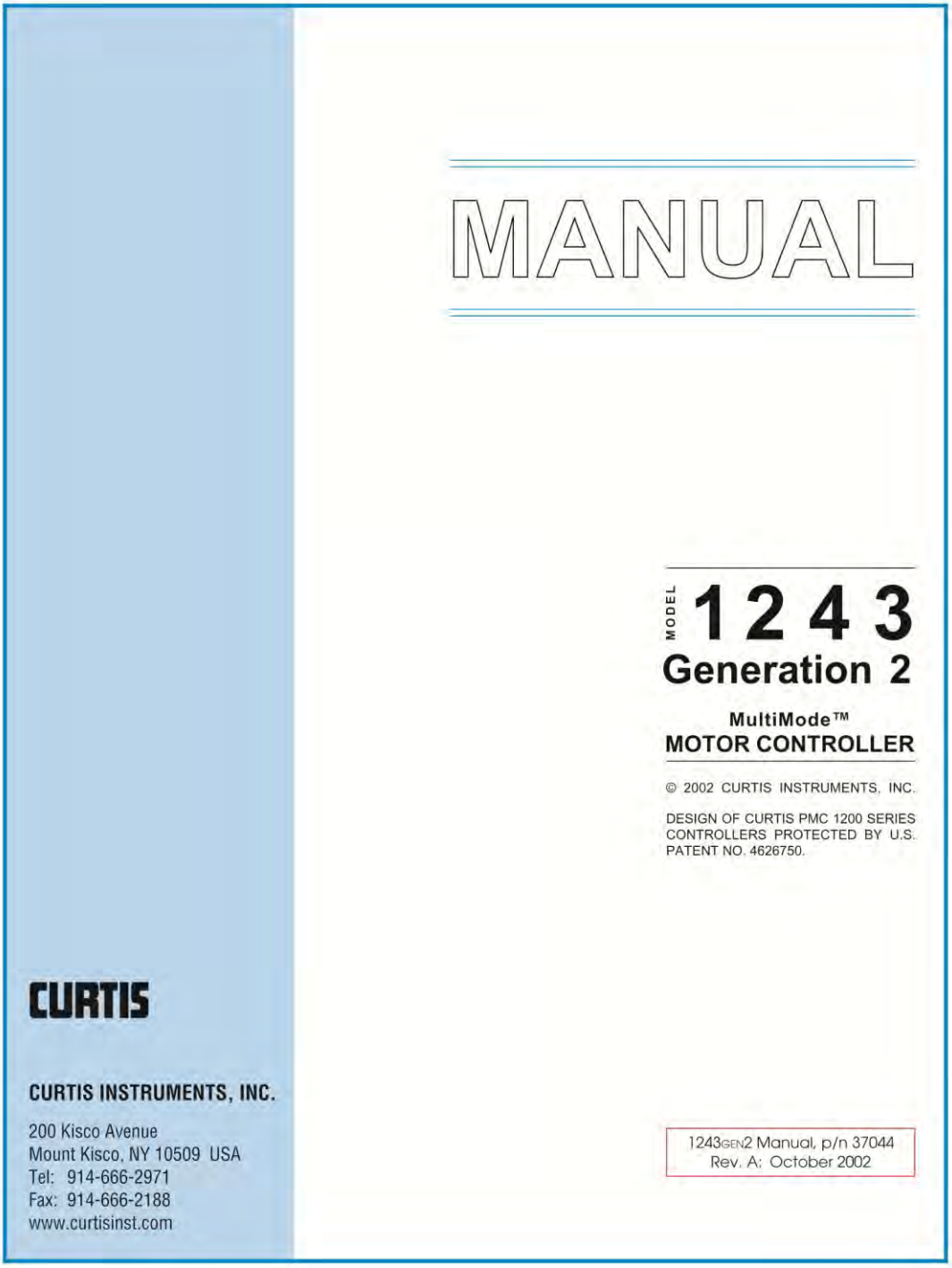
Check PMC

First disconnect battery B+ and B-, then PMC B+ and M-. Check the internal diode between B+ and M- terminals using a diode tester. If no such instrument is at hand, use an ohmmeter: the reading should be weak in one direction and strong in the other way. If the internal diode is defective, the PMC must be replaced.

Check the Motor

First disconnect battery B+ and B-, disconnect power terminals and check the motor armature and field for opens.

CURTIS SPEED CONTROLLER 1243


MANUAL
MODEL
1243
Generation 2
MultiMode™
MOTOR CONTROLLER
© 2002 CURTIS INSTRUMENTS, INC.
DESIGN OF CURTIS PMC 1200 SERIES CONTROLLERS PROTECTED BY U.S. PATENT NO. 4626750.
CURTIS
CURTIS INSTRUMENTS, INC.
200 Kisco Avenue
Mount Kisco, NY 10509 USA
Tel: 914-666-2971
Fax: 914-666-2188
www.curtisinst.com
1243GEN2 Manual, p/n 37044
Rev. A: October 2002

WIRING : STANDARD CONFIGURATION

for the M8 bolts. The maximum bolt insertion depth below the surface of the bus bar is 1.3 cm (1/2"). Bolt shafts exceeding this length may damage the controller. The torque applied to the bolts should not exceed 16.3 N·m (12 ft-lbs).

Two 1/4" quick connect terminals (**S1** and **S2**) are provided for the connections to the motor field winding.

WIRING: Standard Configuration

Figure 3 shows the typical wiring configuration for most applications. **For walkie applications** the interlock switch is typically activated by the tiller, and an emergency reverse switch on the tiller handle provides the emergency reverse signal.

For rider applications the interlock switch is typically a seat switch or a foot switch, and there is no emergency reverse.

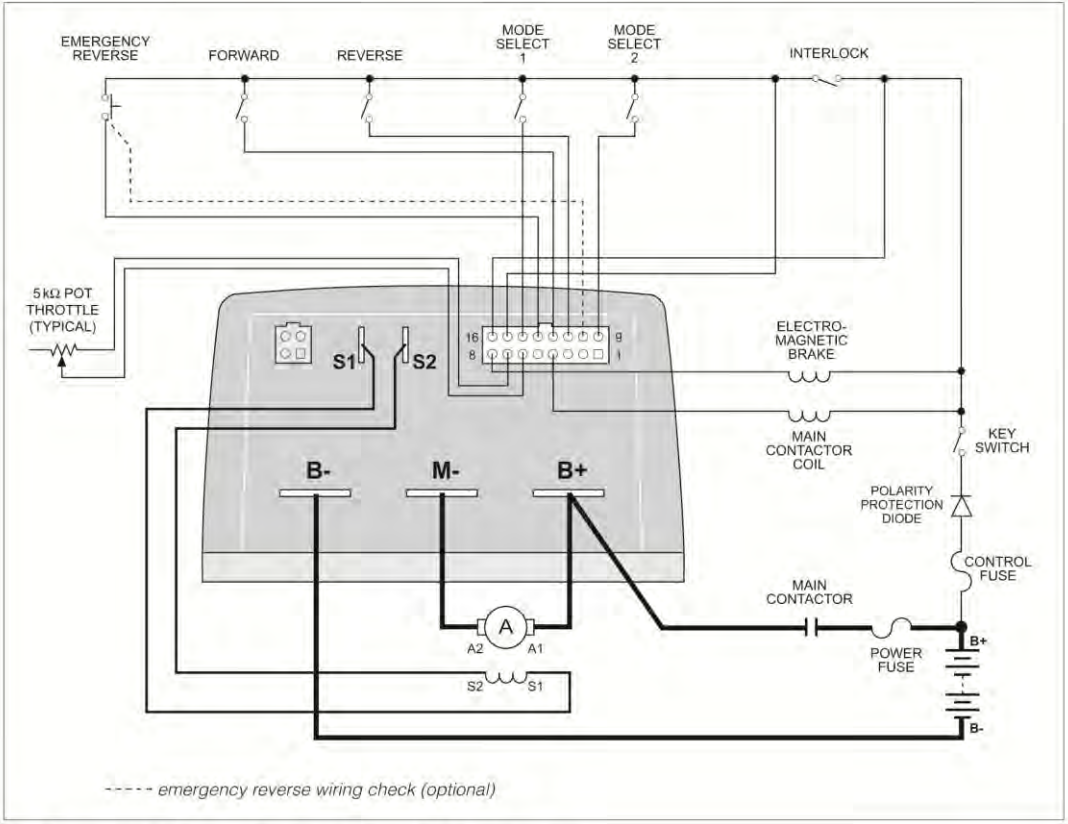


Fig. 3 *Standard wiring configuration, Curtis 1243GEN2 controller.*

DIAGNOSTICS AND TROUBLESHOOTING

7

DIAGNOSTICS AND TROUBLESHOOTING

The 1243GEN2 controller provides diagnostics information to assist technicians in troubleshooting drive system problems. The diagnostics information can be obtained by observing the appropriate display on the handheld programmer, the fault message displayed on the Spyglass gauge, the fault codes issued by the Status LED, or the fault display driven by the controller's fault outputs (Fault 1 and Fault 2). Refer to the troubleshooting chart (Table 7) for suggestions covering a wide range of possible faults.

PROGRAMMER DIAGNOSTICS

The handheld programmer presents complete diagnostic information in plain language. Faults are displayed in the System Faults Menu, and the status of the controller inputs/outputs is displayed in the Monitor Menu.

Accessing the programmer's Fault History Menu provides a list of the faults that have occurred since the fault history file was last cleared. Checking (and clearing) the fault history file is recommended each time the vehicle is brought in for maintenance.

For information on 1311 programmer operation, see Appendix B. If you are using the older 1307 programmer, refer to existing documentation.

SPYGLASS DIAGNOSTICS

The eight-character LCD on the Spyglass displays a continuous sequence of hourmeter, battery state-of-charge, and fault messages.

Fault messages are displayed using the same codes that are flashed by the LED (see Table 8). For example, the LED flashes 3,2 for a welded main contactor:

□□□ □□	□□□ □□	□□□ □□
(3 , 2)	(3 , 2)	(3 , 2)

and the corresponding Spyglass message is:

CODE 32

When a fault message is being displayed, the red Fault LED (labeled with a wrench symbol) flashes to catch the operator's attention.

The LCD also displays a warning when either service timer expires. The service warning is not considered a fault and the red Fault LED does not flash. The word SERVICE is displayed for about 20 seconds on each key-on, after the hourmeter is displayed.

The Spyglass is available in 3-LED and 6-LED models; see Figure 21.

TROUBLESHOOTING CHART

Table 7 TROUBLESHOOTING CHART

LED CODE	PROGRAMMER LCD DISPLAY	FAULT CATEGORY	POSSIBLE CAUSE	FAULT CLEARANCE
0,1	NO KNOWN FAULTS	0	n/a	n/a
1,1	CURRENT SHUNT FAULT	1	1. Abnormal vehicle operation causing high current spikes. 2. Current sensor out of range. 3. Controller failure.	Cycle KSI. If problem persists, replace controller.
1,2	HW FAILSAFE	1	1. Noisy environment. 2. Self-test or watchdog fault. 3. Controller failure.	Cycle KSI. If problem persists, replace controller.
1,3	M- SHORTED	1	1. Internal or external short of M- to B-. 2. Incorrect motor wiring. 3. Controller failure.	Check wiring; cycle KSI. If problem persists, replace controller.
1,4	SRO	3	1. Improper sequence of KSI, interlock, and direction inputs. 2. Interlock or direction switch circuit open. 3. Sequencing delay too short. 4. Wrong SRO or throttle type selected. 5. Misadjusted throttle pot.	Follow proper sequence; adjust throttle if necessary; adjust programmable parameters if necessary.
2,1	THROTTLE WIPER HI	1	1. Throttle input wire open or shorted to B+. 2. Defective throttle pot. 3. Wrong throttle type selected.	When Throttle Wiper High input returns to valid range.
2,2	EMR REV WIRING	1	1. Emergency reverse wire or check wire open.	Re-apply emergency reverse or cycle interlock.
2,3	HPD	3	1. Improper sequence of KSI, interlock, and throttle inputs. 2. Misadjusted throttle pot. 3. Sequencing delay too short. 3. Wrong HPD or throttle type selected. 5. Misadjusted throttle pot.	Follow proper sequence; adjust throttle if necessary; adjust programmable parameters if necessary.
	SRVC TOTAL	3	1. Total maintenance timer expired.	Reset with programmer.
	SRVC TRAC	3	1. Traction maintenance timer expired.	Reset with programmer.
	TOTAL DISABLED	3	1. Total disable timer expired.	Reset with programmer.
	TRAC DISABLED	3	1. Traction disable timer expired.	Reset with programmer.
2,4	THROTTLE WIPER LO	1	1. Throttle pot wire open or shorted to B+. 2. Wrong throttle type selected. 3. Defective throttle pot.	When Throttle Wiper Low input returns to valid range.
3,1	FIELD SHORT	1	1. Main contactor coil shorted. 2. Field winding shorted to B+ or B-. 3. Field resistance too low.	Check contactor coil and field winding; cycle KSI.
3,2	MAIN CONT WELDED	1	1. Main contactor stuck closed. 2. Main contactor driver shorted.	Check wiring and contactor; cycle KSI.
3,3	FIELD OPEN	1	1. Field winding connection open. 2. Field winding open.	Check wiring and cycle KSI.
3,4	MISSING CONTACTOR	1	1. Main contactor coil open. 2. Main contactor missing. 3. Wire to main contactor open.	Check wiring and cycle KSI.

Table 7 TROUBLESHOOTING CHART, *cont'd*

LED CODE	PROGRAMMER LCD DISPLAY	FAULT CATEGORY	POSSIBLE CAUSE	FAULT CLEARANCE
4,1	LOW BATTERY VOLTAGE	2	1. Battery voltage < undervoltage cutback. 2. Corroded battery terminal. 3. Loose battery or controller terminal.	When voltage rises above undervoltage cutoff point.
4,2	OVERVOLTAGE	2	1. Battery voltage >overvoltage shutdown. limit. 2. Vehicle operating with charger attached.	When voltage falls below overvoltage cutoff point.
4,3	THERMAL CUTBACK	2	1. Temperature >85°C or < -25°C. 2. Excessive load on vehicle. 3. Improper mounting of controller.	Clears when heatsink temperature returns to within acceptable range.
4,4	ANTI-TIEDOWN	3	1. Mode switches shorted to B+. 2. Mode Select 1 "tied down" to select Mode 2 or Mode 4 permanently.	Release Mode Select 1.
	MOTOR HOT	3	1. Field resistance > motor hot setpoint.	When resistance < setpoint.
	MOTOR WARM	3	1. Field resistance > motor warm setpoint.	When resistance < setpoint.

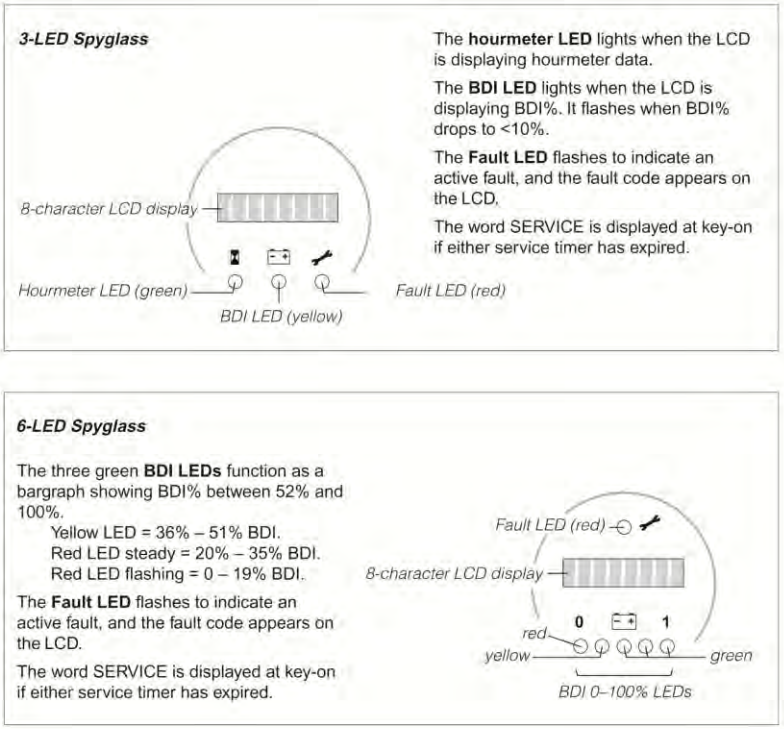


Fig. 21 *Curtis 840 Spyglass, 3-LED and 6-LED models.*

LED DIAGNOSTICS

STATUS LED DIAGNOSTICS

A Status LED is built into the 1243GEN2 controller. It is visible through a window in the label on top of the controller. This Status LED displays fault codes when there is a problem with the controller or with the inputs to the controller. During normal operation, with no faults present, the Status LED flashes steadily on and off. If the controller detects a fault, a 2-digit fault identification code is flashed continuously until the fault is corrected. For example, code "3,2"—main contactor welded—appears as:

□□□ □□	□□□ □□	□□□ □□
(3 , 2)	(3 , 2)	(3 , 2)

The codes are listed in Table 8.

Table 8 STATUS LED FAULT CODES

LED CODES		EXPLANATION
LED off	▬▬▬	no power or defective controller
solid on	▭▭▭	controller or microprocessor fault
0,1	■ □	controller operational; no faults
1,1	□ □	current sensor error
1,2	□ □□	hardware failsafe fault
1,3	□ □□□	M- fault or motor output short
1,4	□ □□□□	static return to off (SRO)
2,1	□□ □	throttle wiper high
2,2	□□ □□	emergency reverse circuit check fault
2,3	□□ □□□	high pedal disable (HPD), or expired timer
2,4	□□ □□□□	throttle wiper low
3,1	□□□ □	contactor driver overcurrent or field winding short
3,2	□□□ □□	main contactor welded
3,3	□□□ □□□	field winding open
3,4	□□□ □□□□	missing contactor
4,1	□□□□ □	low battery voltage
4,2	□□□□ □□	overvoltage
4,3	□□□□ □□□	thermal cutback, due to over/under temp
4,4	□□□□ □□□□	anti-tiedown fault, or overheated motor

Note: Only one fault is indicated at a time, and faults are not queued up. Refer to the troubleshooting chart (Table 7) for suggestions about possible causes of the various faults. Operational faults—such as a fault in SRO sequencing—are cleared by cycling the interlock switch or keyswitch.

PROGRAMMING PARAMETERS – E-280 FEDEX

! WARNING !

The owner of this vehicle shall ensure that the service technicians are qualified, properly trained and obey the safety rules and guidelines in OSHA and ANSI B56 regulations, and in this manual.

Before installing and/or programming the PMC, park the vehicle on a flat level surface, lift the wheels off the ground and secure with jack stands of adequate capacity. Don't connect charger.

Programmable controllers must be programmed using the parameter settings in this service manual, before connecting the motor, to avoid sudden vehicle movement and accident.

Do not try to increase motor speed by changing parameter settings in the speed controller; it can cause accident and severe damage to the motor.

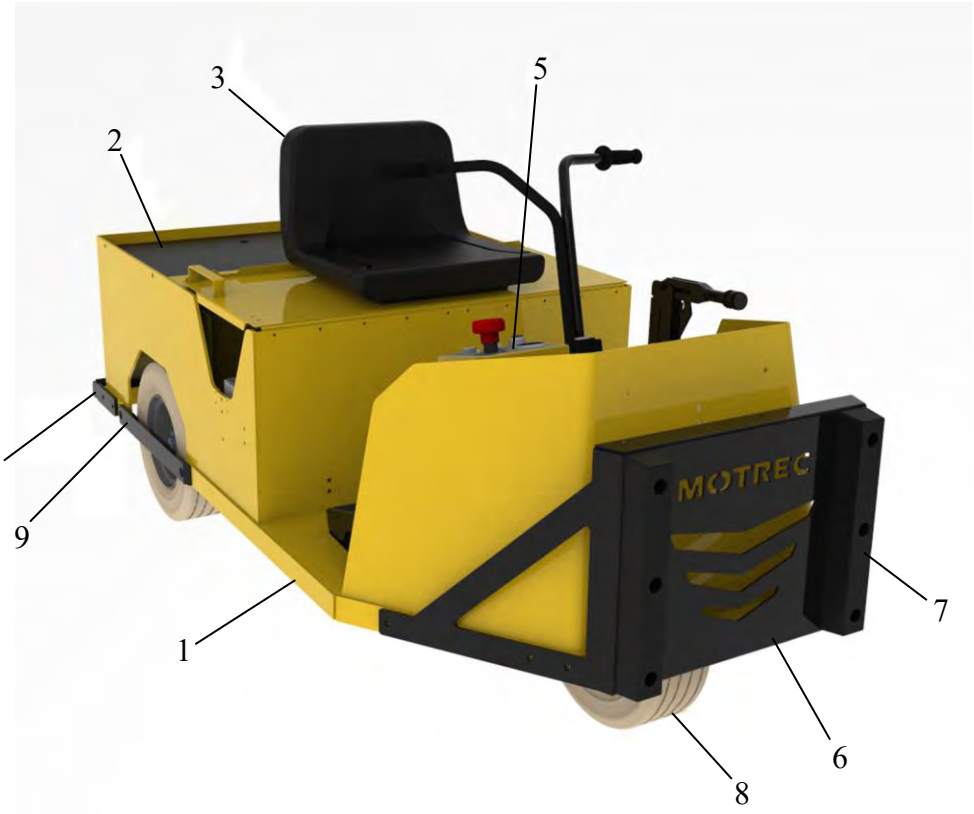
VOLTAGE	NOMINAL BATTERY VOLTAGE, IN VOLTS	3
M1 DRIVE C/L	MODE 1 DRIVE CURRENT LIMIT, IN AMPS	250
M2 DRIVE C/L	MODE 2 DRIVE CURRENT LIMIT, IN AMPS	250
M3 DRIVE C/L	MODE 3 DRIVE CURRENT LIMIT, IN AMPS	250
M4 DRIVE C/L	MODE 4 DRIVE CURRENT LIMIT, IN AMPS	250
M1 BRAKE C/L	MODE 1 BRAKING CURRENT LIMIT, IN AMPS	150
M2 BRAKE C/L	MODE 2 BRAKING CURRENT LIMIT, IN AMPS	150
M3 BRAKE C/L	MODE 3 BRAKING CURRENT LIMIT, IN AMPS	150
M4 BRAKE C/L	MODE 4 BRAKING CURRENT LIMIT, IN AMPS	150
M1 ACCEL RATE	MODE 1 ACCELERATION RATE, IN SEC.	3
M2ACCEL RATE	MODE 2 ACCELERATION RATE, IN SEC.	3
M3 ACCEL RATE	MODE 3 ACCELERATION RATE, IN SEC.	3
M4 ACCEL RATE	MODE 4 ACCELERATION RATE, IN SEC.	3
M1 DECEL RATE	MODE 1 DECELERATION RATE, IN SEC.	2.5
M2 DECEL RATE	MODE 2 DECELERATION RATE, IN SEC.	2.5
M3 DECEL RATE	MODE 3 DECELERATION RATE, IN SEC.	2.5
M4 DECEL RATE	MODE 4 DECELERATION RATE, IN SEC.	2.5
THROTTLE DECEL	THROTTLE DECEL, IN SEC.	0.3
M1 BRAKE RATE	MODE 1 BRAKING RATE, IN SEC.	2
M2 BRAKE RATE	MODE 2 BRAKING RATE, IN SEC.	2
M3 BRAKE RATE	MODE 3 BRAKING RATE, IN SEC.	2
M4 BRAKE RATE	MODE 4 BRAKING RATE, IN SEC.	2
INT BRAKE RATE	INT BRAKE RATE, IN SEC.	2
QUICK START	QUICK START THROTTLE FACTOR	1
TAPER RATE	Regen brak. Decrease rate when apporch. 0spd, 1/32s	20
M1 MAX FWD SPD	MODE 1 MAX. FWD SPEED, AS % PWM OUTPUT	40
M2 MAX FWD SPD	MODE 2 MAX. FWD SPEED, AS % PWM OUTPUT	72
M3 MAX FWD SPD	MODE 3 MAX. FWD SPEED, AS % PWM OUTPUT	86
M4 MAX FWD SPD	MODE 4 MAX. FWD SPEED, AS % PWM OUTPUT	100
M1 MAX REV SPD	MODE 1 MAX. REV SPEED, AS % PWM OUTPUT	40
M2MAX REV SPD	MODE 2 MAX. REV SPEED, AS % PWM OUTPUT	40
M3 MAX REV SPD	MODE 3 MAX. REV SPEED, AS % PWM OUTPUT	40
M4 MAX REV SPD	MODE 4 MAX. REV SPEED, AS % PWM OUTPUT	40
CREEP SPEED	CREEP SPEED, AS % PWM OUTPUT	0
THROTTLE TYPE	THROTTLE TYPE	3
THRO. DEADBAND	Thr. Neutral deadband % of 5kohms pot	6
THROTTLE MAX	Thr. Input req`d for 100%PWM %5kohm pot	90
THRTL MAP	THROTTLE MAP, AS %	30
FIELD MIN	MIN. FIELD CURRENT, IN AMPS	7
FIELD MAX	MAX. FIELD CURRENT, IN AMPS	20
FIELD MAP START	Arm. current at wich FIELD MAP takes effect, amps	70
FIELD MAP	Field winding current, as % armature current	50
CURRENT RATIO	CURRENT RATIO:FACTOR OF 1, 2, 4 OR 8	1
M1 RESTRAINT	MODE 1 RAMP RESTRAINT: 1 TO 10	10
M2 RESTRAINT	MODE 2 RAMP RESTRAINT: 1 TO 10	10
M3 RESTRAINT	MODE 3 RAMP RESTRAINT: 1 TO 10	10
M4 RESTRAINT	MODE 4 RAMP RESTRAINT: 1 TO 10	10
LOAD COMP	LOAD COMPENSATION: 0 TO 25	0

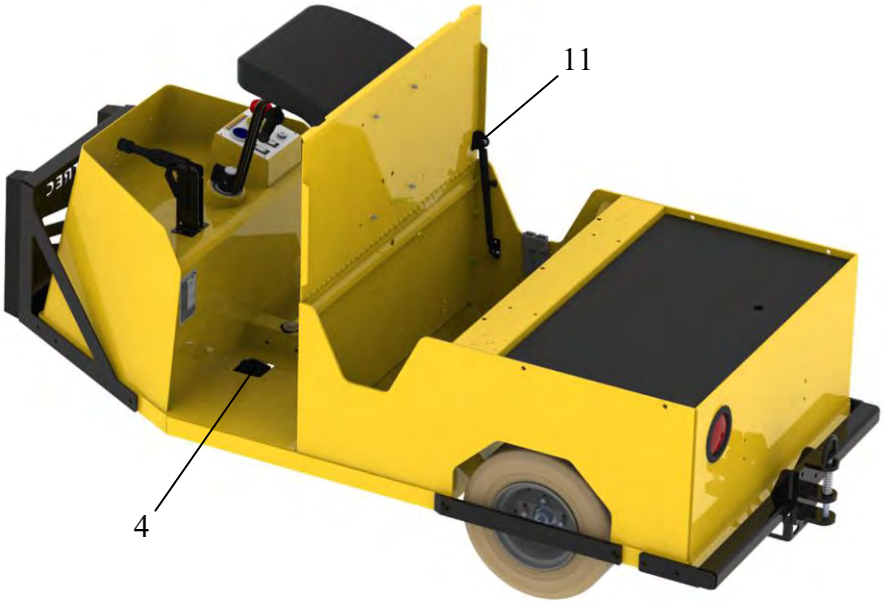
6 MPH MAX : disconnect wire MODE-2-B (PIN 9)
8 MPH MAX : disconnect wire MODE-1-A (PIN 14)

HPD	HIGH PEDAL DISABLE (HPD) TYPE	1
SRO	STATIC RETURN TO OFF (SRO) TYPE	1
SEQUENCING DLY	SEQUENCING DELAY, IN SEC.	1
MAIN CONT INTR	MAIN CONTACTOR INTERLOCK: ON OR OFF	ON
MAIN OPEN DELAY	MAIN CONTACTOR DROPOUT DELAY, IN SEC.	1
CONT DIAG	CONT DIAG, ON OR OFF	ON
AUX TYPE	AUXILIARY TYPE, 0 TO 5	0
AUX DELAY	AUXILIARY DRIVER DROPOUT DELAY, IN SEC.	0.0
EMR REV C/L	EMERGENCY REVERSE CURRENT LIMIT, IN AMPS	50.0
EMR REV CHECK	EMERGENCY REV. WIRING CHECK : ON OR OFF	OFF
EMR DIR INTR	EMR DIR INTR: ON OR OFF	OFF
VARIABLE BRAKE	VARIABLE BRAKE : ON OR OFF	OFF
ANTI-TIEDOWN	ANTI-TIEDOWN: ON OR OFF	OFF
POT LOW FAULT	POT LOW FAULT: ON OR OFF	ON
FULL VOLTS	FULL VOLTS: 174 TO 211	204
EMPTY VOLTS	EMPTY VOLTS : 0 TO 211	174
RESET VOLTS	RESET VOLTS: 174 TO 300	210
BATTERY ADJUST	BATTERY ADJUST : 0.1 TO 20.0	20
BDI LOCKOUT	BDI LOCKOUT : ON OR OFF	OFF
BDI DISABLE	BDI DISABLE: ON OF OFF	OFF
ADJ HRS LOW	ADJ HRS LOW: 0 TO 99	0
ADJ HRS MID	ADJ HRS MID: 0 TO 99	0
ADJ HRS HIGH	ADJ HRS HIGH: 0 TO 99	0
SET TOTAL HRS	SET TOTAL HRS: ON OR OFF	OFF
SET TRAC HRS	SET TRAC HRS: ON OR OFF	OFF
HOURMETER TYPE	HOURMETER TYPE: ON OR OFF	OFF
SRVC TOTAL HRS	SRVC TOTAL HRS: 0.0 TO 50.0	0.0
SRVC TRAC HRS	SRVC TRAC HRS: 0.0 TO 50.0	0.0
SRVC TOTAL	SRVC TOTAL : ON OR OFF	OFF
SRVC TRAC	SRVC TRAC: ON OR OFF	OFF
DIS TOTAL HRS	DIS TOTAL HRS: 0 TO 250	0
DIS TRAC HRS	DIS TRAC HRS: 0 TO 250	0
TRAC FAULT SPD	TRAC FAULT SPEED: 0 TO 100	100
BDI LIMIT SPD	BDI LIMIT SPEED: 0 TO 100	100
WARM SPD	WARM SPEED : 0 TO 100	100
MOT WARM	MOT WARM X 10 m : 10 TO 250	250
MOT HOT	MOT HOT X 10 m : 10 TO 250	250
MOTOR COMP	MOTOR COMP: ON OR OFF	OFF
MAX REV REGEN	MAX REV REGEN : 100 TO 300	100
MAX FWD REGEN	MAX FWD REGEN: 100 TO 300	100
MIN REV REGEN	MIN REV REGEN: 100 TO 300	25
MIN FWD REGEN	MIN FWD REGEN: 100 TO 300	25
MAX LOAD VOLTS	MAX LOAD VOLTS: 0.2 TO 5.5	0.2
MIN LOAD VOLTS	MIN LOAD VOLTS: 0.2 TO 5.0	0.2
INT BRAKE DLY	INT BRAKE DLY : 0.0 TO 8.0	0.0
FAULT CODE	ON OR OFF	ON
EMR BRAKE PWM	EMR BRAKE PWM : ON OR OFF	OFF
FIELD CHECK	FIELD CHECK: ON OR OFF	ON
PUMP METER	PUMP METER : ON OR OFF	OFF

SPARE PARTS

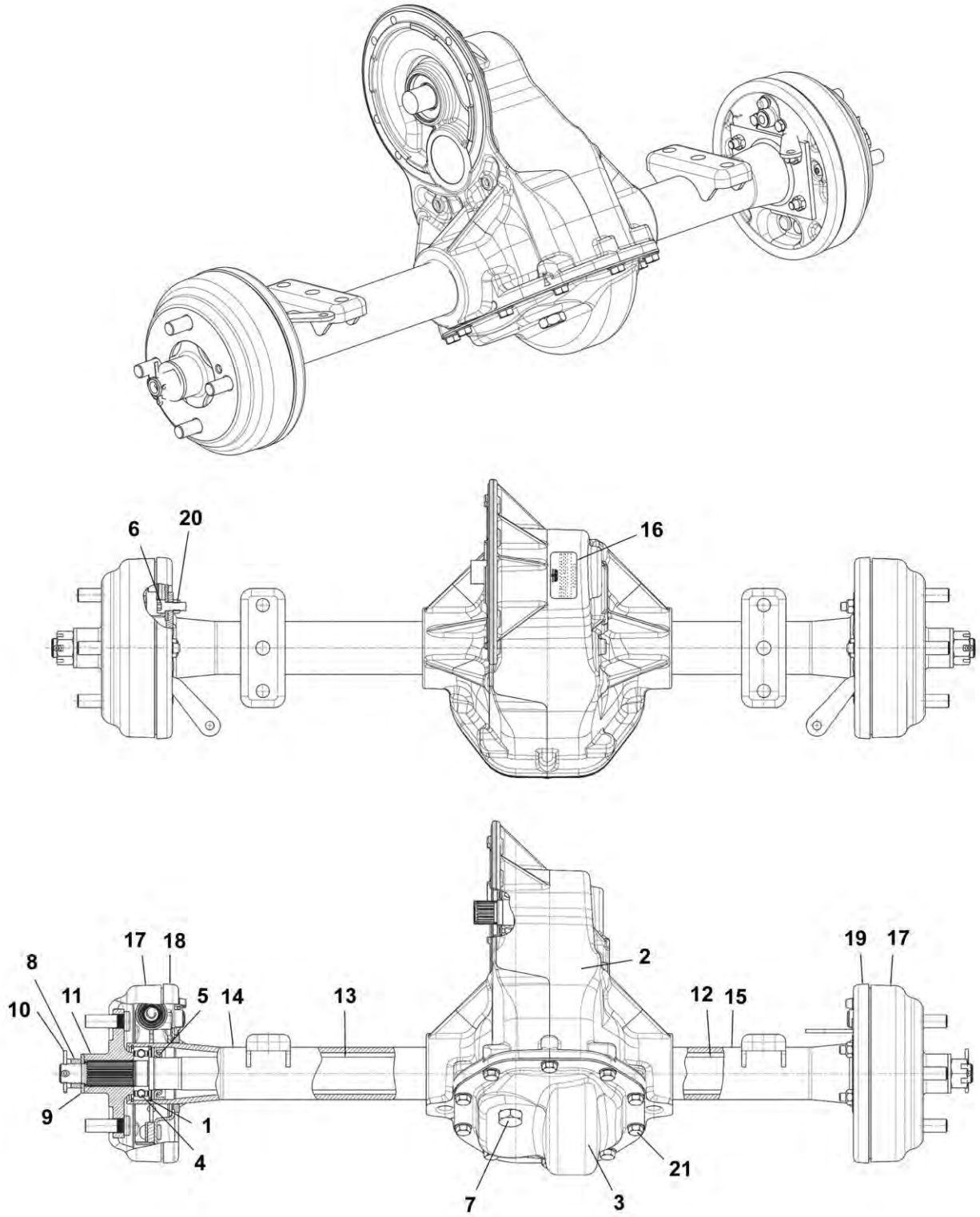
BODY





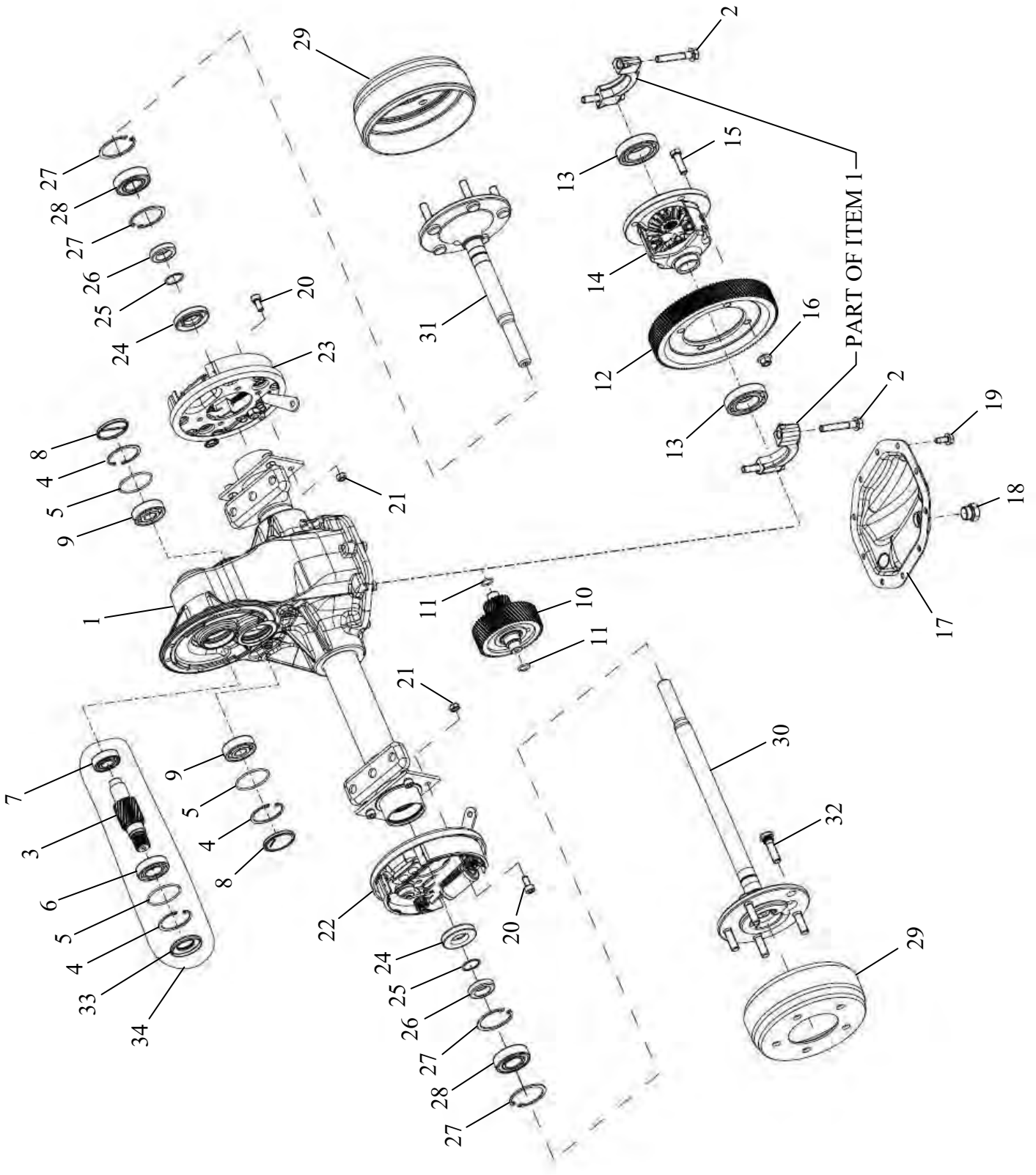
REF.	*PART NO.*	*DESCRIPTION*
1	6107280010	BODY
2	2332280004	CARGO DECK
3	2385100003	BUCKET SEAT
	3109280001	SEAT SWITCH KIT
4	2392210001	PLATE, FOOT SWITCH
	2399210001	SPACER, FOOT SWITCH
5	2500280001	DASHBOARD
6	2314280001	FRONT BUMPER
7	2311000005	RUBBER BUMPER
8	2407010	400X8 WHITE SOFTY WHEEL, 4 BOLT
9	2319280003	BAR
10	2313280014	BUMPER WITH 6-HOLE BOLT PATTERN
	2320300001	CLEVIS HITCH PIN 5/8
11	2199112060	LOCKING GAS SPRING
	2199000002	SUPPORT, GAS SPRING

DIFFERENTIAL



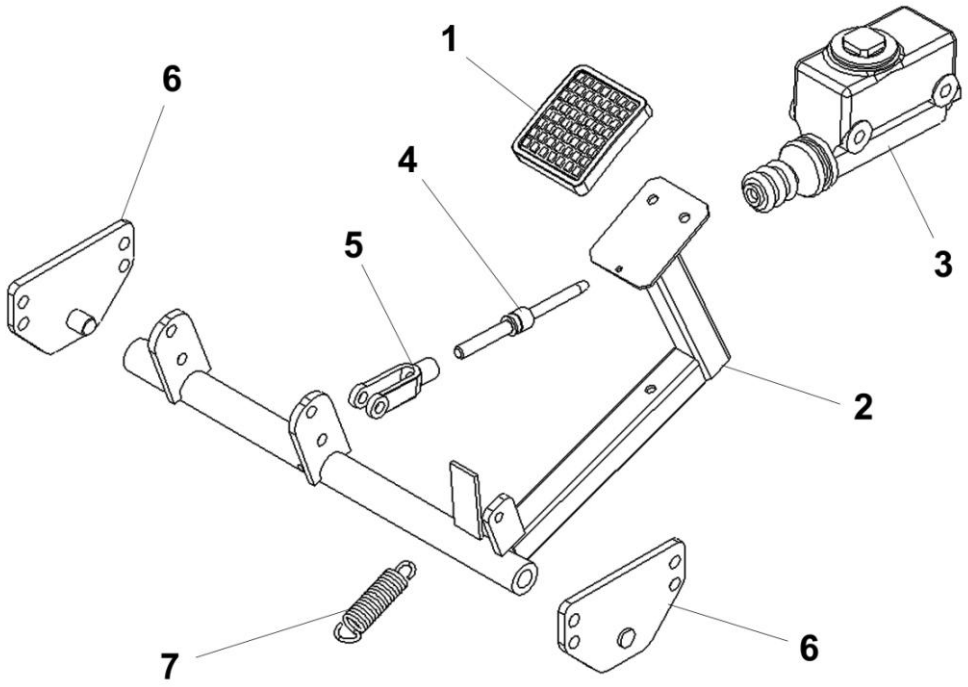
REF.	*PART NO.*	*DESCRIPTION*	*QTY.*
	2170280005	Kit Assembly, Differential	1
1	840293	RING - RETAINING	4
2	012CA227-4X	CARRIER ASSEMBLY - 16.99 RATIO	1
3	012CV121-4	COVER - CARRIER FIN	1
4	012HD106	BEARING - BALL SINGLE6205-2RS	2
5	012HH107	SEAL - OIL	2
6	012HM130-1	SCREW - SOCKET HEADM8-1.5 X 20	8
7	012HN122	PLUG CONSIGNMENT	1
8	012HN123	NUTSLOTTED3/4-16	2
9	012HN157	WASHERBRAKE DRUM	2
10	012HR138	PIN - COTTER	2
11	012HU143-X	HUB ASSY	2
12	012SR189-4	SHAFT-AXLE	1
13	012SR189-5	SHAFT-AXLE	1
14	012TA468-1X	TUBE ASSEMBLY	1
15	012TA468-2X	TUBE ASSEMBLY	1
16	012TG102	TAG-AXLE IDENTIFICATION	1
17	012WA133	DRUM-BRAKE FIN	2
18	012WD129-X	BRAKE ASSEMBLY S/A BPI 4170825	1
19	012WD130-X	BRAKE ASSEMBLY S/A BPI 4170826	1
20	070HN218	NUT - LOCK	8
21	527A6-1	SCREW - HEX TAPPING	10

DIFFERENTIAL

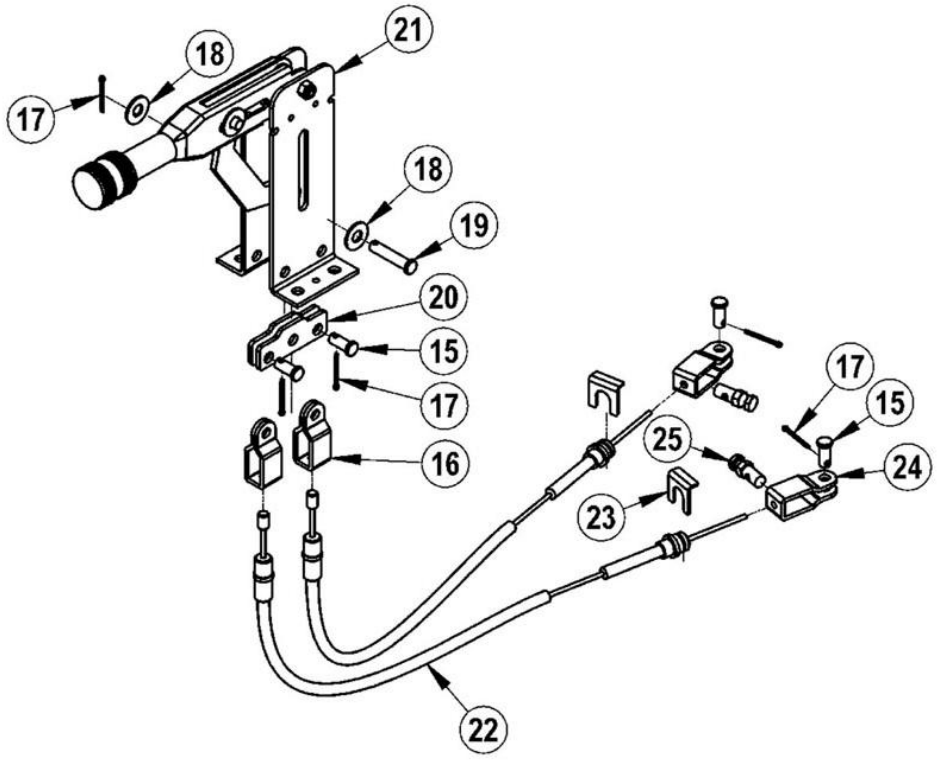


REF.	*PART NO.*	*DESCRIPTION*	*QTY.*
1	012CH259-X	HOUSING, AXLE, SERVICE (INCLUDES 1.2)	1
2	572A10	BOLT, BEARING CAP	4
3	012GS393	GEAR, INPUT	1
4	012HR101	RING, RETAINING	3
5	012HH118	O-RING	3
6	012HD112	BEARING, BALL	1
7	012HD104	BEARING, BALL	1
8	012HG138	PLUG, END CAP	2
9	012HD111	BEARING, BALL	2
10	012GZ150-X	ASSEMBLY, GEAR, INTERMEDIATE	1
11	012HH101	O-RING	2
12	012GS323	GEAR, FINAL DRIVE	1
13	585994	BEARING, BALL	2
14	012DA107-X	ASSEMBLY, DIFFERENTIAL	1
15	012HM129	BOLT, HEX HEAD, FLANGED	4
16	012HN138	NUT, LOCK	4
17	012CV121-4	PLATE, COVER	1
18	012HN122	PLUG, HEX HEAD	1
19	527A6-1	SCREW, TAPPING	10
20	012HM130-3	SCREW, FLANGE HEAD	8
21	070HN218	NUT, LOCK	8
22	4170825	ASSEMBLY, BRAKE (L.H.)	1
23	4170826	ASSEMBLY, BRAKE (R.H.)	1
24	012HH132	SEAL, OIL	2
25	012HR123	RING, RETAINING	2
26	012HR122	RING, RETAINER, WHEEL BEARING	2
27	840293	RING, RETAINING	4
28	012HD106	BEARING, BALL	2
29	012WA114	DRUM, BRAKE	2
30	012SR145-12	SHAFT, AXLE (L.H.)	1
31	012SR145-8	SHAFT, AXLE (R.H.)	1
32	070HM239-1	BOLT, WHEEL	10
33	012HH152	SEAL, OIL	1
34	012LK177	KIT, INPUT SHAFT (INC. 3, 4, 5, 6, 7, 33)	*
35	012GS400	KIT, INTERNAL GEARS (INC. 3, 10, 12)	*
36	012HD124	KIT, BALL BEARINGS (INC. 6, 7, 9, 13)	*
37	012KX103-X	KIT, CARRIER COVER (INC. 17, 18)	*

BRAKE CONTROLS

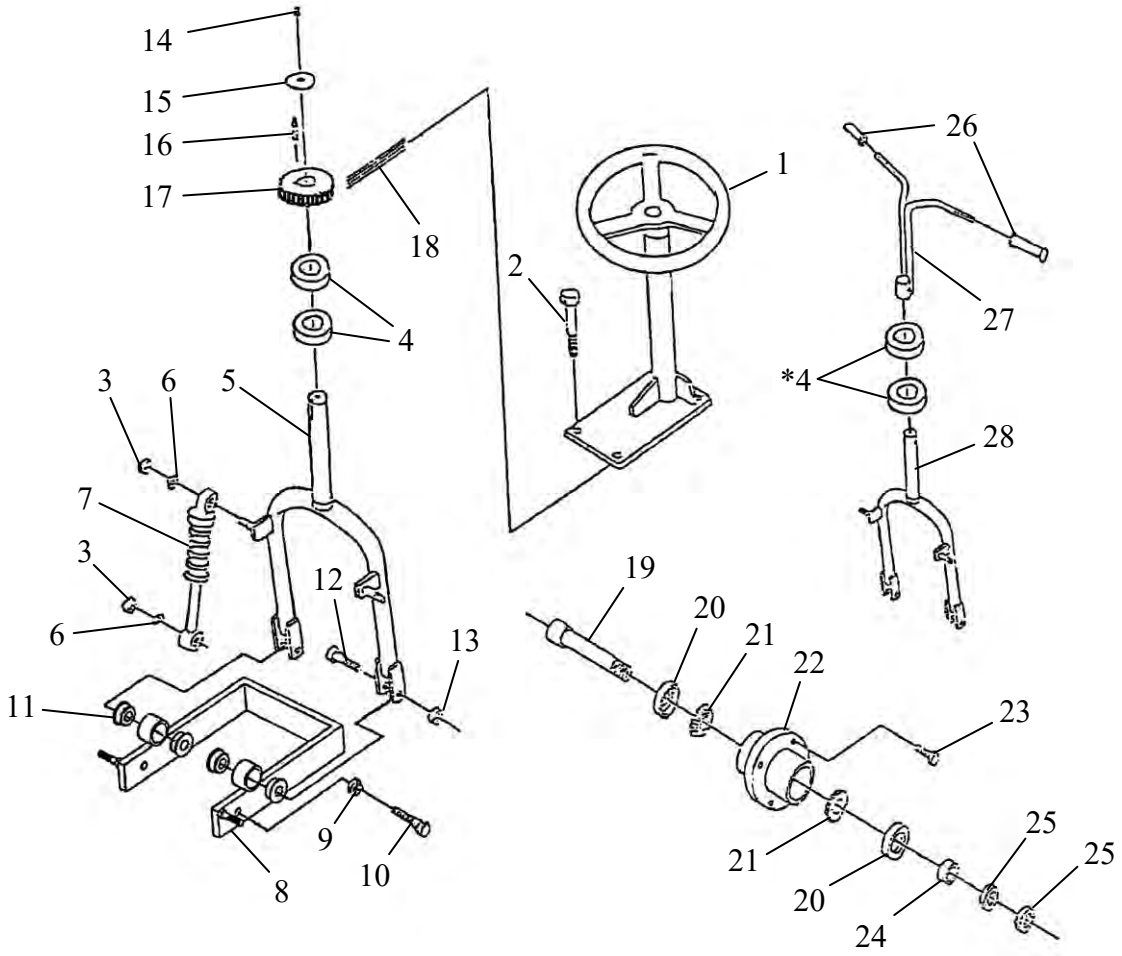


REF	*PART NO*	*DESCRIPTION*	*QTY*
1	2131100002	Rubber	1
2	2131280002	Lever	1
3	2125000008	Master cylinder	1
4	2139280001	Push rod	1
5	2910000015	Yoke	1
6	2132240017	Pivot	2
7	2190000003	Spring	1



REF	*PART NO*	*DESCRIPTION*	*QTY*
15	2910000014	Clevis pin 5/16 x 3/4	
16	2910000016	Yoke	
17		Cotter pin 3/32 x 1	5
18		Flat washer 5/16	1
19	2910000007	Clevis 5/16 x 1-1/2	1
20	2130330001	Handbrake pulling plate	1
21	2139240002	Handbrake lever	1
22	2129000002	Handbrake cable	2
23	2129000001	Clip	2
24	2910000013	Yoke	2
25	2921000001	Cable stop	2

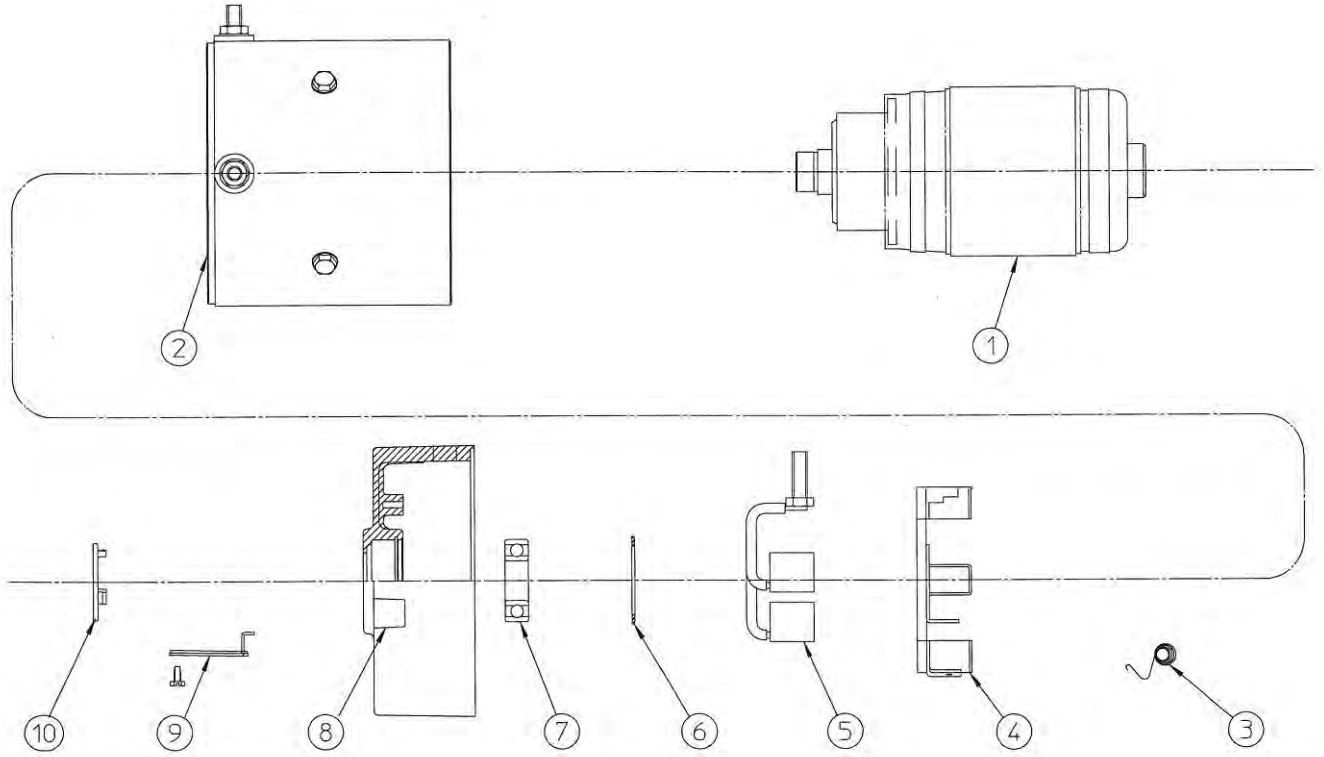
STEERING ASSEMBLY



REF.	*PART NO.*	*DESCRIPTION*
1	241430	STEERING WHEEL ASS.
2		BOLT 3/8-NC X 3
3		LOCKNUT 7/16-NC
4	241406	BALL BEARING (2.44 O.D.)
	281406	BALL BEARING (3.31 O.D.)
5	241427	FORK (2.44 BEARING O.D.)
	2203280001	FORK (3.31 BEARING O.D.)
6		WASHER 7/16
7	2180240001	SHOCK ABSORBER
8	2182280001	SUSPENSION ARM
9		LOCK WASHER ½
10		BOLT ½-NF X 1 ½
11	2440007	NYL-OIL ½ BUSHING, SET FOR 4
12		BOLT 5/8-NC X 3
13		LOCKNUT 5/8-NC
14		BOLT ¼-NC X ¾
15	281424	FLAT WASHER
16		KEY ¼

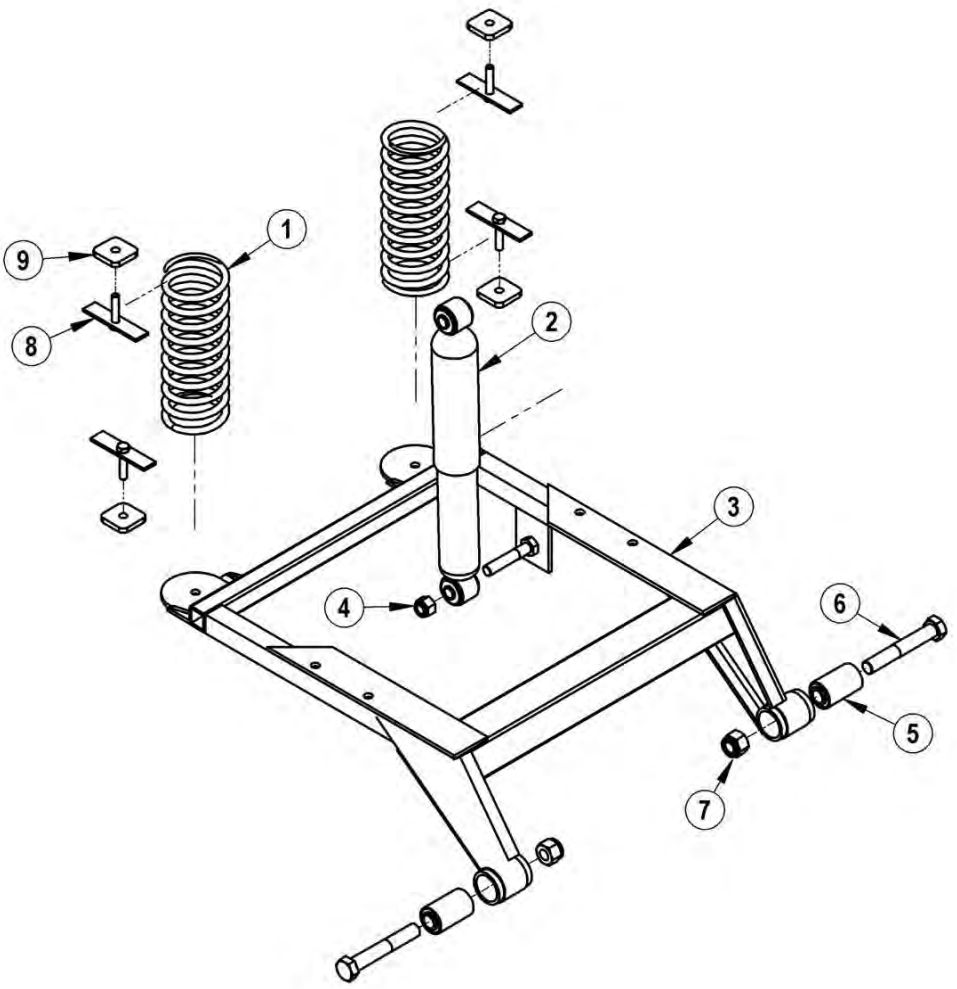
REF.	*PART NO.*	*DESCRIPTION*
17	241431	SPROKET
18	2430010	CHAIN
19	241001	AXLE
20	2104300005	SEAL
21	2103300007	TAPER BEARING
22	241004	HUB, 4 BOLT
	2224280001	HUB, 5 BOLT
23	2910000019	WHEEL BOLT
24	2109240001	BUSHING
25	2910000012	JAM NUT 1-14-NF
26	241402	HANDGRIPS, RIGHT & LEFT
27	2204240006	HANDLE BAR
28	241407	FORK (2.44 BEARING O.D.)
	2203240002	FORK (3.31 BEARING O.D.)

SEPEX MOTOR DD4-4005, KIT No. 3112230001



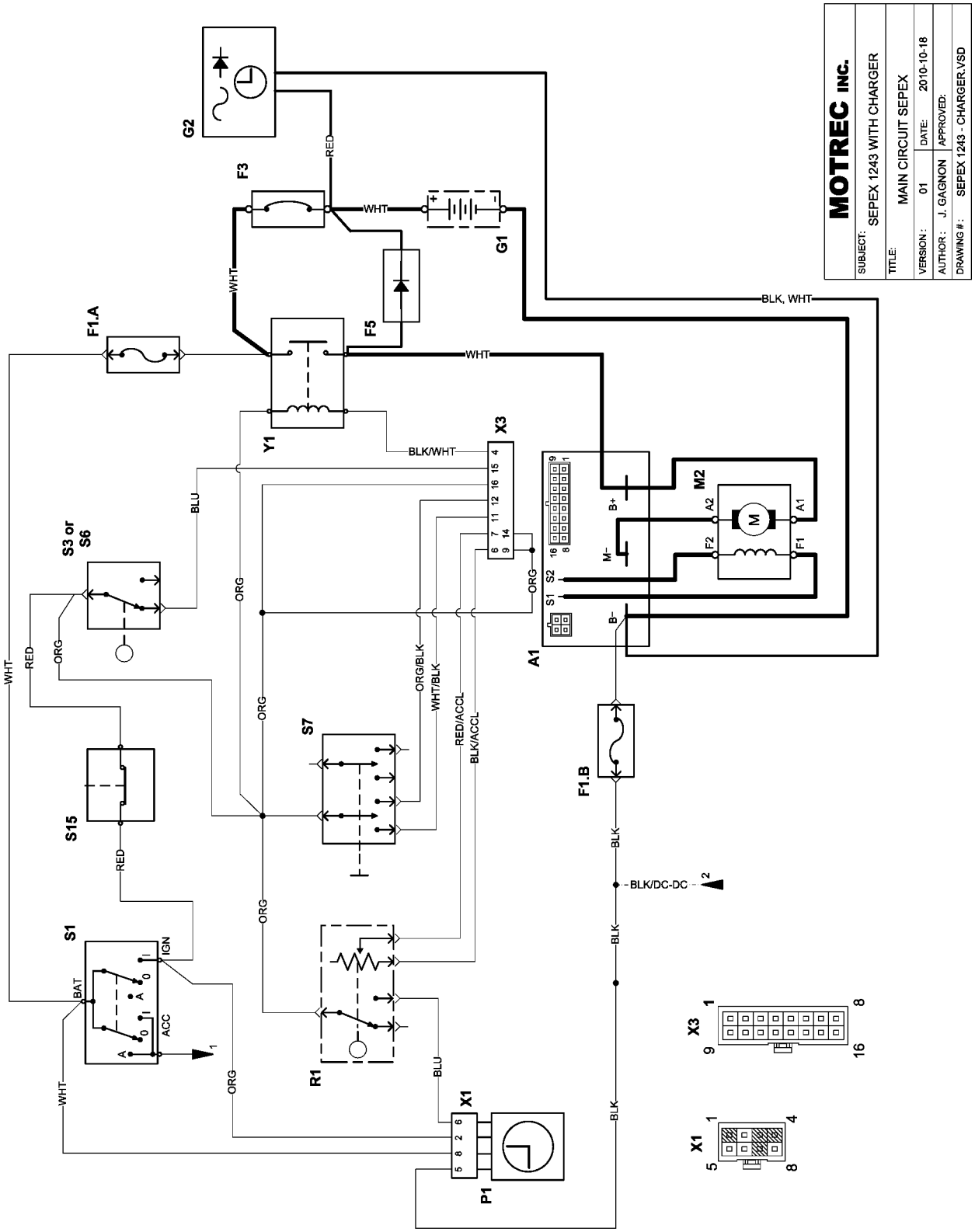
ITEM No.	PART No.	DESCRIPTION
1	**3112230002**	**ARMATURE**
2	**3112230004**	**FRAME & FIELD ASSEMBLY**
3	**2450006**	**BRUSH SPRING**
4	**2450007**	**BRUSH BOX ASSEMBLY**
5	**3112210004**	**BRUSH ASSEMBLY KIT**
6	**484004**	**RETAINING RING**
7	**484003**	**BEARING**
8	**3112230003**	**COMMUTATOR END HEAD**
9	**3112230005**	**COVER PLATE ASSEMBLY**
10	**2450010**	**HOLE PLUG**

REAR AXLE FRAME

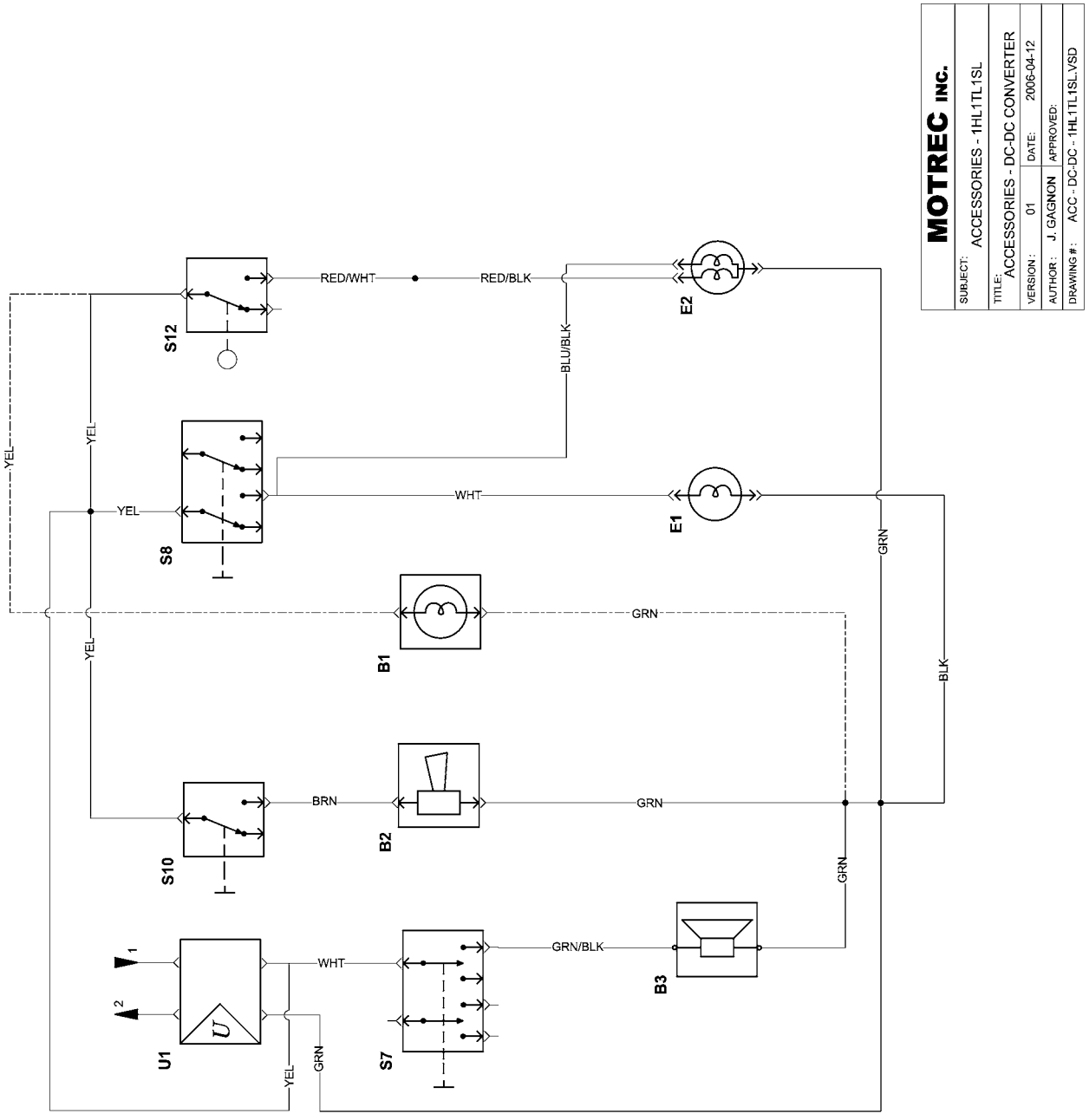


REF.	*PART NO*	*DESCRIPTION*
1	242622	COIL SPRING
2	2180240002	SHOCK ABSORBER
3	2182280004	REAR AXLE FRAME
4		LOCK NUT ½-NC
5	242602	BUSHING
6		BOLT 5/8-NC X 4
7		LOCK NUT 5/8-NC
8		SPRING RETAINER
	242623	BEFORE SERIAL # 1012672 & UP
	2189240002	SERIAL # 1012672 & UP
9	2189240004	CENTERING PLATE

ELECTRICAL DIAGRAM – SEPEX MAIN CIRCUIT
DIAGRAMME ÉLECTRIQUE – CIRCUIT PRINCIPAL SEPEX



ACCESSORIES – DC/DC CONVERTER
ACCESSOIRES – CONVERTISSEUR DC/DC



PARTS LIST

NO	DESIGNATION	REF	QTY
A1	SEPEX SPEED CONTROL	1243-4320	1
B1	STROBE LIGHT	*	1
B2	HORN	*	1
B3	REVERSE ALARM	*	1
E1	HEADLIGHT, SQUARE	*	1
E2	TAIL/BRAKE LIGHT	*	1
F1.A,B	FUSE, 15A	246108K	2
F3	CIRCUIT BREAKER, 150A	3107000002	1
F4.A,B,C	DIODE	367012	3
F5	DIODE BRIDGE	3669027	1
G1	BATTERY		1
G2	BATTERY CHARGER		1
M2	SEPEX MOTOR		1
M3	SERIES MOTOR		1
P1	INDICATOR (BDI), HOUR METER	*	1
R1	ACCELERATOR	2142100001	1
	PLASTIC GEAR	367015	1
	MICROSWITCH	367002	1
	POTENTIOMETER	367003	1
	SPRING	2462008	1
R4	RESISTANCE, 250 OHMS	367014	1
S1	KEY SWITCH	246205	1
S3	SEAT SWITCH, TWIST MOUNT	3109000003	1
	CONNECTOR	3109000004	1
S6	FOOT SWITCH	1269003	1
S7	FORWARD/REVERSE SELECTOR	266211	1
S8	LIGHT SWITCH, ROCKER TYPE	1269004	1
S10	HORN BUTTON	*	1
S12	BRAKE LIGHT SWITCH	246207	1
S15	EMERGENCY PUSH BUTTON	3109800001	1
	EMERGENCY PUSH BUTTON LABEL	3109800006	1
U1	DC-DC CONVERTER		1
X1	HOUR METER CONNECTOR		1
X3	SPEED CONTROL CONNECTOR		1
Y1	MAIN CONTACTOR	3104236001	1
Y2.A,B	F/R CONTACTOR	366217	2
	F/R BUSSBARS	2469003	1
	STATIC STRAP	2450001	1

* Consult Motrec illustrated parts

MOTREC ILLUSTRATED ACCESSORIES

Strobe light, pole mount
Amber 12-80V: 3116000002
Red 12-80V: 2469001
Blue 12-80V: 3690008

Strobe light, cab mount
Amber 12-48V: 3116250001
Red 12-48V: 3069026
Blue 12-48V: 3069014
Amber 72-80V:3116720001
Red 72-80V: 3116720002
Blue 72-80V: 3116720003

Amber turn lamp
12V: 3111000022
Bulb 12V: 3069021
Multi-LED amber turn lamp
Round Light: 3111000010
Grommet: 3111000008
Plug: 3119000009

Amber turn lamp 2”
12V : 3111330002

Amber turn lamp 2” LED white background
12V : 3111330003

Red Tail/Turn/Rev light
12V: 3111000002

Red Tail/Brake light
Grommet: 3269001
Plug: 246012A
12V : 2469021
24V : 2469022

Red Tail/Brake light
** Model EE **
Assembly: 3111000030
Housing: 3111000027
Plug: 3111000029
12V : 3111000028

Red Tail/Brake light
Housing: 3111000041
Red Tail/Brake light
Housing LED: 3111000044
Bulb 12V: 3117240001
Bulb 12V LED: 3117000010

Multi-LED Red Tail/Brake
Light: 3111000006
Grommet: 3111000008
Plug: 3119000009

Red Tail/Brake light
12V: 386002

Red Tail/Turn LED light
12-24V: 3111000037

Red Tail/Turn LED light
12-24V: 3111000037

Clear lamp Incandescent
12V: 3111000039
Clear lamp LED 12V:
3111000042
Bulb incandescent 12V :
1269008
Bulb 12V LED:
3117000001

Oval lamp
12V: 3111330001

LED Headlight
12V: 3111000036

Headlight
Left: 3111480003
Right: 3111480004
Bulb H/L: 3111480006
Bulb Turn: 3111480008
Bulb Mark: 3111480007

Headlight
Left: 3111480003
Right: 3111480004
Bulb H/L: 3117480001
Bulb Turn: 3117480003
Bulb Mark: 3117480002

Multi-LED Back-up
Light: 3111000007
Strobe light: 3111000013
Grommet: 3111000008
Plug: 3119000009

Back-up lamp
Grommet: 3269001
12V: 3669012
24V: 3669012A

Pedestal head lamp
12V: 3111240001
Bulb 12V: 2569001B
Bulb 24V: 2169001B

Pedestal head lamp - LED
12-48V: 3111000034

Headlamp 12V:3111250007

Headlamp
12V: 3111300001
Bulb 12V: 3111300002

Analog Voltmeter
12V : 3069007
24V : 2469002
36-48V : 3669002

HOBBS Gauge
24V: 2469026
36V: 3069038
48V: 4869037

DC-DC converter, 10A
12-48V: 3069019

DC-DC Converter, 25A
12-48V: 3124000002
72-80V: 3124880001

DC-DC Converter, 300W
24V: 3124224001
36-48V: 3124280001
72-80V: 3124880001

CONNECTOR:3124280002

Wiper motor
12V: 3113000001
24V: 486211

Wiper arm 2800000001

Wiper blade
14” Blade: 2800000002
18” Blade: 2800000003

Pantograph wiper arm
246233A

Pantograph wiper blade
246233

Limit switch 3109000029

Cab heater
12V: 3103300001
36V: 3669008
48V: 4869020

12V Dome light 3669006

12V Fan 3669013

Back-up alarm or
Motion beeper
12-48V : 3100000001
72-80V : 3105720001

12-24V Adjustable ECCO:
3100000002

12-48V Adjustable PRECO:
3100000004

Red Pilot light
12V: 246212
Bulb 12V: 246212B

Horn
12V: 246003
24V: 246013

Horn button VIP
2208224002

Horn button, column mount
3109000011

Horn button, dash mount
266210

Horn button 3109250001

Turn signal switch 246050

BATTERY DISCHARGE INDICATOR (HOBBS)

This indicator monitors :
- the residual capacity of batteries;
- operating hours;
- status of service down counter.

The residual capacity of the battery is monitored via an 8-LED bar display. When the left red LED lights, the batteries must be charged to avoid damage. The LED display starts flashing as a pre-warning signal. The lower voltage limit is adjustable via potentiometer “M” on the rear.

A	B	C	D	E	F	G	H	I	J	K
1,57	1,63	1,68	1,73	1,78	1,82	1,84	1,86	1,89	1,91	1,93

In order to activate a new adjustment, the unit has to be reset :
- 2.35V/cell reset voltage with battery remaining in vehicle;
- 2,09V/cell reset voltage after battery has been disconnected.

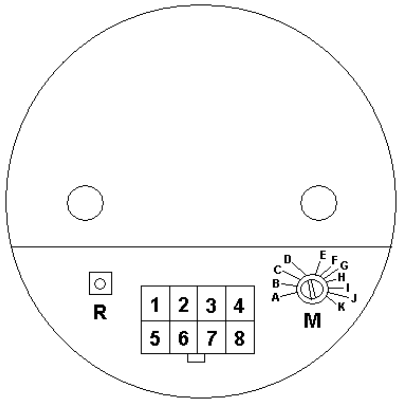
To maintain a good battery performance, it is recommended to limit the discharging to 80% of the battery capacity. The recommended setting for 6V batteries is F and the recommended setting for an industrial battery is K.

An internal relay can prevent overdischarging and damaging the batteries. The relay can be wired to cut off the reverse direction, or energize an N.C. relay and alarm.
Turning off and on the vehicle will override the protection for 30 sec.

The current status (remaining operating hours before maintenance) of the service down counter is indicated for a period of 5 seconds after the key switch is turned on. When it is down to 0, the display flashes. After the maintenance, reset the counter: depress the button “R” on the rear. The service counter is factory programmable only.

24V UNIT #: 2469026
36V UNIT #: 3069038
48V UNIT #: 4869037

2- Orange, key switch
3- Relay +
4- Relay -
5- Black, battery –
6- Blue, hour counter
8- White, battery +



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BE Professional 4000 PSI (Gas-Cold Water) Pressure Washer w/ CAT Pump & Honda GX390 Engine

Our Price | Shipping Info

Model: P4013HJS

★★★★★ (1)

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$1,528.99

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Portable

Stationary


Wall Mount


How To Pick A Medium

0.0 ★★★★★
No rating available

Description

Grade	Style	Water Pressure	Water Flow	Cleaning Speed	Engine
		4000 PSI	4 GPM	16000 Cleaning Units	Honda GX

Features

Ideal for Estates, Farms, & Light Commercial Applications

- High quality pressure washer components save time & money

Honda 13-HP GX 390 Engine

- Commercial grade engine starts easily, runs quietly
- CAT 66DX Triplex Plunger Pump
- 4 gallons per minute cleans quickly and economically
- Adjustable pressure lets you suit the water force to the task

Durable Powder Coated Steel Frame

- Anti-vibration rubber foot prevents creeping during operation
- Frame cut-outs to easily change engine oil

Specifications

Engine

Engine Brand	Honda GX
Starter	Recoil
HP	13 HP
CC	390 CC
Fuel Tank Size	1.6 Gallons
Consumer Engine Warranty	3 Years

Pump

Portable

Stationary

Wall Mount

Hose Length	50 Feet
Hose Material	Rubber
Hose Diameter	3/8 Inch
Hose Connections	Quick-Connect

Spray Gun

Spray Gun Connection	Quick-Connect
Spray Gun Grade	Professional
Spray Gun Wand	Single Wand
Spray Tips	Quick Connect Tips (4)
Turbo Nozzle	Sold Separately

Overview

Weight	125 Pounds
Made in USA	No
Consumer Warranty	1 Year
Commercial Warranty	90 Days
Product Length	27 Inches

Portable

Stationary

Wall Mount

BE Professional 4000 PSI (Gas-Cold Water) Pressure Washer w/ CAT Pump &

★★★★★ (1 Reviews)

$1,528.99

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★★★★½ (24 Reviews

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2200-2500 PSI

How To Pick A Medium

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Jim,
Pressure Washer Expert

0.0 ★★★★★
No rating available

MOBILE FUME EXTRACTOR – MFD (DISPOSABLE FILTER)

From CAD $3,642.00

FREE SHIPPING

- Mobile Welding Fume Extractor – Disposable Filter
- 115 Volt Single Phase 60 Hertz
- Includes 14' Extraction arm with Auto Start/Stop and spot light
- LongLife filter 538 Square Feet of Filter Media
- Airflow at the hood 736 CFM

Color Red

High Efficiency Yes

- High Efficiency (MERV 16 Rated) for stainless steel welding applications

The MFD/HE ULTRA is a high-efficiency (MERV 16) unit designed to meet more stringent local air and filtration quality standards required in applications such as stainless steel welding or removal of Hexavalent chrome.

CAD $4,014.00

Welcome! Need help with choosing a fume extractor?

1

- 1 +

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SKU: 111937
Categories: Mobile Extractors, Mobile Extractors - Disposable Filters

Description Additional information Product Includes Applications Specifications

SPECIFICATIONS

FILTER SURFACE AREA

- Pre-filter: 5.83 ft2 (0.5 m2)
- DuraFilter main filter: 538 ft2 (50 m2)

PERFORMANCE

- 1 HP (.75 kW) motor

Net extraction capacity

- 736 CFM (1250 m3/h)

NOISE LEVEL ACCORDING TO ISO 3746

- 69 dB(A)

WEIGHT (NET)

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Mobile Welding Fume Extractors

Stationary Welding Fume Extractors

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Custom Solutions

CONTACT INFO

1-866-782-2601

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1

STERIS®

AMSCO AUTOMATED PASS-THROUGH WINDOW

APPLICATION

The **AMSCO Automated Pass-Through Window** for Central Sterile Services Departments (CSSD) is an automated window that allows devices that cannot be processed in a washer/disinfector to be passed from decontamination side to clean side of the CSSD (or vice-versa, if a device was not correctly re-processed) prior to being prepared for sterilization.

The **AMSCO Automated Pass-Through Window** for Endoscopy (ENDO) is an automated window that facilitates unidirectional flow of devices from decontamination to reprocessing or from reprocessing to storage in an endoscopy area.

DESCRIPTION

The AMSCO Automated Pass-Through Window is an inline vertical lift window with a single operable (movable) panel and a single non-operable (fixed) panel, an integral continuous stainless steel shelf with a microwave no-touch sensor plate for opening and closing. All windows are fully assembled and ready to install.

STANDARD FEATURES

The AMSCO Automated Pass Through Window is constructed from anodized aluminum extrusions, close-tolerance moving parts and tempered glass. All frames have a clear anodized aluminum finish, fastened with screws, joints are sealed and ¼" (6.4mm) clear tempered glass is dry glazed. All moving panels are guided using industry proven dual rope and counterbalance system.

The Shelf has been developed specifically for the needs of this window. The shelf extends 25" (635mm) on either side of the window along the full width of the window (CSSD Models) or 4" (102mm) on the decontamination side and 25" (635mm) on the clean side of the window (ENDO Models). The continuous shelf provides a smooth surface through the window. The shelf is secured by two stainless steel brackets under the shelf on each side of the window (total of four brackets).

The Window features automated opening and closing activated by a microwave, no-touch, sensor plate located on each side of the window at the edge of the shelf. Operation of the motorized window ensures that opening and closing of the window is hands-free.

STANDARDS

The AMSCO Pass-Through Window meets the applicable requirements of the following standards:

- Underwriters Laboratories (UL) Standard 73.
- Canadian Standards Association (CSA) CAN/CSA-22.2 No. 68.

The Selections Checked Below Apply To This Equipment

CSSD MODELS*

- ❑ (PTWAMDR1100)
  Window Width = 28" (711mm)/Height = 45" (1143mm), 120V
  Shelf extends 25" on either side of window
- ❑ (PTWAMDR2100)
  Window Width = 34" (864mm)/Height = 45" (1143mm), 120V
  Shelf extends 25" on either side of window
- ❑ (PTWAMDR3100)
  Window Width = 40" (1016mm)/Height = 45" (1143mm), 120V
  Shelf extends 25" on either side of window

ENDO MODELS*

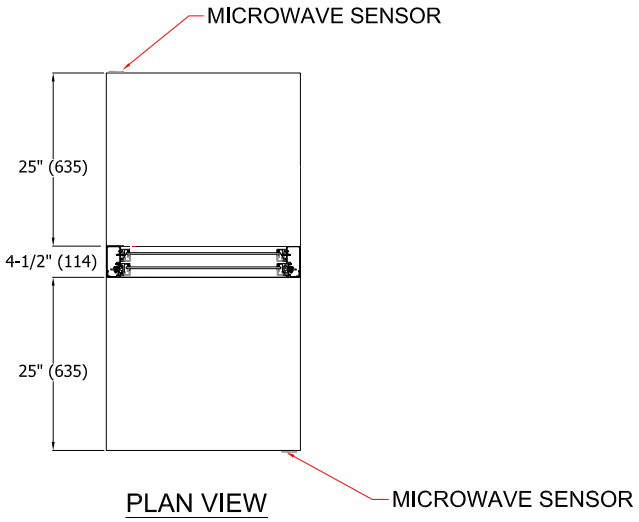
- ❑ (PTWAENDO1100)
  Window Width = 28" (711mm)/Height = 45" (1143mm), 120V
  Shelf extends 25" on one side of window and 4" on other side.
- ❑ (PTWAENDO2100)
  Window Width = 34" (864mm)/Height = 45" (1143mm), 120V
  Shelf extends 25" on one side of window and 4" on other side.
- ❑ (PTWAENDO3100)
  Window Width = 40" (1016mm)/Height = 45" (1143mm), 120V
  Shelf extends 25" on one side of the window and 4" on other side.

Item _____

Location(s)_____

_____

MDR/CSSD Models

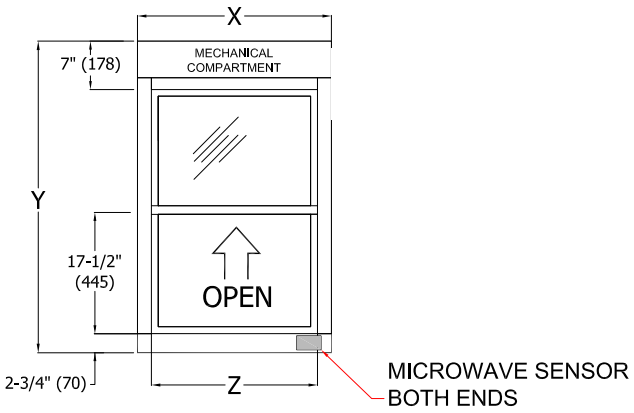


PLAN VIEW

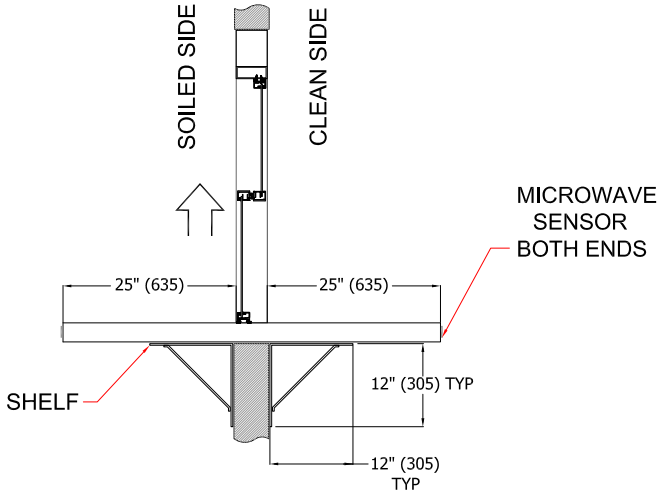
SPECIFICATIONS

– FRAME: 6063 T5 TEMPER CUSTOM ALUMINUM EXTRUSIONS
– FINISH: CLASS II CLEAR ANODIZED ALUMINUM
– GLASS: 1/4" (6.4) CLEAR TEMPERED GLASS
– AUTOMATIC OPEN / CLOSE
– DUAL MICROWAVE SENSOR ACTUATION FROM INTERIOR AND EXTERIOR SIDE
– 304 STAINLESS STEEL SHELF, BRUSHED FINISH

DIMENSIONS IN ( ) ARE METRIC, MILLIMETERS



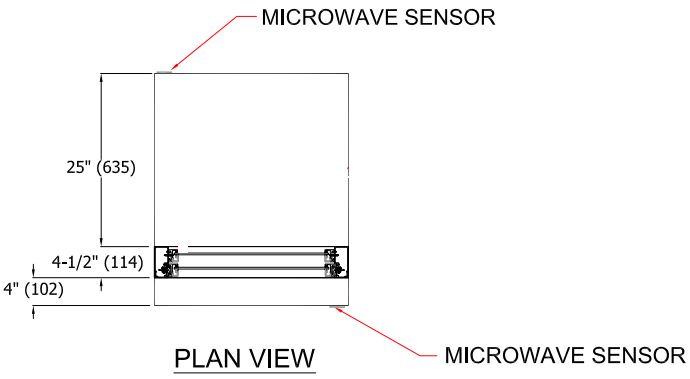
INTERIOR ELEVATION



SECTION VIEW

FINISHED OPENINGS, SERVICE WIDTHS & WEIGHTS FOR MDR / CSSD WINDOWS					
UNIT	X FINISHED OPENING WIDTH	Y FINISHED OPENING HEIGHT	Z SERVICE WIDTH	SHIPPING WEIGHT (LBs, Kg)	OPERATING WEIGHT (LBs, Kg)
PTWAMDR1100	28-1/4" (718)	45-1/4" (1149)	24" (610)	315, 142	270, 122
PTWAMDR2100	34-1/4" (870)	45-1/4" (1149)	30" (762)	335, 151	280, 127
PTWAMDR3100	40-1/4" (1022)	45-1/4" (1149)	36" (914)	375, 170	300, 136

ENDO Models



PLAN VIEW

SPECIFICATIONS

– FRAME: 6063 T5 TEMPER CUSTOM ALUMINUM EXTRUSIONS
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– DUAL MICROWAVE SENSOR ACTUATION FROM INTERIOR AND EXTERIOR SIDE
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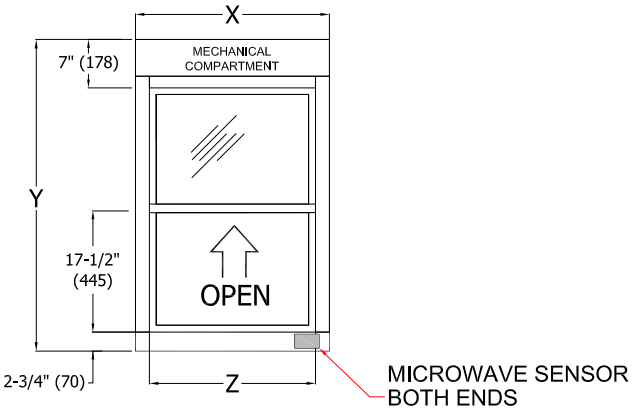
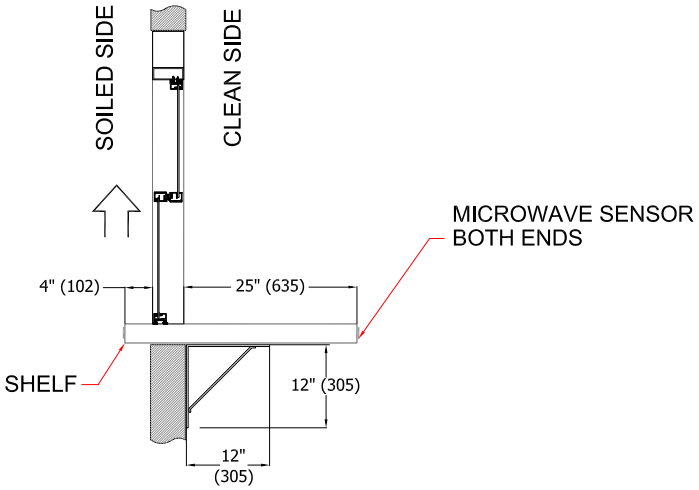
DIMENSIONS IN ( ) ARE METRIC, MILLIMETERS



INTERIOR ELEVATION



SECTION VIEW

FINISHED OPENINGS, SERVICE WIDTHS, & WEIGHTS FOR ENDO WINDOWS					
UNIT	X FINISHED OPENING WIDTH	Y FINISHED OPENING HEIGHT	Z SERVICE WIDTH	SHIPPING WEIGHT (LBs, Kg)	OPERATING WEIGHT (LBs, Kg)
PTWAENDO1100	28-1/4" (718)	45-1/4" (1149)	24" (610)	280, 127	250, 113
PTWAENDO2100	34-1/4" (870)	45-1/4" (1149)	30" (762)	300, 136	260, 118
PTWAENDO3100	40-1/4" (1022)	45-1/4" (1149)	36" (914)	350, 159	275, 125

For Further Information, contact:

STERIS®

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