

# Access™ 450

## with Access Dedicated Wire Feeder

Issued June 2003 • Index No. DC/33.0

Digital Semi-Automatic  
MIG Welding System 

### Quick Specs

#### Manufacturing Applications

Automotive Components  
Construction Equipment  
Recreational Vehicle  
Farm Machinery

#### Fabrication Applications

Custom Jobs Shops  
Piping Systems

#### Processes

##### Multi-MIG

Accu-Pulse MIG (GMAW-P)  
Pulsed MIG (GMAW-P)  
Metal Core  
MIG (GMAW)

RMD (GMAW-SCT) *Optional*

**Rated Output** 450 A at 44 VDC, 100% Duty Cycle  
(460 VAC, 3-Phase)

**Voltage Range** 10–44 V

**Auxiliary Power** 120 VAC, 10 A Duplex

**Ship Weight** 150 lb (79.5 kg)

## The Power of Blue.®

Digital control technology combined with inverter welding power source. Designed to reduce complexity of a semi-automatic pulsed MIG system, simplify installation and provide superior welding performance.



**Flexible, expandable and upgradeable!** Precise, digitally controlled, software-driven **Multi-MIG** capable welding system.

“Access” the ability to accommodate welding data file exchange through downloadable upgrades and new hybrid welding processes using e-mail or Palm handheld (PDA).

### HARDWARE

Miller's exclusive patented **Auto-Line™** technology allows for **any** primary input voltage or frequency worldwide between 190 and 600 V. Automatically adjusts with no manual linking. Assures rock-solid, consistent output even on fluctuating primary lines.

Separate **9-pin Palm™ handheld (PDA) and 9-pin RS-232 serial communication port** provide Access with data transfer and optional program downloads.



Access four-drive-roll wire drive feeder is combined with operator interface leaving no controls back at the power supply. Provides positive feeding for the appropriate pre-programmed wire diameters from 50 – 1400 IPM.



Photo for reference only (subject to change).

### SOFTWARE

**Multi-MIG** process capabilities include common carbon steel, aluminum and stainless welding programs including new, patented **Accu-Pulse™** standard or adaptive pulse, conventional MIG and metal core programs using the most popular wire diameters and gas combinations.

**Accu-Pulse** MIG process delivers precise control of the arc even over tack welds and in tight corners. Accu-Pulse provides optimum molten puddle control for out-of-position welding.

**Sharp Start™** feature provides consistent arc starts by electronically assuring a ball is not left on the wire when welding is stopped. This provides a predictable condition for the next arc start.

**Optional Access-able software:**  
RMD (Regulated Metal Deposition)  
Palm Access file management system  
WaveWriter™ Palm pulse wave shaping



Power source is warranted for 3 years, parts and labor.

DESIGNED **USA**  
AND BUILT IN **USA**



**Miller Electric Mfg. Co.**  
An Illinois Tool Works Company  
1635 West Spencer Street  
Appleton, WI 54914 USA

**International Headquarters**  
Phone: 920-735-4505  
USA FAX: 920-735-4134  
Canadian FAX: 920-735-4169  
International FAX: 920-735-4125

**Web Site**  
www.MillerWelds.com



# Additional Features

## HARDWARE

<b>1/4-turn steel connectors</b>	Allow for faster installation of system and reduces thread stripping.
<b>Wind Tunnel Technology™</b>	Circulates air over components that require cooling, not over electronic circuitry, which reduces contaminants and improves reliability.
<b>115 VAC duplex receptacle</b>	Provides 10 amp circuit-breaker-protected auxiliary power, regardless of primary power.
<b>Lifting eyes and forklift holes</b>	Provide for easy transportation.
<b>Fan-on-Demand™</b>	Cooling system operates only when needed. Reduces amount of airborne contaminants pulled through the machine.

## SOFTWARE

<b>Trigger program select</b>	Allows changing weld programs from gun trigger to take advantage of up to 8 programs of Multi-MIG welding process capabilities.
<b>Dual schedule</b>	Toggle between two settings using a single wire.
<b>2T and 4T</b>	When trigger is released, output will operate at different ranges.
<b>SureStart</b>	Wire-specific algorithms combined with SharpStart to fine tune the exact energy required to initiate the arc.
<b>IMPROVED! SharpArc®</b>	Control offers a simple way to tailor factory pulse weld programs by adjusting the arc plasma cone to accommodate a variety of welding applications without the need for any reprogramming or changing any hardware.

## Multi-MIG Process Capability

“Access™” the ideal welding process for any weld joint at hand. Whether you need high travel speed combined with high deposition rates or require gaps to be filled, any combination of the available welding processes can be “Access”-ed either at the start of a welding sequence or

anywhere in the weld while actually welding by using trigger program select.

For a given wire-feed speed, the following shows from left (hottest) to right (coolest) all the possible arc mode transfer ranges of “Access”-able MIG processes. This shows

compatible spray gas combinations such as 90 Ar/10 CO<sub>2</sub> (90% Argon and 10% Carbon Dioxide) on steel using the same wire-feed speed and also gives an indication of puddle control characteristics based on arc type selected.

Process	Standard Spray	Pulsed Spray	Accu-Pulse™	Standard Short Circuit	RMD™ Regulated Metal Deposition (Optional)
<b>Weld Puddle Control</b>	<b>Flat/Horizontal</b>	<b>All Position Performance</b>		<b>Thin Materials/Gap Filling</b>	

## Access 450

Rated Output	Voltage Range	Amperage Range in CC Mode	Max. Open-Circuit Voltage	Amps Input at Rated Output, 50/60 Hz						Dimensions	Ship Weight
				230 V	400 V	460 V	575 V	KVA	KW		
450 A at 44 VDC, 100% Duty Cycle	10–44 V	5–600 A	85 VDC	52	29	26	20	19.8	19	H: 41 in (1041 mm) W: 15-1/2 in (394 mm) D: 22 in (559 mm)	150 lb (79.5 kg)

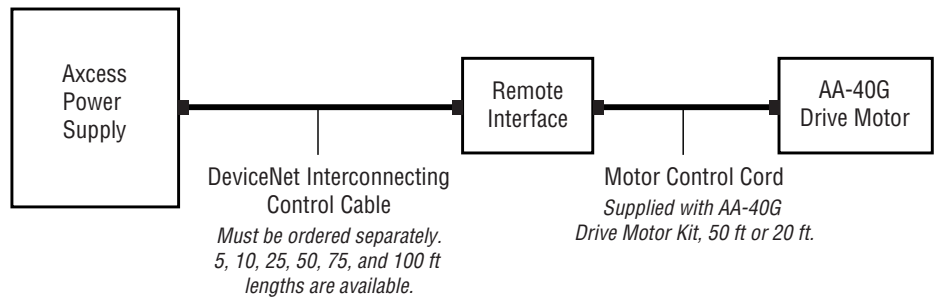
## Access Wire Feeder/Operator Interface (Bench/Sled)

Gas Valve	Type of Input Power	Interconnect Cable	Wire Feed Speed Range*	Wire Diameter Range	Dimensions	Ship Weight
Included	40 VDC (from Access 450)	Order separately, not supplied	50–1400 IPM (1.3–35.56 MPM)	.030–3/32 in (0.8–1.6 mm)	H: 14-1/2 in (368 mm) W: 12-1/2 in (318 mm) D: 27 in (686 mm)	49 lb (22 kg)

\*This is the wire feed speed range while using MIG. With pulsed MIG, the wire feed speed range may be more limited.

## Remote Interface Option

Allows feeder motor drive to be placed away from power supply and operator interface. Ideal for fixed automation applications and updating or replacing equipment on booms.



## Access 450

Rated Output	Voltage Range	Amperage Range in CC Mode	Max. Open-Circuit Voltage	Amps Input at Rated Output, 50/60 Hz						Dimensions	Ship Weight
				230 V	400 V	460 V	575 V	KVA	KW		
450 A at 44 VDC, 100% Duty Cycle	10–44 V	5–600 A	85 VDC	52	29	26	20	19.8	19	H: 41 in (1041 mm) W: 15-1/2 in (394 mm) D: 22 in (559 mm)	150 lb (79.5 kg)

## AA-40G Wire Feed Motor with Volt-Sense Kit (Optional. To be used with remote operator interface.)

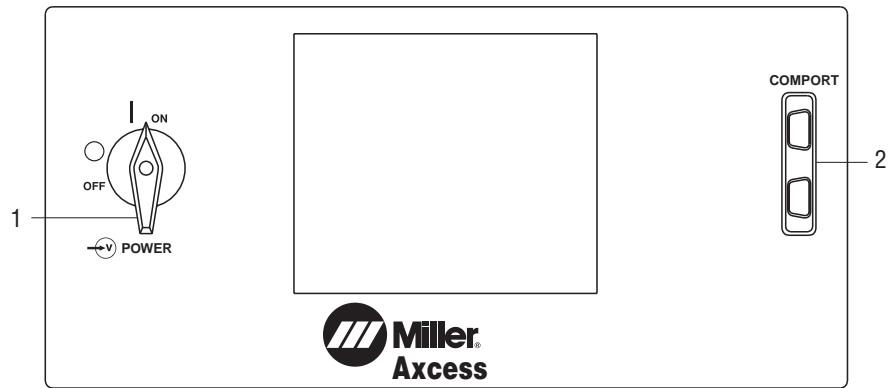
Gas Valve	Type of Input Power	Interconnect Cable	Wire Feed Speed Range*	Wire Diameter Range	Dimensions	Ship Weight
Included and enclosed	40 VDC (from Access 450)	50 ft (15.2 m) or 20 ft (6.1 m)	50–1400 IPM (1.3–35.56 MPM)	.030–3/32 in (0.8–1.6 mm)	H: 10 in (254 mm) W: 12 in (305 mm) D: 15 in (381 mm)	33 lb (15 kg)

\*This is the wire feed speed range while using MIG. With pulsed MIG, the wire feed speed range may be more limited.

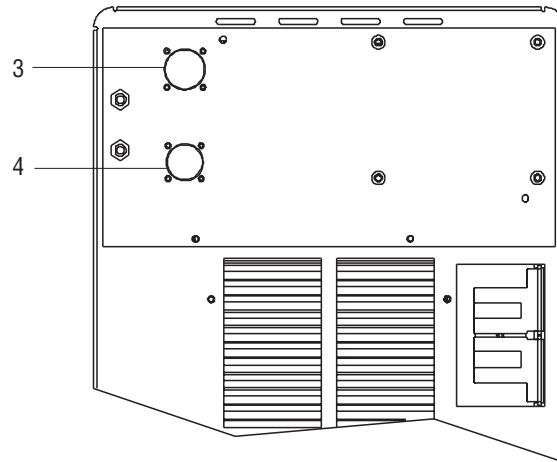
## Remote Operator Interface (Detachable) (Optional.)

Type of Input Power	Connector to Motor	Connector to Power Source	Dimensions	Ship Weight
Supplied from power source	Supplied with Motor Kit (20 ft or 50 ft)	10-pin DeviceNet Feed Control 5, 10, 25, 50, 15, and 100 ft (Order separately)	H: 11 in (279 mm) W: 12 in (305 mm) D: 15 in (381 mm)	11 lb (5 kg)

## Access 450 Front Panel

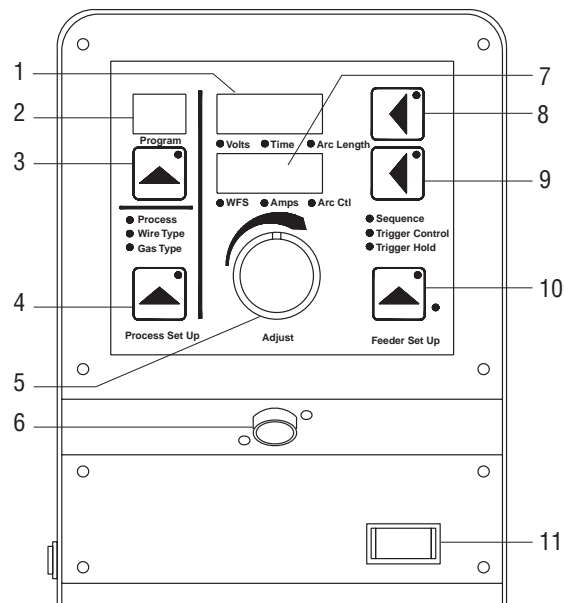


## Access 450 Rear Panel



1. Power Switch
2. Palm™/PC RS-232 Port
3. Motor Connector
4. DeviceNet Connector (Optional)

## Access Feeder Operator Interface



1. Voltage/Arc Length Display Meter
2. Program Display
3. Program # Select
4. Process Setup Button
5. Control Knob
6. Trigger
7. Wire Speed/Amperage Display Meter
8. Voltage Setup Button
9. Wire Speed Setup Button
10. Feeder Setup Button
11. On/Off Button

## Software Options – Palm OS® Based

Note: Either Access™ File Management or WaveWriter™ is required to download software upgrades. One license per Palm™ handheld.

### Access™ File Management

#### #195 249

Simply put, the new Miller Palm OS-based file management software turns a standard Palm™ handheld (PDA) into a data card and a remote pendant control for all Access systems. This is in addition to all other functions a Palm is typically used for. By using a Palm handheld in this manner, we have built a powerful intuitive interface on a common affordable, portable platform. This opens the door to functions and capabilities not previously available from Miller or from the welding industry as a whole.



With Miller's Palm Access File Management installed on your Palm "m" Series you can:

- E-mail Access files anywhere worldwide
- Configure any Access system as desired
- Configure multiple Access systems exactly the same or any way you choose
- Save and store Access files
- Transfer Access files to computers
- Transfer Access files from machine to machine
- Backup Access files and programs
- Set-up and modify Access welding sequences
- Adjust and store welding program Locks & Limits for restricting or limiting operator "Access" to programs
- Enable Auto-Thread™ feature to program torch length into Access memory. When a combination of purge and jog are depressed, the Access feeding system delivers exact programmed length of wire.

There are 3 basic types of files:

- 1) **Programs** – Contain all the welding data that create an arc: volts, amps, wire feed rates, wire type, size, gas and appropriate arc control. They also contain all the time-based functions typically used in welding: pre-flow, start conditions, ramps, crater fill, retract, and post-flow.
- 2) **Configuration** – Files contain Locks, Errors and Feeder information. Configuration enables error messages, trigger hold, dual schedule, 4t and remote program select to be selected. It also allows for checking software revisions and arc/ cycle time data. Using configuration you can set Auto-Thread torch length allowing for pushbutton feed of an exact wire length.
- 3) **Back-up** – Back-up files allow a convenient and simple way to store all files in the Palm from a welding power source.

Each type can reside or be "Access"ed in any of 3 locations:

- 1) **Welder** – The welding power source holds the main library of welding programs.
- 2) **Palm** – The Palm acts as an interim storage device where files can be pulled from the power source stored or modified.
- 3) **E-mail** – Files can be stored for Email in this location.

Any of the files can be cut, copied, pasted, modified, UN-protected files can also be beamed.

Copyright-protected and Miller proprietary files cannot be transferred such as Palm Access File Management, WaveWriter™, and RMD™ welding process. WaveWriter pulsed MIG graphical wave-shaping software for Palm "m" Series handheld (PDA).

### WaveWriter™ Graphical Wave Shaping

#### #195 250

WaveWriter is our premium Palm software package for Access systems. For Palm "m" Series handhelds (PDAs), it includes all of the Palm Access file management functions plus a simple, graphical pulsed MIG wave-shaping program for the most demanding pulsed MIG applications. Customers can expect exceptional welding performance from any Access system from the programs for common wire and gas combinations—right out the box. For those who need to adjust pulse parameters for special situations or to achieve a specific result, WaveWriter will allow anyone to alter a factory program for a specific wire, gas or weld joint configuration to achieve a unique or different desired result. Many welding engineers may find this tool useful in developing their own unique competitive advantage and having their own proprietary weld programs.

With WaveWriter it is possible to change parameters while welding and immediately see the effect of the change in the arc while welding. Real-time feedback helps in understanding the effect of changing the sometimes confusing pulse wave form variables (such as pulse peak, pulse width, background, and rise and fall rates) which saves enormous expense and time in welding procedure development. A scaleable screen at the lower portion of the Palm screen shows the exact geometry of the waveform you are creating for reference. Most of the essential variables required for process and procedure development are not only precisely controllable and stored, but the upper and lower control limits can be established to assure shop floor control.

# Standard Welding Processes

## Accu-Pulse™

Standard pre-programmed welding processes include **new** patented Accu-Pulse, conventional MIG and pulsed MIG optimized for the most common steel, stainless steel, aluminum and metal-cored wires, using the

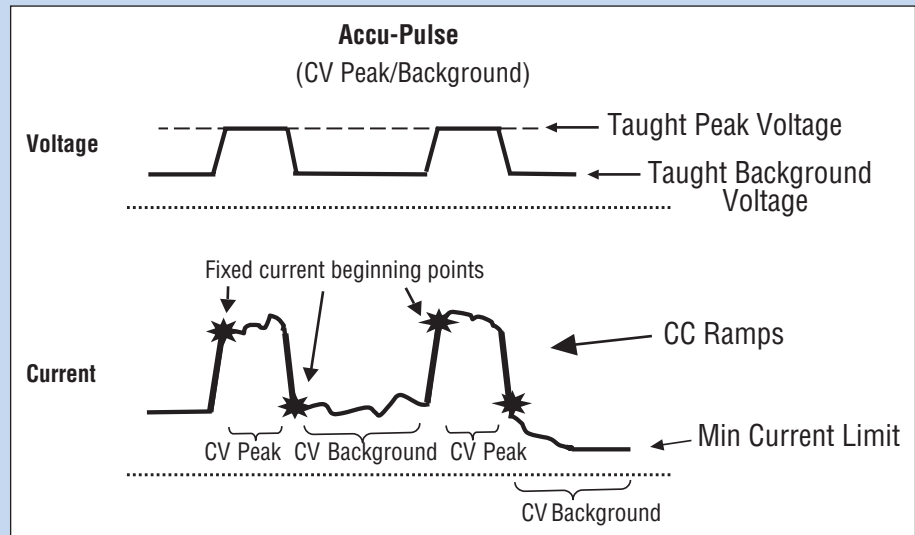
most common wire diameters and gas combinations. Programs for new processes and different materials are planned and currently in development. In most cases, slightly different ratios of gas mixtures will

perform well using a similar program and adjusting arc length or the appropriate arc control for the selected process. Contact Miller for more information on less common materials and gas combinations.

### Benefits of Accu-Pulse

*(Compared to conventional pulse)*

- Shorter arc lengths possible
- Better puddle control
- More tolerant of contact tip to work variation
- Less audible noise
- No arc wandering in tight corners
- Narrow arc plasma column
- Allows weld to fill in at toes increasing travel speed and deposition
- More tolerant of poor fit up and gaps



# Optional Software-Based Welding Process

## Regulated Metal Deposition (RMD)

**Factory #195 251**

**Field #195 252**

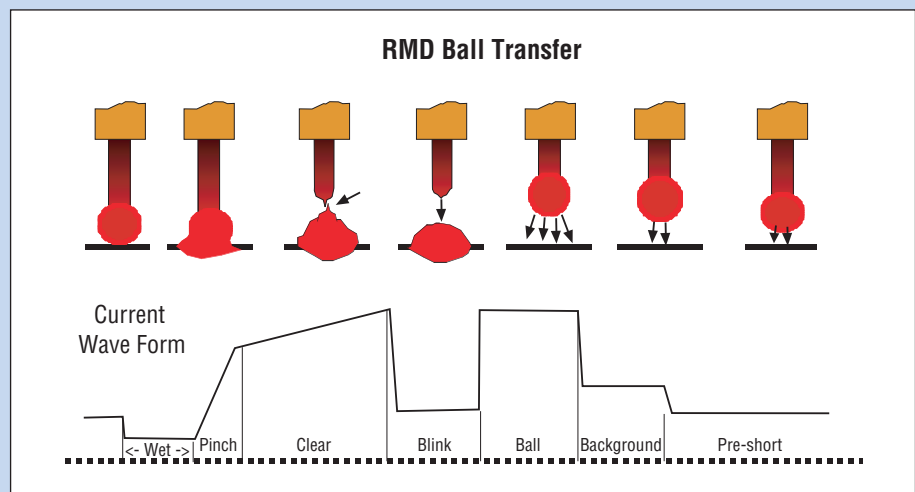
Field installation requires Palm handheld, and Palm Access File Management or WaveWriter™ software.

The unique patented design of Regulated Metal Deposition (RMD) is a precisely controlled short-circuit transfer. It is a method of detecting when the short is going to clear and then rapidly reacting to this data

changing the current levels. Features Proactive Dynamic Puddle Control.

### Benefits of RMD





- Weld suited to thin materials
- Can replace TIG process in some applications
- Gap filling
- Spatter reduction
- Provides less heat into work piece
- Excellent performance on stainless steel
- Can be combined with other Access™-related programs
- Minimize distortion
- Use larger diameter wire on thin materials





## Drive Roll Kits (Order from Miller Service Parts.)

Select drive roll kits from chart below according to type and wire size being used. Drive roll kits include necessary guides and feature an anti-wear sleeve for the inlet guide.

Wire size	"V" groove for hard wire 	"U" groove for soft wire or soft-shelled cored wires 	"V" knurled for hard-shelled cored wires 	"U" cogged for extremely soft wire or soft-shelled cored wires (i.e., hard facing types) 
.030 in (0.8 mm)	#151 025	—	—	—
.035 in (0.9 mm)	#151 026	#151 036	#151 052	—
.040 in (1.0 mm)	#161 190	—	—	—
.045 in (1.1/1.2 mm)	#151 027	#151 037*	#151 053	#151 070
.052 in (1.3/1.4 mm)	#151 028	#151 038	#151 054	#151 071
1/16 in (1.6 mm)	#151 029	#151 039	#151 055	#151 072

\*3/64 (.047) "U groove."

## Genuine Miller Accessories

### Remote Operator Interface #195 238

Allows use of standard AA-40G motor in robotic welding applications for simple fixed automatic, semi-automatic applications or on booms.



### AA-40G Motor/Volt-Sense Robotic Kit

#195 257 20 ft (6.1 m)

#195 248 50 ft (15.2 m)

Includes AA-40G (left-hand drive, 50–1400 IPM, 1.3–35.8 MPM), motor control cable (20 or 50 ft), and 30 ft volt-sense lead.

### Access MIG Runner-Style Cart #195 246

Dimensions: H: 46-1/2 x W: 42 x D: 35 in  
Wide cart with motorcycle-type handle grips. Holds two large gas cylinders and Coolmate 4 for water-cooled torches. Power supply can be mounted in several directions while the feeder can be mounted on the top tray.

### Access Single-Unit Construction Site Rack

#195 247

Dimensions: XX x XX x XX in

Rugged construction with angled roof to allow water to run off away from power supply. Holds single Access 450 power supply.

# Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
<b>Access 450</b>	<b>#907 152</b>	Base machine		
<b>Access 450 with RMD</b>	<b>#907 152-01-1</b>	Base machine with software upgrade of RMD process		
<b>Access 450 Simple Order Package</b>	<b>#951 031</b>	Base machine, feeder and 5 ft cable		
Feeder/Operator Interface (Sled/Bench)	<b>#195 182</b>			
Drive Roll Kit ( <i>Required</i> )		See page 6		
<b>Software Options – Palm OS® Based</b>				
Wavewriter™	<b>#195 250</b>	File management software with graphical wave shaping		
Palm™ Access™ File Management	<b>#195 249</b>	File management software		
<b>Software-Based Welding Process Option</b>				
Regulated Metal Deposition (RMD)	<b>#195 251</b> <b>#195 252</b>	Factory installed Field. Requires Palm handheld, and Palm Access File Management or Wavewriter software		
<b>Remote Options</b>				
AA-40G Motor/Volt-Sense Robotic Kit	<b>#195 257</b> <b>#195 248</b>	Includes AA-40G, 20 ft (6.1 m) motor control cable and 30 ft volt-sense lead Includes AA-40G, 50 ft (15.2 m) motor control cable and 30 ft volt-sense lead		
Remote Operator Interface	<b>#195 238</b>			
<b>Accessories</b>				
Access MIG Runner Cart	<b>#195 246</b>	Holds two cylinders, cooler, machine and feeder		
Access Construction Rack	<b>#194 247</b>	Single rack for construction site		
Feeder Control Cable ( <i>One cable required per system</i> )	<b>#195 240</b> <b>#195 241</b> <b>#195 242</b> <b>#195 243</b> <b>#195 244</b> <b>#195 245</b>	5 ft, DeviceNet shielded cable 10 ft, DeviceNet shielded cable 25 ft, DeviceNet shielded cable 50 ft, DeviceNet shielded cable 75 ft, DeviceNet shielded cable 100 ft, DeviceNet shielded cable		

Date:

Total Quoted Price:



Distributed by: