

# 710A

## Series V

# CHAMPION MOTOR GRADERS

A Volvo Construction Equipment Group Company



| MODEL            | 710A                    | 716A                             | 710                     |
|------------------|-------------------------|----------------------------------|-------------------------|
| Configuration    | Articulated             | Articulated -<br>All Wheel Drive | Rigid Frame             |
| Operating Weight | 31,510 lbs. (14 293 kg) | 32,990 lbs. (14 964 kg)          | 31,440 lbs. (14 261 kg) |
| Net Power        | 140 hp (104 kW)         | 140 hp (104 kW)                  | 140 hp (104 kW)         |





### CIRCLE DRIVE

Champion's patented dual cylinder circle drive system uses direct-acting hydraulic power for exceptional turning and holding capability under full load. Circle drive system is fully protected against impact damage by an overload cushion valve as standard equipment.

Hydraulic drive cylinders ..... 2  
Points of leverage ..... 2  
Rotation ..... 360° continuous



### DRAWBAR

Fully welded box section. Narrow 'T' design permits optimum visibility to the work area. Drawbar connection provides an adjustment to compensate for different tire sizes. Blade lift cylinder anchors are straddle-mounted on drawbar to provide maximum strength and support.

Dimensions of box section ..... 6.5' x 6.5'  
(165 mm x 165 mm)  
Plate thickness ..... 1.0" & 0.75"  
(25 mm & 19 mm)



### MOLDBOARD

Standard moldboard with replaceable end bits ..... 12' x 25" x 7/8"  
(3 658 mm x 635 mm x 22 mm)  
Blade material ..... SAE 1050 high carbon steel  
Edge: through hardened ..... 6" x 5/8"  
(152 mm x 16 mm) boron steel  
Drilling - Bolt diameter...6" (152 mm) drilling - 5/8" (16 mm) bolts  
Slide rails supported with DURAMIDE bearings.

### BLADE RANGE: MOVEABLE BLADE CONTROL SYSTEM (Standard) (Dimensions shown with standard moldboard)

|   | LEFT              | RIGHT             |
|---|-------------------|-------------------|
| Reach outside tires - articulated frame | 117.0" (2 973 mm) | 113.0" (2 870 mm) |
| Reach outside tires - straight frame    | 76.0" (1 930 mm)  | 73.5" (1 867 mm)  |
| Blade slide                             | 26.5" (673 mm)    | 26.5" (673 mm)    |
| Circle side shift                       | 26.0" (660 mm)    | 24.0" (610 mm)    |
| Maximum bank sloping angle              | 90°               | 90°               |
| Blade ground clearance                  | 16.5" (419 mm)    |                   |
| Blade cutting depth                     | 30.5" (775 mm)    |                   |
| Blade tilt range                        | 47° forward       | 5° back           |

### BLADE RANGE: FIXED POINT LIFT SYSTEM (Optional) (Dimensions shown with standard moldboard)

|   |                      |
|---|----------------------|
| Reach outside tires - articulated frame | 105.8" (2 687 mm)    |
| Reach outside tires - straight frame    | 67.7" (1 720 mm)     |
| Blade slide                             | 53.5" (1 359 mm)     |
| Circle side shift                       | 16.0" (406 mm)       |
| Blade ground clearance                  | 16.8" (427 mm)       |
| Blade cutting depth                     | 25.0" (635 mm)       |
| Blade tilt range                        | 47° forward; 5° back |
| Number of moldboard tilt cylinders      | 1                    |



### CAB & CONTROLS

Operator noise exposure is limited to 75 dB(A)/77 dB(AWD) per SAE J919 JUNE 86 (enclosed cab). Located in the pedestal head is the engine oil pressure, coolant temperature and fuel level gauges, transmission gear indicator and a three-level electronic monitoring system. Pedestal located switches include: differential lock/unlock, independent moldboard floats (optional) and combination turn signal, hazard lights, and high beam headlight switch. Heater and wiper/washer controls, lighting and accessory switches are grouped in the operator's right hand console. This console also contains the ignition key and access to the circuit breaker panel. An accelerator/decelerator foot pedal and slider type hand throttle are standard equipment. Cab door opening and closing is easy from either a seated position or while entering and exiting. Fixed front window enhances visibility by reducing window frame width.

### Full Height Cab with ROPS INSIDE DIMENSIONS:

Height ..... 74.0" (1 880 mm)  
Width @ controls ..... 56.0" (1 422 mm)  
Depth @ controls ..... 55.5" (1 410 mm)

An optional Low Profile Cab is available with an inside height of 62" (1 575 mm). All Champion cabs and canopies are designed to meet or exceed SAE J1040 APR. 88, ISO 3471/1-1986(E), and 86/295/EEC ROPS requirements. The seat belt is 3" (76 mm) wide and meets SAE J386 JUNE 93; ISO 6683-1981(E). A cushioned vinyl covered bucket seat with fore & aft and height adjustment is standard.



### LOAD SENSING HYDRAULICS

Closed center hydraulic system senses load requirements and maintains system pressure 250 psi (17.25 Bar) above the load pressure.

When hydraulic pressure is not required, system pressure is only 90 psi (6.2 Bar). Low standby pressure improves fuel-efficiency and reduces heat generation.

System incorporates lock valves to prevent cylinder drift under load in the following circuits: blade lift, moldboard tilt, circle shift, wheel lean, articulation and scarifier. All hoses and fittings are equipped with 'O' ring seals to eliminate leaks.

Pump design features include cast iron end covers and center housing, and a one-piece gear and shaft assembly to ensure reliability and a long service life.

Maximum pressure ..... 2,500 psi (172 Bar)  
Output at 2200 RPM ..... 0-50.5 gpm (0-191 lpm)  
Filtration ..... 7 micron spin-on type



### CAPACITIES

|  | U.S. Gal. | Imp. Gal. | Litres |
|--|-----------|-----------|--------|
| Fuel Tank  | 100.0     | 83.3      | 378.5  |
| Transmission                                     | 10.2      | 8.5       | 38.8   |
| Final drive                                      | 6.0       | 5.0       | 23.0   |
| Tandems (ea.)                                    | 26.4      | 22.0      | 100.0  |
| Hydraulic oil tank                               | 23.8      | 19.8      | 90.0   |
| AWD hydraulic oil (716A)                         | 10.0      | 8.3       | 37.9   |
| Coolant Antifreeze protection to -58° F (-50° C) | 11.6      | 9.7       | 44.0   |
| Engine oil                                       | 4.3       | 3.6       | 16.3   |



### ALL WHEEL DRIVE - 716A

Completely independent from the main hydraulic system, Champion's All Wheel Drive system incorporates a variable displacement, load sensing piston pump, and a separate reservoir, oil cooler and filter. This allows the system to operate continuously without overheating, and eliminates potential fluid cross-contamination. Champion's AWD design automatically adjusts hydraulic flow and pressure to the drive system to match ground speed and tractive conditions. A positive on/off control allows the operator to concentrate on the task at hand, rather than trying to find the 'correct' AWD setting. No electronics or wheel speed sensors are used. The powered front axle has two variable displacement piston motors with double reduction planetary torque hubs.

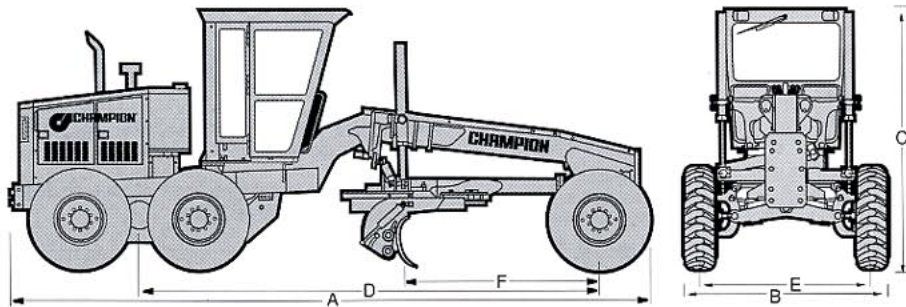
Maximum system pressure ..... 3,000 psi (206 Bar)  
Stand-by pressure ..... 175 psi (12 Bar)  
Filtration ..... 7 micron  
Top speed ..... 17.7 mph (28.6 km/h)

### STANDARD FEATURES:

- Operator controlled, lock/unlock differential final drive
- 4-wheel, cross-over, dual braking system with reserve power assist
- Ratchet-type park brake with operator warning alarm and indicator
- Fully-sequential, powershift 8400 transmission, with guard
- 13.5" (343 mm) diameter, 4-plate, full oil clutch for operator control
- Choice of rigid or articulating frames
- Full front and rear frame sections designed to absorb shock loading of attachment use
- Cab halogen headlights with dimmer includes directional and hazard lights
- Cushion valve circle drive protection to minimize impact damage
- Hardened circle teeth cut on outside of circle for maximum wear resistance
- Isolation-mounted cab, transmission and engine for reduced noise and vibration
- Adjustable steering pedestal with tilt head for maximum operator comfort
- Gauges include: coolant temperature, engine oil pressure, fuel, hourmeter, dash-mounted air cleaner service indicator, articulation angle indicator, three-level electronic monitoring system - M4 - with visual and audible warnings
- Load-sensing, closed-center hydraulic system with short-throw, low effort control levers, positioned in the industry-accepted arrangement. Hydraulically operated blade lift, circle turn, moldboard slide and tilt, circle shift and wheel lean functions.
- 100 gallon fuel capacity
- Horn
- Hinged radiator guard for easy trash clean out. Engine compartment fan guard included.
- Back-up alarm with automatic volume level
- Painted Champion Yellow, cab painted grey
- Lockable tool box with storage space for scarifier shanks
- Outside left & right mirrors

**OPTIONAL EQUIPMENT (May vary)**

|  | lbs.  | Kg    |   | lbs. | Kg  |  | lbs. | Kg  |
|--|-------|-------|---|------|-----|--|------|-----|
| Accumulators - blade lift (2)                        | 130   | 59    | clearance lights front & rear   | 2    | 1   | Remote valve for attachments                               |      |     |
| - circle side shift                                  | 65    | 29    | - front-mounted plow lights - 2   |      |     | - 3 or 5 bank - remote mount                               | 25   | 11  |
| Air conditioner - 21,500 BTU                         |       |       | - high  | 120  | 54  | Second leaning wheel cylinder                              |      |     |
| -HFC-134a (non-CFC refrigerant)                      |       |       | - low   | 100  | 45  | -right side (standard on 716A)                             | 25   | 11  |
| with cab pressurizer/filter                          | 130   | 59    | - Headlights with dimmer switch   | 0    | 0   | Supplemental steering (power assisted)meets SAE J53 OCT.84 | 61   | 28  |
| Brush guards   | 40    | 18    | - Moldboards lights - 2   | 2    | 1   | Suspension seat  | 55   | 25  |
| Cab  |       |       | - Rear flood lights - 2   | 2    | 1   | Tie-down brackets  | 100  | 45  |
| - canopy shell with ROPS - deduct                    | (200) | (91)  | - Snow wing lights - 2  | 2    | 1   | Tires  |      |     |
| - FOPS protection for ROPS cabs                      | 220   | 100   | Machine Monitor Plus package - M44  |      |     | -14.00 x 24, 12 pr., G2,                                   |      |     |
| - low profile cab with ROPS - deduct                 | (200) | (91)  | Audible and visual warnings for transmission and hydraulic filter restriction, low engine oil pressure, high coolant temperature, high transmission temperature, and low transmission clutch pressure | 0    | 0   | 8" (203 mm) rims   | 90   | 41  |
| Cab heater - 49,000 BTU                              | 30    | 14    | Moldboards  |      |     | -14.00 x 24, 12 pr., G2,                                   |      |     |
| Cab pressurizer/filter                               | 14    | 6     | - 14' x 25" x 7/8"  |      |     | 10" (254 mm) rims  | 450  | 204 |
| Defroster fan  | 3     | 1     | (4 267 mm x 635 mm x 22 mm)   | 280  | 127 | -15.5 x 25, 12pr., G2,                                     |      |     |
| Engine block heater                                  | 3     | 1     | - 12' x 29" x 1"  |      |     | 13" (330 mm) rims (N/A on 716A)                            | 840  | 381 |
| Engine precleaner - Turbo II                         | 6     | 3     | (3 658 mm x 737 mm x 25 mm)   | 340  | 159 | -17.5 x 25, 12pr., G2,                                     |      |     |
| Engine side panels                                   | 50    | 23    | - 13' x 29" x 1"  |      |     | 14" (356 mm) rims (N/A on 716A)                            | 1032 | 468 |
| Either cold start                                    | 10    | 4     | (3 962 mm x 737 mm x 25 mm )  | 490  | 222 | Tire chains - pair   | 300  | 136 |
| Exhaust rain cap                                     | -     | -     | Moldboard extensions  |      |     | Tool kit   | -    | -   |
| Fan - blower type                                    |       |       | R & L - 2' (610 mm)   | 200  | 91  | Transmission sump heater                                   | -    | -   |
| (suction type is standard)                           | 0     | 0     | Moldboard edges -Carbide 3/4" x 5"  | -    | -   | Tropical protection -                                      | -    | -   |
| First user lifetime frame warranty                   | 0     | 0     | Operator convenience package  |      |     | Vandalism protection                                       | 8    | 4   |
| Fixed point lift system - deduct                     | (560) | (254) | - lunch box, steel vacuum bottle and holder, ash tray   | 10   | 5   | Wheel weights front or rear - each                         | 250  | 113 |
| Float control - Right and Left independent, electric | 15    | 7     | Paint - custom colors   | -    | -   | Window -opening - lower front                              | -    | -   |
| Hub odometer   | 0     | 0     | Radiator shutters - hinged  | 10   | 4   | Window -opening sliders - left/right                       | -    | -   |
| Hydraulic tank heater                                | 3     | 1     | Reflectors - rear   | -    | -   | Wiper and washer - front                                   | -    | -   |
| Jack - 20 ton (18.5 tonne)                           | 35    | 16    |   |      |     | Wiper and washer - rear                                    | -    | -   |
| Lights   |       |       |   |      |     | Wiper and washer - lower front windows                     | -    | -   |
| - back-up lights - 2                                 | 0     | 0     |   |      |     |  |      |     |
| - beacon (amber or blue)                             | 4     | 2     |   |      |     |  |      |     |



**DIMENSIONS**

|   |                         |                  |
|---|-------------------------|------------------|
| A | Overall length          | 27'9" (8 458 mm) |
| B | Overall width           | 8'2" (2 489 mm)  |
| C | Overall height with cab | 11'1" (3 378 mm) |
|   | - with Low Profile Cab  | 10'1" (3 073 mm) |
| D | Wheelbase               | 20'0" (6 096 mm) |
| E | Tread width             | 6'10" (2 083 mm) |
| F | Blade base              |                  |
|   | - ISO 7134              | 8'7" (2 616 mm)  |

**CHAMPION MATCHED ATTACHMENTS**

|                 |                       |                                 |                       |                  |                       |
|-----------------|-----------------------|---------------------------------|-----------------------|------------------|-----------------------|
| A-Frame         | 850 lbs. (386 kg)     | Push block                      | 1,050 lbs. (476 kg)   | V plow           |                       |
| Dozer blade     |                       | Ripper-scarifier, rear          | 2,680 lbs. (1 215 kg) | - 9' (2 743 mm)  | 2,560 lbs. (1 161 kg) |
| - 8' (2 438 mm) | 1,600 lbs. (726 kg)   | Scarifier, front, with 11 teeth | 1,450 lbs. (657 kg)   | - 10' (3 048 mm) | 2,720 lbs. (1 234 kg) |
| - 9' (2 743 mm) | 1,650 lbs. (749 kg)   | Snow wing                       |                       |                  |                       |
| One-way plow    | 2,350 lbs. (1 067 kg) | - front-mounted                 | 2,900 lbs. (1 317 kg) |                  |                       |
|                 |                       | - rear-mounted                  | 3,100 lbs. (1 407 kg) |                  |                       |

Specifications subject to change without notice. Some items included in this brochure are optional. <sup>TM</sup> DURAMIDE is a registered trademark of Champion Road Machinery Limited. Your safety and the safety of those around you depends on using care and judgement when operating and servicing your grader. Do not operate the grader until you read and understand the warnings and instructions in the operator's manual.

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MOTOR GRADERS**

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