

# **CHALLENGER 1**

## **Comparison Study**

Completed By:

Det 1 823 Red Horse Squadron/CEOY

264 Strange Point Loop, Stop 87

Tyndall AFB, FL 32403

### **BRUSH FRAME:**

SWEEPSTER - 3x4x $\frac{1}{4}$ " Angle brush support arms – approximate side load before bending 700#.

M-B -  $\frac{1}{4}$ " Plate Brush support arms – approximate side load before bending 800#.

Challenger -  $\frac{1}{4}$  Plate formed into 1 5/8x 6" channel with approximate side load before bending 5,000#. 3/8 thick inner plate making the support arms 2x6 formed tube.

### **HEIGHT OF BRUSH FRAME FROM GROUND FOR SAFE LOADING:**

SWEEPSTER - Approximate 10" – 12")

M-B - Approximate 10" – 12") -- Depending on make of tractor

Challenger - Approximate 28" – 34")

\*\* NOTE – Loading can become hazardous if any part of the sweeper comes in contact with the trailer while loading.

### **PIVOT AND LIFT:**

SWEEPSTER - Steel to steel – grease fittings

M-B - Steel to steel – grease fittings

Challenger - Steel to nylatron – grease fittings

### **DRIVE MOTOR AND IDLE BEARING GUARD:**

SWEEPSTER - Drive motor inside of brush core idle bearing guarded by brush arm.

M-B - Drive motor has  $\frac{1}{4}$ x4 guard.

Challenger - Drive motor goes through brush arm and has 3/8x12 angle guard, guarding from the front, bottom, and rear. Idle bearings are guarded by brush arm and 3/8x12 angle guard.

## **IDLE BEARING:**

SWEEPSTER - 1 – 1¼” Bearing standard duty, remove to change brush.  
M-B - 1 – 1¼” Bearing standard duty, remove to change brush.  
Challenger - 2 – 1½” Bearing heavy duty, not removed to change brush.

## **DRIVE AND SUPPORT:**

SWEEPSTER – Drive motor support  
M-B - 1¼” Bearing  
Challenger - Drive motor support

## **DRIVE MOTOR:**

SWEEPSTER - Remove to change brush, disconnect hydraulic hoses.  
M-B - Remove to change brush.  
Challenger - Quick change drive system, not removed to change brush.

## **PUMP:**

SWEEPSTER - Engine mounted high speed – no lever or switch to shut off.  
M-B - Engine mounted high speed – no lever or switch to shut off.  
Challenger - PTO Mounted, low speed high torque, can be engaged or disengaged.

## **OIL CAPACITY:**

SWEEPSTER - 10-15 gal. High temp-increases wear more maintenance.  
M-B - 10-15 gal. High temp-increases wear more maintenance.  
Challenger - Large volume 23-25 gal. Low temp-less wear and maintenance.

## **PIVOT ACTION:**

SWEEPSTER - 35°-40° Does not stay level, less broom life.  
M-B - 35°-40° Does not stay level, less broom life.  
Challenger - 35°-40° Maintains brush level at any angle.

## **MAIN SUPPORT FRAME:**

SWEEPSTER - Four channel, ¼” plate, 3/8” plate.  
M-B - Four channel, ¼” plate, 3/8” plate.  
Challenger - ¾” plate.



**BRUSH:**

	<u>SWEEPSTER</u>	<u>M-B</u>	<u>Challenger</u>
	6ft. 10x32 wafers	6ft. 10x32 wafers	7ft. 35"o.d. Quickchange
<b>Time</b>	4 hours (1 man to change)	4 hours (1 man to change)	2 minutes (1 man to change)
<b>Added Expense</b>	Bearing to be removed Endcover straighten or Replaced brush core	Bearing to be removed Endcover straighten or Replace brush core	Not Required Not Required Not Required
<b>Cost to Change Brush</b>	\$ 265.00	\$ 265.00	\$ 275.00 40% more brush
<b>Labor</b>	\$ 120.00 Approx.	\$ 120.00 Approx.	\$ 1.00
<b>Bearing</b>	\$ 25.00 1 bearing	\$ 45.00 1 bearing	\$ -0-
<b>End Cover</b>	\$ 45.00 1 cover	\$ 45.00 1 cover	\$ -0-
<b>Total</b>	\$ 455.00	\$ 475.00	\$276.00